software AG

MashZone

ONLINE HELP MANUAL

Version 9.10

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Contents

1 Welcome to MashZone help

This is where you find detailed information on working with MashZone (Page 2).

- The **MashZone Quick Start Guide** (Page 9) takes two use cases to explain how to handle MashZone and provides you with an overview of basic functions.
- The chapter **Procedure** (Page 32) provides general and basic information on how to proceed.
- The **Appendix** (Page 109) supplies further descriptions and technical references, e.g., on display components and operators.

Our Web page Software AG - EMPOWER (https://empower.softwareag.com/Products/default.asp) provides you with the current version of the MashZone help as a PDF file and as an offline help.

The Community page (http://www.ariscommunity.com/forums/aris-mashzone) provides additional valuable tips and tricks. Frequently asked questions are answered and numerous practical use cases described.

Please note the security aspects (Page 322) recommended for the installation of MashZone with all required components.

2   MashZone

MashZone is a browser-based application enabling you to analyze and visualize any data from various, independently distributed data sources.

The data sources that were combined using **data feeds** (Page 3) are represented graphically and analyzed in **dashboards** (Page 2) (MashZone applications). A dashboard is an interactive visualization of data relevant to your business.

You can use MashZone to view, create, and edit dashboards in a Web browser.

MashZone has a dedicated **Composer** (Page 41) for creating and configuring your dashboards and a dedicated **Feed Editor** (Page 57) for defining your data feeds.

Schematic relationship between dashboards, data feeds, and data sources
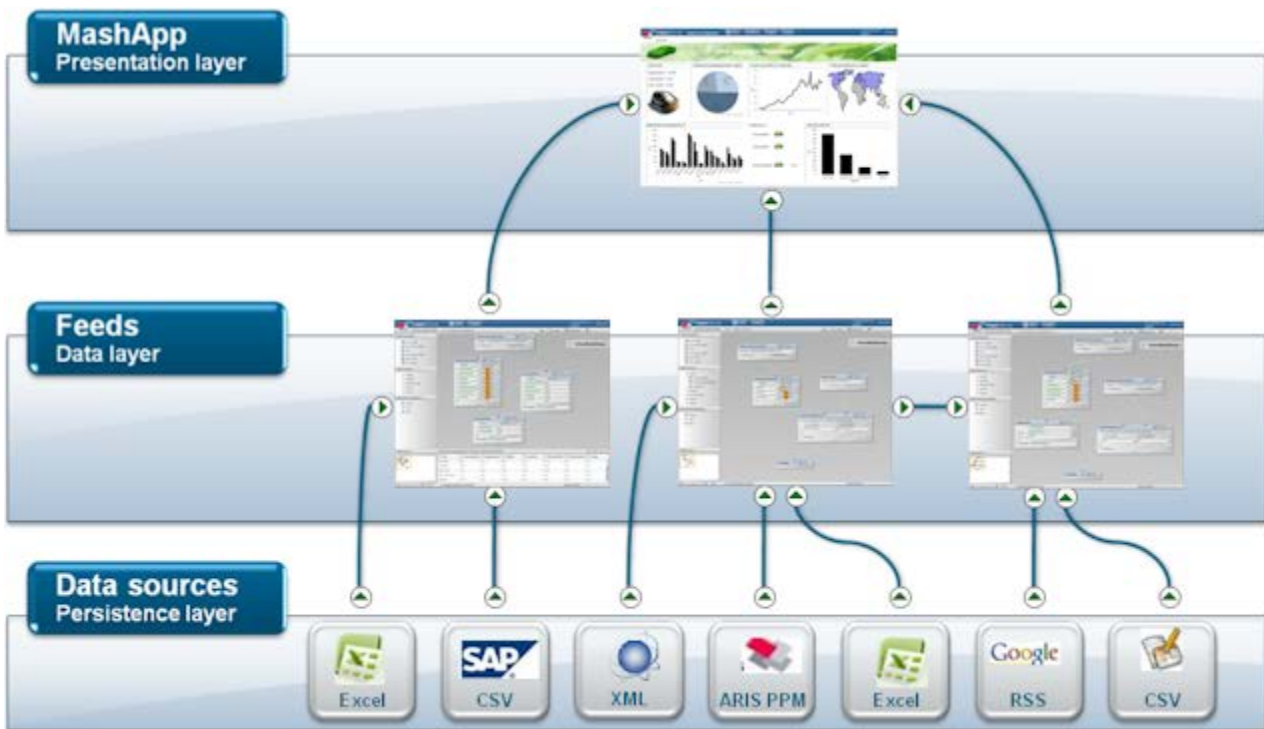
2.1   Dashboards

A dashboard is an interactive application that collects data from different data sources, combines it, and visualizes it.

The data can come from different sources and is combined. Possible data sources include Excel or CSV files, reports from ERP or CRM systems, queries from data warehouses, or freely available, machine-readable data from the Internet.

Dashboards are composed of individual graphical components (e.g., business graphics, tables, maps, etc.), which obtain their data from data feeds (Page 3) and display it.

You can combine the individual display components to filter the displayed results interactively and thus analyze them intuitively.

Example: Green Car Roadshow dashboard overview

Use the **Composer** to create (Page 44) and edit (Page 12) your dashboards.

2.2 Data feeds

A data feed is a table containing prepared data, which is accessed by the individual display components of a dashboard. A data feed consists of several columns that contain numerical values (e.g., figures), text, or date values. Each row in the calculated result of a data feed corresponds to one data record

The data in a data feed is calculated based on various data sources (Page 60) (e.g., data from MS Excel, CSV, or XML files) using feed definitions. Feed definitions aggregate, extend, transform, or calculate data from one or more data sources. A feed definition can consist of any number of operators (Page 62) and data sources, which are linked together using connections. Data is calculated for each data source and each operator and then passed on to the operators linked to them for further processing. A feed definition delivers a data structure in the form of a list table as its result. All individual processing steps in the feed definition are based on this data structure.

The source data is not held redundantly in the data feed, but remains in its original sources, ensuring that it is constantly up to date. In addition to the external data sources, direct user entries (Page 63) in the data feeds can also be processed.

Only one data feed can be assigned to each display component, with the same data feed being able to supply the data for several display components.

Example: Feed definition with feed table
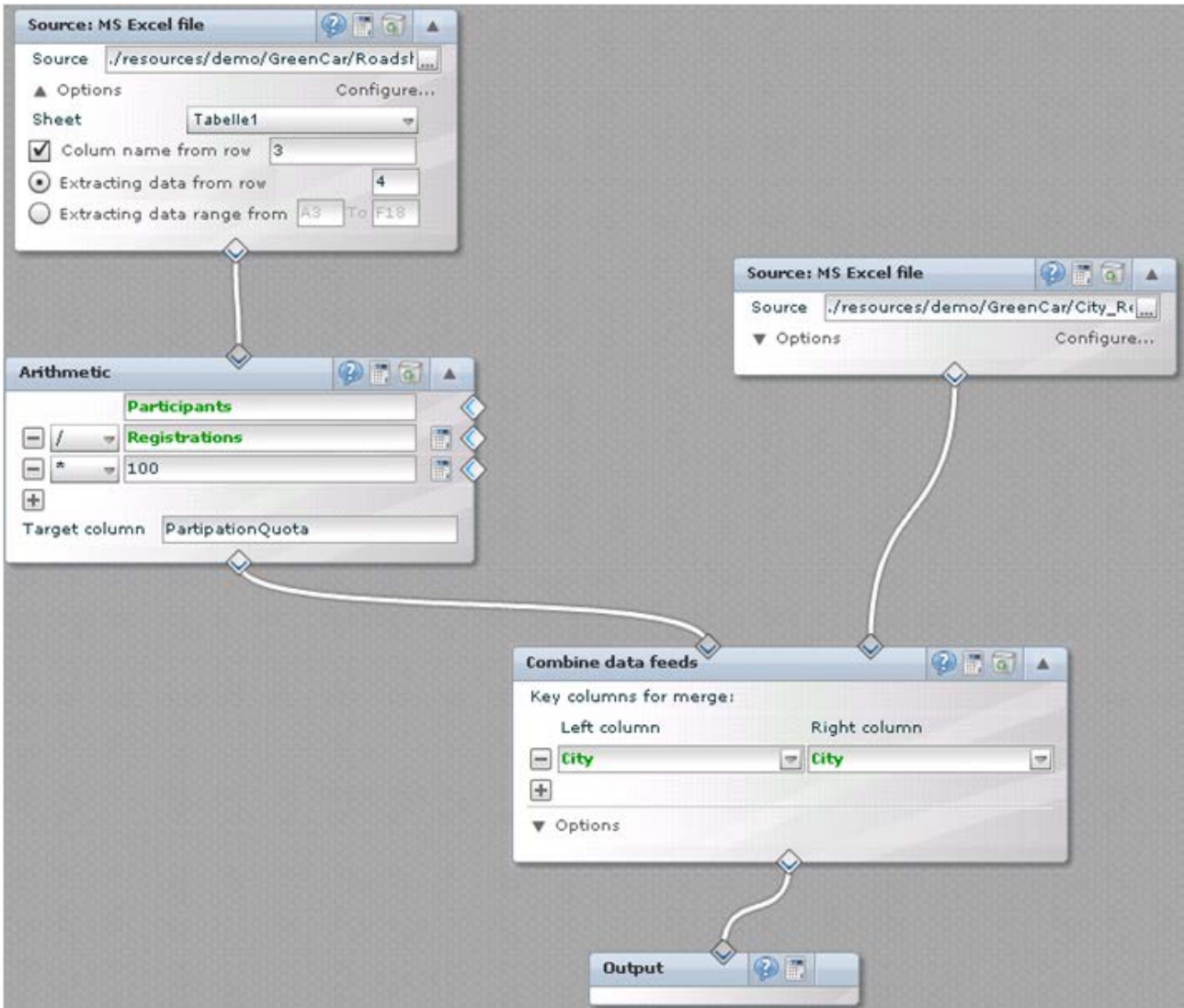
You can use the Feed Editor (Page 57) to define your data feeds (Page 22).

3   Start MashZone

You can open and use MashZone in your Web browser.

Depending on your function privileges and license privileges, various functions are available to you.

- **MashZone Viewer** license privilege

  You can view dashboards.

- **MashZone User** license privilege

  You can create, edit, delete, and share dashboards and data feeds.

- **MashZone Administrator** privilege

  You can use MashZone Administration (Page 67).

You assign function privileges and license privileges in central user management. (Page 102)

To use MashZone, you need to import your license key (Page 103) first and assign user privileges (Page 102) using user management. When you start MashZone for the first time, only the page **Users and license** in MashZone Administration is available. To be able to use MashZone Administration (Page 67) you need the **Dashboard administrator** function privilege. To view and edit dashboards and data feeds you need the **MashZone user** license privilege.

From version **9.6**, the user **administrator** with the password **manage** is available. This user has all relevant administration privileges and can be used as an alternative to the **system** user. The **system** user is still available to you.

By default, you can log into MashZone using the user name **administrator** and the password **manage**.

The **administrator** user automatically has the **Dashboard administrator** function privilege. You need to assign the **MashZone user** privilege manually to the **administrator** user. After the license key is imported the demo dashboards and data feeds are available to you in MashZone.

Start page when running the program for the first time
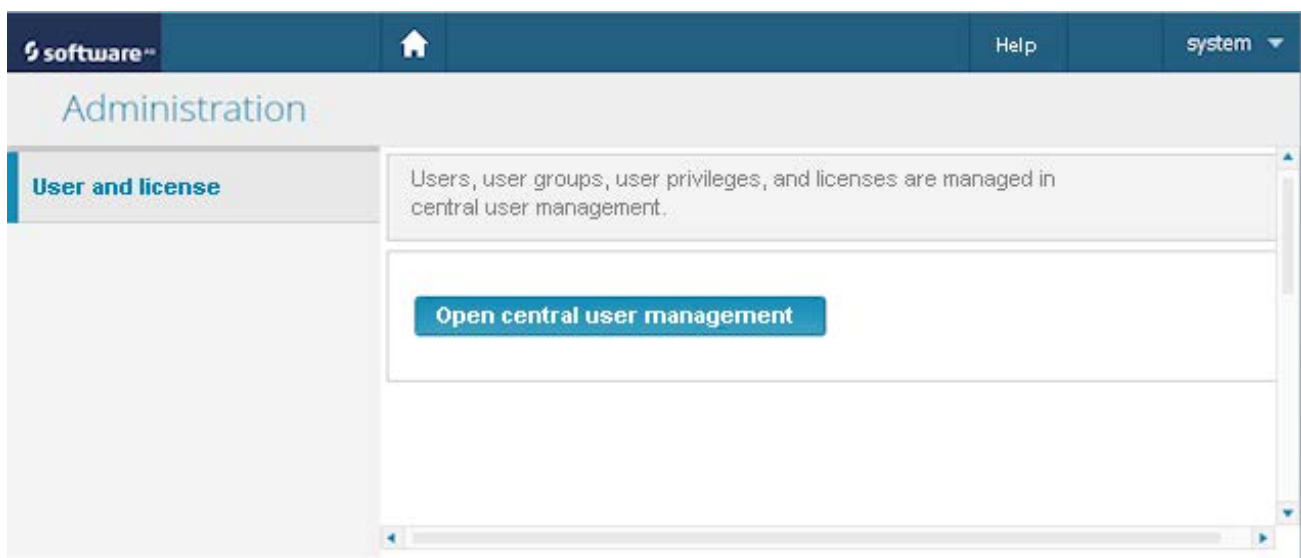
3.1 Start under Windows

You can start MashZone under Windows in your Web browser.

Procedure

1. Open the Windows Start menu and click **Start MashZone** in the **Software AG > Start servers** program group.

   The required components are launched.

2. Open a Web browser.

3. Enter the following address in the address bar of the Web browser.

   <computer name>.<dnsdomain>:<load balancer port>/mashzone

   e.g., localhost:4080/mashzone

4. Enter your **user name** and **password** in the login dialog. Enter both in lower-case characters. For example, **administrator/manage** if you want to log in as **administrator** user with the corresponding administration privileges.

5. In the **Language** box, select the language that the user interface is to be displayed in.

6. Click **Log in**.

   MashZone is started as a Web application in your default Web browser.

7. When starting MashZone for the first time, assign the license privileges and function privileges required.

   a. Click **Open central user management**.

   b. Log in to user management with the user name **administrator** and the password **manage**.

   c. Specify your settings in user management.

8. In the MashZone program bar, click 🏠 **Home**.

Depending on the Web browser settings, the MashZone start page opens either on a separate tab or in a separate browser window. Demo dashboards and data feeds are available.

To exit MashZone, click **Stop MashZone** in the **Software AG > Stop servers** program group in the Windows Start menu.

3.2 Start under Linux

You can start MashZone under Linux in your Web browser.

Procedure

9. Run the script **start_mashzone.sh**. The script is located in the directory **<installation directory>/ppmmashzone/server/**.

   The infrastructure components and MashZone components start.

10. Open a Web browser.

11. Enter the following address in the address bar of the Web browser.

    <computer name>.<dnsdomain>:<load balancer port>/mashzone

e.g., localhost: 4080/mashzone

12. Enter your **user name** and **password** in the login dialog. Enter both in lower-case characters. For example, **administrator/manage** if you want to log in as **administrator** user with the corresponding administration privileges.

13. In the **Language** box, select the language that the user interface is to be displayed in.

14. Click **Log in**.

MashZone is started as a Web application in your default Web browser.

15. When starting MashZone for the first time, assign the license privileges and function privileges required.

d. Click **Open central user management**.

e. Log in to user management with the user name **administrator** and the password **manage**.

f. Specify your settings in user management.

16. In the MashZone program bar, click **Home**.

Depending on the Web browser settings, the MashZone start page opens either on a separate tab or in a separate browser window. Demo dashboards and data feeds are available.

To stop MashZone, run the **stop_mashzone.sh** script. The script is located in the directory **<installation directory>/ppmmashzone/server/**.

4   MashZone Home

The MashZone**Home** page is the central page on which you can access all dashboards (Page 2) and data feeds (Page 3) available to you.

The dashboards and data feeds of all MashZone users are available on the corresponding tabs. Depending on your view or edit privileges (Page 102), you can open, edit, share, evaluate, delete, or create dashboards and data feeds. You can choose between display in **list view** (⊞) and **carousel view** (▬).

You can use the **Search** (Page 9) function and a list of the most frequently occurring keywords to limit the number of dashboards and data feeds displayed, in order to gain a better overview.

Use the buttons in the program title bar to go to **Administration** (Page 67), call up the **online help**, and obtain general information about your MashZone version (Page 107).

5   Quick Start Guide

The **Quick Start Guide** includes two use cases to explain how to handle dashboards and data feeds and provides you with an overview of basic functions.

The descriptions in the chapters **Getting started** (Page 9) and **Edit dashboard** (Page 12) are based on the demo dashboard **Green Car Roadshow**.

The descriptions in the chapter **Create feed** (Page 22) are based on the demo data feed **Green Car Roadshow participant**.

After the installation, the demo dashboard **Green Car Roadshow** and the demo data feed **Green Car Roadshow participant** are available, which you can use to follow the descriptions in the subsequent chapters.

5.1   Getting started

The following chapters use examples to describe how to search for particular dashboards and data feeds (Page 9) and prioritize them for further access (Page 10). You will also find out how to display dashboards (Page 10) and use dashboards (Page 11).

5.1.1   Use search

You can use the **Search** function to limit the number of dashboards or data feeds displayed by entering search terms of your choice or selecting a keyword. You can search for entire words or fragments of words.

The search function browses the names, descriptions, authors, and keywords assigned to the dashboards and data feeds. The dashboards or data feeds are filtered based on the search term.

The **Popular keywords** box provides you with up to 100 of the most commonly used terms. The keywords are linked to the individual dashboards and data feeds and can be used as search terms. The font size of the keywords indicates their relative frequency.

You can set the search criteria using the advanced search options (Page 105).

Procedure

1.   In the **Search** input box, enter one or more search terms, separated by spaces, e.g., green roadshow.

     The search is performed automatically based on your settings.

2.   Alternatively, click one of the key terms displayed in the **Popular keywords** box.

     The key term is transferred to the **Find** input box and the search is performed automatically.

Only those dashboards or data feeds that contain the corresponding terms in name, keywords, or description will be displayed.

Click the **Delete entry** button (❌) in the **Find** input box to display all dashboards or data feeds again.

You can assign keywords (Page 48) to your dashboards and data feeds.

5.1.2   Set favorite

You can bookmark selected dashboards and data feeds by setting favorites.

The following example demonstrates how to mark the **Demo Green Car Roadshow** dashboard as important, so that it can be accessed more quickly in the future.

Procedure

1.   Activate the **Dashboards** tab on the **Home** page.

2.   Select the ⠿ **List** or ▦ **Gallery** view.

3.   Select the dashboard **Demo Green Car Roadshow**.

4.   Click 📍 **Add to favorites** below the dashboard preview.

The **Demo Green Car Roadshow** dashboard is marked with a pin (📍).

You can limit the lists of dashboards and data feeds to favorites so that only the dashboards and data feeds with pins (📍) are displayed at the top of the lists. Enable the **My favorites** option. Disable the option to display all dashboards and data feeds available again.

5.1.3   Display dashboard

The **Dashboards** tab on the MashZone **Home** page lists all available dashboards for which you have view or edit privileges.

The following example demonstrates how to display the **Demo Green Car Roadshow** dashboard.

Prerequisite

You have the MashZone **Viewer** license privilege.

Procedure

1.   Activate the **Dashboards** tab on the **Home** page.

2.   Click the ⠿ **List view** button.

3.   Double-click the dashboard **Demo Green Car Roadshow**.

     Depending on the browser settings the dashboard is displayed in a separate window or on a separate tab. The **Intro** screen of the **Green Car Roadshow** dashboard view is displayed. This view briefly describes the content and functions of the individual display components.

4.   Click **Green Car Roadshow** to display the relevant view.

The interactive view **Green Car Roadshow** of the dashboard is displayed.

Example

The **Demo Green Car Roadshow** dashboard shows you an analysis of the number of participants in a roadshow, which was held in numerous cities in North America, Europe, Asia, and Australia. The individual display components analyze the number of registrations and the actual participants for each country and location, and the feedback and interest of those participants is evaluated.

For example, the **Overview** display component shows the total number of registrations and participants, and the corresponding participation rate.

Green Car Roadshow dashboard intro:

5.1.4   Use dashboards

The dashboards provide you with various options that you can use to interactively evaluate the data displayed.

- Assigned links take you to relevant pages or other display components.
- You can interactively filter data in dashboards, provided corresponding filters have been configured (Page 18) for the display components.
- Tooltips provide you with detailed information on individual data elements.
- You can use input boxes to enter data, for example, to filter existing data or initiate actions.

Example: Demo GreenCar Roadshow dashboard

5.2   Edit dashboards

You can use the **Composer** (Page 41) to edit available dashboards and tailor them to your requirements.

The following chapters describe how to create the **Leads** display component in the **Demo GreenCar Roadshow** dashboard, assign data, and set a filter.

The display component evaluates the sales potential or purchasing interest of the roadshow participants using a column chart. The sales potential (**Potential**) is displayed as a dimension (feature) on the X-axis of the chart, from **Not interested** to **Will buy**. The number of participants (**Value**) who showed the corresponding level of interest is plotted on the Y-axis as a KPI.

Prerequisite

You have the MashZone **User** license privilege.

Procedure

1. Open the **Open the Demo GreenCar roadshow** dashboard for editing in the Composer.

    a. On the **Dashboards** tab on the **Home** page, select the dashboard **Demo GreenCar roadshow** and click **Edit** above the preview.

    b. If you have already opened the dashboard, click **Edit** in the title bar.

Depending on the browser settings, the Composer opens on a separate tab or in a separate window and displays the **Intro** view of the **Demo GreenCar roadshow** dashboard in the design view.

2. Click **GreenCar roadshow**.

The selected dashboard view is displayed (Page 33).

You can now make your changes.

Example Demo GreenCar Roadshow **in the Composer**

5.2.1   Insert display component

You can use the **Display components** (Page 109) of the design view to insert items such as diagrams and tables into your dashboard.

Moving the mouse pointer over some of the icons in the bar displays submenus containing additional display components.

The following example demonstrates how to insert a column chart into the dashboard **Demo Green Car Roadshow** as a display component for the planned analysis.

▪ If you want to perform the example described yourself, you can delete the existing **Leads** display component before you follow the subsequent steps.

▪ The appendix provides a list of available display components (Page 109).

Procedure

1. In the **Display components** bar, move the mouse pointer over **Insert line chart**. Other chart types are then displayed.

2. Click **Insert column chart**.

The display component **Column chart** is inserted into the dashboard. The column chart is displayed only after you **assign data** (Page 14) to the display component.

Example: Column chart display component without data
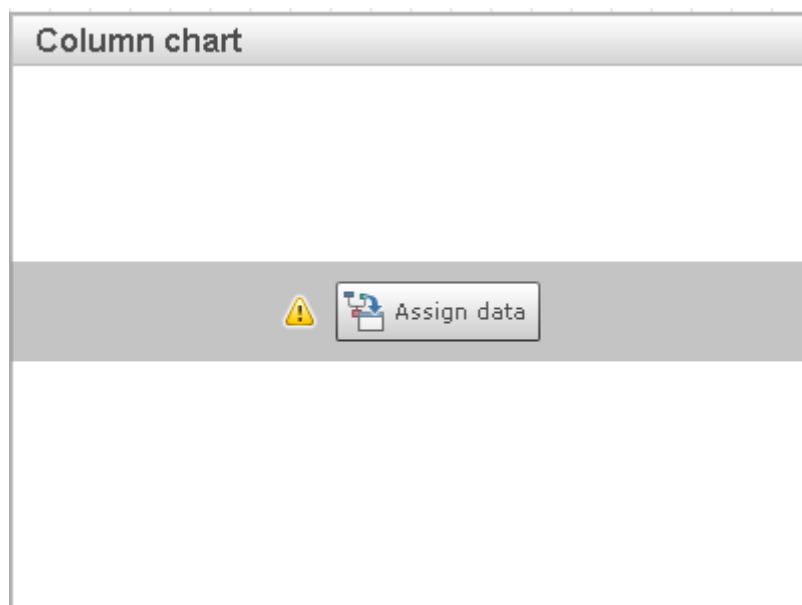
5.2.2   Assign data

Use data feeds to assign calculated data to a display component. You assign the data to the display component in the Composer data mode. The display component displays the data in the dashboard in line with your settings.

Data feeds (Page 3) provide data for the individual display components, e.g., for evaluating KPIs or any aggregated data. The various columns of a data feed are assigned to the individual elements of a display component, e.g., to the individual axes of a chart.

Display components to which data has already been assigned are displayed schematically using demo data in the design view and are labeled **Demo data**.

The following example demonstrates how you can display the values of the **Potential** dimension (feature) on the X-axis of the column chart and how to display the values of the **Value** KPI on the Y-axis.

Only feed columns with numerical values can be assigned to KPIs, in this example the **Value** feed column.

5.2.2.1 Select data

In the Composer data mode, you can select the data that you want to assign to the display component.

Procedure

1. Click the new **Column chart** display component you have inserted.

   A pop-up menu is displayed at the top edge of the display component.

2. Click 📇 **Assign data** in the pop-up menu.

   The Composer's data mode is displayed. The window displays two bars. In the **Data** bar, select the data to be displayed by selecting a data feed that provides the required data. In the component bar, in this case **Column chart**, set how the data is to be displayed.
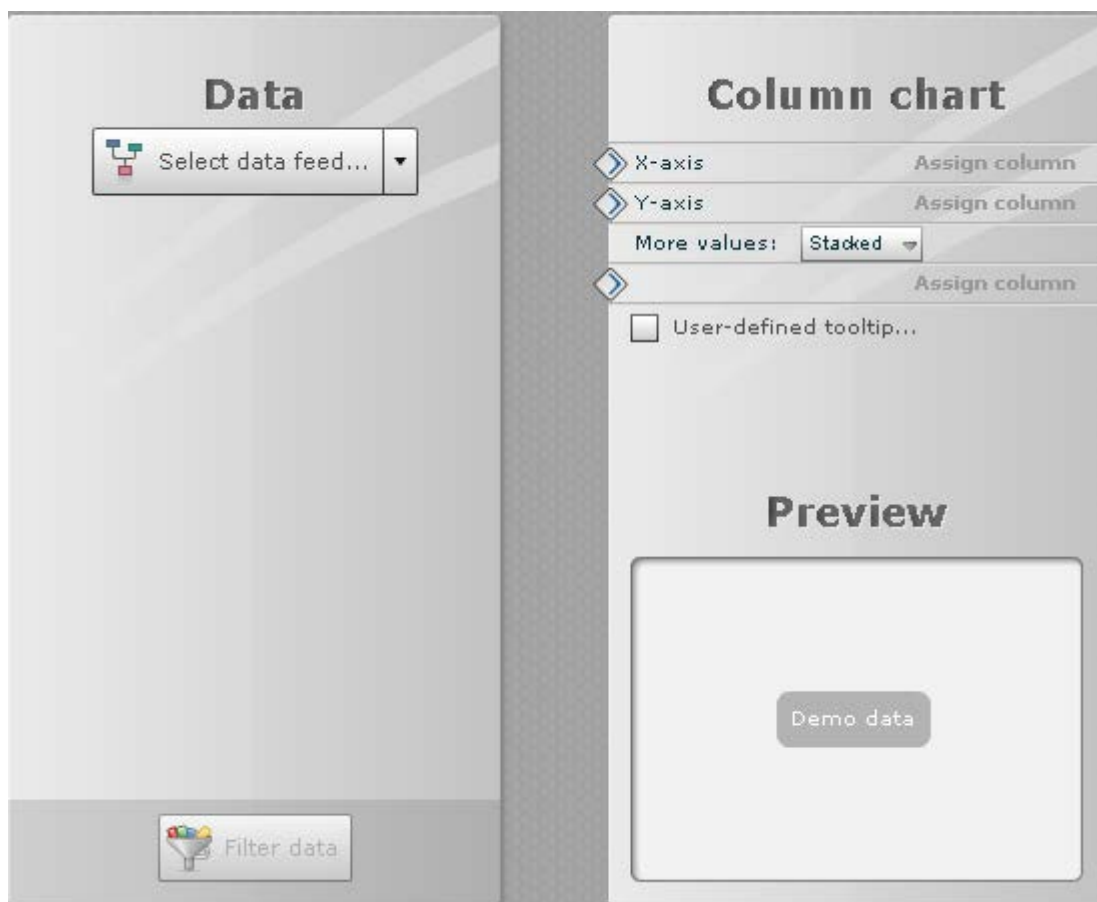
3. In the **Data** bar, click **Assign data > Select data feed**.

   The **Select data feed** window is displayed and shows all available data feeds.

4. Select the data feed **Demo GreenCar Roadshow - Potential buyers**.

5. Click **OK**.

The **Data** bar displays a list of all column names from the selected data feed.

Example: Select data feed
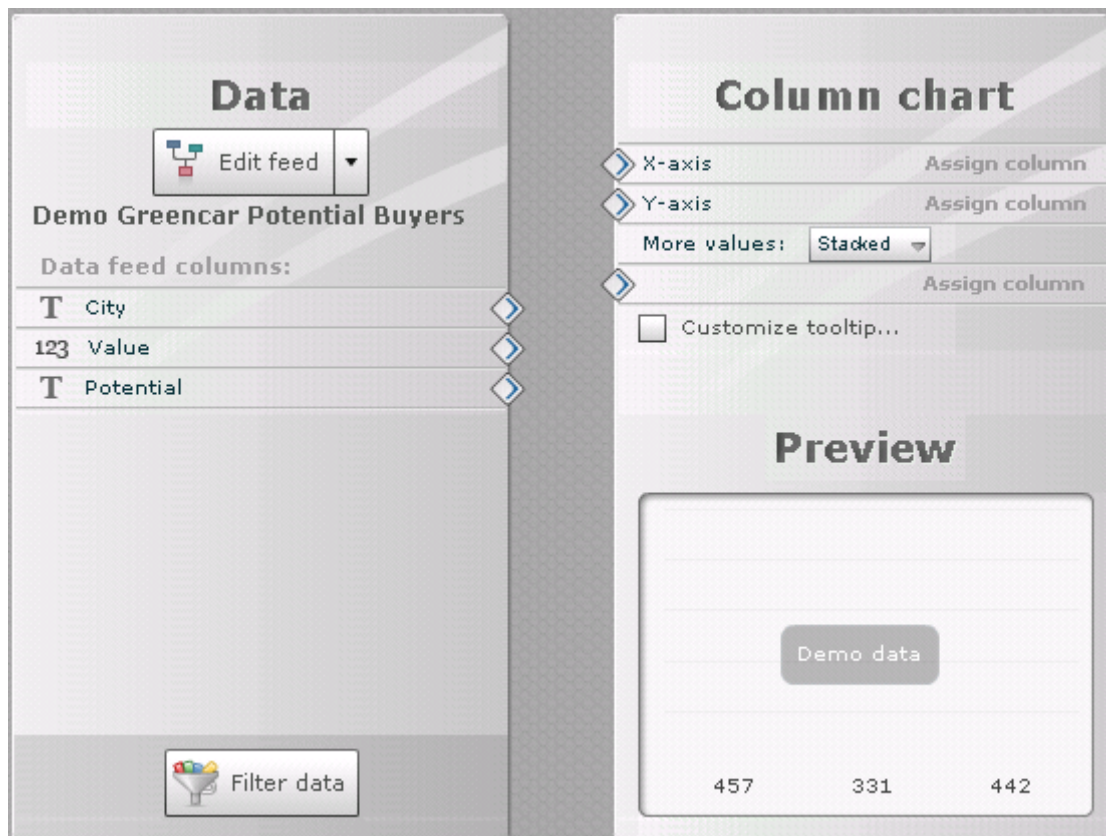
5.2.2.2 Assign feed columns

You can assign the feed columns to the individual elements of the display component.

Procedure

1. Assign the **Potential** feed column to the **X-axis**.

   a. In the **Data** bar, click the anchor point ( ) of the **Potential** row.

   b. Hold down the mouse button and drag the mouse pointer to the anchor point ( ) of the **X-axis** row in the **Column chart** bar.

2. Assign the **Value** feed column to the **Y-axis**.

   The **Value** data element specifies the number of participants.

   a. In the **Data** bar, click the anchor point ( ) of the **Value** row.

   b. Hold down the mouse button and drag the mouse pointer to the anchor point ( ) of the **Y-axis** row in the **Column chart** bar.

The selected feed columns are now assigned to the axes in the column chart as a KPI or dimension. The connection anchor points of the selected feed columns and chart axes are linked by a connection. The axes in the column chart are labeled with the names of the assigned feed columns.

Example: Assign feed columns
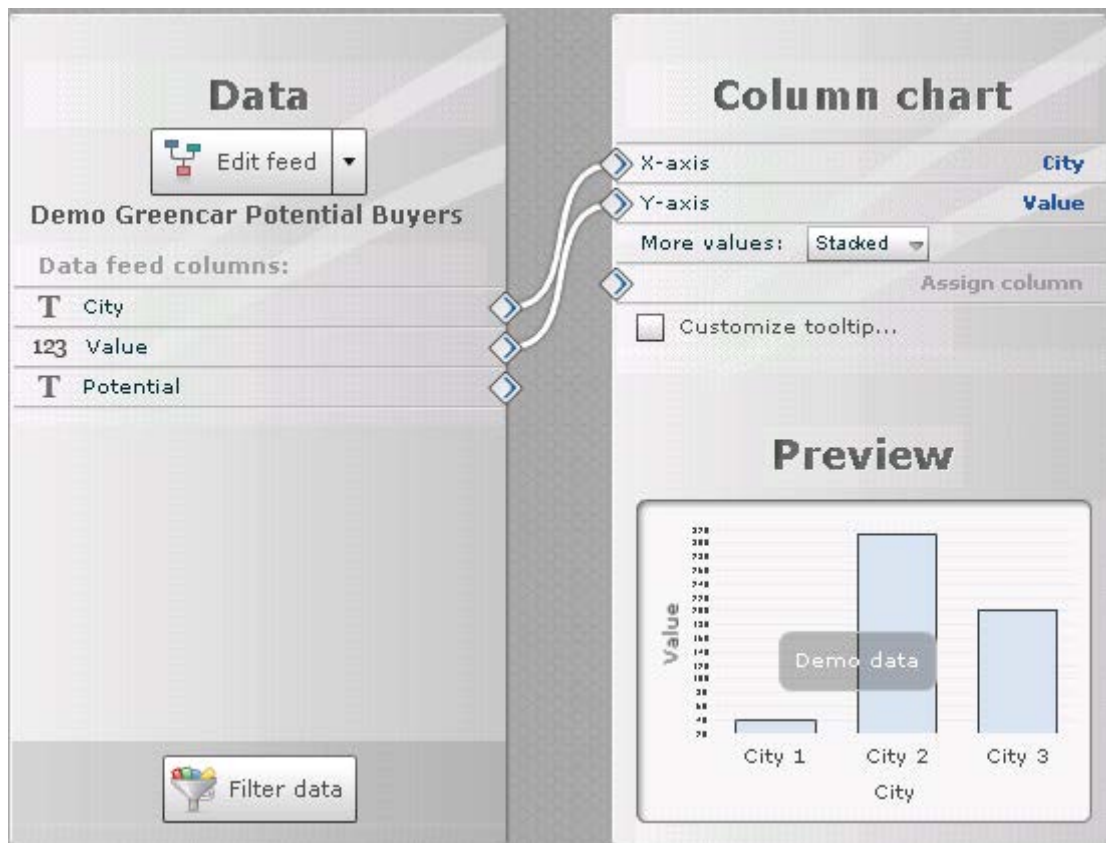
5.2.2.3   Set chart data

You can set the individual elements of a component, e.g., chart axes or segments, tooltips, etc.

For example, you can use a pop-up menu to set the aggregation behavior of KPI values and the sorting of dimension values, define thresholds or embed images, etc.

It is necessary to define the **aggregation** because a data feed normally supplies more result lines than can be displayed in a chart. Thus, you define how multiple KPI values are combined into the result for an x-coordinate.

Use the **aggregation** to specify how the required data is retrieved from a feed column. You can determine the mean value (**Mw**), the sum of the values in the column (**Sum**), the minimum or maximum value (**Min/Max**), or the number of values in the column (**Cnt**).

The following example demonstrates how to label the Y-axis with **Value** and display the values as mean values without decimal places. In this example, these settings are the same as the default settings.

Procedure

1. Click **Y-axis** in the column chart bar.

   A pop-up menu is displayed.

2. Enter the text **Value** as the **Name**.

3. Enable the **Average** (**Mw**) option for the **Aggregation**.

The average value of the **Value** feed column is displayed on the Y-axis.

4. In the **Format** selection box, select **1234** as the display format.

The format omits the decimal places in the display.
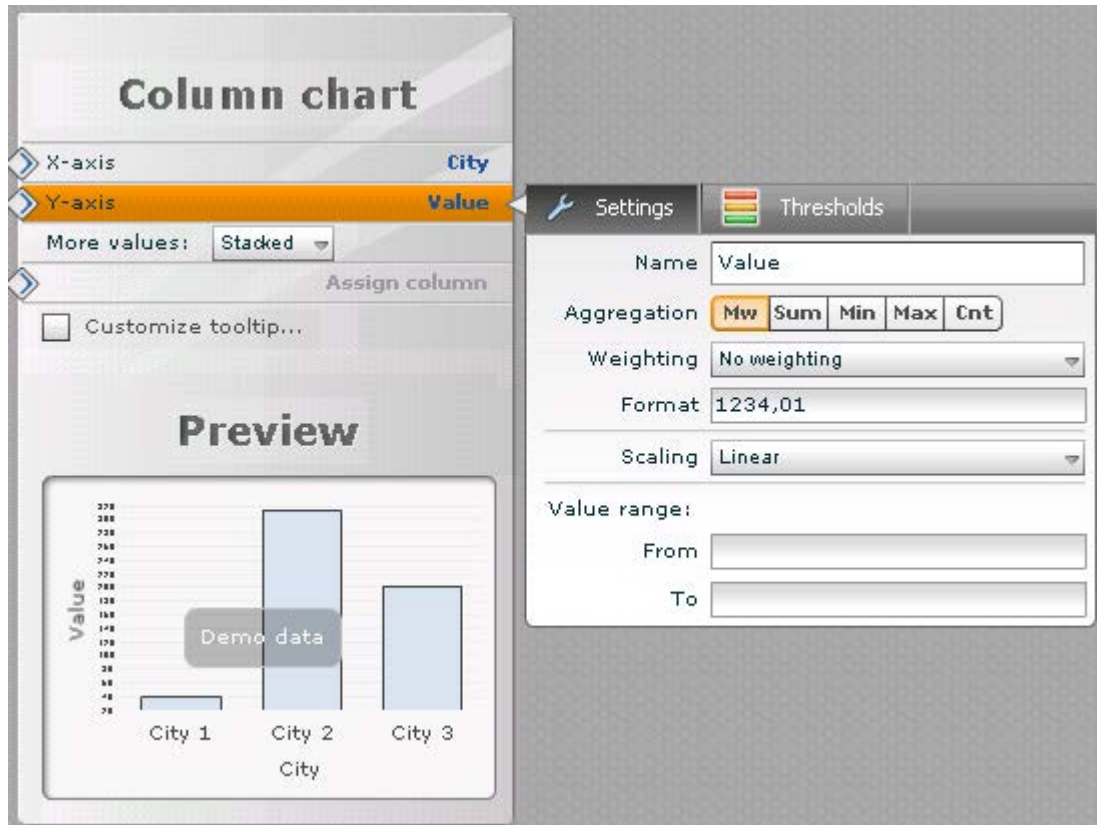
5. Click **Save and close**.

The column chart is displayed schematically in the design view with demo data. The required data is now assigned to the X-axis and Y-axis and set.

You can check whether your settings are correct using actual data in the dashboard **preview** (Page 22).

5.2.3 Set filter

You can set one or more filters for the columns of a data feed.

Different filter options are available.

- Filter based on component
- Filter based on static value
- Filter based on user input
- Filter by clicking in a text box

To set a filter criterion, select a display component containing the required filter criterion in the **Filter data** window and assign the filter criterion to the feed column to be filtered.

The following example demonstrates how to display the sales potential for the individual roadshow cities in the new column chart. Selecting a city in the **Participants and registrations** display component filters the values of the **Potential** dimension in the column chart accordingly.

Procedure

1. Click the **Column chart** display component in the design view.

   A pop-up menu is displayed at the top edge of the display component.

2. Click **Assign data** in the pop-up menu.

   The **Assign data** window is displayed.

3. Click the **Filter data** button in the **Data** bar in the **Assign data** window.

   The **Filter data** window is displayed.

4. Click the **Participants and registrations** display component to select the display component that supplies the filter criterion.

   The **Select data feed column** option is enabled.

5. Click the selection box under **Select data feed column** and select **City** to select the feed column to be filtered.

   The **Set condition** option is enabled.

6. Under **Set condition**, select **is equal to** as the operator and **City** as the value to set the filter criterion.

7. Click **Apply filter**.

   The **Assign data** window is displayed with the set filter.

8. Click **Save and close**.

   The design view is displayed.

You can filter the values of the **Potential** dimension using all filter values of the **City** filter criterion in the **Registrations and participants** display component.

You can test the set filter interactively in the Dashboard preview (Page 22). To do this, click a **City** column in the **Participants and registrations** display component in the preview. The **Potential** dimension in the new column chart is filtered accordingly. (See also chapter **Use dashboard** (Page 11).)

Example: City **filter set in the** Participants and registrations **display component**

5.2.4   Set title

You can give the display component a title, which is displayed in the title bar.

To display the title, the frame of the display component must be displayed.

Procedure

1. Click the display component.

    A pop-up menu is displayed at the top edge of the display component, which you can use to set the display.

2. Click **Frame** in the pop-up menu.

    The dialog for setting the frame is displayed.

3. In the **Name** input box, enter the text **Leads** and enable the **Display** option after **Title**.

The title bar of the display component is displayed with the title entered.

Example: Display component with title bar
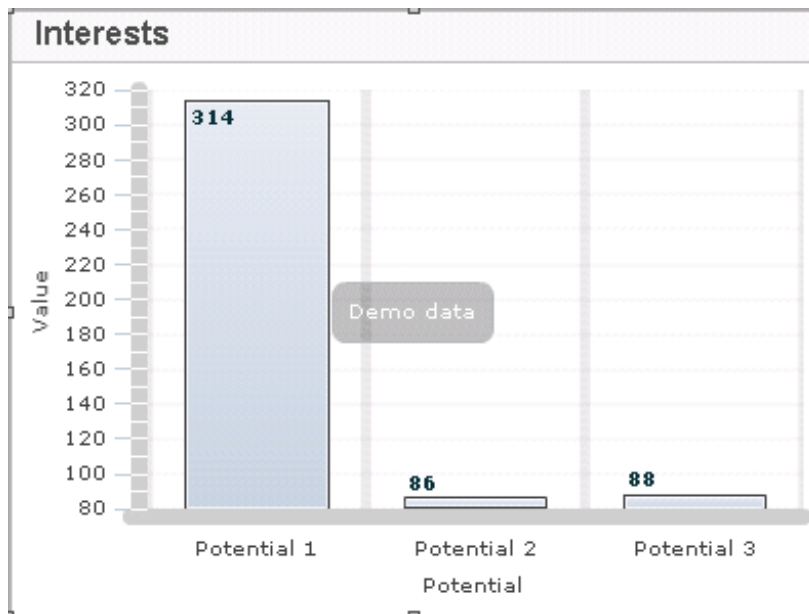
5.2.5   Set size

You can set the size of a display component.

The following example demonstrates how to adjust the size of the **Leads** display component.

Procedure

1.   Click the **Leads** display component.

     The display component is displayed with a colored frame with corresponding handles.

2.   Click a handle, hold down the mouse button, and drag the frame to the required size.

The **Leads** display component is set to the specified size.

5.2.6   Place display component

You can place a display component anywhere in a dashboard.

The display component is automatically aligned with the gridlines displayed.

The following example demonstrates how to place the **Leads** display component in a free position in the dashboard.

Procedure

Click the **Leads** display component, hold down the mouse button, and drag the display component to the relevant position in the dashboard.

The display component is placed in the dashboard.

5.2.7　Display preview

You can display the dashboard in a preview with actual data.

Before displaying the dashboard preview, you must save your changes.

Procedure

1. Click 💾 **Save** in the title bar.

2. Click 👁 **Preview** in the title bar.

   The dashboard preview opens in a separate tab of the browser.

3. In the **Participants and registrations** column chart, click any of the columns.

The **Leads** column chart displays the filtered values for the corresponding city.

Example: Preview of GreenCar Roadshow demo dashboard

5.3　Create data feeds

You can use the Feed Editor (Page 57) to create new data feeds (Page 3).

A data feed (Page 3) is a table that contains processed data. The data in the feed table is calculated using a feed definition, which combines data from various data sources, e.g., MS Excel, CSV, or XML files.

Using the data feed **Demo GreenCar Roadshow participants**, the following chapters describe how to create and edit data feeds. The data feed combines the data from two MS Excel files, which was recorded during the **Green Car Roadshow**, and calculates the average participation rate relative to the number of registrations.

To follow the description of the procedure more easily, you can open and edit the available data feed **Demo Green Car Roadshow participants** in the Feed Editor (Page 59).

Prerequisite

You have the MashZone **User** license privilege.

Procedure

On the MashZone **Home** page, click **Create > Create data feed**.

Depending on the browser settings, the **Feed Editor** opens on a separate tab or in a separate window, and you can specify your settings.

When creating a data feed, the **Output** element that completes the feed definition (Page 30), is already created. The element is mandatory and cannot be deleted.

5.3.1   Select data source

You can set one or more filters for the data feed (Page 3). Possible data sources (Page 60) include MS Excel, CSV, or XML files. The data sources for a data feed can be located locally, in the LAN, or on the Internet.

Different options are available for setting the data source depending on the data source type.

The source files, which can be selected by specifying the path, must be stored in a defined resource directory on the MashZone server (by default the **resources** directory in the installation directory).

In the example described, insert the Excel sheet **roadshow_stops.xls** as the first data source. The table contains the number of registrations and participants per city and acts as a basis for calculating the participation rate. The file already exists in the **resources/demo/greencar** resource directory.

Copy your source files to the **resources** directory of your MashZone installation, or any subdirectory **resources\<directory>**.

The default resource directory **resources** is located in your installation directory under

\ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\resources

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Drag the **MS Excel file** () data source from the **Data sources** bar into the workspace.

    The **Source: MS Excel file** element is placed at the selected point.

2. Click the **Select source** button after the **Source** input box.

    The **Select source** dialog is displayed.

3. Specify the source file.

    a. Enable the **MashZone server** option.

    b. Click the **Select file** button (**…**) next to the **Path** input box.

    c. Select the file **roadshow_stops.xls** in the folder **resources/demo/greencar**.

    d. Click **OK**.

4. Click **OK**.

The source file is inserted and data can be extracted from it.

Tip

You can set the source data (Page 61) and specify the data to be extracted.

You can modify the default resource directory and define your own directories (Page 68).

Example: Select data source
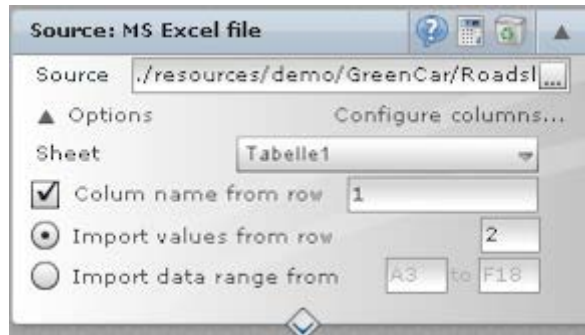
5.3.2   Calculate feed data

You can calculate the data for almost all elements (data sources or operators) of the feed definition (Page 3) and display the corresponding content in the feed table.

The data feed is calculated up to the selected element of the feed definition and the result is displayed in the **Calculation result** bar at the lower edge of the workspace.

Only the first 100 rows of the results table are displayed.

In the example described, the MS Excel table is imported into the data feed and the column title of the feed table is adapted automatically.

Procedure

In the header of the **Source: MS Excel file** element, click ⊞   **Display calculation result**.

The data is extracted and displayed with the adapted title bar in the **Calculation result of operator** bar.

You can display the raw data of the source file and set the source data to be extracted accordingly.

5.3.3   Change data type

You can change the data structure of your data feed, e.g., by changing the data type of columns.

In the example, the **Date** column is to be assigned the **Date** ($\boxed{1}$) data type. The **Invitations**, **Registrations**, **Participants**, and **Leads** columns are assigned the **Number** ($\boxed{12}$) data type so that they can be used in arithmetic calculations. The **City** column is of the **Text** (T) data type.

The data of an element (e.g., a data source) is forwarded to another element (e.g., an operator) using a link. The link is created as a connection between outgoing and incoming anchor points (e.g., ◇) of the individual elements.

For a selected outgoing anchor point, the permitted incoming anchor points are each marked in green.

Procedure

1. Insert the **Change data type** operator into the feed definition.

    a. Click **Columns** in the **Operators** bar.

    b. Click the **Change data type** operator, hold down the mouse button and drag it to the required position in the workspace.

    The operator is inserted into the feed definition.

2. Connect the **Source: MS Excel** element to the **Change data type** element.

    a. Click the anchor point (◇) of the **Source: MS Excel** element.

    b. Hold down the mouse button and drag the mouse pointer to the upper anchor point (◇) of the **Change data type** element.

3. Assign the **Date** column of the data feed the **Date** data type.

    a. Click the **Column** selection box in the first row of the **Change data type** bar and select **Date**.

    b. Click ☐ **Date** in the **Date** row.

    c. Click ☐ **Additional settings** to select the **format** and the **language** for displaying the date.

4. Click ⊕ **Add row** to set the data type for another column.

5. Assign the **Invitations** column of the data feed the **Number** data type.

    a. In the **Column** selection box in the new row, select **Invitations**.

    b. Click ⁞₂ **Number** in the **Invitations** row.

    c. Click ☐ **Additional settings** to select a **decimal separator**.

6. Add more rows for the **Registrations**, **Participants**, and **Leads** columns.

7. Assign the columns the **Number** (⁞₂) data type.

8. Click ☐ **Additional settings** to select a **decimal separator**.

9. Click ▦ **Display calculation result** in the header of the **Change data type** element to check your settings.

    The data from the feed is displayed in the results table with the corresponding data types.

The required data types are assigned to the selected columns.

Example: Select data source and change data type
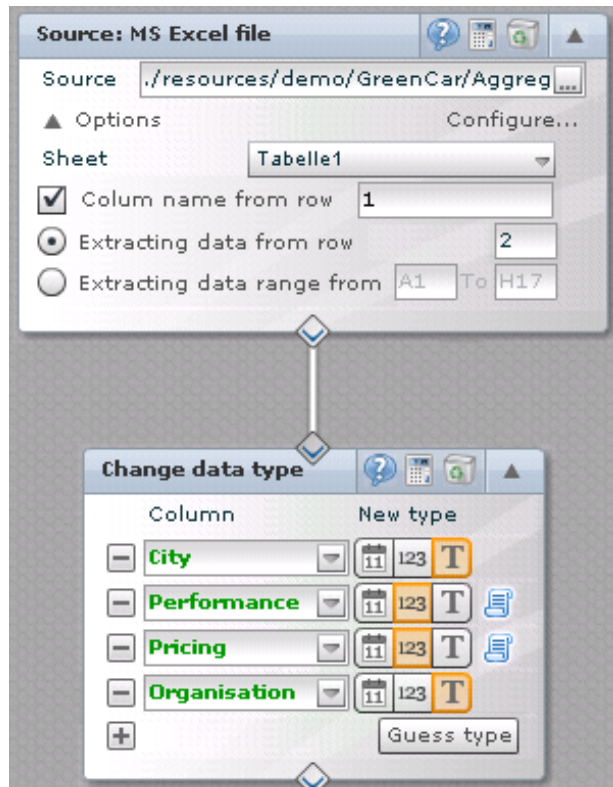
DATE FORMATS

Date formats are specified using combinations of certain letters.

Example

08.04.1970 -> MM-dd-yyyy

04.08.70 -> yy-MM-dd

Name	Abbreviation
Year	**y** or **Y**
Month	only **M**
Day	**d** or **D**
Hour	**h** or **H**
Minute	only **m**
Second	**s** or **S**
am/pm	**a** or **A**

The characters can be combined in any order, with two exceptions.

1. For a month, the number of characters must be >= 3 (MMM or MMMM) if the month is specified in text format (JAN, FEB, etc.) and <3 if it is specified as a figure. In this case, the language must also be set so that the name of the month will be displayed correctly.

2. For a year format such as 2009, **y** can be specified any number of times, i.e., **yy** and **yyyy** return **2009**.

    For a year format such as 09, however, **yyyy** returns the year **9** and **yy** the year **2009**.

5.3.4   Define calculation rule

You can use various operators to create calculation rules for calculating the data of your feeds.

In the example, the participation rate relative to the number of registrations is to be calculated for your data feed. The **ParticipationQuota** is calculated as a quotient of **Participants/Registrations*100**. The calculation rule for the quotient can be defined using the **Calculate values** operator.

Procedure

1. Insert the **Calculate values** operator into the feed definition.

    a. Click **Calculation** in the **Operators** bar.

    b. Click the **Calculate values** operator, hold down the mouse button and drag it to the required position in the workspace.

    The operator is inserted into the feed definition.

2. Connect the **Change data type** element to the **Calculate values** element.

    a. Click the lower anchor point (⬦) of the **Change data type** element.

    b. Hold down the mouse button and drag the mouse pointer to the upper anchor point (⬦) of the **Calculate values** element.

3. Define the calculation rule for the quotient.

    a. In the editable selection box in the first row, select the **Participants** column as the dividend.

    b. In the editable selection box in the second row, select the **Registrations** column as the divisor.

    c. Click the **Operator** selection box in front of **Registrations** and select **divided by** (÷) as the operator.

    d. Click ⊕ **Add row**.

    e. In the new editable selection box, enter the value **100** as the factor.

    f. Click the **Operator** selection box before **100** and select **times** (*****) as the operator.

    g. In the editable Target column selection box, enter **ParticipationQuota**.

4. Click 🖩 **Display calculation result** in the header of the **Calculate values** element to check your settings.

    In the results table of the data feed, the additional column **ParticipationQuota** is displayed with the corresponding values.

The calculation rule for calculating the participation rate **ParticipationQuota** is defined. The **ParticipationQuota** column with the corresponding values is added to the data feed.

Example: Calculation of the ParticipationQuota **quotient**

5.3.5   Combine data feeds

You can combine different data feeds with one another.

The **Combine data feeds** operator can be used to link two data feeds (or tables) with one another. A key column is defined for each table, and its values are individually compared with one another. As soon as individual key values in both columns match, the associated rows are assigned to one another and merged. One of the two tables is defined as the main table, to which the columns (except the key column) from the second table are added. The upper left anchor point of the **Combine data feeds** element is reserved for the main table, and the second table is linked to the upper right anchor point.

In the example described, the current data feed is to be merged with the Excel table **City_Regions.xls**. The Excel table contains the columns **Region**, **Continent**, and **City**. In order for the values in the columns of the two tables to be correctly assigned to one another, a key column must be defined for both tables. The **City** column, which contains the same values in both tables, is used as the key column. If the individual values of both **City** columns match, the associated values from the **Region** and **Continent** columns are added in the relevant rows of the data feed. For example, for the value **Vienna**, which matches in the two **City** key columns, the **EMEA** and **Europe** values are added to the **Region** and **Continent** columns of the data feed.

Procedure

1. As described in the **Select data source** chapter, insert the MS Excel table **City_Regions.xls** as a data source.

2. Insert the **Combine data feeds** operator into the feed definition.

    a. Click **Data feeds** in the **Operators** bar.

    b. Click the **Combine data feeds** operator, hold down the mouse button and drag it to the required position in the workspace.

3. The operator is inserted into the data feed definition.

4. Connect the **Calculate values** element to the **Combine data feeds** element.

    a. Click the lower anchor point (◇) of the **Calculate values** element.

    b. Hold down the mouse button and drag the mouse pointer to the upper left anchor point (◇) of the **Combine data feeds** element.

5. Connect the **Source: MS Excel file** element to the **Combine data feeds** element.

    a.   Click the lower anchor point (⬦) of the **Source: MS Excel file** element.

    b.   Hold down the mouse button and drag the mouse pointer to the upper right anchor point (⬦) of the **Combine data feeds** element.

6.   In the editable **Left column** and **Right column** selection boxes in the **Combine data feeds** element, select the **City** column.

The values of the two key columns are compared with one another and tables are merged accordingly.

Example: Combine data feeds
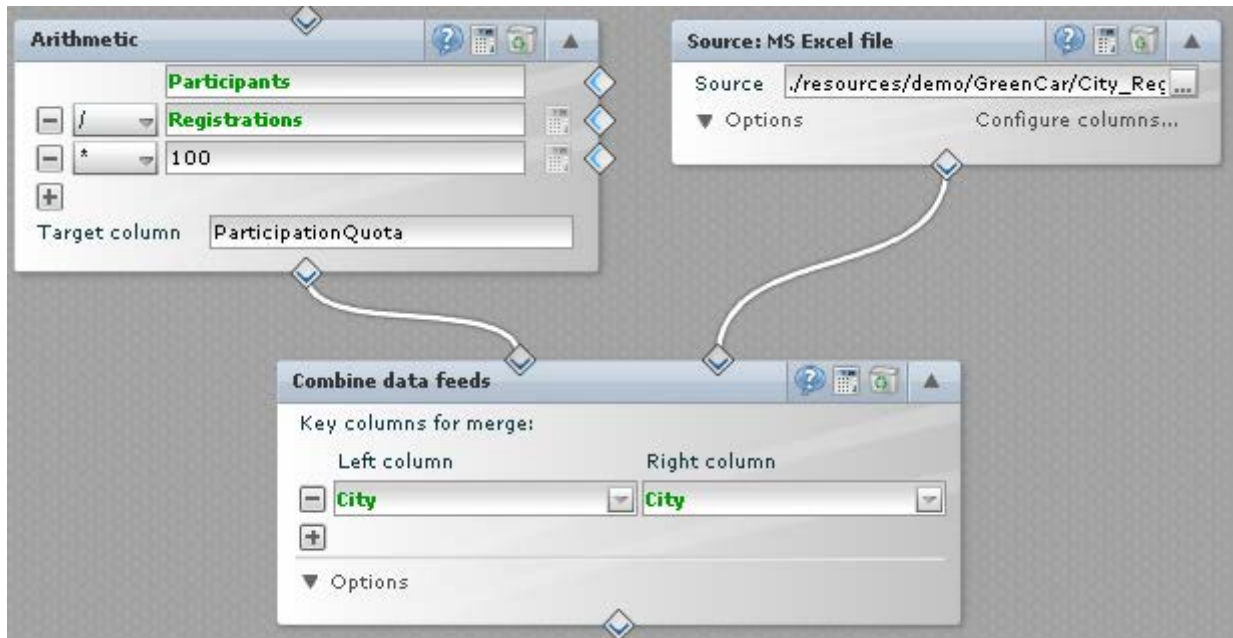
In the **Options** for the **Combine data feeds** operator, you can specify which key values from the two key columns are to be included.

▪ **Include key values of left data feed**

Includes only the key values of the left data feed (main data feed), regardless of the key values of the right data feed.

▪ **Include identical key values of both data feeds**

Includes only the key values that match in both data feeds.

▪ **Include key values of both data feeds**

Includes the key values of both data feeds, even if these are only contained in one of the two key columns.

▪ **Allow multiple values**

Includes key values that occur multiple times and have different assigned values.

For example, the city **Vienna** is assigned to the continent **Europe** in one data feed and to the continent **Middle Europe** in the other. Both entries are included in the **City** column.

Since the individual table columns are identified by name when being imported you need to ensure that the columns of the table area to be imported have unique names.

5.3.6 Finish feed definition

You must finish the feed definition for the result of the data feed calculation to be output.

The mandatory **Output** operator is available for finishing the feed definition. It is the final element of a feed definition.

The **Output** element is automatically inserted by default when creating a new data feed and cannot be deleted.

In the example described, you can use **Combine data feeds** operator to finish the required feed definition.

Procedure

Connect the **Combine data feeds** element to the **Output** element.

1. Click the lower anchor point (⬦) of the **Combine data feeds** element.

2. Hold down the mouse button and drag the mouse pointer to the upper anchor point (⬦) of the **Output** element.

Your feed definition is finished.

You can check the results of your feed definition for correctness by calculating the result and displaying it in a table (Page 24).

Example: GreenCar Roadshow participants **data feed**

Topics in this area

6   Procedure

6.1   Use dashboards

The following chapters describe general use cases relating to **the use of dashboards**.

6.1.1   Delete dashboard

You can delete available dashboards.

Warning

Deleted dashboards cannot be restored. Export the dashboard (Page 76) to create a backup copy, if required.

Prerequisite

You have the appropriate edit privileges.

Procedure

1.   Display the **Home** page.

2.   On the **Dashboards** tab, select a dashboard you want to delete.

3.   Click **More > Delete** above the preview.

The selected dashboard is deleted from the list of available dashboards.

You can delete multiple dashboards simultaneously (Page 75) in Administration.

6.1.2   Display dashboard view

You can display the individual views of a dashboard.

A dashboard can consist of several views. The individual views are displayed independently on separate **tabs**.

Procedure

1. Display a dashboard (Page 10).
2. Click the title of the tab of a view you want to display.

The selected dashboard view is displayed.

6.1.3   Insert dashboard view

You can print displayed dashboard views.

Procedure

1. Display a dashboard (Page 10).
2. Display the dashboard view (Page 33) you want to print.
3. Click **More > Print** in the program bar.
4. Specify your settings.

The displayed dashboard view is printed.

6.1.4   Save dashboard view as image

You can save dashboard views as images in **png** and **jpg** format.

Procedure

1. Display a dashboard (Page 10).
2. Display the dashboard view (Page 33) you want to save as an image.
3. Click **More > Save** in the program bar.
4. Specify your settings.
5. Click **OK**.
6. Select a folder in which you want to save the file.
7. Click **Save**.

The displayed dashboard view is saved in the format you selected.

6.1.5   Publish a dashboard with guest access

You can share dashboards with any user via guest access.

Users with guest access can display such a dashboard without logging in to MashZone in their Web browser. To do this, you provide an anonymized dashboard URL that users can enter directly in their browser. No login is required to display the dashboard.

Not all functions are available if you are displaying a dashboard with guest access.

Prerequisite

The **Guest** user is activated in central user management. (The **Guest** user is activated by default.)

Procedure

1. Display the **Home** page.

2. On the **Dashboards** tab, select the dashboard you want to share.

3. Click **More > Link to dashboard**.

4. If you have already opened the dashboard in the Composer, click **More > Link to dashboard** in the program bar of the design view.

5. Click **Advanced settings**.

6. Enable the option **No login** so that the user can display the dashboard without logging in with user name and password.

   This option is available only if you enabled the **Publish** option for the dashboard in the **Share** dialog (Page 42).

7. Click ▤ **Copy to clipboard**.

The created dashboard address is copied to the clipboard.

For example, the dashboard address copied can now be pasted into an e-mail and made available to any user.

6.1.6   Copy dashboard address to clipboard

You can generate the address of a dashboard as a URL, iframe, or Apple iPad link and copy it to the clipboard.

For example, you can provide other users with the URL address so that they can display the dashboard directly in their browser without logging in to MashZone. With the iframe addresses, you can embed the dashboard in a Web page, for example.

Procedure

1. Display the **Home** page.

2. On the **Dashboards** tab, select the dashboard you want to share.

3. Click **More > Link to dashboard** above the preview.

4. If you have already opened the dashboard in the Composer, click **More > Link to dashboard** in the program bar of the design view.

5. Specify your settings.

6. Click **Advanced settings** to specify more settings, if required.

7. Enable the option **Direct link to dashboard** to obtain the dashboard address in the form of a URL.

8. To obtain the dashboard address as an iframe link enable the option **Embed dashboard in Web page**.

9. Enable the option **Link to dashboard on Apple iPad** to be able to use the dashboard address on an Apple iPad.

10. Click **Copy to clipboard** next to the relevant operator type.

The created dashboard address is copied to the clipboard.

For security reasons, the usage of X-Frame in iframes is limited to the **SAMEORIGIN** option by default. This value can be loosened by inserting the following key values in the **mashzone.properties** file. Please note that not all browsers support the **ALLOW FROM <URI>** option. After changing the file you need to restart the MashZone server.

```
#xframe-options.enabled=[true|false]
mashzone.httpheader.xframe.options.enabled=true
#options: [SAMEORIGIN|DENY|ALLOW FROM <URI>]
mashzone.httpheader.xframe.options=SAMEORIGIN
Detailed information on X-Frame options is available here:
```

https://developer.mozilla.org/en-US/docs/Web/HTTP/X-Frame-Options

(https://developer.mozilla.org/en-US/docs/Web/HTTP/X-Frame-Options)

6.1.7   Call dashboards via URL

You can call a dashboard by entering the relevant URL in the Web browser.

To do so you need to specify the required parameters of the dashboard in addition to the base URL. You can add the parameters with the character **?** to the base URL and link the individual parameters with the **&** character. Use the character = to add the parameter values. The URL must close with the parameter **#MashZone**.

Base URL

http://[servername]:[port]/mashzone/app/Viewer.html

Prerequisite

The MashZone server of the client that provides the dashboard must be started.

Procedure

1. Launch your Web browser.

2. Enter the relevant dashboard URL in the address bar of the Web browser in this form:

    http://[servername]:[port]/mashzone/app/Viewer.html?<Parameter1>=<Value1>&<Parameter2>=<Value2>&...#MashZone

The dashboard you specified is displayed in your Web browser. If the user data is incorrect or if the MashZone session is inactive the MashZone login page is displayed.

In MashZone, you can display the URL of a dashboard and copy it to the clipboard.

Example

http://localhost:16360/mashzone/app/Viewer.html?**guid=**9c303861-6010-40ea-9e70-0916bae4fab3&**tabidx**=2&**language**=en&**plainmode**=true&**user**=system&**password**=manager**#MashZone**

6.1.8   Use dynamic URL selection

By specifying URL parameters you can dynamically select specific elements of display components, such as certain chart coordinates. When you call a dashboard via URL (Page 35) the elements are automatically selected and used as a filter, for example.

You can select the URL parameters (Page 298) required for dynamic URL selection in a display component's pop-up menu and copy them to the clipboard.

Prerequisite

You have opened a dashboard in the Composer (Page 12).

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click an inserted display component in the design view, e.g., a column chart.

   A corresponding pop-up menu is displayed.

3. Click the button for the displayed component, e.g., **Column chart** to set the component properties.

4. Click **Data retrieval**.

   Other options are displayed.

5. Click the **URL selection** button.

6. Select a selectable element, e.g., a **Region** dimension.

   An input box is displayed in which you can enter a preselected value.

7. Enter a value for the selectable element, e.g., the **Germany** dimension value.

8. Click **Copy to clipboard**.

The resulting URL parameters are URL-encoded and copied to the clipboard.

You can add the parameters copied to a URL that you want to use for calling a dashboard via URL.

6.1.9   Set display size

You can adjust the dashboard display size to meet your requirements.

Various buttons in the footer are available for this.

Procedure

1. Display a dashboard (Page 10).

2. In the footer of a dashboard, click 🔍 **Zoom out** or 🔍 **Zoom in** buttons.

3. Alternatively, hold down the mouse button and drag the slider (⚪) toward 🔍 **Zoom out** or 🔍 **Zoom in**.

4. Click **100%** to restore the default display size.

5. Click ⛶ **Fit view to window** to automatically fit the page view to the window size.

The display size of the dashboard is modified in line with your settings.

6.1.10   Refresh data

You can refresh the data evaluated in the dashboard currently displayed.

The data is extracted from the cache or recalculated if the cache time has expired, and is displayed in the individual display components.

Procedure

1.   Display a dashboard (Page 10).
2.   Click **Refresh all data** in the footer of the dashboard.

All data is imported again and the display components are refreshed accordingly.

6.1.11   Display dashboard properties

You can display and edit the properties of a dashboard.

Under Properties, you can edit the **names**, **description**, and **keywords** of the dashboard. In addition, the **internal ID**, the installed MashZone **edition**, the **last change**, and **history** are displayed. You can also configure whether a prompt for entering a comment is displayed when saving a change.

Prerequisite

You have the appropriate edit privileges.

Procedure

1.   Display the **Home** page.
2.   Select a dashboard on the **Dashboards** tab.
3.   Click **More > Properties** above the preview.
4.   Specify your settings.

Your changes are applied.

Tip

To display the properties in the Composer, click **More > Properties** in the program bar.

6.1.12   Display change history of a dashboard

You can monitor the change history of a dashboard.

The change history shows you the time, author, action, and comments for all changes to the dashboard.

Procedure

1.   Display a dashboard (Page 10).
2.   Click **More > History** in the program bar.

The change history is displayed.

Tip

To display the history in the Composer, click **More > History** in the program bar.

6.1.13   Save display component as image

You can save individual display components of a dashboard as images in **png** and **jpg** format.

This option is only available for particular display components.

Procedure

1. Display a dashboard (Page 10).
2. Move the mouse pointer over the display component that you want to save as an image.

    The button ▼ **Display menu** is displayed in the top right corner.
3. Click ▼ **Display menu** and select **Save as image**.
4. Specify your settings.
5. Click **OK**.
6. Select a folder in which you want to save the file.
7. Click **Save**.

The display component is saved in the image format you selected.

6.1.14   Display data of a display component as a table

You can display the currently calculated feed data for individual display components.

The data is shown in form of a table whose contents you can sort and format. If multiple data feeds are assigned to the display component you can select a data feed from a selection box.

This option is only available for particular display components.

Procedure

1. Display a dashboard (Page 10).
2. Move the mouse pointer over the display component whose data you want to view.

    The button ▼ **Display menu** is displayed in the top right corner.
3. Click ▼ **Display menu > Display and save data**.

    The data of the display component is shown in the form of a table.
4. Enable the option **Sort columns alphabetically** to sort the table columns horizontally in alphabetical order.

    This option is enabled by default. When you disable the option you can drag individual columns to different positions.
5. Enable the option **Format values** to display values in a formatted manner.

    This option is enabled by default. The formatting defined in the component is used for the individual columns.
6. To display unused columns and columns that are not immediately visible (e.g., tooltip, threshold, and color value columns), enable the **Show all invisible columns** option in the header.

    This option is enabled by default. All columns of the data feed are displayed, even those that are not used in the display component.

7.   In the header, click ☐ **Maximize** to resize the table to the maximum available display area.

The table is displayed in line with your settings.

You can save the data as CSV file (Page 39). To do this, click **Save as CSV**.

6.1.15   Save data of a display component as a CSV file

You can save the currently calculated feed data for individual display components in CSV format.

Multiple parameters can be configured for the CSV file to be created.

- Separator

    Separates individual column values

- Save values formatted as in the table of the dialog

    Transfers the formatting of the values from the table displayed to the CSV file

- Save values applying default formatting

    Transfers the default formatting of the values to the CSV file, see table below.

- Masking

    Protects the enclosed characters against being split at the separator. If column values contain the specified separator, they can be enclosed in a pair of masking characters, e.g., "1,23".

- Character set

    Character set to be used for encoding the CSV file

If multiple data feeds are assigned to the display component you can select a data feed from a submenu.

This option is only available for particular display components.

This option is available only if the assigned data feed is complete and without errors.

Procedure

1.   Display a dashboard (Page 10).

2.   Move the mouse pointer over the display component whose data you want to save as a CSV file.

    The button ▼ **Display menu** is displayed in the top right corner.

3.   Click ▼ **Display menu** and select **Display and save data**.

4.   If required, change the formatting of the data displayed in the table (Page 38).

    You can save the data in the formatting you changed as a CSV file.

5.   To do this, click **Save as CSV**.

6.   Specify your settings.

7.   Click **OK**.

The data of the display component is saved as a CSV file.

Format data types in the CSV file

Text	Same formatting as in the data feed. Exceptions: If the text contains the selected separator the entire text is enclosed by the selected masking character. **Example** The text contains a ; semicolon -> "The text contains a ; semicolon" If the text contains a selected masking character, the entire text is enclosed by the selected masking character and the inner masking characters are doubled. **Example** The text contains a " quotation mark -> "The text contains a "" quotation mark"
Figure	No thousands separator Decimal separator "." **Example** 123456.78
Date	ISO 8601 **Example** 2009-06-30T18:30:00

6.2   Edit dashboards

6.2.1   Use the Composer

You can use the dashboard Composer to create your own dashboards (Page 44) and to edit existing dashboards (Page 12).

The Dashboard Composer provides you with various functional modes, which you can use to configure a dashboard.

- In the **design view**, you can design the layout of a dashboard by creating several dashboard views (Page 45), inserting various display components (Page 13), and setting the display (Page 49).

- In the **Assign data** (Page 14) mode, you assign individual display components the data that will be displayed in the dashboard, and you set filter criteria for this data. (Page 18)

- In the **preview** (Page 22) you can display the dashboard with real data.

DESIGN VIEW

The design view provides you with a large number of components for visualizing (Page 13) data to enable you to design a dashboard, e.g., various diagram types, tables, traffic lights, and input boxes.

A dashboard can consist of any number of views, each of which is displayed as a tab.

You can insert any number of display components in each dashboard view. You can insert the individual display components into a dashboard using the **Display components** bar at the left edge of the design view. You can freely place, scale, and adjust the layout of the different display components. A corresponding pop-up menu is available for each display component, which you can use to set that display component.

New components inserted to which you have not yet assigned any data are indicated by an empty frame or a schematic display as a placeholder.

Display components to which data has been assigned are displayed schematically using corresponding demo data in the design view and are labeled **Demo data**.

Example: Design view of Green Car Roadshow dashboard

6.2.2   Share dashboard

You can share dashboards so that they can be viewed and edited by particular users and user groups. You can automatically notify the relevant users by e-mail about the dashboards being shared.

Use e-mail templates to predefine the notification text (Page 72).

User privilege

▪ **Display**

The user can open a dashboard and filter it interactively, but cannot edit or delete it.

▪ **Edit**

The user can open, edit, and delete a dashboard, and share it with other users. The user has the same privileges as the creator of the dashboard.

Users automatically receive the same privileges as the group to which they are assigned.

Prerequisite

You have the **Edit** privilege for the dashboard.

Procedure

1. Display the **Home** page.

2. On the **Dashboards** tab, select the dashboard you want to share.

3. Click **More > Share**.

4. If you have already opened the dashboard in the Composer, click **More > Share** in the program bar of the design view.

5. Display the **Group** or **User** tab to assign privileges to particular groups or users.

6. Enable the required options in the **Display** or **Edit** columns for a group or a user.

7. If required, enable further options under **Privileges for users with view privilege**.

8. Click **Share** to apply your settings.

9. Click **Share and send e-mail** to apply the settings and inform the relevant users about the shares.

The privileges you have assigned are applied to the selected groups or users. The users are informed about the share by e-mail, if required.

If you clicked **Save and send e-mail** your standard e-mail program opens and you can edit and send the notification.

The notifications are sent via your standard e-mail program. Only e-mail addresses of users whose e-mail addresses are stored in MashZone will be entered in the address line. The e-mail text is displayed in the language that you used for logging in to MashZone.

Under certain circumstances, no e-mail program is displayed.

▪ No e-mail application is installed.

▪ The number of e-mail addresses and/or the e-mail text is too large (depending on the Web browser, e-mail program, and operating system you are using).

We recommend that you reduce the number of e-mail addresses and/or the amount of e-mail text in the e-mail template.

Please ensure that your e-mail application supports **UTF-8** font coding. Otherwise, the e-mail characters entered in Administration in the e-mail mask may not display properly.

Under **Privileges for users with view privilege** you can assign more privileges to users.

▪ **Pass on view privilege**

   Users with the view privilege can share the view privilege for this dashboard with other users.

▪ **Create copy**

   A user can create copies of a dashboard for editing.

▪ **Publish**

The dashboard is published with guest access (Page 33), which means that any user can display a dashboard without logging in to MashZone.

- **Access to data from assigned data feeds**

    When you open a dashboard, the data from the data feeds assigned to the dashboard is displayed.

To open a dashboard, the **View** privilege for data feeds linked to the dashboard is not explicitly required. The user implicitly receives the privilege to view the data from these data feeds in the context of the shared dashboard.

Assign specific users to individual groups in user management. (Page 102)

6.2.3   Create dashboard

You can create new dashboards and design them to meet your requirements.

When creating a new dashboard, various style templates are available, which you can use to assign a uniform appearance to all display components in your new dashboard.

The style templates essentially differ in terms of color, color saturation, font, and effects, e.g., shadow or reflection effects.

You can assign a different style template (Page 47) to the dashboard later.

You can assign your own style templates to display components (Page 49) regardless of the style template of the dashboard.

Prerequisite

You have the MashZone **User** license privilege.

Procedure

1. Display the **Home** page.
2. Click **Create > Create dashboard**.

    The **Composer** opens and a window for selecting a style template is displayed.

3. Click a style template.

    The Composer is displayed with a blank dashboard.

4. Click 🖫 **Save** in the title bar.

    The **Properties** dialog is displayed.

5. Give the new dashboard a **name** of your choice.

6. If necessary, enter a **description** and **keywords**.

7. Click **OK**.

The new dashboard is created with the specified name and is available on the **Home** page.

You can adapt the dashboard to meet your requirements (Page 12).

6.2.4 Copy dashboard

You can create a copy of an available dashboard with a different name.

Prerequisite

You have the appropriate privileges for editing or copying (Page 42) the dashboard.

Procedure

1. Open a dashboard in the Composer design view (Page 12).
2. Click ⬇ **Save as** in the title bar.
3. Give the new dashboard a **name** of your choice.
4. If necessary, enter a **description** and **keywords**.
5. Click **OK**.
6. The **Share** dialog opens.
7. Specify your settings.

Your changes are applied. The dashboard is saved under the name specified.

You can open the copied dashboard (Page 10) on the MashZone start page.

6.2.5 Add dashboard view

You can add additional views in a dashboard.

A dashboard can consist of several views. The individual views are displayed independently on separate **tabs**.

Procedure

1. In the design view (Page 41), move the mouse over the title of the relevant view.

    The pop-up menu of the tab title is displayed.

2. Click ✚ **New tab** in the pop-up menu.

In addition to the view displayed, a new view is created and displayed as a tab.

Disable the **Tab visible** option to hide the tab in the dashboard. This dashboard is no longer available for viewing to the user but can be displayed via a link (Page 51).

6.2.6 Delete dashboard view

You can delete any view from a dashboard.

A dashboard view is displayed as a separate **tab**.

Procedure

1. In the design view (Page 41), move the mouse over the title of the relevant tab.

    The pop-up menu of the tab title is displayed.

2. Click 🗑 **Delete tab** in the pop-up menu.

The selected tab is deleted from the dashboard.

6.2.7 Format dashboard view

You can configure a dashboard view.

Specify a name for the dashboard view, set the background and tab title color, and specify whether you want the view to be available in the dashboard through a tab.

Procedure

1. In the design view (Page 41), move the mouse over the title of a view.
2. In the pop-up menu of the tab title, click **Properties**.

   The **Properties** dialog is displayed, in which you can set the view display.
3. Enter a text of your choice as the name of the view in the **Name** box.
4. Set the **Background color** for the view.

   a. Click the color selection field to set the background color of the view.

   b. Move the slider with the mouse to set a gradient.
5. Disable the **Tab visible** option if you do not want the tab to be displayed in the dashboard.

   This dashboard is no longer available for viewing to the user but can be displayed via a link (Page 51).

Your settings are applied and displayed immediately.

6.2.8 Duplicate dashboard view

You can duplicate individual dashboard views.

When you duplicate a view, all content, settings, and dependencies, such as filters, dynamic links, and selections are retained.

Procedure

1. In the design view (Page 41), move the mouse over the title of the relevant view.

   The pop-up menu of the tab title is displayed.
2. Click ⊞ **Duplicate tab** in the pop-up menu.

The duplicate is inserted next to the selected view.

6.2.9 Set display size

You can set the display size for the current dashboard in the design view.

Set the zoom factor to improve the clarity of a dashboard in the design view.

Procedure

1. Open a dashboard in the Composer design view (Page 12).
2. Click the **Zoom out** (⊖) or **Zoom in** (⊕) buttons.
3. Hold down the mouse button and drag the slider (◯) toward **Zoom out** (⊖) or **Zoom in** (⊕).

4. Click **100%** to restore the default display size.

The display size of the feed definition is adjusted accordingly.

6.2.10 Set gridlines

You can set the gridlines in the background of the design view. The gridlines help you to arrange the individual display components more easily.

You can deactivate the grid, hide the gridlines, and set their spacing.

By default, the gridlines are displayed with a spacing of 15 pixels and the display components are automatically aligned to them.

Procedure

1. Open a dashboard in the Composer design view (Page 12).
2. Click **Grid settings** in the Composer footer.
3. Disable the **Use grid** option to deactivate the grid.
4. Set the **Spacing** of the gridlines in **pixels**.
5. Disable the **Display grid** option to hide the gridlines.

Your changes are applied.

6.2.11 Use master view

In the master view of a dashboard, you can insert display components (Page 13) and edit them to be displayed in every existing and new view (Page 45) of the current dashboard.

Use the master view to insert background images and logos in a dashboard or define global filters valid for all dashboard views, for example.

You can edit and delete the display components only in the master view.

Procedure

1. Open a dashboard in the Composer design view (Page 12).
2. Click **Master view** below the title bar.

   The master view of the current dashboard is displayed.
3. Specify your settings.
4. Click **Master view** again to close the master view.

The inserted display components are displayed in the existing and new views of the dashboard.

6.2.12 Change style template

You can assign a different style template to an available dashboard.

When you create a dashboard (Page 44), the dashboard is assigned a style template that you can change later.

> **Warning**
>
> If you assign a new style template, formatting settings that have already been specified will be lost.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click **More > Change style template** in the program bar.

3. Click a style template.

The dashboard is assigned the selected style template.

6.2.13   Change dashboard name

You can change the **name** of a dashboard later.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click **More > Properties** in the program bar.

3. Enter a text of your choice as the name of the dashboard in the **Name** box.

4. Click **OK**.

Your changes are applied.

6.2.14   Change dashboard description

You can enter a **description** for a dashboard.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click **More > Properties** in the program bar.

3. Enter a text of your choice as a description of the dashboard in the **Description** box.

4. Click **OK**.

Your changes are applied.

6.2.15   Assign keywords to a dashboard

You can assign a list of **keywords** of your choice to a dashboard.

Use keywords to find dashboards and data feeds easily in the search and the list of most frequently occurring keywords. Use the same keywords for your dashboards and the associated data feeds in order to make finding them easier.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click **More > Properties** in the program bar.

3. Enter a dashboard context-relevant term in the **Keywords** box.

4. Click **OK**.

Your changes are applied.

6.2.16   Hide quick start guide

You can hide the quick start guide displayed in the Composer and thus create more space for your dashboard elements.

The quick start guide provides you with a brief overview of how to create a dashboard. By default it is displayed transparently on the right side of the Composer.

Procedure

1. Open a dashboard in the Composer design view (Page 12).
2. Move the mouse pointer over the quick start guide.
3. Click the **Hide quick start guide** (**x**) button.

The quick start guide is hidden in the Composer.

To show the quick start guide again, click **Display quick start guide** in the title bar.

6.3   Edit display components

6.3.1   Format display component

You can specify settings for the display of the individual display components, e.g., colors or labels.

A display component consists of the component itself, e.g., a column chart or a table, and a frame that surrounds the component.

Use the pop-up menu of a display component to set the properties of the frame, the component, the text, and the color.

Different setting options are available depending on the type of display component selected. Some options are preset for certain display components, e.g., the frame of the **Input box** display component is not displayed by default.

For certain elements, the pop-up menu provides you with style templates or color palettes, which you can assign to those elements.

The setting options are described here using the example of a column chart.

1. Open a dashboard in the Composer design view (Page 12).

2. Click an inserted display component in the design view, e.g., a column chart.

    A corresponding pop-up menu is displayed.

3. Click **Frame** to set the frame properties.

    Set the title and the frame of the display component.

    a. Enter a **Name** for the component (column chart), which can then be displayed as the title in the title bar of the display component.

    b. Enable the **Display title** option to display the name as the title, and specify your settings.

    c. Enable the **Display frame** option and specify your settings.

4. Click the button for the displayed component, e.g., **Column chart** to set the component properties.

    Assign a style template to the component here and specify the elements of the component to be displayed.

    a. Select a style template in the **Style** selection box, or click the **Set** button (**...**) to adapt the style.

    b. Select the scope of the elements to be displayed in the **Visibility** selection box, or click the **Set** button (**...**) to select the individual elements.

    c. Enable an option, e.g., **Shadow**, **Legend**, or **Zoom**, to display it in the component.

5. Click the **Formatting** button to set the font and the colors of the component

    a. Select the elements of the component for which you want to set a label in the **Label** selection box and specify your settings.

    b. Select a color palette you want to assign to the data points of the component in the **Data points** selection box. In this case, the columns in the chart are selected.

    c. Select a color palette you want to assign to the elements of the component in the **Colors** selection box. For example, the elements include the chart axes or gridlines.

    d. Click **Colors** and set the colors individually.

Your settings are applied.

If you double-click a display component you can change certain components, e.g., the column sequence in tables. In addition, you receive information on the individual data points of the component.

6.3.2   Specify action

You can assign actions to specific display components (e.g., traffic light, text, image). The actions call other views of the dashboard, and a selection of data is set for specific display components.

For an action, you can specify a selection of data of a specific display component on a dashboard view, e.g., data in a table or an area on a map. The display component will then be displayed applying the data selected. If the data selected also represents filter values for another component, this component is filtered accordingly. For example, you can use a link to set an indirect filter for further display components.

Procedure

DISPLAY PAGE

1. Open a dashboard in the Composer design view (Page 12).

2. In the design view, click an inserted display component for which you can specify an action.

    A corresponding pop-up menu is displayed.

3. Click the ⬒**Specify action** button in the pop-up menu.

    The **Specify action** window is displayed.

4. In the **Switch tabs** box, select the dashboard view to be displayed when you click the display component.

5. Click **Define selection** if you want to select specific data of a display component on the dashboard view to be displayed.

    The **Define selection** window is displayed.

6. In the left pane, select a display component whose data you want to display as a selection.

7. In the right pane, select a **Coordinate** in the component.

    The choice of coordinates depends on the component type. A **coordinate** can be a column or table, an axis in a chart, or an area on a map.

8. In the **Selection** input box, specify the data to be selected in the display component.

9. Click ⊕ **Add row** if you want to define another selection.

10. Click **Define selection**.

    The link you created is displayed.

11. If you want to select more data, click **Define selection** again.

12. Click **Save and close**.

Your settings are applied.

6.3.3   Create external link

You can assign links to certain display components (e.g., traffic lights, images, and text), which will display any external page.

You can define an external URL as a link, consisting of multiple parts, if required. You can also use various values from other display components and add them to the URL.

To display a linked page in a new window, enter **_blank** as the target window. For subsequent actions, each page will be opened in a new window.

To open a linked page in a new window enter any name for the target window. For subsequent actions, each new page will be opened in the same window.

Prerequisite

You have configured an SAML2 connection (Page 288).

1. Open a dashboard in the Composer design view (Page 12).

2. In the design view, click an inserted display component to which you can assign a link.

   A corresponding pop-up menu is displayed.

3. Click ⤵ **Specify external link** in the pop-up menu.

   The **Specify link** window is displayed.

4. Enter the URL of the relevant page in the **URL** input box.

5. If you want to add specific values from a display component to the URL, click **Use selection**.

6. Click **Options** to set additional options.

7. In the **Authentication** box you specify whether the URL will be created **without authentication** of the user or with authentication of the user by **SSO using SAML2**.

   If you select the option **Without authentication** user authentication may be required on the target page.

   If you select the option **SSO with SAML2** user authentication on the target page is unnecessary as long as it supports SSO with SAML2 like MashZone. (See chapter SAML connection (Page 288))

8. In the **Window name** input box, specify the window of your Web browser in which the page is to be displayed.

9. Disable the option **Do not use UTF-8 to encode URL** if the URL created is not UTF-8-encoded.

   This option is enabled by default. A URL that is double-encoded in UTF-8 can cause errors.

10. Click **Save and close**.

Your settings are applied.

6.3.4   Move display component to front or back

You can move a display component to the front or back of a dashboard.

For example, you can display an image in the background of the dashboard and place several components on top of it, i.e., in the foreground.

Procedure

1.   Open a dashboard in the Composer design view (Page 12).

2.   Click an inserted display component in the design view.

     A corresponding pop-up menu is displayed.

3.   Click   **Send to back** in the pop-up menu to show the display component behind one or more other display components.

4.   Click   **Bring to front** in the pop-up menu to display the display component in front of one or more other display components.

The display component is displayed at the front or the back in the dashboard.

6.3.5   Delete display component

You can delete a display component from a dashboard.

Procedure

1.   Open a dashboard in the Composer design view (Page 12).

2.   Click an inserted display component in the design view.

     A corresponding pop-up menu is displayed.

3.   Click   **Delete display component** in the pop-up menu.

The selected display component is deleted from the current dashboard.

6.3.6   Duplicate display components

You can copy any display components of a dashboard including its settings and links. The copied display components can be pasted in any view of the same or any other dashboard.

When copying multiple display components any dependencies between the display components copied are retained. Any dependencies between display components that were copied and those that were not copied are also retained if the components not copied are already available at the location where you copy the components to (either on the same tab or in the same dashboard, in case it is a master component).

Dependencies between components that you do not copy into another dashboard are lost.

The display components are copied using the clipboard. If you exit the Composer, the display components you have copied are deleted from the clipboard and can no longer be pasted.

Procedure

1.   Open a dashboard in the Composer design view (Page 12).

2.   In the design view, select the display components that you want to copy.

     a.   Click a display component.

     b.   To select multiple display components press the **Ctrl** key and click the individual display components.

          You can also draw a selection frame around the relevant display components.

3. Copy the selected display components to the clipboard by simultaneously pressing the **Ctrl** and **C** keys.

4. Paste the display components copied into the dashboard view.

    a. Paste display component in a view of the dashboard currently open.

        1. Display an existing view or add a new view (Page 45).

        2. Simultaneously press the **Ctrl** and **V** keys to paste the display components you copied to the clipboard.

            If you add a new view the display components copied are automatically pasted.

    b. Paste display component in a new or existing dashboard.

        3. Create a new dashboard (Page 44) or open an existing dashboard (Page 10).

        4. Display an existing view or add a new tab (Page 45).

        5. Simultaneously press the **Ctrl** and **V** keys to paste the display components you copied to the clipboard.

            If you add a new tab the display components copied are automatically pasted.

The copied display components are pasted in the dashboard view selected.

Tip

Alternatively, you can copy and paste a display component via the pop-up menu.

6.3.7   Transfer style of a display component

You can apply a display component's style to another display component.

If target and source component are of the same type all styles of the source component are applied to the target component.

If the types differ, only the border styles are transferred.
In addition to styles, the settings of the options **Visible border** and **Display title** of the source component are applied.

Exceptions:

▪ Styles are not transferred for individual columns for the **Table** components.

▪ Only border styles are transferred for the **Google Maps** component.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click an inserted display component.

    A corresponding pop-up menu is displayed.

3. Click ✎ **Apply style to another display component** in the pop-up menu.

4. Click a display component to which you want to apply the style.

5. Click **OK**.

The display component is displayed with the style assigned.

6.3.8   Automatically refresh data

For the individual display components, you can set if and in which time interval data is to be extracted from the associated data feed. The data is refreshed and displayed in the display component.

Use the cache time of the relevant data source to set (Page 64) the time interval for reimporting data from the data source into the data feed cache.

Procedure

1. Open a dashboard in the Composer design view (Page 12).

2. Click an inserted display component in the design view, e.g., a column chart.

    A corresponding pop-up menu is displayed.

3. In the pop-up menu, click the button for the displayed component, e.g., Column chart to set the component properties.

4. Click **Data retrieval**.

5. Enable the **Refresh** option.

6. Select the refresh interval from the selection box.

    You can choose either 1, 5, 15, 30, or 60 seconds for the time interval.

7. If required, select a **Load activity icon**.

Your changes are applied.

In data mode, you can assign data to a display component (Page 14).

6.3.9   Set sort criteria in charts

You can set the sort criterion of the X-axis or of a criterion for the following chart types.

▪   Column chart

▪   Bar chart

▪   Line chart

▪   Pie chart

▪   Stack chart

    You can also display additional values as a stack in a column and line chart and use them for sorting.

▪   Group chart

    You can also display additional values as a group in a column chart and use them for sorting.

You can select **None**, **Ascending**, or **Descending** for sorting. You can also specify an optional column whose values are to be used for sorting. To do so, the column must be assigned to the chart. If the axis values are to be sorted by a column whose values are not displayed in the chart, this column can be linked as an invisible column.

Procedure

1. Insert a chart in a dashboard (Page 13).

2. Assign the relevant data to the chart (Page 14).

3. If required, link a data feed column with an anchor point **More columns (invisible)** in data mode if you want to use an additional sorting column.

4. If required, link a data feed column with an anchor point **More values: stacked** or **More values: grouped** in data mode. The values are displayed in the chart either stacked or grouped and can be used for sorting.

5. In the chart bar, click the X-axis or a criterion in data mode.

    The **Settings** bar is displayed.

6. Select the relevant sorting criterion in the **Sorting** box of the **Settings** bar.

7. Select the column by which you want to sort in the **Sort by** box.

8. Click **Save and close**.

Your settings are applied.

6.4   Edit data feeds

The following chapters describe general use cases relating to **data feeds**.

6.4.1   Use Feed Editor

MashZone provides a Feed Editor as a graphical user interface, which you can use to create and edit feed definitions without any programming knowledge.

In the program bar under **More**, you can display the history and feed properties and share the feed.

Save your changes (💾) or save the open data feed under a new name (💾) in the program bar.

On the left-hand side of the editor, you will find the **Data sources** (Page 60), **Operators** (Page 62), and **User input** (Page 63) bars, and you can use the elements in these to define the data feeds in the workspace.

In the **Overview** window, you can use the frame to display any section of the feed definition by moving the frame using the mouse.

In the footer, you can set the feed definition display and view the results table of the feed calculation.

Example: Feed Editor with Green Car Roadshow - Participants **feed definition.**
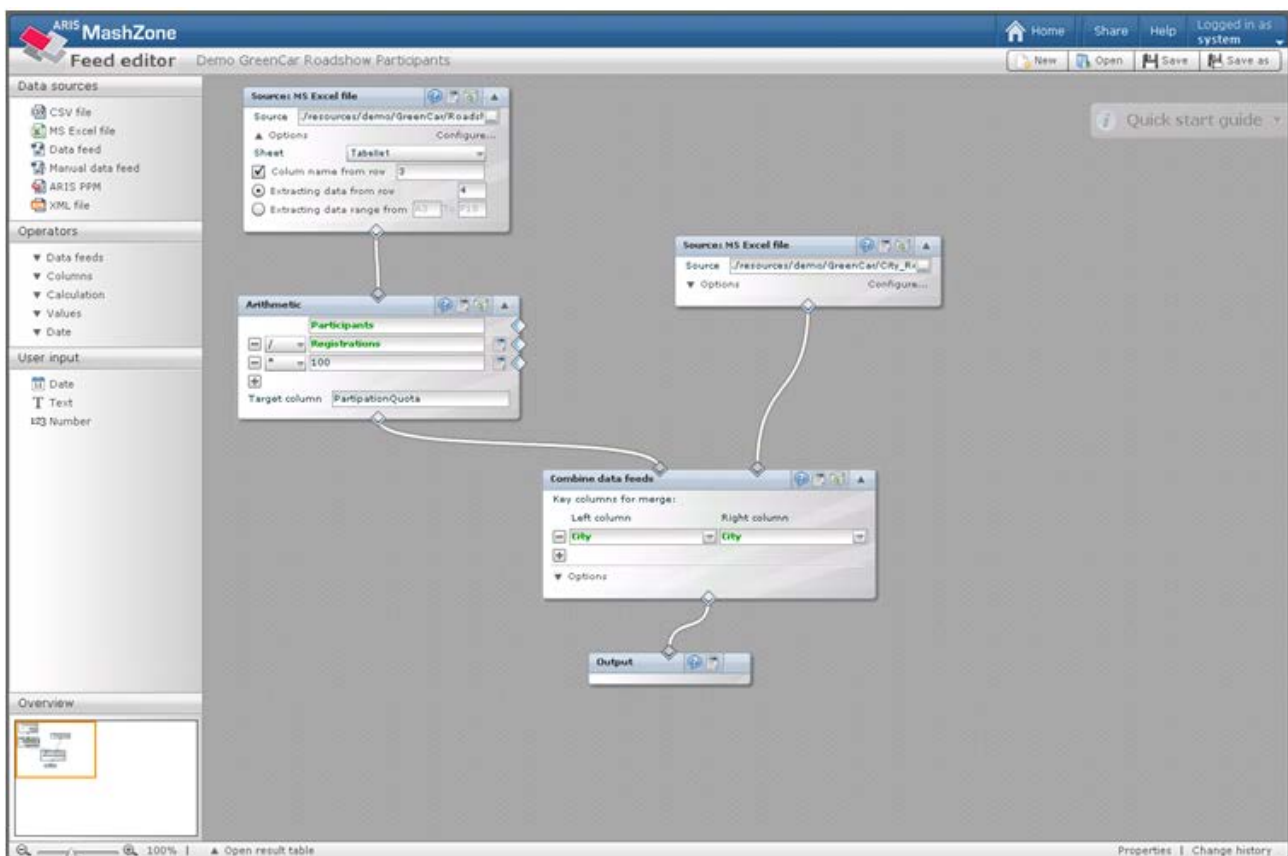
6.4.2   Share data feed

You can share data feeds so that they can be viewed and edited by particular users and user groups. You can inform the relevant users by e-mail about the data feeds being shared.

Use e-mail templates to predefine the notification text (Page 72).

User privileges

- **Display**

  The user is allowed to use a data feed in a dashboard.

- **Edit**

  The user can open, edit, and delete a data feed, and share it with other users. The user has the full range of privileges enjoyed by the original creator of the data feed.

Users automatically receive the same privileges as the group to which they are assigned.

Prerequisite

You have the **Edit** privilege for the data feed.

Procedure

1. Display the **Home** page.

2. On the **Data feeds** tab, select the data feed you want to share.

3. Click **More > Share** above the preview.

4. If you have already opened the data feed in the Feed Editor, click **More > Share** in the program bar.

   The **Share** dialog is displayed.

5. Display the **Group** or **User** tab to assign privileges to particular groups or users.

6. Enable the required options in the **Display** or **Edit** columns for a group or a user.

7. If required, enable further options under **Privileges for users with view privilege**.

8. Click **Save** to apply your settings.

9. Click **Save and send e-mail** to inform the relevant users about the shares.

The selected groups or users are assigned the privileges you have selected. The users are informed about the share by e-mail, if required.

If you clicked **Save and send e-mail** your standard e-mail program opens and you can edit and send the notification.

The notifications are sent via your standard e-mail program. Only e-mail addresses of users whose e-mail addresses are stored in MashZone will be entered in the address line. The e-mail text is displayed in the language that you used for logging in to MashZone.

Under certain circumstances, no e-mail program is displayed.

- No e-mail application is installed.

- The number of e-mail addresses and/or the e-mail text is too large (depending on the Web browser, e-mail program, and operating system you are using).

We recommend that you reduce the number of e-mail addresses and/or the amount of e-mail text in the e-mail template.

Under **Privileges for users with view privilege** you can assign more privileges to users already having the view privilege.

- Pass on view privilege

  Users who only have the view privilege can share the data feed with other users.

▪ Create copy

A user can create copies of a data feed for editing.

Assign specific users to individual groups in user management. (Page 102)

6.4.3 Delete data feed

You can delete available data feeds.

Warning

Deleted data feeds cannot be restored.

Tip

Export the data feed (Page 76) to create a backup copy, if required.

Prerequisite

You have the appropriate edit privileges.

Procedure

1. Display the **Home** page.
2. On the **Data feeds** tab, select the data feed you want to delete.
3. Click **More > Delete** above the preview.

The selected data feed is deleted from the list of available data feeds.

You can delete multiple data feeds simultaneously (Page 75) in Administration.

6.4.4 Edit data feeds

You can use the **Feed Editor** to edit available data feeds and tailor them to your requirements.

Prerequisite

You have the **Edit** user privilege.

Procedure

1. Display the **Home** page.
2. On the **Data feeds** tab, select the data feed you want to edit.
3. Click **Edit** above the data feed preview.

    The Feed Editor opens with the corresponding feed definition.
4. Enter your changes.
5. Click **Save**.

Your changes are applied.

6.4.5 Copy data feeds

You can create a copy of an available data feed with a different name.

Prerequisite

You have privileges for editing or copying (Page 57) the data feed.

Procedure

1. Open a data feed in the Feed Editor (Page 59).

2. Click ⬇️ **Save as** in the title bar.

3. Give the new data feed a name of your choice.

4. If necessary, enter a description and keywords.

5. Click **OK**.

The data feed is saved under the name entered and opens in the Feed Editor.

6.4.6   Use data sources

You can insert one or more data sources into your feed definitions (Page 3).

The data can come from different sources and is combined and calculated using operators (Page 62). Possible data sources include Excel, CSV, or XML files, analysis results from ERP or CRM systems, queries from data warehouses, or freely available data from the Internet.

Based on the data sources, feed definitions are used to calculate the data of a data feed (Page 3).

The source data is not held redundantly in the data feed, but remains in its original sources, ensuring that it is constantly up to date.

Different setting options and anchor points (◈) for connections are available depending on the type of data source.

Procedure

1. Open a data feed (Page 59) or create a new data feed (Page 22).

2. Insert a data source into the feed definition.

    a. Click a data source, e.g., CSV file, in the **Data sources** bar.

        The data source is inserted into the feed definition.

    b. Alternatively, click a data source in the **Data sources** bar, hold down the mouse button, and drag the data source to the desired position in the feed definition.

3. Specify your settings for the data source (Page 61).

4. Link the inserted data source to an operator.

    a. Click an outgoing anchor point (◈) of the data source.

    b. Hold down the mouse button and drag the mouse pointer to the incoming anchor point (◈) of an operator.

        Permitted anchor points for the selected element are displayed in green.

The data source is available in your data feed. The data of the data source is forwarded to the linked operator.

If required, click an anchor point to remove an existing link.

If you wish, insert more data sources into the feed definition and link the elements to one another.

▪ In a feed definition, in addition to the data sources, you can use user input (Page 63) to enter data in the data feed.

▪ To be able to select source files by specifying the path (CSV, XLS und XML), you must store them in a defined resource directory on the MashZone server (by default the **resources** directory in the installation directory). Copy your source files to the **resources** directory of your installation, or any subdirectory **resources\<directory>**.

▪ The appendix provides a list of available data sources (Page 195).

6.4.7   Set source data

For each data source, you can specify the data to be extracted.

Different **options** are available for setting the source data depending on the data source type. The Feed Editor provides predefined default values for each data source, which you can adapt according to your requirements.

You can view the raw data of the source file (Page 63), which you can then use as a basis for specifying settings for the source data.

Setting the source data is described here for an Excel data source as an example.

Procedure

1. Open a data feed in the Feed Editor (Page 59).

2. Insert an MS Excel file in your feed definition as the data source (Page 23).

3. Click the **Select data source** button in the **Source** box.

4. Select a data source and specify your settings.

5. Click **Configure columns** to select the columns to be extracted.

   The **Configure columns** dialog is displayed.

   a. Select the columns of the source file to be extracted.

   b. Click a row in the **New name** column and enter a name to be used in the data feed instead of the original name of the column.

   c. Enable the **Type as text** option if the corresponding column content is to be used as text.

   d. Click **OK**.

6. Click **Options** to display or hide the options that can be set in the bar as required.

7. Click the **Sheet** selection box and select the worksheet of the Excel file that you want to extract.

   The first worksheet of the Excel file is set by default.

8. Enable the **Column name from row** option and enter a value.

   The column titles of the data feed are taken from the data in the corresponding row of the Excel table. The default value is 1.

9. Enable the **Import values from row** option and enter a value.

    The data to be evaluated is extracted starting from the specified row of the Excel table. The default value is 2.

10. Enable the **Import data range from...to...** option and enter the coordinates of table cells, e.g., C5 and H8.

    The rows and columns between the specified coordinates are extracted. For example, in this case from column C to column H and row 5 to row 8.

The source data is set and is extracted according to your settings.

6.4.8 Use operators

You can use operators to aggregate, extend, transform, or calculate data in feed definitions (Page 3). A feed definition can consist of any number of operators, which are linked together using connections. As the result, each operator returns a data structure in the form of a list table and forwards this to the operators linked by the connections.

Different setting options and anchor points (e.g.,) for connections are available depending on the type of operator.

Procedure

1. Open a data feed in the Feed Editor (Page 59).

2. Click the **operator groups** in the **Operators** bar, e.g., Calculation.

    The corresponding operators are displayed in the bar.

3. Insert an operator, e.g., an aggregation, into the feed definition.

    a. Click an operator in the bar.

        The operator is inserted into the feed definition.

    b. Click an operator in the bar, hold down the mouse button and drag the operator to the desired position in the feed definition.

4. Link the inserted operator to existing elements, e.g., another operator or a data source.

    a. Click an outgoing anchor point () of an element, e.g., an operator.

    b. Hold down the mouse button and drag the mouse pointer to the incoming anchor point ( ) of the inserted operator.

        Permitted anchor points for the selected element are displayed in green.

    The data of the linked element is forwarded to the inserted operator.

5. Click an anchor point to remove an existing link.

6. Specify your settings for the inserted operator.

7. If you wish, insert more operators or data sources into the feed definition and link the elements to one another.

8. Link an operator to the **Output** element to finish the feed definition (see **Finish data feed** (Page 30) chapter).

The data is calculated based on your feed definition.

You can check the results of your feed definition for correctness by calculating the result and displaying it in a table (Page 24).

6.4.9   Use user input

You can use user input to insert interfaces into a data feed, enabling a user to manually enter data in a dashboard, which can then be processed directly in the data feed.

You can also specify a **Debug value** and a **Default value**. The debug value is used if a test calculation is performed within the Feed Editor. The default value is used if the user does not provide any input.

Any amount of user input can be inserted in a feed definition. The names of the individual user input must be unique within the feed definition. The debug and default values are optional.

Procedure

1. Open a data feed (Page 59) or create a new data feed (Page 22).
2. Insert a user input into the feed definition.
    a. Click a user input in the **User input** bar.

        The user input is inserted into the feed definition.
    b. Click a user input in the **User input** bar, hold down the mouse button and drag the user input to the desired position in the feed definition.
3. Enter the name of your choice in the **Name** input box of the **User input** element.
4. If required, enter a value in the **Debug value** input box.
5. If required, enter a value in the **Default value** input box.
6. Link the inserted user input to an operator.

    a. Click an outgoing anchor point ( ) of the **User input** element.
    b. Hold down the mouse button and drag the mouse pointer to an incoming anchor point ( ) of an operator.

        Permitted anchor points for the selected element are displayed in green.

        Links between user input and operators are indicated by blue connections.

    The data of the user input is forwarded to the linked operator.
7. If required, click an anchor point to remove an existing link.

You can enter data in a dashboard by inserting an input box and defining the input box as a filter criterion for a data feed (Page 18).

6.4.10   Display raw data

You can display the raw data of specific data sources to view their content and original structure, e.g., MS Excel and CSV files.

Procedure

1. Open a data feed in the Feed Editor (Page 59).

2.   Click ⌨ **Display raw source data** in the footer of a data source.

The original data of the data source is displayed in the results table.

Example

The following example shows the raw data of the Excel file **Roadshow_Stops.xls**. The first row contains the column title and the data that can be evaluated starts from the second column.

Example: Raw data of extracted Excel file

6.4.11   Set cache time

You can set a cache time for most data sources.

The cache time indicates the time interval during which the data in the cache is to remain valid. After the cache time has been exceeded, the data from the data source is re-imported into the cache as soon as a dashboard or data source requests that data again. The data feed is then recalculated.

Procedure

1.   Insert a data source into the feed definition (Page 23).

2.   Click **Select data source > Set cache time**.

     The **Set cache time** dialog is displayed.

3.   Select a time interval for the cache time.

4.   Click **OK**.

Your changes are applied.

You can update source data manually (Page 64) for most data sources.

6.4.12   Reload source

You can update source data manually for most data sources.

The data is reloaded from the data source into the cache, and the data feed is recalculated.

Procedure

1.   Open a data feed in the Feed Editor (Page 59).

2.   Click **Select source (...) > Reload source** in the **Source** input box.

The data is imported from the data source into the cache of the current data feed.

6.4.13　Change data feed description

You can enter a **description** for a data feed.

Procedure

1. Open a data feed in the Feed Editor (Page 59).
2. Click **More > Properties** in the program bar.
3. Enter a text of your choice as a description of the data feed in the **Description** box.
4. Click **OK**.

Your changes are applied.

6.4.14　Change data feed name

You can change the **name** of a data feed later.

Procedure

1. Open a data feed in the Feed Editor (Page 59).
2. Click **More > Properties** in the program bar.
3. Enter a text of your choice as the name of the data feed in the **Name** box.
4. Click **OK**.

Your changes are applied.

6.4.15　Assign keywords to a data feed

You can assign a list of **keywords** of your choice to a data feed.

Procedure

1. Open a data feed in the Feed Editor (Page 59).
2. Click **More > Properties** in the program bar.
3. Enter a data feed context-relevant term in the **Keywords** box.
4. Click **OK**.

Your changes are applied.

6.4.16　Display change history of a data feed

You can monitor the change history of a data feed.

The change history shows you the time, author, action, and comments for all changes to the data feed.

Procedure

1. Open a data feed in the Feed Editor (Page 59).
2. Click **More > History** in the program bar.

The change history is displayed.

6.4.17   Display data feed properties

You can display and edit the properties of a data feed.

Under Properties, you can edit the **names**, **description**, and **keywords** of the data feed. In addition, the **internal ID**, the installed MashZone **edition**, the **last change**, and **history** are displayed. You can also configure whether a prompt for entering a comment is displayed when saving a change.

Prerequisite

You have the appropriate edit privileges.

Procedure

1.   Display the **Home** page.

2.   Select a data feed on the **Data feeds** tab.

3.   Click **More > Properties** above the preview.

4.   Specify your settings.

Your changes are applied.

6.4.18   Set display size

You can set the display size of the currently displayed feed definition in the editor view.

Set the zoom factor to improve the clarity of a feed definition in the editor view.

Procedure

1.   Open a data feed in the Feed Editor (Page 59).

2.   Click the **Zoom out** (🔍) or **Zoom in** (🔍) buttons.

3.   Alternatively, hold down the mouse button and drag the slider (◯) toward **Zoom out** (🔍) or **Zoom in** (🔍).

4.   Click **100%** to restore the default display size.

The display size of the feed definition is adjusted accordingly.

6.4.19   Hide quick start guide

You can hide the quick start guide displayed in the Feed Editor and thus create more space for your data feed elements.

The quick start guide provides you with a brief overview of how to create a data feed. By default it is displayed transparently on the right side of the Feed Editor.

Procedure

1.   Open a data feed in the Feed Editor (Page 59).

2.   Move the mouse pointer over the quick start guide.

3.   Click the **Hide quick start guide** (**x**) button.

The quick start guide is hidden in the Feed Editor.

To show the quick start guide again, click **Display quick start guide** in the title bar.

6.5   Manage MashZone

6.5.1   Open MashZone Administration

In MashZone Administration you can manage your MashZone installation.

Prerequisite

You have the **Dashboard administrator** function privilege.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

6.5.2   Use MashZone Administration

These are a few of the tasks you can perform in MashZone Administration.

Prerequisite

You have the **Dashboard administrator** function privilege.

▪   Edit e-mail templates (Page 72)

- Enter Google Maps key (Page 73)

- Register geomaps provider (Page 74)

- Change proxy server settings (Page 74)

- Manage dashboards and data feeds (Page 75)

To carry out the following functions in MashZone Administration you need MashZone **Enterprise** edition.

- Manage resource directories (Page 68)

- Set database connections (Page 79)

CENTRAL USER MANAGEMENT

In MashZone Administration, you call the central user management that you can use to perform the following tasks.

Prerequisite

You have the **Dashboard administrator** function privilege.

You have the **User management** function privilege.

You have the **License management** function privilege.

Your MashZone license includes the **Enterprise** edition.

- Manage users and user groups (Page 102)

- Assign user privileges (Page 102)

- Manage licenses (Page 103)

6.5.3   Manage resource directories

6.5.3.1   Create resource directory

You can create new resource directories and share them with particular users and groups.

The resource directories contain data source files, which can be extracted by data feeds.

The default resource directory **resources** is located in your installation directory under

\ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\resources

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

You can specify the paths to resource directories as local paths (e.g., C:\My MashZone resources) or as UNC paths for network drives (e.g., \\computer name\MashZone resources). The specified network drives must be connected with the computer on which you are running MashZone. You also need the read privilege for accessing the network.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Click **Create**.

6. Give the directory a name of your choice in the **Alias** input box.

   You cannot modify the alias name later.

7. Enter the **Path** of the new resource directory.

8. Click **Save**.

   The **Share** dialog is displayed.

9. Display the **User** or **Group** tab.

10. Enable the option **Display** for the relevant users or groups.

11. Click **Share**.

The new resource directory is created and is displayed in the list with the specified alias. The resource directory is shared with the selected users and groups.

Copy your source files to a resource directory or a suitable subdirectory in order to make them available as resources in MashZone.

6.5.3.2 Change resource directory

You can adapt the path of already existing resource directories.

The default resource directory **resources** is located in your installation directory under

\ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\resources

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

You can specify the paths to resource directories as local paths (e.g., C:\My MashZone resources) or as UNC paths for network drives (e.g., \\computer name\MashZone resources). The specified network drives must be connected with the computer on which you are running MashZone. You also need the read privilege for accessing the network.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Select a resource directory in the list.

6. Click **Edit**.

7. Enter the **Path** of the resource directory.

8. Click **Save**.

Your changes are applied.

You can share existing resource directories with particular users (Page 70).

6.5.3.3 Delete resource directory

You can delete existing resource directories.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Select a resource directory in the list.

6. Click **Delete**.

The directory selected is deleted from the list.

6.5.3.4 Share resource directory

You can share resource directories with particular users and user groups so that these have access to the directory content.

Regardless of the share, users with administration privilege can access all resource directories.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Select a resource directory in the list.

6. Click **Share**.

The **Share** dialog is displayed.

7. Display the **User** or **Group** tab.

8. Enable the option **Display** for the relevant users or groups.

9. Click **Share**.

The resource directory is shared with the selected users and groups.

6.5.3.5   Export resource directory

You can export individual resource directories.

The exported resource directories are stored in the **importexport** directory of your MashZone installation. The directories are saved with the corresponding settings and shares as MashZone ***.mzp** archive files.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_FILESYSTEM_<directory name>_<time stamp of export>.mzp

e.g., A_FILESYSTEM_resources_20130129-15-15-40.mzp

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Select a resource directory.

6. Click **Export**.

7. Click **OK**.

The resource directory selected is saved as an archive file.

6.5.3.6   Import resource directory

You can import individual resource directories.

You can import only resource directories that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If a resource directory with the same name already exists it cannot be imported. The existing directory must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Resources** tab.

5. Click **Import**.

6. Select a resource directory.

7. Click **OK**.

The resource directory selected is imported including the associated shares and displayed in the list.

6.5.4   Edit e-mail templates

You can customize the templates of the e-mail notifications for shared dashboards and shared data feeds.

When sharing a dashboard or data feed, you can notify the relevant users by e-mail. The notification is sent via your standard e-mail program and contains the text defined in the e-mail template. The e-mail text is displayed in the language that you used for logging in to MashZone.

You can also add placeholders in the text, which will be automatically replaced by the corresponding data.

Placeholders available

- [mashapp.name] - Name of the shared dashboard

- [mashapp.link] - Link to the shared dashboard

- [mashapp.mobilelink] - Link of the shared dashboard for Apple iPad

- [mashapp.description] - Description of the shared dashboard

- [feed.name] - Name of the shared data feed

- [feed.description] - Description of the shared data feed

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **E-mail templates** tab.

5. In the **Templates** selection box, choose whether you want to create a template for dashboards or data feeds.

6. In the **Language** selection box, select the language for the e-mail notification.

    The e-mail text is displayed in the language selected.

7. Enter any text in the **Subject** and **Body** input boxes.

8. If you want to insert a placeholder click the corresponding position in the text.

9. Click the button of the relevant placeholder.

    The placeholder is inserted.

10. Click **Save**.

Your changes are applied.

To display the default text in the e-mail again, click **Restore default text**.

6.5.5   Enter Google Maps key

If you want to use the **Google Maps** display component you must specify a Google Maps API key registered with Google Maps or a valid Google Maps API Premier client ID in MashZone. Google Maps API keys are no longer supported by Google and can no longer be requested.

From September 2014, Google will discontinue its map service for the Flash-based map component. The **Google Maps** component will become unusable. Please use the new **geomaps** (Page 74) component instead.

You can convert existing Google Maps to geomaps by Bing Maps and MapQuest (Page 140).

If you want to use the **Geocoding** operator for feed calculation you need to accept the Google Google Maps API terms.

If you want to use the **Geocoding** operator without restrictions (more than 2,500 queries per day) for feed calculation, you must specify your personal Google Maps API Premier signing key.

▪ You can request a Google Maps API Premier client ID from Google Enterprise Support.

▪ In server settings, click **Google Enterprise Support** on the **Google Maps** tab to register with Google Maps and receive a valid API Premier client ID.

▪ You receive your personal Google Maps Premier signing key together with your client ID. Client IDs are provided to all Google Maps API Premier customers and developers applying for using Places Web services.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Google Maps** tab.

5. In the input box, enter a valid Google Maps API key or Google Maps API Premier client ID.

6. Click the **Google Maps API terms** link to display the terms of usage.

7. If you accept the terms, enable the option **Accept Google Maps API terms**.

8. Enter a valid signing key in the **Google Maps API Premier signing key** input box.

9. Click **Save**.

The keys you entered are saved.

You can use the Google Maps display component and the **Geocoding** operator without restrictions.

6.5.6   Register geomaps provider

For the Geomap (Page 146) display component, MashZone provides the **Bing Maps** and **MapQuest** map services. In the **Geomaps** component in Administration you can select one or both providers to be able to access their map services.

If you want to use **Bing Maps** maps you need to enter an API key registered with Bing Maps in MashZone. You request the Bing Maps API key from **Bing Maps for Enterprise**.

If you want to use **MapQuest** maps you need to accept the MapQuest terms of use in MashZone.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Geomaps** tab.

5. To use Bing Maps, enter a valid Bing Maps API key in the input box.

6. To use MapQuest maps, open and read the **MapQuest Terms of Use** and **Additional Legal Requirements**, and enable the option **Accept MapQuest Terms of Use**.

7. Click **Save**.

Your settings are applied.

You can now use the maps provided by the selected map service in the **Geomap** display component.

6.5.7   Change proxy server settings

You can change the settings for your proxy server.

Depending on your proxy server, you might have to log in. To obtain the required user name and password contact your system administrator.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Server settings** in Administration.

4. Display the **Proxy server** tab.

5. Enable the **Use proxy** option.

6. Enter the name of your proxy server in the **Proxy server** input box.

7. Enter the port number of your proxy server in the **Port** input box.

8. If required, enter the user name you use to log in to your proxy server in the **User** input box.

9. If required, enter the password you use to log in to your proxy server in the **Password** input box.

10. In the **No proxy for** input box, specify the computer names or domain names to be excluded from proxy server access separated by a semicolon.

11. Click **Save**.

Your settings are applied.

Topics in this area

6.5.8 Manage dashboards/data feeds

6.5.8.1 Delete data feeds/dashboards

In the MashZone Administration, you can delete individual or multiple dashboards and data feeds.

Warning

Deleted dashboards and data feeds cannot be restored. Export the dashboards and data feeds (Page 76) to create a backup copy, if required.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. In Administration, click **Import/Export/Delete**.

4. Display the **Delete** tab.

5. Select the data feeds to be deleted in the **Existing data feeds** column.

6. Click **Delete selection** below the **Existing data feeds** column.

   A message on the deletion procedure is displayed.

7. Click **OK**.

8. Select the dashboards to be deleted in the **Existing dashboards** column.

9. Click **Delete selection** below the **Existing dashboards** column.

   A message on the deletion procedure is displayed.

10. Click **OK**.

11. Click the **Delete all** button to delete from the database all dashboards and data feeds shown in the list.

The selected data feeds and dashboards have been deleted.

You can also delete individual dashboards (Page 32) and data feeds (Page 59) on the **Home** page.

6.5.8.2   Export data feeds/dashboards

You can export your data feeds and dashboards. This way, you can provide your dashboards and data feeds to other users. You can also export the access privileges associated with the data feeds and dashboards.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

For exported dashboards and data feeds, archive files are created and saved applying the following naming conventions.

▪ Dashboards: M_<dashboard name>_<revision>_<date>-<time>.mzp

▪ Data feeds: F_<data feed name>_<revision>_<date>-<time>.mzp

When you export dashboards, the associated data feeds are automatically exported, as well and saved in the corresponding dashboard file.

Example

F_Demo GreenCar Roadshow Participants_22_20091104-09-57-37.mzp

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. In Administration, click **Import/Export/Delete**.

4. Display the **Export** tab.

5. If you want to export data feeds, select the relevant ones in the **Existing data feeds** column.

6. Click **Export selection** below the **Existing data feeds** column.

   A dialog box for exporting access privileges is displayed.

7. If you want to export dashboards, select the relevant ones in the **Existing dashboards** column.

8. Click **Export selection** below the **Existing dashboards** column.

   A dialog box for exporting access privileges is displayed.

9. Select an option for exporting access privileges.

10. Click **Export**.

   An export process note is displayed.

11. Click **OK**.

The selected data feeds, dashboards, and access privileges have been exported. Access privileges exported were written to the archive files of the individual data feeds and dashboards.

Click **Export all** to export all existing dashboards and data feeds.

6.5.8.3　Import data feeds/dashboards

You can import individual or all available data feeds and dashboards into MashZone.

You can import only dashboards and data feeds that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

You can also import the access privileges associated with the data feeds and dashboards. If dashboards or data feeds to be imported already exist in MashZone you can keep, overwrite, or reassign existing access privileges.

Warning

If you overwrite existing data feeds during the import, they are irreversibly lost.

Prerequisite

You have copied all data feed archive files (F_*.mzp) and dashboard archive files (M_*.mzp) that you want to import into MashZone to the **importexport** directory.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. In Administration, click **Import/Export/Delete**.

4. Display the **Import** tab.

5. Import individual data feeds or dashboards.

   a. Click **Import**.

   b. Select the relevant file.

   c. Click **OK**.

d. Click **Next** in the **Notes** dialog.

   The dialog informs you on possible import conflicts.

6. Import all available data feeds and dashboards.

   a. Click **Import all**.

   b. Click **Next**.

   c. Click **Next** in the **Notes** dialog.

      The dialog informs you on possible import conflicts.

   The **Specify import of access privileges** dialog is displayed.

7. In the **Specify import of access privileges** dialog, select an option to specify how access privileges are to be handled during import.

   If you select the option **Specify manually for all dashboards and data feeds**, or if dashboards and data feeds without access privileges exist the **Share** dialog is displayed and you can assign access privileges to the dashboards and data feeds imported.

8. Click **Import**.

9. If required, assign the access privileges in the dialog displayed, **Share**.

10. If you want to transfer the set access privileges to the dashboards and data feeds imported click **Transfer shares to import**.

11. Click **Allow import only for me** if you want the access privileges of the dashboards and data feeds imported to be valid for you only.

12. A corresponding note is displayed.

13. Click **OK**.

The selected import process is completed.

6.5.8.4   Share data feeds and dashboards

As a dashboard administrator, you can view and edit certain dashboards and data feeds.

By default, administratos in MashZone do not automatically have access privileges for all dashboards and data feeds.

Prerequisite

You have the **Dashboard administrator** function privilege.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. In Administration, click **Import/Export/Delete**.

4. Display the **Share** tab.

5. Select the dashboards and data feeds to be shared in the **Existing dashboards** and **Existing data feeds**.

6. Click **Assign share**.

7. Click **OK**.

The dashboards and data feeds selected are now shared with the **Administrator** and can be viewed and edited.

6.5.9   Set database connections

6.5.9.1   Install database drivers

Before you can use a database connection in MashZone you need to provide the required database drivers in MashZone.

▪ MashZone currently supports JDBC database connections that require system-specific JDBC drivers.

▪ For license reasons, MashZone does not come with database drivers.

▪ Please contact your system administrator for more information.

You cannot simultaneously use multiple different database drivers using the same URL syntax in MashZone (e.g., two versions of a database driver).

Use Cloud Controller (CC) to install the necessary JDBC drivers in MashZone. Cloud Controller installs the driver(s) in the corresponding JDBC driver directory.

The default JDBC driver directory **jdbcdrivers** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\jdbcdrivers

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Cloud Controller executes in a command line. To install the JDBC driver, enter the following command.

```
enhance mashzone_? with jdbcDriver local file "<file>"
```

The parameter **mashzone_?** specifies the memory configuration, and **<file>** specifies the path to the JDCB driver file.

Example

enhance mashzone_m with jdbcDriver local file "c:/folder/jdbc_driver.jar"

Procedure

1. Launch Cloud Controller by clicking **PPM and MashZone Cloud Controller** in the **Software AG > Administration** program group.

   Cloud Controller opens as a command line.

2. Execute the following commands in the command line.

   a. enhance mashzone_? with jdbcDriver local file "<file>"

   b. stop mashzone_?

   c. start mashzone_?

The database drivers are now available in MashZone.

To ensure proper functioning of the MashZone database interface (Page 213) with the JDBC driver the installed driver must support the following configurations and interfaces.

▪ At the connection level

   AutoCommit = true

   readOnly = true

   transactionIsolationLevel = TRANSACTION_READ_COMMITTED, TRANSACTION_READ_UNCOMMITTED or driver default setting

▪ At the statement level

   QueryTimeout = variable

   MaxRows = variable

   FetchSize = 2000 or MaxRows-1(if MaxRows < FetchSize)

▪ MetaData of Resultset returns

   TableName

   ColumnCount

   ColumnName

   ColumnType

6.5.9.2 Create database connection

You can create connections to one or multiple databases in Administration.

Using database connections, data feeds access the corresponding databases as a data source.

You cannot simultaneously use multiple different database drivers using the same URL syntax in MashZone (e.g., two versions of a database driver). Please contact your system administrator for more information.

Prerequisites

Suitable database drivers are available in MashZone (Page 79).

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Database connections** in Administration.

4. Click **Create**.

5. Specify your settings.

    a. Give the connection a name of your choice in the **Alias** input box.

        You cannot modify the alias later.

    b. Select an installed **database driver** (Page 79) in the **Driver** selection box.

    c. Enter the address of the database in the **Database URL** box.

    d. In the **Database user** box, enter the user name that MashZone is to use for logging in to the database.

    e. In the **Database password** box, enter the password for the user that MashZone is to use for logging in to the database.

    f. In the **Pool size** box, specify the number of allowed simultaneous database connections.

        Select the pool size to be at least as large as the maximum number of simultaneous database queries in a dashboard. For example, if four components access the same database in a dashboard, the pool size must be set to a minimum of four in order to ensure reliable operation of the dashboard.

    g. In the **Connection timeout** box, select the time after which connection establishment is canceled if no connection is established.

    h. In the **Query timeout** box, select the time after which the database query is canceled if the database does not respond.

    i. If required, enter additional parameters in the **Optional parameters** box.

    j. Enable the **Active** option if the database connection is to be available in MashZone.

6. Click **Save**.

The database connection is created and displayed with its alias in the list.

You can test the created database connections for proper functioning. Click **Test database connection**.

6.5.9.3   Change database connection

You can change, activate, or deactivate existing database connections in Administration.

Using database connections, data feeds access the corresponding databases as a data source.

Warning

Changes in database connection properties can immediately affect data feed calculations so that they may not execute properly.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Database connections** in Administration.

4. Select a database connection.

5. Click **Edit**.

6. Specify your settings.

    You cannot modify the alias later.

7. Click **Save**.

Your changes are applied.

You can test the created database connection for proper functioning. Click **Test database connection**.

6.5.9.4   Delete database connection

You can delete existing database connections in Administration.

Warning

Deleting database connections can lead to data feed calculations accessing the database in question not being executed any longer.

You cannot undo the deletion process.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Database connections** in Administration.

4. Select one or more database connections.

5. Click **Delete**.

6. Confirm the deletion process by clicking **Yes**.

The selected database connections are deleted from the list.

6.5.9.5   Export database connection

You can export individual database connections.

The exported database connections are stored in the **importexport** directory of your MashZone installation. The database connections are saved with the corresponding settings and shares as MashZone ***.mzp** archive files.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_DATABASE_<database connection name>_<time stamp of export>.mzp

e.g., A_DATABASE_database_20130129-15-15-40.mzp

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Database connections** in Administration.

4. Select a database connection.

5. Click **Export**.

6. Click **OK**.

The database connection selected is saved as an archive file.

6.5.9.6   Import database connection

You can import individual database connections.

You can import only database connections that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If a database connection with the same name already exists it cannot be imported. The existing configuration must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Database connections** in Administration.

4. Click **Import**.

5. Select the relevant database connection.

6. Click **OK**.

The database connection selected is imported and displayed in the list.

6.5.10   Set up PPM connection

6.5.10.1 Create PPM connection

You can create connections to one or multiple PPM clients in Administration.

Using the PPM query interface, MashZone can communicate with different PPM clients and use them as a data source. The PPM query interface is provided by a specially configured Web application server, such as Tomcat.

For MashZone to be able to access the PPM client data all applications required must be started.

- PPM registry

- PPM Corba registry

- PPM client server

- PPM analysis server

- Tomcat of the PPM query interface

For details on your PPM installation, contact the system administrator in charge.

You can enter the connection data manually or determine them using the URL of a PPM favorite (favorites path). To do this, copy the URL of a favorite in PPM (pop-up menu of the favorite > Copy path as > URL for query interface) and enter them here. MashZone uses the URL of the favorite to determine the base URL of the PPM query interface of the relevant PPM client and transfers the connection data.

For information on copying a URL of a favorite, please refer to the **PPM help topics** in the online help.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **PPM connections** in Administration.

4. Click **Create**.

5. Enter any name for the PPM connection in the **Alias** input box, for example, the client name.

    The connection data is saved under an alias and is displayed.

6. Determine connection data using a URL of a favorite

    a. To retrieve the connection data from the URL of a favorite from PPM, click **Retrieve data**.

    b. Enter a URL of a favorite in the **URL** input box.

    c. Click **Resolve URL** to retrieve the required parameters from the URL.

    The connection data is retrieved and entered in the corresponding boxes.

7. If required, enter the connection data manually.

    a. Select the protocol that the Web application server uses to access the PPM query interface.

    b. In the **Host** box enter the computer name of the Web application server.

    c. In the **Port** box enter the port number of the Web application server.

    d. Specify the context of the PPM query interface in the **Context** box.

    The context has the format **API_<client name>**, e.g., API_umg_en.

8. Click **Check availability** to verify that the data is correct and that the PPM client is available.

9. Click **Save**.

The PPM connection is created and displayed with its alias in the list. In addition, the PPM version installed and the availability of the PPM client are displayed.

6.5.10.2   Change PPM connection

In Administration, you can change the settings of existing database connections.

Warning

Changes in PPM connection properties can immediately affect data feed calculations so that they may not execute properly.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **PPM connections** in Administration.

4. Select a PPM connection.

5. Click **Edit**.

6. Specify your settings.

7. Click **Save**.

Your changes are applied.

You can test the changed PPM connection for proper functioning. Click **Check availability**.

6.5.10.3   Delete PPM connection

You can delete existing PPM connections in Administration.

Procedure

1.   Display the **Home** page.

2.   Click **Administration** in the program bar.

     Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3.   Click **PPM connections** in Administration.

4.   Select one or multiple PPM connections.

5.   Click **Delete**.

6.   Confirm the deletion process by clicking **Yes**.

The selected PPM connections are deleted from the list.

6.5.10.4   Export PPM connection

You can export individual PPM connections.

The exported PPM connections are stored in the **importexport** directory of your MashZone installation. The PPM connections are saved with the corresponding settings and shares as MashZone ***.mzp** archive files.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_PPM_<PPM connection nameg>_<time stamp of export>.mzp

e.g., A_PPM_umg_20130129-15-15-40.mzp

Procedure

1.   Display the **Home** page.

2.   Click **Administration** in the program bar.

     Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3.   Click **PPM connections** in Administration.

4.   Select a PPM connection.

5.   Click **Export**.

6.   Click **OK**.

The PPM connection selected is saved as an archive file.

6.5.10.5 Import PPM connection

You can import individual PPM connections.

You can import only PPM connections that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If a PPM connection with the same name already exists it cannot be imported. The existing configuration must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.
3. Click **PPM connections** in Administration.
4. Click **Import**.
5. Select the relevant PPM connections.
6. Click **OK**.

The selected PPM connection with all relevant settings is imported and displayed in the list.

6.5.11 Set up Event Bus connection

MashZone provides an independent interface that you can use to process data published using Universal Messaging, webMethods Broker, and other JMS providers. In MashZone administration you can configure the interface in line with your requirements.

A so-called real-time buffer server acts as an interface. The real-time buffer server receives data from the Event Bus and provides it to MashZone.

Each real-time buffer server is connected to an MashZone server. A real-time buffer server can have a limited number of real-time buffer instances. Each buffer instance is assigned to a single channel of a specific Event Bus instance or a JMS provider instance. The instance caches the events published there in an internal memory. The method how events are saved in the real-time buffer follows specific strategies that can be selected. The cached content of the real-time buffer is transferred upon request via HTTP to MashZone.

To use the Event Bus interface you need to perform the following steps.

Prerequisite

You have installed the Event Bus interface.

Procedure

1. Configure real-time buffer server (Page 88)
2. Configure EDA connection (Page 88)
3. Configure real-time buffer (Page 92)
4. Start real-time buffer instance (Page 95)

6.5.11.1 Configure real-time buffer server

First, you need to specify the basic settings of the real-time buffer server to configure an EDA connection and create a real-time buffer.

To configure the real-time buffer server you need to specify the Event Type Store.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.
3. Click **webMethods Event Bus** in Administration.
4. Display the **Basic settings** tab.
5. Enter the path to the local Event Type Store in the **Event Type Store home directory** input box.
6. Click **Save**.

The real-time buffer server is configured.

You can configure your EDA connection (Page 88).

Click **Reload Event Type Store** to reimport the contents of the Event Type Store.

6.5.11.2 Configure EDA connection

Via the EDA connection, a real-time buffer instance can receive the events (messages) published on a certain channel of an Event Bus instance.

ALTERNATIVE JMS PROVIDERS

In addition to Universal Messaging and webMethods Broker, you can use alternative JMS providers, as well. To do so, you need the relevant libraries of that provider. The libraries must be saved in a path accessible for MashZone. You specify the path in the Event bus library path input box. You also need to specify the InitialContextFactory, a particular class of the provider-specific library.

The library and class required depends on the JMS provider you use. Please refer to the provider's product documentation for further information.

If you use Universal Messaging or webMethods Broker as a JMS provider the required configuration is preset.

Prerequisite

You have configured the real-time buffer server. (Page 88)

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **webMethods Event Bus** in Administration.

4. Display the EDA connections tab.

5. Click **Create**.

6. Specify your settings.

   a. The name of the Alias box is automatically assigned by MashZone.

   b. In the Initial Context Factory box, select a preset class from the library of the JMS provider used, or specify a class.

   c. In the JNDI Provider URL box, specify the URL for the JNDI provider according to the predefined examples.

      The selection available depends on the JMS provider set in the Initial Context Factory box.

   d. In the Connection Factory box, select the name of the Connection Factory to be used for establishing the connection to the JNDI provider.

      Click ⟳ Refresh to load the list of available Connection Factories.

   e. Click Advanced settings to specify more settings, if required.

7. Click **Save**.

The configuration of the EDA connection is created.

To edit an existing EDA connection click Edit.

6.5.11.2.1 EDA connection options

You can set the following options for the configuration of EDA connections (Page 88).

Parameter	Description
Alias	Unique name of the EDA configuration, automatically assigned by MashZone
	Specification: Mandatory

InitialContextFactory	Particular class of the library of the JMS provider used. Specification depends on the provider.
	You have the choice between **webMethods Broker** and **Universal Messaging** as a JMS provider.
	Specification: Mandatory
JNDI provider URL	URL to the JNDI Provider. The selection available depends on the JMS provider set in the **Initial Context Factory** box.
	webMethods Broker example
	wmjmsnaming://<broker>@<host>:<port>
	Universal Messaging examples
	nsp://<host>:<port>
	Specification: Mandatory
Connection Factory	Name of the Connection Factory to be used for connecting to the JNDI provider, e.g., EventFactory
	Specification: Mandatory
Advanced settings	
JNDI provider user	Name of the technical user for authenticating at the JNDI provider.
JNDI provider password	Password of the technical user for authenticating at the JNDI provider
Event bus library path	Path to the libraries of the JMS provider used. Specification depends on the provider.
	Specification: Mandatory
	You do not need to specify libraries for Universal Messaging and webMethods Broker.
Topic context	Specifies the context for the topics that are addressed via this EDA connection.

6.5.11.3 Delete configuration of an EDA connection

You can delete the existing configuration of the EDA connection.

Warning
Deleted EDA connections cannot be restored.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **webMethods Event Bus** in Administration.

4. Display the **EDA connections** tab.

5. Click **Delete**.

The EDA connection is deleted.

6.5.11.4   Export EDA connection

You can export the configuration of the EDA connection.

The exported EDA connection is stored in the **importexport** directory of your MashZone installation. The EDA connection is saved with the corresponding settings and shares as MashZone ***.mzp** archive file.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_EDA_<EDA connection name>_<time stamp of export>.mzp

e.g., A_EDA_eda_20130129-15-15-40.mzp

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **webMethods Event Bus** in Administration.

4. Display the **EDA connections** tab.

5. Click **Export**.

6. Click **OK**.

The EDA connection is saved as an archive file.

6.5.11.5   Import EDA connection

You can import individual configurations of EDA connections.

You can import only EDA configurations that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If an EDA connection with the same name already exists it cannot be imported. The existing configuration must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **webMethods Event Bus** in Administration.

4. Display the **EDA connections** tab.

5. Click **Import**.

6. Select an EDA connection.

7. Click **OK**.

The selected EDA connection with all relevant settings is imported and displayed.

6.5.11.6   Configure real-time buffer

You can create and configure multiple buffer instances for the real-time buffer server.

A real-time buffer server can have a limited number of buffer instances. Each buffer instance receives events published on a certain channel of a Broker instance and saves the published events in an internal memory.

See also

Chapter **Buffer options** (Page 93)

Prerequisite

You have configured the real-time buffer server. (Page 88)

You have configured the EDA connection (Page 88).

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Display the **Buffer settings** tab.

4. Click **Create**.

5. Specify your settings.

6. Click **Save**.

The real-time buffer configuration is created.

To create new real-time buffer instances you can copy existing configurations of real-time buffer instances and change these configurations, if required. You need to save the buffer instance copied under a new name.

To edit an existing real-time buffer instance, select one and click **Edit**.

Warning

Changes in buffer instance properties can immediately affect data feed calculations so that they may not execute properly.

6.5.11.6.1 Buffer options

You can set the following options for the buffer configuration (Page 92).

Parameter	Description
Alias	Unique name of the buffer instance, any selection Specification: Mandatory
Password	Password to be used for authenticating the **webMethods Events** data source at the real-time buffer instance Specification: Mandatory You must specify the password when setting the data source in the Feed Editor.
Start buffer automatically	Automatically starts the buffer instance when the MashZone server starts Specification: Optional
EDA connection	Configuration of the EDA connection that the buffer instance uses to access webMethods Broker Specification: Mandatory
Channel	Name of the channel whose data the real-time buffer is to receive Specification: Mandatory
Filter predicates	Filters the events to be imported by webMethods Broker Specification: Optional Detailed information on this topic is available in the webMethods Broker documentation.
Event type	Indicates the type of the events published on the topic Specification: Mandatory The corresponding event schemas must exist as XSD files in the Event Type Store directory.
Strategy	Strategy that the real-time buffer uses for saving the events imported by webMethods Broker Specification: Mandatory

Buffer	FIFO strategy (first in-first out): The last events published on a topic are cached.
▪ Capacity	Maximum number of cached events Specification: Mandatory
▪ Check validity	Checks whether the saved events are valid in terms of current time of application (ta) and removes invalid events from the buffer. ▪ An event has a time stamp in the form of a time interval (I) = Start time - End time [ts - te); with ts being an element of I, and te not being an element of I. ▪ The current time of application is determined by the start time of the event received last. ▪ An event is valid if the current time of application is within the interval, i.e., [ts <= ta < te). Available only for the **Buffer** strategy Specification: Optional
▪ Preprocess and filter heartbeats	Empty events without data are filtered out. The buffer contains only data events then. However, due to the events, application time continues to be updated and this forces a consolidation of the buffer content. Available only for the **Buffer** strategy Specification: Optional
▪ Consider dimension	Considers a particular dimension when saving events. Saves a separate event series for each dimension value Available only for the **Buffer** strategy Specification: Optional
▪ Dimension attribute	Indicates the event attribute whose value is used as a dimension value Available only for the **Buffer** strategy and if the **Consider dimension** option is enabled Specification: Mandatory
▪ Max. number of dimension values	Indicates the maximum number of different dimension values allowed Available only for the **Buffer** strategy and if the **Consider dimension** option is enabled Default value: 10 Specification: Mandatory

▪ Capacity per dimension value	Indicates the maximum number of events allowed per dimension value Available only for the **Buffer** strategy and if the **Consider dimension** option is enabled Default value: 100 Specification: Mandatory	
Delta	The real-time buffer is added to or deleted from the buffer based on the event ID and the event command. An event with the command **Insert** is saved in the buffer, any existing event with the same ID is overwritten. An existing event is deleted from the buffer through a new event with the same ID and the command **Remove**.	
▪ Event ID attribute	Indicates the attribute that determines the event identification Available only for the **Delta** strategy Specification: Mandatory	
▪ Command attribute	Specifies the attribute that determines the **Insert** or **Remove** command Available only for the **Delta** strategy Specification: Mandatory	

6.5.11.7 Start real-time buffer instance

For a real-time buffer instance to receive the relevant events from the Event Bus you need to start the instance.

If required, you can restart all buffers that had already been activated. The connection to the Event Bus is interrupted and re-established, and the events saved in the buffer are deleted.

You can stop an activated buffer instance if it is supposed to stop receiving events. Saved events of the buffer instance will be deleted.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.
3. Click **webMethods Event Bus** in Administration.
4. Display the **Buffer settings** tab.
5. Click **Restart** to reactivate all buffer instances.
6. Select a buffer instance and click **Start** to activate the instance.
7. Select a buffer instance and click **Stop** to deactivate the instance.

The selected buffer instances are activated or deactivated.

6.5.11.8 Delete real-time buffer configurations

You can delete existing configurations of real-time buffer instances.

Warning

Deleted configurations of buffer instances cannot be restored.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.
3. Click **webMethods Event Bus** in Administration.
4. Display the **Buffer settings** tab.
5. Select a buffer instance.
6. Click **Delete**.

The buffer instance configuration selected is deleted.

6.5.11.9 Export real-time buffer configurations

You can export individual real-time buffer configurations.

The exported real-time buffer configurations are stored in the **importexport** directory of your MashZone installation. The real-time buffer configurations are saved with the corresponding settings and shares as MashZone ***.mzp** archive files.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_RTBUFFER_<real-time buffer configuration name>_<time stamp of export>.mzp

e.g., A_RTBUFFER_realtimebuffer_20130129-15-15-40.mzp

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.
3. Click **webMethods Event Bus** in Administration.
4. Display the **Real-time buffer** tab.
5. Select a real-time buffer configuration.
6. Click **Export**.
7. Click **OK**.

The real-time buffer configuration selected is saved as an archive file.

6.5.11.10 Import real-time buffer configurations

You can import individual real-time buffer configurations.

You can import only real-time buffer configurations that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If a real-time buffer configuration with the same name already exists it cannot be imported. The existing configuration must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Prerequisite

The related EDA connection must be configured (Page 88).

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **webMethods Event Bus** in Administration.

4. Display the **Real-time buffer** tab.

5. Click **Import**.

6. Select a real-time buffer configuration.

7. Click **OK**.

The selected real-time buffer configuration with all relevant settings is imported and displayed in the list.

6.5.12   Set up Terracotta connections

6.5.12.1   Create Terracotta connection

You can create multiple connections to Terracotta in Administration.

Terracotta (http://www.softwareag.com/corporate/products/terracotta/default.asp) connections enable MashZone to access a remote cache, e.g., results of a CEP real-time calculation. The data is provided in separate data stores (caches) that can originate from different data sources. The caches are managed by so-called cache managers and configured in the cache configuration file **ehcache.xml**. MashZone is able to read the **ehcache.xml** configuration file and use its contents to access the data in the cache.

Please contact the system administrator in charge for further information on cache administration for your Terracotta connection.

Prerequisite

You have installed a Terracotta Server Array (TSA) (http://www.softwareag.com/corporate/products/terracotta/default.asp).

MashZone and TSA use the same Terracotta libraries (Page 320).

You have added the required Terracotta license in MashZone (Page 101).

Procedure

1.   Display the **Home** page.

2.   Click **Administration** in the program bar.

      Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3.   Click **Terracotta**.

4.   Click **Create**.

5.   In the **Alias** input box, enter any name for the Terracotta connection.

      The connection data is saved under an alias and is displayed.

6.   In the **Path to the file ehcache.xml** box, specify the path to the cache configuration file.

7.   In the **Cache manager** box, select the relevant cache manager.

      The cache managers available are part of the cache configuration.

8. Click **Load cache of the cache manager selected**.

9. In the **Cache** box, select the cache from which the data is to be extracted.

   The choice of caches depends on the type of cache manager selected.

10. Enable the **Active** option if the Terracotta connection is to be available in MashZone.

11. Click **Save**.

The Terracotta connection is created and displayed with its alias in the list.

6.5.12.2 Change Terracotta connection

You can change, activate, or deactivate existing Terracotta connections in Administration.

Warning

Changes in Terracotta connection properties can immediately affect data feed calculations so that they may not execute properly.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Terracotta**.

4. Select a Terracotta connection.

5. Click **Edit**.

6. Enter your changes.

   You cannot modify the alias later.

7. Click **Save**.

Your changes are applied.

6.5.12.3 Delete Terracotta connection

You can delete existing Terracotta connections in Administration.

Warning

Deleting Terracotta connections can lead to data feed calculations accessing the database in question not being executed any longer.

You cannot undo the deletion process.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Terracotta**.

4. Select one or multiple Terracotta connections from the list.

5. Click **Delete**.

6. Confirm the deletion process by clicking **Yes**.

The selected Terracotta connections are deleted from the list.

6.5.12.4   Export Terracotta connection

You can export individual Terracotta connections.

The exported Terracotta connections are stored in the **importexport** directory of your MashZone installation. The Terracotta connections are saved with the corresponding settings and shares as MashZone ***.mzp** archive files.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The archive files are saved applying the following naming conventions.

A_TERRACOTTA_<Terracotta connection name>_<time stamp of export>.mzp

e.g., A_TERRACOTTA_terracotta_20130129-15-15-40.mzp

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Terracotta**.

4. Select a Terracotta connection.

5. Click **Export**.

6. Click **OK**.

The Terracotta connection selected is saved as an archive file.

6.5.12.5   Import Terracotta connection

You can import individual Terracotta connections.

You can import only Terracotta connections that are stored in the import/export directory **importexport** of your MashZone installation. The files are saved as MashZone archive files, ***.mzp**.

If a Terracotta connection with the same name already exists it cannot be imported. The existing configuration must be deleted first.

The default import/export directory **importexport** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\importexport

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Terracotta**.

4. Click **Import**.

5. Select a Terracotta connection.

6. Click **OK**.

The selected Terracotta connection with all relevant settings is imported and displayed in the list.

6.5.12.6 Add Terracotta license in MashZone

To be able to use Terracotta connections you need to install a Terracotta server array (http://www.softwareag.com/corporate/products/terracotta/default.asp) and add the corresponding Terracotta license in MashZone.

Use Cloud Controller to add the required Terracotta license in MashZone.

Cloud Controller executes in a command line. To add the license enter the following command.

```
enhance mashzone_? with terracottaLicense local file "<file>"
```

The parameter **mashzone_?** specifies the memory configuration, and **<file>** specifies the path to the license file.

Example

enhance mashzone_m with terracottaLicense local file "c:\folder\terracotta-licence.key"

Procedure

1. Launch Cloud Controller by clicking **PPM and MashZone Cloud Controller** in the **Software AG > Administration** program group.

    Cloud Controller opens as a command line.

2. Execute the following commands in the command line.

    a. enhance mashzone_? with terracottaLicense local file "<file>"

    b. stop mashzone_?

    c. start mashzone_?

The Terracotta license was added in MashZone.

If you update your MashZone installation with a new version you must add your Terracotta license again in MashZone.

6.5.13   Manage users

6.5.13.1   Manage users and user groups

Use central user management to manage MashZone users and user groups.

You can:

- create, edit, and delete users and user groups

- specify user data, such as name, e-mail address, user name, and password

- assign users to particular user groups

The number of users you can create depends on your license key (Page 103).

In user groups, you can assign certain function privileges and license privileges (Page 102) to all group members or withdraw these privileges from them.

Prerequisite

You have the **Dashboard administrator** function privilege.

You have the **User management** function privilege.

You have installed the MashZone **Enterprise** edition.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

    Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Users and license** in Administration.

4. Click **Open central user management**.

5. Central user management opens.

6. Specify your settings.

Your settings are applied in MashZone.

Detailed information on using central user management is available in the user management online help.

6.5.13.2   Assign user privileges

Use user management to assign particular function privileges and license privileges to individual users and user groups or withdraw them again. For user groups, you assign function privileges to or withdraw them from all members of a group at the same time.

The following MashZone function privileges and license privileges are available.

FUNCTION PRIVILEGES

- Dashboard administrator

  This user can use MashZone Administration (Page 67).

LICENSE PRIVILEGES

- MashZone user

  This user can display and edit dashboards and data feeds and assign these privileges to other users.

- MashZone viewer

  This user can view dashboards and data feeds.

Prerequisite

You have the **Dashboard administrator** function privilege.

You have the **User management** function privilege.

You have installed the MashZone **Enterprise** edition.

Procedure

1. Display the **Home** page.
2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Users and license** in Administration.
4. Click **Open user management**.
5. user management opens.
6. Specify your settings.

Your changes are applied.

Detailed information on using central user management is available in the user management online help.

6.5.14   Manage licenses

Use user management to add new license keys to your MashZone license and delete existing license keys.

Entering multiple identical licenses adds to the maximum number of uses permitted for each license.

If all licenses were deleted or have expired only the **Users and license** component in Administration remains available in MashZone. To continue using MashZone you need to add a new license in user management.

Prerequisite

You have the **Dashboard administrator** function privilege.

You have the **License management** function privilege.

You have installed the MashZone **Enterprise** edition.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Users and license** in Administration.

4. Click **Open user management**.

5. user management opens.

6. Specify your settings.

Your settings are applied.

Detailed information on using central user management is available in the user management online help.

6.5.14.1   Licensing models

When purchasing MashZone licenses, you can choose between two different licensing models. Using both licensing models on one system is impossible.

NAMED USER LICENSE

This specifies the maximum number of users allowed to use MashZone with a registered, name-based access. Each user is assigned a fixed license privilege. When all license privileges are assigned, no other user can be assigned another license privilege.

CONCURRENT USER LICENSE

This specifies the maximum number of users with parallel access to MashZone. This means the maximum number of simultaneous MashZone sessions is specified. If the maximum number is reached, at least one session must be terminated before another user can log in.

6.5.15   Open central user management

Use central user management to manage MashZone users and user groups, manage licenses, assign privileges, and configure central system settings.

Prerequisite

You have the **Dashboard administrator** function privilege.

Procedure

1. Display the **Home** page.

2. Click **Administration** in the program bar.

   Depending on the Web browser settings, MashZone Administration opens either on a separate tab or in a separate browser window.

3. Click **Users and license** in Administration.

4. Click **Open central user management**.

   Central user management opens.

5. Specify your settings.

Your settings are applied in MashZone.

Detailed information on using central user management is available in the user management online help.

6.6   Other

6.6.1   Submit ratings

You can submit your own ratings for your available dashboards and data feeds.

The rating is displayed by the number of stars (⭐). It goes from **poor** (one star) to **excellent** (six stars).

Procedure

1. Activate the **Dashboards**, **Data feeds**, or **All** tab on the **Home** page.

2. Select a dashboard or a data feed that you want to rate.

3. To submit a rating, click one of the six stars (⭐) below the preview.

Your rating is applied and displayed as the corresponding number of stars.

You can use ratings as an advanced search option (Page 105).

6.6.2   Use extended search

You can further restrict the search (Page 9) for dashboards and data feeds by specifying search criteria.

- The **Define search field** selection box lists particular search fields that can further filter the search results, e.g., name or description. The search term is looked for only in the selected search field.

- The **Last change** slider takes into account the date on which the dashboard or a data feed was last changed.

  When importing dashboards and data feeds, they automatically receive the date of the import as the last change time.

- The **Rating** (Page 105) option restricts the search to the ratings submitted. Only those dashboards and data feeds rated with at least the selected number of stars will be displayed. For example, if you select three stars as the rating, only those dashboards and data feeds with three, four, and five stars will be displayed.

- The **My favorites** option restricts the search to dashboards and data feeds marked as favorites (Page 10).

Procedure

1. Display the **Home** page.

2. In the **Search** input box, enter one or more search terms, separated by spaces.

3. Click ▼ **Define search field** and select a search field to further restrict the search.

4. Click the **Delete entry** button (✖) in the **Find** input box to clear the search field.

5. Click **Filter** to display further search criteria.

6. Use the mouse to drag the **Last change** slider to the required period of time.

   The dashboards and data feeds displayed are filtered immediately.

7. Under **Rating**, click a star (★) to filter the list based on ratings.

8. Click ⟳ **Clear rating filters** to remove the set rating.

9. Enable the **My favorites** option to display only your favorites.

The dashboards and data feeds are immediately filtered and displayed. The search is performed automatically based on your settings. Only those dashboards or data feeds that match the set search criteria will be displayed.

6.6.3 Change password

You can change the password you use to log in to MashZone.

Procedure

1. Click **Logged in as** in the program title bar and then **Change password**.

   The **Change password** dialog is displayed.

2. Enter your current password in the **Old password** input box.

3. Enter your new password in the **New password** and **Confirm new password** input boxes.

4. Click **OK**.

Your password has been changed.

The next time you start MashZone you can log in with your new password.

6.6.4 Change language

You can change the language of the MashZone user interface.

To change the interface language, you need to log out of MashZone first and then log in again with the desired language.

MashZone is currently available in **German** and **English**.

Procedure

1. Log out of MashZone (Page 107).
2. Click the **Language** selection box and select the language in which you want the user interface to be displayed.
3. Click **Log in**.

MashZone starts in the selected language.

6.6.5 Log out of MashZone

You can log out of your current MashZone session.

Procedure

1. Display the MashZone **Home** page.
2. In the program bar, click the user name (▼) that you used to log in to MashZone.
3. Click **Deregister**.

You are logged out of your MashZone session and can log in again.

If you close MashZone before logging out of MashZone you need to wait at least one minute before you can log in to MashZone again using the same user name.

An MashZone session automatically expires after one minute once the MashZone window is closed.

MashZone only allows one login per user per session.

6.6.6 Display information about MashZone

You can view general information about your current MashZone version.

The **About MashZone** page provides you with information about the version and build number and the licensed MashZone edition. You can also call up the **MashZone** homepage from here.

Procedure

1. Display the MashZone **Home** page.
2. In the program bar, click the user name (▼) that you used to log in to MashZone.
3. Click **About MashZone**.

General information about your current MashZone version is displayed.

Topics in this area

7   Appendix

7.1   Display components

The following display components are available in the Composer (Page 12).

Table (Page 110)	Displays any number of KPIs and dimensions as a list table.
Border (Page 114)	Displays an empty frame that you can use to group components, for example.
Line chart (Page 115)	Can display values for two iterations. Two dimensions and one KPI can be used, or one dimension and multiple KPIs. The second iteration is displayed with several stacked lines. Multiple KPIs are then displayed using lines of different colors.
Column chart (Page 119)	Can display values for two iterations. Two dimensions or one dimension and multiple KPIs can be used. Multiple dimensions or KPIs can be displayed grouped or stacked. Thresholds can be displayed for all non-stacked column charts.
Bar chart (Page 122)	Can display values for two iterations. Two dimensions or one dimension and multiple KPIs can be used. Multiple dimensions or KPIs can be displayed grouped or stacked. Thresholds can be displayed for all non-stacked bar charts.
Bubble chart (Page 126)	One dimension and two KPIs can be used. The two KPIs are plotted on the X and Y-axis. The dimension is represented by different colors of the individual bubble areas. Optionally, a third KPI can be incorporated; its values determine the radii of the bubble areas.
Pie chart (Page 130)	Displays one or more KPIs iterated via a dimension (text or date dimension)
PPM chart (Page 133)	Displays a PPM chart.
Vector map (Page 136)	Displays KPIs for different elements of a vector map.
Google Maps (Page 140)	Displays GPS data in Google Maps as placemarks (POIs), routes, and areas.
Speedometer chart (Page 153)	Displays a set of aggregated KPI values. Value ranges can be defined and indicated by different colors. The value ranges are arranged in a semicircle.
Bar speedometer (Page 156) (vertical and horizontal)	Displays a set of aggregated KPI values. Value ranges can be defined and indicated by different colors. The value ranges are arranged as bars.

Single traffic light (Page 159)	Displays in color the range of values in which a KPI value is located.
Traffic light (Page 163) (vertical and horizontal)	A multi-color traffic light shows the threshold range in which a KPI value is located.
Text (Page 166)	Displays a fixed text you have entered, or a text that is specified dynamically in another component, e.g., a selection box.
LCD text (Page 169)	Displays a fixed text you have entered, or a text that is specified dynamically in another component, e.g., a selection box. The text is output in LCD format.
Image (Page 172)	Displays images of your choice in the dashboard.
Selection box (Page 176)	A drop-down menu provides the user with a selection of values.
Spin control (Page 179)	Provides the user with a selection of values in the form of a spin control. An autoplay function is also available.
Slider (Page 183)	Provides the user with a selection of values in the form of a slider.
Time filter (Page 187)	Displays an interactive calendar for configuring a time filter.
Input box (Page 191)	Enables you to enter values that can be used dynamically in other components.

7.1.1 Table

BEHAVIOR

Displays any number of KPIs and dimensions as a list table.

COMPONENT: TABLE

The following options are available for configuring the component.

Header	Displays the header with the column titles in the table
Horizontal grid lines	Displays the grid lines between the rows
Vertical grid lines	Displays the grid lines between the columns
Border	Displays a border around the component
Shadow	Emphasizes the table by displaying a shadow
Line break	If the text is too long it is automatically wrapped within a cell. If the option is disabled the text is shown in an abbreviated form with special characters ("…").

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany

- Participants: 280
- Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual component elements.
▪ Elements	Selects an element for which labels are set
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Header	Sets the color of the header. You can set two colors for a gradient.
▪ Grid lines	Sets the color of the horizontal and vertical grid lines.
▪ Rows	Sets the color of the rows. You can set two colors for a color change.
▪ Mouseover	Specifies the color of the mouseover effect. The mouseover effect emphasizes the element that the mouse pointer is currently positioned over.
▪ Selection	Sets the color of selected table cells.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.2   Empty frame

BEHAVIOR

Displays an empty frame that you can use to group elements, for example.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow

▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.3 Line chart

BEHAVIOR

Can display values for two iterations. Two dimensions and one KPI can be used, or one dimension and multiple KPIs.

The second iteration is displayed with several stacked lines. Multiple KPIs are then displayed using lines of different colors.

COMPONENT: LINE CHART

The following options are available for configuring the component.

Style	Assigns a style template to the component. You can customize individual elements of the style template.
Visibility	Defines the number of component elements to be displayed. You can customize the selection of elements.
Legend	Displays the legend.
Shadow	Highlights the data points and connection lines with a shadow.
Zoom	Displays a slider to scale the display size.
Interpolate	Interpolates and, if required, supplements missing values to display a continuous line.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280

- Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: - Color - Alignment - Font - Font size
Colors	Sets the colors of individual component elements.
▪ Data points	Assigns a particular color scheme to the data points of the component.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Axes	Sets the color of the chart axes.
▪ Selection	Sets the color of selected data areas.
▪ Gridlines	Sets the color of the gridlines.
▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.4   Column chart

BEHAVIOR

Can display values for two iterations as columns. Two dimensions or one dimension and multiple KPIs can be used. Multiple dimensions or KPIs can be displayed grouped or stacked.

Thresholds can be displayed for all non-stacked column charts.

COMPONENT: COLUMN CHART

The following options are available for configuring the component.

Style	Assigns a style template to the component. You can customize individual elements of the style template.
Visibility	Defines the number of component elements to be displayed. You can customize the selection of elements.
Values	Can display KPI values within the data points.
Legend	Displays the legend.
Shadow	Highlights the data points with a shadow.
Zoom	Displays a slider to scale the display size.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.

▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
▪ Elements	Element for which labels are set

▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Data points	Assigns a particular color scheme to the data points of the component.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Axes	Sets the color of the chart axes.
▪ Selection	Sets the color of selected data areas.
▪ Gridlines	Sets the color of the gridlines.
▪ Reflection	Sets the reflection effect of certain elements and the data points in percent (%).
▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.

▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.5   Bar chart

BEHAVIOR

Can display values for two iterations as bars. Two dimensions or one dimension and multiple KPIs can be used. Multiple dimensions or KPIs can be displayed grouped or stacked.

Thresholds can be displayed for all non-stacked bar charts.

COMPONENT: BAR CHART

The following options are available for configuring the component.

Style	Assigns a style template to the component. You can customize individual elements of the style template.
Visibility	Defines the number of component elements to be displayed. You can customize the selection of elements.
Values	Can display KPI values within the data points.
Legend	Displays the legend.
Shadow	Highlights the data points with a shadow.
Zoom	Displays a slider to scale the display size.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection

▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Data points	Assigns a particular color scheme to the data points of the component.

▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Axes	Sets the color of the chart axes.
▪ Selection	Sets the color of selected data areas.
▪ Gridlines	Sets the color of the gridlines.
▪ Reflection	Sets the reflection effect of certain elements and the data points in percent (%).
▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).

Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.6   Bubble chart

BEHAVIOR

One dimension and two KPIs can be used. The two KPIs are plotted on the X and Y-axis. The dimension is represented by different colors of the individual bubble areas. Optionally, a third KPI can be incorporated; its values determine the radii of the bubble areas.

COMPONENT: BUBBLE CHART

The following options are available for configuring the component.

Style	Assigns a style template to the component. You can customize individual elements of the style template.
Visibility	Defines the number of component elements to be displayed. You can customize the selection of elements.
Legend	Displays the legend.

Shadow	Highlights the data points with a shadow.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)

- Data element: Dimension **Region**

- Value: Germany

- Participants: 280

- Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: - Color - Alignment - Font - Font size
Colors	Sets the colors of individual component elements.
- Data points	Assigns a particular color scheme to the data points of the component.
- Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
- Axes	Sets the color of the chart axes.
- Selection	Sets the color of selected data areas.
- Gridlines	Sets the color of the gridlines.
- Reflection	Sets the reflection effect of certain elements and the data points in percent (%).
- Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.7 Pie chart

BEHAVIOR

Displays one or more KPIs iterated via a dimension (text or date dimension)

COMPONENT: PIE CHART

The following options are available for configuring the component.

Style	Assigns a style template to the component. You can customize individual elements of the style template.
Legend	Displays the legend.
Shadow	Highlights the pie segments with a shadow.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection

▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)

- ▪ Component: Column chart (not displayed)

- ▪ Data element: Dimension **Region**

- ▪ Value: Germany

- ▪ Participants: 280

- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
▪ Elements	Element for which labels are set
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Data points	Assigns a particular color scheme to the data points of the component.

▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Radial line	Sets the color of the radial lines.
▪ Label line	Sets the color of the label lines.
▪ Reflection	Sets the reflection effect of certain elements and the data points in percent (%).
▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border

Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.8 PPM chart

BEHAVIOR

Displays charts from PPM based on the URL of the favorite of PPM.

With the URL of the favorite and the PPM query interface, data is extracted from the relevant PPM client.

To extract the data from PPM, MashZone and PPM need to access the same central user management. This enables authentication of the current user by single sign-on (SSO). Or, a user created in PPM including the password must be specified.

The following charts are not supported.

▪ EPC

▪ Assessment chart

▪ Communication network

▪ Relation Explorer

Tip

You can insert PPM charts in a dashboard by copying one or multiple favorites in PPM with **Ctrl+C** and paste them with **Ctrl+V** in the dashboard.

COMPONENT: PPM CHART

The following options are available for configuring the component.

Jump to PPM	Enables you to jump to PPM using the chart's pop-up menu. The chart is then displayed in PPM with the current filter settings applied.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- Component ID: 1 (not displayed)

- Component: Column chart (not displayed)

- Data element: Dimension **Region**

- Value: Germany

- Participants: 280

- Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Colors	Sets the color of individual chart elements.
▪ Elements	Assigns certain colors to chart elements.
▪ Selection	Sets the color of selected data areas.
▪ Selection opacity	Sets the opacity of selected data areas.
▪ Preselection	Sets the color of preselected data areas.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size

Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.9 Vector map

BEHAVIOR

Displays KPIs for different elements on a vector map.

COMPONENT: MAP

The following options are available for configuring the component.

Border	Displays the individual segments of the map with a border.
Shadow	Highlights the map with a shadow.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements. Is available only if a label was specified.
Element	Element for which labels are set
Font	Sets the font display: ■ Color ■ Alignment ■ Font ■ Font size
Colors	Sets the colors of individual component elements.
■ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
■ Fill	Sets the color of the various elements of the map (e.g., countries or continents) if dynamic or absolute coloring was not enabled.
■ Disabled	Sets the color of the inactive elements, i.e., elements without assigned data.
■ Border	Sets the color of the border lines.
■ Mouseover	Specifies the color of the mouseover effect. The mouseover effect emphasizes the element that the mouse pointer is currently positioned over.
■ Reflection	Sets the reflection effect of particular elements.
■ Saturation	Sets the color saturation of particular elements in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)

▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.10 Google Maps

Displays GPS data in Google Maps as placemarks (POIs), routes, and areas. The different views are assigned to the corresponding layers, i.e., base layer, placemark layer, route layer, and area layer.

From September 2014, Google will discontinue its map service for the Flash-based map component. The **Google Maps** component will become unusable. Please use the new **geomaps** (Page 74) component instead.

You can create a copy of existing Google Maps components as geomap components for Bing Maps and MapQuest. In the pop-up menu, display the **Google Maps** tab and click **Create copy as a geomap**. All levels and settings of the original Google Maps component are transferred to the new geomap component. The only precondition for this is that you register the map service of both providers (Page 74).

The Google Maps maps are replaced as follows.

- ▪ Google Map -> Bing Map
- ▪ Google Satellite -> Bing Satellite
- ▪ Google Hybrid -> Bing Hybrid
- ▪ Google Terrain -> MapQuest

Prerequisite

You have installed the Google Maps API key in Administration and accepted the Google Maps terms (Page 73).

First select a layer to configure its properties. The following options to configure the various layers are available.

Option	Description
BASE LAYER	
General settings	Enables you to configure general settings for the base layer.
Map type	Displays the buttons for selecting the map types and sets the initial map type: Map, Satellite, Hybrid, Terrain

Position	Displays the buttons for setting the position in the map and moves the map section.
Overview	Displays an additional small overview in the map.
Zoom	Displays buttons for setting the zoom factor in the map.
Zoom slider	Displays a slider for setting the zoom factor in the map.
Scaling	Displays a scale (metric or imperial) in the map.
Map section	Offers options for setting the map section.
Interaction options	Offers options to interact with the map. Click **Edit interaction options**. Double-click to zoom: Zooms the map to the mouse position. Mouse wheel zoom: Drag
Automatic zoom on data	The map selects the zoom factor so that all POIs are visible on the map. This happens automatically if the map contains new data.
Automatic focus on data	The map zooms to the center of the POIs. This happens automatically if the map contains new data.
Data retrieval	Enables you to configure automatic data retrieval for the component.
Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
Load activity icon	By default displays an animation if loading is taking a lot of time. Can be disabled with the option **None**.

PLACEMARK LAYER	
General layer settings	Sets the placemark layer properties.
Display placemarks	Displays all placemarks, i.e., points of interest (POIs) on a map. The maximum number is 200.
Display all pop-ups	Displays all pop-ups set in data mode on the map. Pop-ups cannot be closed.
Top-align pop-ups	Opens pop-ups to the top.
Placemarks	Sets the display of the placemarks (POIs).
Border	Sets the color of the placemarks' border.
Border (selected)	Sets the color of a selected placemark's border.
Fill	Sets the color of the placemarks' fills.
Fill (selected)	Sets the color of the fill of a selected placemark.
Border weight	Sets the weight of the placemarks' border.
Opacity	Sets the transparency effect of the placemarks.
Size	Sets the size of the placemarks.
Pop-ups (current layer)	Sets the display of the pop-ups.
Border	Sets the color of the pop-up border.
Border (selected)	Sets the color of a selected pop-up's border.
Fill	Sets the color of the pop-ups' fill.
Fill (selected)	Sets the color of the fill of the pop-up of a selected placemark.
Border weight	Sets the weight of the pop-ups' border.

ROUTE LAYER	
Colors	Sets the colors of the layer elements.
Line	Sets the color of the route.
Line (selected)	Sets the color of a selected route.
Line weight	Sets the weight of the route.
Line weight (selected)	Sets the weight of a selected route.
Line opacity	Sets the transparency effect of the route.
Line opacity (selected)	Sets the transparency effect of a selected route.
AREA LAYER	
Border	Sets the color of the area's border.
Border (selected)	Sets the color of a selected area's border.
Fill	Sets the color of the area's fills.
Fill (selected)	Sets the color of the fill of a selected area.
Border weight	Sets the weight of the area's border.
Opacity	Sets the transparency effect of the area.

Layers

The following options are available for creating layers.

The layers created here are also available in the selection box of the pop-up menu. You can configure any number of layers.

Base layer	Displays the Google Maps map, which is a default feature.
Add placemark layer	Adds a placemark layer to the component. Displays coordinates as individual placemarks (points of interest, POIs).

Add area layer	Adds an area layer to the component. Displays coordinates as an area (closed route)
Add route layer	Adds a route layer to the component. Displays coordinates as a leg (sections of routes) or entire route.
Rename selected layer	Enables you to rename a selected layer.
Move up selected layer	Moves a selected layer up in the list
Move down selected layer	Moves a selected layer down in the list
Remove selected layer	Removes a selected layer from the list.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection

▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component

▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.11   Geomap

BEHAVIOR

Displays GPS data in geomaps as placemarks (POIs), routes, and areas. The different views are assigned to the corresponding layers, i.e., base layer, placemark layer, route layer, and area layer.

You can choose between the map providers **Bing Maps** and **MapQuest**. When you select **Bing Maps** multiple map types are available to you.

Prerequisite

You have registered one or both map providers in Administration (Page 74).

COMPONENT: **GEOMAP**

First, select a layer in the pop-up menu on the **Layers** tab in order to configure the layer's settings. The base layer is activated by default.

The following options to configure the various layers are available on the **Geomaps** tab.

BASE LAYER	
General settings	Sets the general base layer properties.
Map provider	Enables you to choose between the map providers **Bing Maps** and **MapQuest**.
Map type	Displays the buttons for selecting the map types and sets the initial map type: Map, Satellite, Hybrid If you select **MapQuest** you will not be provided with a a selection.
Position	Displays the buttons for setting the position in the map and moves the map section.
Overview	Displays an additional small overview in the map.
Zoom	Displays buttons for setting the zoom factor in the map.
Zoom slider	Displays a slider for setting the zoom factor in the map.
Scaling	Displays a scale (metric or imperial) in the map. Select a scaling.
Map section	Offers options for setting the map section.
Interaction options	Offers options to interact with the map. Click **Edit interaction options**. ▪ Double-click to zoom: Zooms the map to the mouse position. ▪ Mouse wheel zoom: ▪ Drag

Automatic zoom on data	The map selects the zoom factor so that all POIs are visible on the map. This happens automatically if the map contains new data.
Automatic focus on data	The map zooms to the center of the POIs. This happens automatically if the map contains new data.
Data retrieval	Sets the automatic data retrieval for the component.
Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
Load activity icon	By default displays an animation if loading is taking a lot of time. Can be disabled with the option **None**.
PLACEMARK LAYER	
General layer settings	Sets the general placemark layer properties.
Display placemarks	Displays all placemarks, i.e., points of interest (POIs) on a map. The maximum number is 200.
Display all pop-ups	Displays all pop-ups set in data mode on the map. Pop-ups cannot be closed.
Top-align pop-ups	Opens pop-ups to the top.
Placemarks (current layer)	Enables you to configure the display of placemarks (POIs) for the layer selected.
Border	Sets the color of the placemarks' border.
Border (selected)	Sets the color of a selected placemark's border.
Fill	Sets the color of the placemarks' fills.
Fill (selected)	Sets the color of the fill of a selected placemark.

Border weight	Sets the weight of the placemarks' border.
Opacity	Sets the transparency effect of the placemarks.
Size	Sets the size of the placemarks.
Pop-ups (current layer)	Enables you to configure the display of pop-ups for the layer selected.
Border	Sets the color of the pop-up border.
Border (selected)	Sets the color of the border of the pop-up of a selected placemark.
Fill	Sets the color of the pop-ups' fill.
Fill (selected)	Sets the color of the fill of the pop-up of a selected placemark.
Border weight	Sets the weight of the pop-ups' border.
ROUTE LAYER	
Routes (current layer)	Enables you to configure the display of routes for the layer selected.
Line	Sets the color of the route.
Line (selected)	Sets the color of a selected route.
Line weight	Sets the weight of the route.
Line weight (selected)	Sets the weight of a selected route.
Line opacity	Sets the transparency effect of the route.
Line opacity (selected)	Sets the transparency effect of a selected route.
AREA LAYER	
Border	Sets the color of the area's border.
Border (selected)	Sets the color of a selected area's border.
Fill	Sets the color of the area's fills.
Fill (selected)	Sets the color of the fill of a selected area.

Border weight	Sets the weight of the area's border.
Opacity	Sets the transparency effect of the area.

LAYERS

The following options are available for creating layers.

The layers created here are also available in the selection box of the pop-up menu. You can configure any number of layers.

Base layer	Displays the Google Maps map, which is a default feature.
Add placemark layer	Adds a placemark layer to the component. Displays coordinates as individual placemarks (points of interest, POIs).
Add area layer	Adds an area layer to the component. Displays coordinates as an area (closed route)
Add route layer	Adds a route layer to the component. Displays coordinates as a leg (sections of routes) or entire route.
Rename selected layer	Enables you to rename a selected layer.
Move up selected layer	Moves a selected layer up in the list
Move down selected layer	Moves a selected layer down in the list
Remove selected layer	Removes a selected layer from the list.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.12   Speedometer chart

BEHAVIOR

Displays a set of aggregated KPI values. Value ranges can be defined and indicated by different colors. The value ranges are arranged in a semicircle.

COMPONENT: SPEEDOMETER CHART

The following options are available for configuring the component.

Scale	Displays the dial markings in the component.
Scale values	Displays the scale values in the component.
Long dial markings	Indicates the number of long dial markings.
Short dial markings	Indicates the number of short dial markings between the long dial markings.
Measure name	Displays the KPI name in the component.
Measure value	Displays the KPI value in the component.
Thresholds	Displays the thresholds in the component.
Shadow	Highlights the component with a shadow.

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.

▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Speedometer	Sets the color of the speedometer background.
▪ Needle	Sets the color of the speedometer needle.
▪ Scale	Sets the color of the dial markings.
▪ Border	Sets the color of the speedometer border.
▪ Reflection	Sets the reflection effect of certain elements and the data points in percent (%).

▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow

▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.13   Bar speedometer

BEHAVIOR

Displays a set of aggregated KPI values Value ranges can be defined and indicated by different colors. The value ranges are arranged as vertical and horizontal bars.

COMPONENT: BAR SPEEDOMETER (VERTICAL AND HORIZONTAL)

The following options are available for configuring the component.

Scale	Displays the dial markings in the component.
Scale values	Displays the scale values in the component.
Long dial markings	Indicates the number of long dial markings.
Short dial markings	Indicates the number of short dial markings between the long dial markings.
Measure name	Displays the KPI name in the component.
Measure value	Displays the KPI value in the component.
Thresholds	Displays the thresholds in the component.
Shadow	Highlights the component with a shadow.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
▪ Elements	Element for which labels are set
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Data points	Assigns a particular color scheme to the data points of the component.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Speedometer	Sets the color of the speedometer background.
▪ Needle	Sets the color of the speedometer needle.
▪ Scale	Sets the color of the dial markings.
▪ Border	Sets the color of the speedometer border.
▪ Reflection	Sets the reflection effect of certain elements and the data points in percent (%).
▪ Saturation	Sets the color saturation of certain elements and the data points in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.14 Single traffic light

BEHAVIOR

Displays in color the range of values in which a KPI value is located.

COMPONENT: SINGLE TRAFFIC LIGHT

The following options are available for configuring the component.

Display labeling	Displays the labeling of the component.
Position	Sets the position of the labeling in the component. Is available only if the option **Display labeling** is enabled.
Shadow	Highlights the component with a shadow.
Inactive traffic light	Indicates the symbol of a traffic light without assigned data.
Traffic light shape	Indicates the various symbols of an active traffic light. The shapes can be configured for the individual value ranges. This option is available if data is assigned to the traffic light. You specify the symbol color when you define the thresholds.

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.

▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements. Is available only if a label was specified.
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Inactive traffic light	Sets the color of an inactive traffic light.
▪ Border	Sets the color of the traffic light border.
▪ Reflection	Sets the reflection effect of particular elements.
▪ Saturation	Sets the color saturation of particular elements in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.15 Traffic light (horizontal/vertical)

BEHAVIOR

A multi-color vertical or horizontal traffic light shows the threshold range in which a KPI value is located.

COMPONENT: TRAFFIC LIGHT (HORIZONTAL/VERTICAL)

The following options are available for configuring the component.

Display labeling	Displays the labeling of the component.
Position	Sets the position of the labeling in the component. Is available only if the option **Display labeling** is enabled.
Shadow	Highlights the component with a shadow.
Inactive traffic light	Indicates the symbol shape of a traffic light without assigned data.
Traffic light shape	Indicates the various symbol shapes of an active traffic light. The shapes can be configured for the individual value ranges. This option is available if data is assigned to the traffic light. You specify the symbol color when you define the thresholds.

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds

▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements. Is available only if a label was specified.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Inactive traffic light	Sets the color of an inactive traffic light.
▪ Border	Sets the color of the traffic light border.
▪ Reflection	Sets the reflection effect of particular elements.
▪ Saturation	Sets the color saturation of particular elements in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.16   Text

BEHAVIOR

Displays a fixed text you have entered, or a text that is specified dynamically in another component, e.g., a selection box.

COMPONENT: TEXT

The following options are available for configuring the component.

The content is html-coded	Interprets the contents of the text box as HTML code. Enables the input of the following HTML tags ▪ Anchor tag (\<a>) ▪ Bold tag (\<b>) ▪ Line break tag (\ ) ▪ Font tag (\<font>) ▪ Italic tag (\<i>) ▪ List item tag (\ ) ▪ Paragraph tag (\<p>) ▪ Underline tag (\<u>)
Text content scrollable	Automatically displays a scroll bar in the display component if the text content exceeds the component size. Specification: Optional

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.

▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

FORMATTING

The following options are available for formatting the component.

Vertical alignment	Enables you to set the vertical alignment of the text within the component. Default value: Centered
Line spacing	Indicates the distance between individual lines of text. Default value: 2 Specification: Optional
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size This option is available only if the text content consists of a text element. If the content comprises multiple text elements, you can format the text in **Assign data** mode only.

Character spacing	Indicates the distance between individual characters.
	Default value: 0
	Specification: Optional
	This option is available only if the text content consists of a text element. If the content comprises multiple text elements, you can format the text in **Assign data** mode only.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border

Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.17   LCD text

BEHAVIOR

Displays a fixed text you have entered, or a text that is specified dynamically in another component, e.g., a selection box. The text is output in LCD format.

COMPONENT: LCD TEXT

The following options are available for configuring the component.

The content is html-coded	Interprets the contents of the text box as HTML code. Enables the input of the following HTML tags ▪ Anchor tag (<a>) ▪ Bold tag (<b>) ▪ Line break tag ( ) ▪ Font tag (<font>) ▪ Italic tag (<i>) ▪ List item tag ( ) ▪ Paragraph tag (<p>) ▪ Underline tag (<u>)

Text content scrollable	Automatically displays a scroll bar in the display component if the text content exceeds the component size. Specification: Optional

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

FORMATTING

The following options are available for formatting the component.

Vertical alignment	Enables you to set the vertical alignment of the text within the component. Default value: Centered
Line spacing	Indicates the distance between individual lines of text. Default value: 2 Specification: Optional

Font	Sets the font display:
	▪ Color
	▪ Alignment
	▪ Font
	▪ Font size
	This option is available only if the text content consists of a text element. If the content comprises multiple text elements, you can format the text in **Assign data** mode only.
Character spacing	Indicates the distance between individual characters.
	Default value: 0
	Specification: Optional
	This option is available only if the text content consists of a text element. If the content comprises multiple text elements, you can format the text in **Assign data** mode only.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display:
	▪ Color
	▪ Alignment
	▪ Font
	▪ Font size

Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.18   Image

BEHAVIOR

Inserts images of your choice in the dashboard.

COMPONENT: IMAGE

The following options are available for configuring the component.

URL/path to image file	Specifies the file path/URL to the relevant image. The URL/path can be configured by clicking **Select source**.

▪ Remove data assignment	Deletes an existing data assignment. The button is available only if a data assignment exists.
Dialog: Select image source	Enables you to define the image source.
▪ Internet (http) as a data source	Enables you to specify a URL (http) of an image source
URL	http address for an image file
URL is not UTF-8 encoded	Special characters in the URL are masked in line with UTF-8. The option is disabled by default.
Authentication	Specifies whether the source URL is access-protected. For basic authentication, a user name and password are required.
User	User name for accessing the source file.
Password	Password associated with the user for accessing the source file.
▪ MashZone server as a data source	Enables you to specify a resource directory as an image source
Path	Path to the image file in the resource directory of the MashZone server
Scaling	Sets the image size: ▪ Original size: Displays the image in its original size. ▪ Proportionate scale: Image is scaleable, aspect ratio is retained. ▪ Free-scale: Image is scaleable

Horizontal alignment	Enables you to set the horizontal alignment of the image within the component. Default value: Centered This option is available only if the values **Keep original size** or **Scroll original size** have been set for scaling.
Vertical alignment	Enables you to set the vertical alignment of the image within the component. Default value: Top This option is available only if the values **Keep original size** or **Scroll original size** have been set for scaling.

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when the chart display changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.19   Selection box

BEHAVIOR

A drop-down menu provides the user with a selection of values.

COMPONENT: SELECTION BOX

The following options are available for configuring the component.

Values - From data assignment	Displays values from a data feed in the selection box.
▪ Remove data assignment	Removes an existing data assignment. The button is available only if a data assignment exists.
Values - Numerical	Displays a list of numerical values from a value range that can be manually defined here. The associated options are available only if no data assignment exists.
▪ Minimum/Maximum	Smallest/largest value of the selection box
▪ Step width	Step width of the values displayed in the selection box. The values in the selection box, starting with the minimum, are increased by this value until the maximum is reached.
▪ Default value	Value that is preselected by default. If no default value is defined, the minimum value is displayed.
No selection	Does not display any preselected value in the selection box.
▪ Entry	Text that is displayed by default instead of a preselected value. Default value: No selection

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).

Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.20   Spin control

BEHAVIOR

Provides the user with a selection of values in the form of a spin control. In addition, you can display values automatically by using an auto-play function.

COMPONENT: SELECTION BOX

The following options are available for configuring the component.

Values - From data assignment	Displays values from a data feed in the spin control.
▪ Remove data assignment	Removes an existing data assignment. The button is available only if a data assignment exists.
Values - Numerical	Displays a list of numerical values from a value range defined manually in the spin control. The associated options are available only if no data assignment exists.

▪ Minimum/Maximum	Smallest/largest value of the spin control.
▪ Step width	Step width of the values displayed in the spin control. The values in the spin control, starting with the minimum, are increased by this value until the maximum is reached.
▪ Default value	Value that is preselected by default. If no default value is defined, the minimum value is displayed.
No selection	Does not display any preselected value in the spin control.
▪ Entry	Text that is displayed by default instead of a preselected value. Default value: No selection
Autoplay	Enables automatic display of values in the spin control by means of a button. The values are automatically displayed in the specified time interval.
▪ Autostart	Automatically starts Autoplay for the component when displaying the dashboard.
▪ Interval	Specifies the length of the time interval in seconds.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds

▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.

Elements	Element for which labels are set
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border

▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.21 Slider

BEHAVIOR

Provides the user with a selection of values in the form of a slider.

COMPONENT: SLIDER

The following options are available for configuring the component.

Values - From data assignment	Displays values from a data feed in the slider.
▪ Remove data assignment	Deletes an existing data assignment. The button is available only if a data assignment exists.
Values - Numerical values	Displays a list of numerical values for the slider from a value range defined manually. The associated options are available only if no data assignment exists.
▪ Minimum/Maximum	Smallest/largest value of the slider
▪ Step width	Step width of the values between minimum and maximum value. The values of the slider, starting with the minimum, are increased by this value until the maximum is reached.

▪ Default value	Value that is preselected by default. If no default value is defined, the minimum value is displayed.
No selection	Does not display any preselected value in the slider.
▪ Entry	Text that is displayed by default instead of a preselected value. Default value: No selection
Display values	Displays the values as slider labels.
▪ Step width	Step width of the values displayed in the slider.
Display tooltip	Displays the values as a tooltip.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes. This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection

▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
Elements	Element for which labels are set
Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.22   Time filter

Displays an interactive calendar for configuring a time filter.

As a filter, you can use a period that is displayed as a default selection in the **Time filter** component in the dashboard. You can either enter the default selection manually or extract it from a data feed. If you enable the **Multiple selection** option, you can extract two feed columns for the start and end date of a period.

If the end date precedes the start date the end date will be ignored.

If only one feed column is linked with the time filter only this column will be displayed as a default selection.

COMPONENT: TIME FILTER

The following options are available for configuring the component.

Multiple selection	Enables the selection of multiple time periods in the calendar by means of a pressed mouse button. If this option is enabled you can extract start and end date of a period from a data feed. The values of the first rows of the assigned feed columns are the basis and displayed as the default selection with the default values **Start** and **End**.
Quarters	Displays the quarters in the calendar.
Months	Displays the months in the calendar.
Display selection	Displays the selected time period as text above the calendar.
▪ Format	Sets the format in which the selected time period will be displayed as text. The default value is **Automatic**.

▪ Default selection	Displays a default time period in the time filter. You can either enter the date value manually or extract it from a data feed. This option is disabled for manual entry if the date value is extracted from a data feed. The default selection is the value from the first row of the feed column assigned. Supported formats are ▪ yyyy ▪ yyyy-'Q'Q ▪ yyyy-MM
▪ Remove data assignment	Removes the data assignment of a data feed configured in the **Assign data** mode. This option is available only if the values of the default selection are extracted from a data feed.

DATA RETRIEVAL

The following options are available for displaying the border.

Data retrieval	Sets the automatic data retrieval for the component.
Dynamic URL selection	Enables creating and copying parameters for dynamic URL selection
▪ Component ID	Displays the component ID
▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.

▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- Component: Column chart

- Component ID: 1

- Data element: Dimension **Region**

- Value: Germany

- Participants: 280

- Resulting URL parameters: &1 Region=Germany&1 Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
▪ Elements	Element for which labels are set
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Colors	Sets the colors of individual component elements.
▪ Elements	Assigns a color scheme to particular component elements. You can customize the color of individual elements.
▪ Time range	Sets the color of the time range in the middle that can be selected.
▪ Border areas	Sets the color of the left and right border area.

▪ Border	Sets the color of the calendar border.
▪ Selection	Sets the color of the selected time sections.
▪ Mouseover	Specifies the color of the mouseover effect. The mouseover effect emphasizes the element that the mouse pointer is currently positioned over.
▪ Reflection	Sets the reflection effect of particular elements.
▪ Saturation	Sets the color saturation of particular elements in percent (%).

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border

Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.1.23   Input box

BEHAVIOR

Enables you to enter values that can be used dynamically in other components.

The availability of options depends on the data type of the input box and the data assignment.

COMPONENT: INPUT BOX

The following options are available for configuring the component.

Data type	Data type of the input box ▪ Date ▪ Figure ▪ Text
Default value	Value that is displayed by default when opening the dashboard. Value can be specified manually or via data assignment.
▪ Remove data assignment	Deletes an existing data assignment. The button is available only if a data assignment exists.
Decimal separator	Decimal separator for entering a numerical value

Minimum/Maximum	Upper or lower limit for restricting the numerical value.
	If the default value is based on a data assignment and is outside the limits specified, it is set to the lower limit (value lower than lower limit) or upper limit (value greater than upper limit).
Spin button	Displays spin buttons to be used for setting the value displayed.
Step width	Step width of the values displayed in the spin control.
	The values in the spin control, starting with the minimum, are increased by this value until the maximum is reached.

DATA RETRIEVAL

The following options are available for configuring data retrieval.

Data retrieval	Sets the automatic data retrieval for the component.
▪ Refresh	Refreshes automatic data retrieval and sets the time interval for the automatic refresh in seconds
▪ Load activity icon	By default displays an animation if loading is taking a lot of time.
▪ Animation	Displays an animation when data changes.
	This option is not available for all display components.
▪ Display warning	Displays warnings in the form of yellow triangles in the component header.
URL selection	Enables creating and copying parameters for URL selection

▪ Selectable elements	Data elements of the component which can be selected. They are available only if data is assigned to the component. If you select a data element, you can specify a value in an additional input box, depending on the data type.
▪ Resulting URL parameters	Displays the URL consisting of the parameters. Parameters are URL-encoded.
▪ Copy to clipboard	Copies the URL to the clipboard

Example

- ▪ Component ID: 1 (not displayed)
- ▪ Component: Column chart (not displayed)
- ▪ Data element: Dimension **Region**
- ▪ Value: Germany
- ▪ Participants: 280
- ▪ Resulting URL parameters: &cn1.Region=Germany&cn1.Participants=280

FORMATTING

The following options are available for formatting the component.

Labeling	Sets the labeling of individual chart elements.
▪ Element	Element for which labels are set
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size

BORDER

The following options are available for displaying the border.

Name	Name of the display component
Display title	Displays the name of the display component as a title in the header.
▪ Indent	Sets the indent of the title in the bar.
▪ Font	Sets the font display: ▪ Color ▪ Alignment ▪ Font ▪ Font size
Display borders	Displays a border around the component
▪ Form	Displays the border with or without header or transparent with title bar; In addition, the border can be customized (**Set** button).
Shadow	Displays the border without, with a weak, or with a strong shadow or shadow within the border
Colors	Sets the colors of the display component Is available if the option **Display border** is enabled.
▪ Border	Sets the color of the border
▪ Header	Sets the color of the header
▪ Background	Sets the color of the background
▪ Shadow	Sets the color of the shadow
▪ Reflection	Sets the reflection effect of the background in percent (%)
▪ Saturation	Sets the color saturation of the background in percent (%).

7.2   Data sources

The following data sources (Page 60) are available in the Feed Editor (Page 57).

The selection of data sources available depends on your license.

CSV file (Page 195)	Extracts data from a CSV file, in which the individual columns are separated by a comma, semicolon, etc.
MS Excel file (Page 199)	Extracts data from an MS Excel spreadsheet in MS Excel 97 or MS Excel 2007 format. Password-protected MS Excel files cannot be imported as a data source.
XML file (Page 203)	Extracts data from an XML file, e.g., RSS or atom feed. The data records are identified using a recurring element.
Data feed (Page 206)	Extracts data from an existing data feed.
Manual data feed (Page 207)	Enables you to define the feed columns and input data directly in the data feed.
PPM (Page 208) (URL-based)	Uses the PPM query interface to retrieve data from favorites defined in PPM.
Database (Page 213)	Extracts data from a preconfigured JDBC database.
wM Optimize (Page 215)	Extracts data from webMethods Optimize using the webMethods Optimize query interface.
ARIS table (Page 217)	Extracts data from an ARIS table component.

Empty lines in the source data are automatically removed when importing.

7.2.1   CSV file

BEHAVIOR

Reads the CSV file and writes the individual values (character strings) to table columns in the data feed based on the specified parameters. A change of column is identified by the specified separator between the individual values.

The columns to be extracted can be selected in the **Configure columns** dialog box. The column data types are determined automatically but can be changed in the text (**Type as text**).

Up to 48 columns can be imported from the data source. If the selected data source contains more than 48 columns, you can restrict the number of columns to 48 in the column configuration.

PARAMETER

The following parameters are available.

Source	Text file, with values consistently separated using the same separators. Size limit: 80 MB Data source availability depends on your MashZone license.
	Internet - URL: http address for the source file - Do not use UTF-8 to encode URL: Special characters in the URL are masked using UTF-8, this option is disabled by default. - Authentication: Specifies whether the source URL is access-protected. For basic authentication, a user name and password are required. - User: User name for accessing the source file. - Password: Password associated with the user for accessing the source file. If another operator dynamically applies the URL, the URL cannot be edited here.
	MashZone server - Path: Path to a directory on the MashZone server. - The source files must be located in a defined resource directory on the MashZone server (by default the **resources** directory in the installation directory) or any subdirectory **resources\\<Directory>**. - If another operator dynamically applies the URL, the URL cannot be edited here.

	Google Docs app
	▪ Published document Specifies the document to be imported (table) as public.
	▪ URL: URL to a published document (table) in the **Google Docs** app.
	▪ Private document: Specifies the document to be imported (table) as private and personal.
	The URL of a private table is not public, but is automatically generated based on the document key, user name, and password.
	▪ Key: Key of the private document.
	The document key can be obtained from the **Google Docs** app.
	▪ Worksheet: Indicates the number of the worksheet to be imported.
	▪ User: User name that is used for accessing the private document in the Google Docs app.
	▪ Password: User password that is used for accessing the private document.
	If another operator dynamically applies the URL, the URL cannot be edited here.
	Local; upload from client
	▪ Path: Local path to source file. The source file is integrated into the database and is included when exporting the data feed.
	The data feed must have been saved first.
	Cache time specifies the time until the source file is imported again, default value: 5 minutes
	Specification: Mandatory
	The URL or the file path to the source file can be set in the **Select source** dialog box or using a single-value operator, e.g., **Create URL**.
Separator	Separates the column values; masked separators are handled as single values or part of a value.
	Separators can be set as required (options: comma (,), semicolon (;), space, tab, pipe ((I))
	Default value: Comma (,)
	Data type: Text
	Specification: Mandatory
Masking	Protects the enclosed characters against being split at the separator. If column values contain the specified separator, they can be enclosed in a pair of masking characters, e.g., "1,23".
	Masking characters can be set as required (available masking characters:

	quotation marks ('), double quotation marks (")) Default value: {None} Specification: Optional
Usage	Indicates whether existing masking characters are to be kept or deleted. Default value: Keep masking characters Specification: Optional
Column name from row	Determines the names of the individual columns from a particular row. Data type: Number Default value: 1 Specification: Optional Empty cells are given the name **Unnamed column** plus the consecutive number of unnamed columns, if other rows in the column contain values and thus the column is not completely empty.
Import values from row	Extracts the values from the source file starting from a particular row. Data type: Number Default value: 1 or 2, if the **Import values from row** option is enabled. Specification: Mandatory If the **Column name from row** option is used, the row from which the values are imported must be after the row containing the column name.
Character set	Character set in which the source file is coded. The default value can be changed manually if the extracted data refers to a different coding type. Data type: Text Default value: Windows-1252 Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

The specified user does not have read access to the resource alias containing the source file.	Operator returns no data. Error message.

7.2.2   MS Excel file

Reads a worksheet of an MS Excel file and writes the individual values to table columns in the data feed based on the specified parameters. The source table can be imported as a list or crosstab.

As a list table, a corresponding column is created in the data feed for every non-empty column in the source table.

Three columns are created in the data feed as a crosstab. A vertical iteration column corresponding to the first source column with the header, a horizontal iteration column defined in the operator, and a value column.

- Cells that have the **Number** data type in MS Excel are extracted accurately, regardless of their formatting. Therefore, the values in MashZone can be more accurate than displayed in MS Excel. By contrast, cells that have the **Date** data type in Excel are extracted based on the format information to maintain the accuracy of the time stamp.

- A cell may only have up to 2000 characters.

In the **Configure columns** dialog box, the columns to be extracted can be selected and their name and data type changed. The horizontal iteration steps (column title) in a crosstab are summarized as **Horizontal iteration**. The column data types are determined automatically but can be changed in the text (**Type as text**).

Up to 48 columns can be imported from the data source. If the selected data source contains more than 48 columns, you can restrict the number of columns to 48 in the column configuration.

PARAMETER

The following parameters are available.

Source	MS Excel file from Excel 97 (xls) to Excel 2007 (xlsx) versions Size limit: 80 MB (.xlsx: 3 MB); Data source availability depends on your MashZone license.
	Internet - URL: http address for the source file - Do not use UTF-8 to encode URL: Special characters in the URL are masked using UTF-8, this option is disabled by default. - Authentication: Specifies whether the source URL is

access-protected. For basic authentication, a user name and password are required.

- User: User name for accessing the source file.

- Password: Password associated with the user for accessing the source file.

If another operator dynamically applies the URL, the URL cannot be edited here.

MashZone server

- Path: Path to a directory on the MashZone server.

- The source files must be located in a defined resource directory on the MashZone server (by default the **resources** directory in the installation directory) or any subdirectory **resources\\<Directory>**.

- If another operator dynamically applies the URL, the URL cannot be edited here.

ARIS Design Server

- URL: URL to the XLS file on ARIS Design Server

- User: User name you use to log in to ARIS Design Server.

- Password: User password you use to log in to ARIS Design Server.

The ARIS Design Server connection does not support dynamic URL transfer.

Google Docs app

- Published document Specifies the document to be imported (table) as public.

- URL: URL to a published document (table) in the **Google Docs** app.

- Private document: Specifies the document to be imported (table) as private and personal.

  The URL of a private table is not public, but is automatically generated based on the document key, user name, and password.

- Key: Key of the private document.

  The document key can be obtained from the **Google Docs** app.

- User: User name that is used for accessing the private document in the **Google Docs** app.

- Password: User password that is used for accessing the private document.

If another operator dynamically applies the URL, the URL cannot be edited here.

	Local; upload from client ▪ Path: Local path to source file. The source file is integrated into the database and is included when exporting the data feed. ▪ The data feed must have been saved first.
	Cache time specifies the time until the source file is imported again. Specification: Mandatory The URL or the file path to the source file can be set in the **Select source** dialog box or using a single-value operator, e.g., **Create URL**.
Worksheet	Worksheet in the source table to be extracted. Default value: First worksheet Data type: Text Specification: Mandatory
List table/crosstab	Specifies the table type. Default value: List table Specification: Mandatory For crosstabs, only one vertical iteration on the left side of the table is currently supported.
Column name from row	Determines the names of the individual columns from a particular row, whose row number must be specified. Data type: Number Default value: 1 Specification: Optional Blank cells in the row with the column name are named **Unnamed column** + the consecutive number of the unnamed columns, if the affected columns contain further data. This option is not available for crosstabs.
Horizontal iteration from row	Determines the column names of the individual iteration steps from a particular row. Data type: Number Default value: 1 Specification: Mandatory The column name of the vertical iteration is also determined from this row.
Import values from row	Extracts all values from the source file starting from a particular row. Data type: Number Default value: 2

	Specification: Mandatory
Import data range from/to	Area of the table from which data is to be extracted, specified using column and row coordinates, e.g., A3 to H128
	Data type: Text
	Specification: Optional
	Only a single continuous data range is possible, but it may contain empty rows or columns.
	If no upper limit (**to**) is specified for the data range, all cells above the lower limit (**from**) are extracted.

ERROR BEHAVIOR

The following error behavior can occur.

The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.
The specified user does not have read access to the resource alias containing the source file.	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

Example

Excel crosstab

Plant	Metal	Wood	Glass
Hamburg	100	15.5	166
Paris	89	17	209
London	67	28	45

Horizontal iteration from row 2 with iteration steps **Metal**, **Wood**, and **Glass**

Vertical iteration **Plant** with iteration steps **Hamburg**, **Paris**, and **London**

Resulting data feed

Hamburg	Metal	100
Hamburg	Wood	15.5
Hamburg	Glass	45
Paris	Metal	89
Paris	Wood	17
Paris	Glass	209
London	Metal	67
London	Wood	28
London	Glass	45

7.2.3   XML file

BEHAVIOR

Extracts data from an XML file. The data records are identified using a recurring element. The individual values are written to table columns in the data feed based on the specified parameters.

The columns to be extracted can be selected in the **Configure columns** dialog box. The column types are determined automatically but can be changed in the text (**Type as text**).

Up to 48 columns can be imported from the data source. If the selected data source contains more than 48 columns, you can restrict the number of columns to 48 in the column configuration.

PARAMETER

The following parameters are available.

Source	XML file
	Size limit: 80 MB
	Data source availability depends on your MashZone license.
	Internet ▪ URL: http address for the source file ▪ Do not use UTF-8 to encode URL: Special characters are masked using UTF-8, is disabled by default. ▪ Authentication: Specifies whether the source URL is

	access-protected. For basic authentication, a user name and password are required.
	▪ User: User name for accessing the source file.
	▪ Password: Password associated with the user for accessing the source file.
	The URL can be set in the Select data source dialog box or by using a single-value operator.
	If another operator dynamically applies the URL, the URL cannot be edited here.
	MashZone server ▪ Path: Path to a directory on the MashZone server. The source files must be located in a defined resource directory on the MashZone server (by default the **resources** directory in the installation directory) or any subdirectory **resources\\<Directory>**. If another operator dynamically applies the URL, the URL cannot be edited here.
	Local; **upload from client** ▪ Path: Local path to source file. The source file is integrated into the database and is included when exporting the data feed. The data feed must have been saved first.
	Cache time specifies the time until the source file is imported again. Specification: Mandatory The URL or the file path to the source file can be set in the **Select source** dialog box or using a single-value operator, e.g., **Create URL**. If another operator dynamically applies the URL, the URL cannot be edited here.
Template	Template file assigns a format to the XML source file. Templates: RSS 0.91, RSS 1.0, RSS 2.0 or Atom. Specifying a template sets a default for the **Repeat element** parameter and links to the assigned XPath. Default value: {None} Data type: Text Specification: Optional

Preprocessing	XLST file for preprocessing (transformation) of the XML source file before it is extracted.
	Data type: Text
	Specification: Optional
	The options that can be set are the same as those for the source file.
	If preprocessing is specified, the result table shows the result of this preprocessing rather than the original raw data for the source.
Repeat element	XML element that is repeated for each row (Xpath to repeat element);
	Default value: Root character for XPath (/)
	Specification:
	When specifying the XPath expression, only a simple specification for the repeating element is possible.
	For example, this could be:
	/catalog/journal/article
	/data/row
	/catalog/book
Character set	Character set in which the source file is coded. Is automatically identified and can be changed manually.
	Data type: Text
	Default value: Extract from source.
	Specification: Optional
Import attributes in columns	Reads all tag attributes of the repeat element and the processed sub-elements and writes them to separate columns.
	Default value: {Enabled}
	Specification: Optional
	The column name consists of a series of the tag names of the hierarchy elements last edited.
Import text content in columns	Reads all text contents of the repeat element and the processed sub-elements and writes them to separate columns.
	Default value: {Enabled}
	Specification: Optional
Use sub-elements to level	Imports the sub-elements for the repeat element up to the specified level.
	Default value: {Enabled}
	Specification: Optional
	The column name consists of a series of the tag names of the hierarchy elements last edited.

ERROR BEHAVIOR

The following error behavior can occur.

The specified resource is not available.	An empty feed is created. Error message.
The specification for the repeat element does not match the XML file or is not contained in the XML file.	An empty feed is created. Error message.
The XSLT file specified for preprocessing does not match the corresponding XML file as an exception occurs.	An empty feed is created. Error message.
The specified user does not have read access to the resource alias containing the source file.	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

7.2.4   Data feed

BEHAVIOR

Extracts data from an existing data feed.

The columns to be extracted can be selected in the **Configure columns** dialog box. The column types are transferred from the source data feed but can be changed in the text (Type as text).

PARAMETER

The following parameters are available.

Data feed	Name of the data feed from which columns are imported; Size limit: 80 MB Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.
The logged in user does not have read privileges for the source data feed.	Operator returns no data. Error message.

7.2.5   Manual data

BEHAVIOR

Enables you to define the feed columns and input data directly in the data feed.

The user can create new columns manually, assign them a data type, and populate the individual columns with the desired values in the **Enter data** dialog box. Lines created but not containing any content in any columns are automatically removed.

PARAMETER

The following parameters are available.

Column name	Name of the new data feed column; Source: Constant Specification: Mandatory

Type	Column data type: **Date**, **Number**, or **Text**;
	Data type **Date**
	▪ Adjustable: **Format**, **Day of the week** and **Language**;
	▪ Permitted date formats (see **Format** selection box);
	▪ Default format: MM/dd/yyyy;
	The following formatting symbols are available for the date format:
	▪ Year: y or Y
	▪ Quarter: Q
	▪ Month: M
	▪ Day of the week: E or e
	▪ Day of the month: d
	▪ Day of the year: D
	▪ Hour: H or h
	▪ Minute: m
	▪ Second: s
	The day of the week is adjustable if **EEEE** (day of the week long) or **E** (day of the week short) is selected as the format.
	Data type **Number**
	▪ Adjustable: **Decimal separator** (**comma**, **period**);
	▪ Default value: Comma
	Default value: **Text**;
	Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

7.2.6   PPM

BEHAVIOR

Uses the PPM query interface to retrieve data from favorites defined in PPM.

From PPM version 5.1.0 a new PPM data source is available.

When using the PPM data source (Page 60), MashZone checks the PPM version accessed based on the URL of the favorite entered. Depending on the PPM version, MashZone provides you with the corresponding PPM data source.

If you explicitly want to use the previous version of the PPM data source you need to enable the option **Use URL-based PPM data source** when creating the data source. If you do so, the previous PPM data source will be available if you are using a later PPM version.

Tip

You can use the pop-up menu for a favorite to copy the corresponding favorite URL in PPM.

- PPM 5.1.0: Select the **Copy path as** > **URL for query interface** option in the pop-up menu and paste the URL in the **URL** input box of the data source.

- PPM 5.0.1: Select the **Copy path as** > **URL for query interface** option in the pop-up menu and paste the URL in the **URL** input box of the data source.

The columns to be extracted can be selected in the **Configure columns** dialog box. The column types are determined automatically.

Prerequisite

- You have created a PPM connection (Page 84).

- From PPM version 4.2, the PPM query interface (query API) must be installed.

- The corresponding PPM client server must be launched to enable the favorites to be accessed using the PPM Web service.

- The required favorite must provide the analysis data in the form of a list table.

PARAMETER

The following parameters are available.

From PPM 5.1.0	
Alias	Name of the PPM connection, which contains the PPM client connection data defined in MashZone.
	You must have created at least one PPM connection in MashZone to be able to use PPM as a data source.
	Size limit: 80 MB
Favorite	Path of the favorite in the favorites tree including favorites folder and name, e.g., \Favorites\Process cycle time.
Create column for key values	Extracts all key values from the list table and writes them to separate columns of the data feed.
	Specification: Optional

Dimensions	Dimensions by which the data queried can be filtered. You can select the dimensions available in PPM. Depending on the dimension type selected (e.g., numerical) you can configure various filter conditions. If you configure multiple filter conditions you can link them logically. **All conditions must be met** option ▪ Enabled: All conditions are AND-linked ▪ Disabled: All conditions are OR-linked, i.e., only one condition must be met A filter condition consists of one operator (e.g., equal to) and one value. You can specify a fixed value or import it from a table. Some dimensions offer additional setting options. For example, the **Dealer** dimension of the **Text** type can also be filtered using an expression in the key or the description of the dimension. It is also possible to specify the filter level. To do so, click **Additional settings**. Specification: Optional
Measures	KPIs by which the data queried can be filtered. You can select the KPIs available in PPM. Depending on the KPI type selected (e.g., numerical) you can configure various filter conditions. If you configure multiple filter conditions you can link them logically. **All conditions must be met** option ▪ Enabled: All conditions are AND-linked ▪ Disabled: All conditions are OR-linked, i.e., only one condition must be met A filter condition consists of one operator (e.g., equal to) and one value. You can specify a fixed value or import it dynamically from a table. Some functions offer additional setting options. For example, you can specify a scaling for the **Cycle time** KPI. To do so, click **Additional settings**. Specification: Optional
Use URL	Determines the connection data of the PPM data source from the URL of the favorite.
URL	URL of favorite from PPM.
Determine URL of favorite from PPM	Resolves the parameters of the URL of a favorite of PPM and transfers the connection data.
Enter manually	Enables you to enter connection data.

Alias	see above
PPM URL	Base URL of the PPM query interface of the relevant PPM client.
Folder type	Type of the folder containing the favorite; **Public** for shared favorites or **Private** for private favorites.
Favorite	Path of the favorite in the favorites tree including favorites folder and name, e.g., \Favorites\Process cycle time.
Language	Language in which PPM query data is displayed.
Authentication	User name and password used for authenticating the query at the PPM client. ▪ Current user: The query is authenticated by the user data of the user currently logged in. This option is available from the **Enterprise** Edition. ▪ Specify user: Enables you to specify particular user data to authenticate the query. ▪ User: User name ▪ Password: Password associated with the user The MashZone user needs to be activated as a user in the PPM client.
Up to PPM 5.0.1	
URL	URL that can be used to access the PPM favorites. The URL is made up of the following parameters: ▪ Host: Name of the PPM client server ▪ Port: Port number of the PPM client server ▪ Context: The context name is made up as follows: **API_<client name>**, e.g., **API_umg_en** ▪ Language: Language in which the data is to be supplied (client language), e.g., de or en. ▪ Favorites path: Path of the favorite in the favorites tree including favorites folder and name, e.g., \Favorites\Process cycle time. ▪ Folder type: **Public** for shared favorites or **Private** for private favorites; default value: Public Specification: Mandatory The URL anchor point can be used to obtain the URL dynamically from a URL operator. If another operator dynamically applies the URL, the URL cannot be edited here.
Users	User name to be used to log in to the PPM client.

	Data type: Text
	Specification: Mandatory
Password	Password associated with the specified user, which can be used to log into the client.
	Data type: Text
	Specification: Mandatory
Language	Language in which the data is to be returned; by default this is the language that the user logged in with to MashZone.
Create column for key values	Extracts all key values from the list table and writes them to separate columns of the data feed.
	Specification: Optional
Filter	Filter criterion that can be used to filter the values from the list table during the query from PPM, dimension or KPI from PPM, e.g., date or process throughput time.
	Source: Constant
	Data type: Text
	Specification: Optional
Value	Filter value for the filter entered.
	Source: User input or constant
	Data type: Text, Number, Date
	Specification: Optional

When specifying parameters, such as filter criterion and filter values, please observe the predefined syntax of the PPM query interface (query API).

For detailed information on the PPM query interface, please refer to the PPM documentation **Performance Dashboard User Guide**.

Example

The character combination of **space** + **(** in the filter value (e.g., ABC (123)) can lead to different results, depending on the filter criterion.

▪ If you filter for "SOLDTO_NAME=ABC (123)", PPM searches for the customer with the name = "ABC" and the description = "123".

▪ If you filter for "SOLDTO_NAME(VAL)=ABC (123)", PPM searches for the customer name "ABC (123)" and does not take into account the description.

▪ If you filter for "SOLDTO_NAME(DESC)=ABC (123)", PPM searches for the customer whose description is "ABC (123)" and does not take into account the name.

ERROR BEHAVIOR

The following error behavior can occur.

Authentication or URL is incorrect. PPM system is not available. User/password combination does not match.	Operator returns no data. Error message.
Error in query API X - Wrong view type - Wrong filter or filter could not be resolved	Operator returns no data. Error message.
The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type.	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.
Alias is not found	Error message

7.2.7 Database

BEHAVIOR

Extracts data from a preconfigured JDBC database.

The **Select data source** dialog box lists alias names of configured JDBC URLs or JNDI look-ups on local ODBC data sources as database connections.

You can set up the database connections (Page 79) in the **Administration**.

You can set the columns to be extracted from the database in the **Configure columns** dialog box.

PARAMETER

The following parameters are available.

Source	Reads data from a JDBC database, which can be selected from a list of configured database connections. Size limit: Unlimited (100,000 rows) **Cache time** specifies the time until the source data is imported again. Specification: Mandatory Default value: 5 min
Users	User name for authentication in the selected database. Data type: Text Specification: Mandatory
Password	Password for authentication in the selected database Data type: Text Specification: Mandatory
SQL instruction	Any SQL instruction for accessing the data in the database Default value: SELECT * FROM <table> Data type: Text The single-value anchor point can be used to obtain the SQL instruction dynamically from a single-value operator.

ERROR BEHAVIOR

The following error behavior can occur.

Connection failed	An empty feed table is created. Error message.
Database returns an exception	An empty feed table is created. Error message.
Column is CLOB or BLOB	An empty column is created. Warning message.
The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.

Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

7.2.8   wM Optimize

BEHAVIOR

Extracts data from webMethods Optimize using the webMethods Optimize query interface.

The operator accesses webMethods Optimize via URL and extracts data using a dedicated query definition. The URL is made up of a base URL and the parameters of the query definition.

Tip

The URL anchor point can be used to obtain the URL dynamically, e.g., from a URL operator.

You can set the columns to be extracted in the **Configure columns** dialog box.

PARAMETER

The following parameters are available.

URL	URL for access to webMethods Optimize Web services. By default in the form **Protocol://host:port** The URL is made up of the following parameters: ▪ Protocol: Protocol for the base URL, e.g., http ▪ Host: Name of the webMethods server ▪ Port: Valid port number of the webMethods server, between 255 and 65535 ▪ User: User name for authentication for webMethods Optimize Web services ▪ Password: User password for authentication for webMethods Optimize Web services If the URL inserted is already fully UTF-8 encoded, you must enable the **Do not use UTF-8 to encode URL** option so that special characters are not masked redundantly. Size limit: Unlimited (100,000 rows); **Cache time** specifies the time until the source data is imported again. Specification: Mandatory Default value: 5 min The URL can be set in the Select data source dialog box or by using a

	single-value operator. If another operator dynamically applies the URL, the URL cannot be edited here.
Query	Parameters of a query definition for the webMethods Optimize Web services API The following parameters should be included: ▪ Identifiers of data sources (mandatory) ▪ Data range (optional) ▪ Aggregation information (optional) **Tip** In webMethods Optimize, you can copy the parameters of a query definition to the clipboard and paste them to the **Query** box. The parameters are automatically appended to the URL. Data type: Text Specification: Mandatory

The data in a column to be extracted must be of the **Text**, **Number**, or **Data** type. If the column has a different data type or the data type cannot be established, the column is automatically assigned the **Text** type.

ERROR BEHAVIOR

The following error behavior can occur.

The source is not available (e.g., the URL cannot be reached)	Operator returns no data. Error message
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.

7.2.9   wM Events

BEHAVIOR

Quickly determines event query data from webMethods Events. Data is retrieved via a predefined Event Bus using a real-time buffer server.

Prerequisite

You have created real-time buffer instances (Page 92).

PARAMETER

The following parameters are available.

Source	Reads data from a real-time buffer that can be selected from a list of configured real-time buffer instances. **Cache time** specifies the time until the source data is imported again. Size limit: Unlimited (100,000 rows); Default value: 15 sec Specification: Mandatory
Password	Password to be used for authenticating the data source at the real-time buffer instance Data type: Text Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

The source is unavailable (e.g., the URL is unavailable)	Operator returns no data. Error message
A column contains no data	The column remains empty.

7.2.10 ARIS table

BEHAVIOR

Extracts data from an ARIS table.

In ARIS, you can export a model of the **Table** type and generate a link to the export file in the form of a URL.

Detailed information on how to create an ARIS table is available in the ARIS online help.

PARAMETER

The following parameters are available.

Source	ARIS export file in XML format Size limit: Unlimited (100,000 rows);

| | URL: http address for the source file Do not use UTF-8 to encode URL: Special characters in the URL are masked using UTF-8, this option is disabled by default. User name and password are required for access.

User: User name for accessing the source file.

Password: Password associated with the user for accessing the source file.
If another operator dynamically applies the URL, the URL cannot be edited here. |
| | **Cache time** specifies the time until the source file is imported again, default value: 5 minutes

Specification: Mandatory

The URL or the file path to the source file can be set in the **Select source** dialog box or using a single-value operator, e.g., **Create URL**. |

The following error behavior can occur.

The source is not available (e.g., file not available, URL cannot be reached)	Operator returns no data. Error message.
Not all values in a column match the automatically determined data type	Warning that not all rows could be converted into the target data format. The affected rows remain empty in the result.
A column contains no data	The column remains empty.
The specified user does not have read access to the resource alias containing the source file.	Operator returns no data. Error message.

7.2.11 BigMemory

Extracts data from a BigMemory cache, which can be selected from a list of configured Terracotta connections (Page 98).

Prerequisite

You have created a Terracotta connection (Page 98).

PARAMETER

The following parameters are available.

Source	Configured Terracotta connection.
	Size limit: Unlimited (100,000 rows);
	Cache time specifies the time until the source data is imported again.
	Default value: 15 seconds
	Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

The source is unavailable (e.g., the URL is unavailable)	Operator returns no data. Error message
A column contains no data	The column remains empty.

7.3   Operators

The following operators (Page 62) are available in the Feed Editor (Page 57).

Data feeds	
Combine (Page 222) data feeds	Merges two data feed rows by comparing two or more key columns
Concatenate (Page 224) data feeds	Adds the rows from the right-hand table after the final row of the left-hand table and merges columns of the same name and type.
Copy (Page 225) data feeds	Creates up to four independent copies of the data feed.
Columns	

Change data type (Page 225)	Changes the data types of the specified columns to the **Number**, **Text**, or **Date** data types
Insert (Page 231) column	Inserts new columns in the data feed. Each of the columns can be populated with an initial value.
Duplicate (Page 232) column	Copies the specified columns of the data feed to new or existing columns of the same type
Delete (Page 233) column	Deletes the specified columns from the data feed
Rename (Page 233) column	Changes the names of the specified columns of the data feed
Filter and replace	
Filter rows (Page 235)	Filters the data feed one row at a time using particular conditions.
Conditional replace (Page 237)	Changes the value in the specified column one row at a time if certain conditions are met.
Filter by date (Page 265)	Searches a date column for the latest or earliest date and transfers these rows to the results table.
Calculation	
Aggregate (Page 240)	Combines rows if identical values occur multiple times in specified dimension columns. The numerical values in the remaining columns are combined using Average, Sum, Min/Max, or Number.
Arithmetic (Page 243)	Executes various arithmetical calculations. The operands are columns of the incoming data feed, constant values, user input, or incoming values from other operators.
Average value (Page 244)	Calculates the average values of two or more columns one row at a time.
Rounding (Page 246)	Rounds the number of decimal places (accuracy) of numerical column values.
Goal accomplishment (Page 247)	Calculates the degree of goal accomplishment of column values one row at a time, based on the rating and the two planned values for 100% and 0%.
Text	
Merge single texts (Page 234)	Links the values of the specified columns or text fragments one row at a time
Concatenate texts (Page 234)	Combines the values of the specified columns or text fragments into one text.

Find text index (Page 250)	Searches a search column one row at a time for the specified search text and writes the position of the text found to a numerical target column.
Convert text (Page 251)	Creates an extract from each value of a text column starting from the specified position and with the specified length and writes the result to a target column.
Replace text (Page 252)	Replaces text in a search column with the specified Find or Replace text one row at a time, or writes the text to a target column.
Convert text (Page 253)	Converts all characters in the source column one row at a time, based on the specified transformation rule.
Create URL (Page 254)	Enables the creation of any URL by entering individual URL elements in corresponding input boxes.
Date	
Round up/down date (Page 257)	Converts date values from a date column to a rougher time unit and writes the results to a target column.
Move date (Page 261)	Moves a source date by a specified amount of time in a given direction and outputs the result as a target column.
Move single date (Page 259)	Moves a date by a specified amount of time in a given direction and writes the results to a target column.
Replace date field (Page 263)	Replaces the specified date fields (e.g., year) in all rows of the selected source column with the value specified in the **Date** field.
Single values	
Change data type (Page 267)	Changes the data type of the incoming single value to the **Number**, **Text**, or **Date** data types.
Copy single value (Page 272)	Creates an independent copy of a single value, without changing the input value.
Column to value (Page 272)	Filters a single value from the data feed. If the filter delivers multiple values, the first value found is returned.
Values to column (Page 275)	Converts an individual value into a column so that it can be connected to an operator.
Geolocations	
Aggregate geolocations (Page 276)	Calculates an entire route, consecutive legs (sections of routes), or a closed area from imported GPS data.
Retrieve geolocations (Page 281)	Imports a column containing addresses and uses the

	Google Maps API to determine the corresponding coordinates (lat/long) and writes them to the relevant target columns.
Special	
User and runtime info (Page 283)	Provides system information on the logged-in user or the current date. The operator can also generate a random number.
Note (Page 284)	Enables you to enter and save any number of notes in a data feed.
Other	
Output (Page 285)	Finishes the feed definition. The penultimate operator of the feed definition must be connected to the **Output** operator. The operator is inserted in the feed definition by default and cannot be deleted.

7.3.1   Data feeds

7.3.1.1   Combine data feeds

BEHAVIOR

Merges two data feeds by comparing the values in key columns one row at a time. The key columns for the left and right table are defined in pairs. Several pairs of key columns can be specified. Both key columns must have the same data type.

One table is defined as the main table, to which all columns from the second table are added except for its key columns. The main table is linked to the upper left anchor point.

For every row in the main table, a check is made as to whether there is a row in the right table that has the same values in all key column pairs. These rows are then combined into one row.

PARAMETER

The following parameters are available.

Left/right column	Name of the left or right key column. Source: Source tables Data type: Text Specification: Mandatory In addition, the case and spaces in the column names can be taken into account.
Include key values of left data feed	Always transfers all key values from the left data feed (main data feed), regardless of whether there are matching rows in the right data feed. Rows with matching key values are merged. Rows in the right data feed whose key values do not occur in the left table are omitted. Specification: Optional
Include identical key values of both data feeds	Transfers only the rows whose key values match in the two data feeds, and which therefore can be merged. Specification: Optional
Include key values of both data feeds	Always transfers the key values from both data feeds, even if their key values do not occur in the other data feed. Rows with matching key values are merged. Specification: Optional
Allow multiple values	Allows multiple occurrences of rows with identical key values in the right table. This can lead to a large number of result rows, as all combinations of the rows with identical key values are transferred to the results. Specification: Optional

- The key columns have the name they had in the left table.
- Since the individual table columns are identified by name when being imported you need to ensure that the columns of the table area to be imported have unique names.
- If other columns with identical names occur in both feeds, other than the key columns, **_L** or **_R** is appended to the names of these columns.

ERROR BEHAVIOR

The following error behavior can occur.

One of the two source tables is missing.	The available table is returned unchanged. Error message.
The right table contains the same key values several times, but the **Allow multiple values** option is not enabled.	The operator returns no data. Error message.

7.3.1.2   Concatenate data feeds

BEHAVIOR

Adds the rows from the right-hand table after the final row of the left-hand table and merges columns of the same name and type.

PARAMETER

The following parameters are available.

Left/right data feed	Two data feeds to be combined. Specification: Mandatory

EXAMPLE

Left table

1	1	1
2		2
3		

Right table

4		a	1
5	3	b	2
6	4	c	3

Result

1	1	1		
2		2		
3				
4			a	1
5	3		b	2
6	4		c	3

7.3.1.3   Copy data feeds

BEHAVIOR

Creates up to four independent copies of a data feed.

PARAMETER

The following parameters are available.

Data feed	Data feed to be copied.
	Specification: Mandatory

7.3.2   Columns

7.3.2.1   Change data type

BEHAVIOR

Changes the data types of the specified columns to the **Number**, **Text**, or **Date** data types

Conversion of **Text** to **Number**	Numerical value of the text taking into account the decimal separator.
	If the decimal separator is set correctly, any thousands separator is detected automatically.
Conversion of **Number** to **Text**	Text representation of the number in the internal format, or based on the language and the specified format You can also specify a valid number of leading zeros.
	If nothing is specified here, the results are formatted in the numerical format.

Conversion of **Text** to **Date**	Date value of the text in the internal format, based on the specified format and, where applicable, the language.
	The date must be in the **AD** era. Date values before the common era are not supported. The time format must be specified. The time format is made up of sequences of characters, which stand for date fields, e.g., year, month, day of the week, or minute, in the relevant language; separated by separators. In addition, the corresponding language must be specified. Non-editable text must be enclosed in quotation marks.
	When using the **Q** or **q** symbol for quarters, all other symbols except **Y** and **y** for years are ignored. Only the order of **Q/q** and **Y/y** is relevant.
Conversion of **Date** to **Text**	Text representation of the date in the internal format, or based on the language and the specified format
	Non-editable text must be enclosed in quotation marks.
	The format and language specifications are optional. If no format is specified, the data is output in the internal date format. If no language is specified, English (EN) is applied as the default language.
Conversion of **Number** to **Date**	Date value corresponding to the value of the number as milliseconds since 01/01/1970
Conversion of **Date** to **Number**	Number of milliseconds since 01/01/1970

Internal number format

If the user logged in in English, the number format is Anglo-Saxon style with a period as the decimal separator and at least one decimal place, but without grouping characters.

Internal date format

yyyy-Q for specifying to the nearest quarter, otherwise yyyy-MM-ddThh:mm:ss The number of digits corresponds to the accuracy of the date, and the remaining digits are omitted. This is the transfer format.

Quarterly specifications

These are indicated by a **Q** within the section of the format that is not in single quotation marks.

Prerequisites for conversion of text into quarterly date values:

1. It is expected that a source value containing a quarterly date consists of just two sequences of figures indicating the year and the quarter. Any non-numerical characters can occur before, after and between them, e.g., Quarter 04/2009.

2. The pattern uses **Y** or **y** as the symbol for the year and **Q** or **q** for the quarter, e.g., quarter **Q/y** or **Q Y**.

Procedure:

1. The (first) two sequences of digits are determined from the source value.

2. The section of the format that is not enclosed between single quotation marks is used to determine whether **q** / **Q** or **y** / **Y** appears first.

3. If **q** or **Q** appears first, the first sequence of digits is interpreted as the quarter and the second as the year, otherwise the reverse.

PARAMETER

The following parameters are available.

Column	Name of the column to be changed; Source: Source table Data type: Date, Number, or Text Specification: Mandatory
New type	New column data type Default value: Text Specification: Mandatory
Format (**Date** type)	Time format for conversion from **Date** type to **Text** type and vice versa. The following formatting symbols are available when converting date into text: ▪ Year: y or Y ▪ Quarter: Q ▪ Month: M ▪ Calendar week: w ▪ Day of the week: E or e ▪ Day of the month: d ▪ Day of the year: D ▪ Hour: H or h ▪ Minute: m ▪ Second: s ▪ AM/PM: a

	▪ Time zone: z (e.g., GMT)
	▪ RFC time zone: Z (e.g., -0900)
	▪ Era: G (must always be AD)
	▪ Default value: MM/dd/yyyy
	The following formatting symbols are available when converting text to date:
	▪ Year: y
	▪ Quarter: Q
	▪ Month: M
	▪ Calendar week: w
	▪ Week of the month: W
	▪ Day of the week: E
	▪ Day of the month: d
	▪ Day of the year: D
	▪ Hour (0-23): H
	▪ Hour (1-24): k
	▪ Hour AM/PM (0-11): K
	▪ Hour AM/PM (1-12): h
	▪ Minute: m
	▪ Second: s
	▪ AM/PM: a
	▪ Time zone: z
	▪ RFC time zone: Z
	▪ Era: G
	Default value: yyyy-MM-dd'T'HH:mm:ss;
	Permitted separators in both cases:
	Dash/minus (-), underscore (_), slash (/), period (.), colon (:), comma (,), tab character, and space.
	Specification: Mandatory
Language	Language if the target format is of the **Date** type.
	Available languages: de and en.
	Specification: Mandatory when using names of months and names of days of the week
Decimal separator	Separator for the decimal places, if the target format is of the **Number** type.
	Default value: **Comma** (,)

	Specification: Mandatory
Format (**Number source format**)	Number format for the conversion of the Number type to the Text type.
	You can select predefined formats or set your own format manually.
	With manual entry, the numbers before the decimal separator must have four digits ascending and then descending, e.g., 1,234.321. After this, you can add text (such as the unit "hours" or km/h).
	Default value: 1234
	Permitted separators:
	▪ Thousands separator in German: period (.)
	▪ Thousands separator in English: comma (,)
	▪ Decimal separator in German: comma (,)
	▪ Decimal separator in English: period (.)
Leading zeros	Number of leading zeros. The maximum number of leading zeros is the number of digits before the decimal separator.
	Example
	Format: 1,234.12 and leading zeros: 5
	Number -> Text
	10.245 -> 00010.25
	12000.4 -> 12000.4
	89.7 -> 00089.70
Specify type	Automatically specifies the data type of the source values.
	If the content of a column does not correspond to its assigned data type, a row is created in the operator which specifies the data type determined for this column Vice-versa, settings (lines) are removed from the operator, which would reset the data type of a column already typified correctly.

▪ The characters in the time format can be combined in any order and repeated any number of times.
Exceptions:

▪ For a month, the number of characters must be >= 3 (MMM or MMMM) if the month is specified in text format (JAN, FEB, etc.) and <3 if it is specified as a figure. In this case, a language must also be specified so that the name of the month can be transformed correctly.

▪ For a year format such as 2009, **y** can be specified any number of times, i.e., **yy** and **yyyy** return **2009**.
For a year format such as 09, however, **yyyy** returns the year **9** and **yy** the year **2009**.

▪ When formatting date values as days of the week for a date to text conversion, an e/E number < 4 returns the day abbreviations (MON, TUE, etc.), while e/E = or > 4 returns the full name of the day.

- Only the month (M), minute (m), time zone (z), RFC time zone (Z) and week of the year (w) are case-sensitive.

- When converting text to date, if the **Q** or **q** symbol is used for quarters all other symbols except Y and y are ignored. Only the order of Q/q and Y/y is decisive then.
  For the reverse conversion from date to text, the Q/q can be combined with any other symbols, but may only occur once (not QQ/yy)

- Quarter entries are currently only possible in the form **YYYY-Q** or **YYYY-QQ**. These strings may only consist of the year, separator, and quarter.

- All other strings must be enclosed in single quotation marks ('). Spaces can be inside or outside, e.g., 'On' dd.MM.yy 'at' hh:mm, or 'On 'dd.MM.yy' at 'hh:mm' '.

- The space pattern in the source and target format must match, e.g., "2 .3 .09" -> "d .M .y" but not "2. 3. 09" -> "d .M .y".

ERROR BEHAVIOR

The following error behavior can occur.

Text -> date: Time format contains characters that are not indicated by quotation marks and are not available as date characters in the transferred language.	The operator returns no data. Error message.
Text -> date: Column contains non-empty strings that do not match the time format.	The incorrect cell remains empty in the target column. The data type change for the column is continued for the remaining rows. Warning message.
Text -> date: Column contains empty cells	The incorrect row remains empty. The data type change for the column is continued for the remaining rows. Warning message.
Text -> number: Column contains strings that cannot be directly interpreted as numbers, e.g., because they contain units.	**Tolerance**: All non-numerical characters are ignored and a numerical value is created from the rest. **Exception**: If, e, E, +e, +E, or -E is embedded in figures, they are interpreted as part of "computerized scientific notation" of the number and are not ignored. No message is output. **Error**:

	If the string is still not successfully changed, the affected cell remains empty. Warning message
Number -> date: The source number has decimal places.	The number is rounded to a value without decimal places and the data type is changed using this value.

Examples

Source format: "22.3.2009"

Time format: "d.M.y" or "DDDD.MM.YYYY",

but not "DD.MMM.YYYY "

Source format:"03/22/09 30:24 PM"

Time format: "MM/DD/YY hh:mm a" or "M/d/y HH:mm A"

but not "M/d/y HH:MM A" or "m/d/y HH:mm A"

Source format: "Time: 2009-FEBRUARY-01T22:33:44"

Time format: "Time: 'y-MMM-d'T'h:m:s" or "'Time:' y-MMMMM-d'T'h:m:s",

but not "'Time: 'y-MM-d'T'h:m:s"

Source format: "3rd quarter 2009"

Time format: "QY" or "Q'. quarter' y or "QQ/yyyy";

but not "YQ"

7.3.2.2   Insert column

BEHAVIOR

Inserts new columns of **Text**, **Number**, or **Date** data type into the data feed. Each of the columns can be populated with an initial value.

PARAMETER

The following parameters are available.

Column name	Name of the new column. Source: Source table Data type: Date, Number, or Text Specification: Mandatory

Type	New column data type; **Date**, **Number**, or **Text**. Default value: **Text**; Specification: Mandatory
Fill column with ascending values	Fills a new column with ascending values. The values start at **1** or the value entered in the **Value** input box and increase by a value of **1** in each subsequent row. Specification: Optional If the option is enabled the **Value** box is disabled and any (default) value already entered or selected is deleted. Incoming connections for dynamic values are ignored.
Value	Initial value of the new column. Source: User input or constant Data type: Depends on the data type of the source column. Specification: Optional

If a name of an existing column is specified as the column name, regardless of its data type, this has no effect on the result table, i.e., the original column values are retained. Existing columns are not overwritten by new columns with the same name. Multiple columns with the same name cannot exist in a table.

ERROR BEHAVIOR

The following error behavior can occur.

Value does not match the column data type.	Error message

7.3.2.3   Duplicate column

BEHAVIOR

Copies the specified columns from the data feed to new or existing columns of the same type.

It is possible to create multiple copies of a column but the target columns must have different names.

If the target column does not exist, it is created. If it does exist, it is replaced. All columns can be duplicated, regardless of type.

PARAMETER

The following parameters are available.

Source column	Name of the column to be duplicated. Source: Source table Data type: Date, Number, or Text Specification: Mandatory
Target column	Name of the new or existing column. Source: Constant Data type: Corresponds to source column. Specification: Mandatory

7.3.2.4   Delete column

BEHAVIOR

Deletes the specified columns from the data feed.

PARAMETER

The following parameters are available.

Column	Name of the column to be deleted. Source: Source table Data type: Date, Number, or Text Specification: Mandatory

7.3.2.5   Rename column

BEHAVIOR

Changes the names of the specified columns from the data feed. The data type of the column is retained.

PARAMETER

The following parameters are available.

Column	Name of the column to be renamed. Source: Source table Data type: Date, Number, or Text Specification: Mandatory
New name	New name of the renamed column. Source: Constant Data type: Corresponds to source column. Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

Column name and new name are identical.	Error message
New column name already exists.	Error message

7.3.2.6   Concatenate texts

BEHAVIOR

Combines the values of the specified columns or text fragments into one text.

Appends the values from the source columns or the source values to one another one row at a time, writes the results to the target column and overwrites any existing values there. If the target column does not exist, it is created.

PARAMETER

The following parameters are available.

Text	Value to be linked. Source: Source table, single-value operator, input value, or a constant. Data type: Number, Text, Date; Specification: Optional

Target column	Name of the column to which the linked text is written.
	Source: Source table or constant.
	Data type: Text
	Default value: Result_1
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

Target column exists, but is not of the TEXT type.	The operator returns no data. Error message.
No entries made for text input.	The <**Name of target column**> column is added to the feed table. The target column has a set of empty rows.

7.3.3   Filter and replace

7.3.3.1   Filter rows

BEHAVIOR

Filters the data feed one row at a time using particular conditions.

Colum values of the **Number**, **Text**, or **Date** type are either let passed or blocked. An appropriate filter criterion can be selected depending on the data type.

PARAMETER

The following parameters are available.

Action	Executed if particular conditions are met.
	Possible actions:
	▪ Let values pass (from source table)

	▪ Block values (from source table) if ▪ all conditions are met ▪ one condition is met Default value: Let values pass if all conditions are met. Specification: Mandatory
Column	Name of the column whose values are filtered. Source: Source table Data type: Number, Text, Date; Specification: Mandatory
Comparison operator	Operator that compares the values from the source column with the comparison values. Available comparison operators depend on the data type of the source column. Default value: is equal to Specification: Mandatory
Comparison values	Values that are compared with the values from the source column. Source: Source table, single-value operator, user input, or a constant Data type: Must be identical to that of the source column. Comparison value missing ▪ Condition met: If a comparison value is missing, the condition is assumed to be met. ▪ Condition not met: If a comparison value is missing, the condition is assumed to not be met. Specification: Mandatory

COMPARISON OPERATORS

Figure	▪ Is equal to ▪ Is not equal to ▪ Is less than ▪ Is less than or equal to ▪ Is greater than ▪ Is greater than or

	equal to ▪ Is empty ▪ Is not empty
Text	▪ Is equal to ▪ Is not equal to ▪ Starts with ▪ Ends with ▪ Contains ▪ Does not contain ▪ Is empty ▪ Is not empty
Date	▪ Before ▪ After ▪ In ▪ Before or on ▪ On or after ▪ Is empty ▪ Is not empty

ERROR BEHAVIOR

The following error behavior can occur.

The comparison value type does not match the column type.	The operator returns no data. Error message.

7.3.3.2   Conditional replace

BEHAVIOR

Changes the value in the specified column one row at a time if certain conditions are met.

Replaces existing values in the column with new values. Replacement must be linked to a condition, i.e., you can specify whether all or at least one condition must be met. Several conditions can be specified and these are linked to each other with "AND".

PARAMETER

The following parameters are available.

Column	Name of the column whose values are replaced. Source: Source table Data type: Number, Text, Date; Specification: Mandatory
New value	Value that replaces the value in the source column. Source: Column with values, single value from a feed (single-value operator), user input, or a constant. Default value: is equal to Specification: Mandatory
Replace	Values are replaced if one or all conditions is/are met.
Source column	Name of the column whose values are compared. Source: Source table Data type: Number, Text, Date; Specification: Mandatory
Comparison operator	Operator that compares the values from the source column with the comparison values. Available comparison operators depend on the data type of the source column. Default value: is equal to Specification: Mandatory
Comparison values	Values that are compared with the values from the source column. Source: Column with values, single value from a feed (single-value operator), user input, or a constant. Data type: Must be identical to that of the source column. Comparison value missing - Condition met: If a comparison value is missing, the condition is assumed to be met. - Condition not met: If a comparison value is missing, the condition is assumed to not be met. Specification: Mandatory

COMPARISON OPERATORS

Figure	▪ Is equal to ▪ Is not equal to ▪ Is less than ▪ Is less than or equal to ▪ Is greater than ▪ Is greater than or equal to ▪ Is empty ▪ Is not empty
Text	▪ Is equal to ▪ Is not equal to ▪ Starts with ▪ Ends with ▪ Contains ▪ Does not contain ▪ Is empty ▪ Is not empty
Date	▪ Before ▪ After ▪ In ▪ Before or on ▪ On or after ▪ Is empty ▪ Is not empty

ERROR BEHAVIOR

The following error behavior can occur.

New value does not match the data type of the source column.	The operator returns no data. Error message.
Comparison value in condition,	The operator returns no data.

value does not match the data type of the condition column.	Error message.

7.3.4   Calculation

7.3.4.1   Aggregate

BEHAVIOR

Combines rows if identical values occur multiple times in specified dimension columns. The numerical values in the remaining columns are combined using Average, Sum, Minimum, Maximum, or Number.

One or more numerical columns in a table are aggregated using no, one or several dimension columns. In all rows that have the same values in all dimension columns, the values in the columns to be aggregated are combined into one row based on an aggregation rule, i.e., the result contains one row for each combination of dimension columns. This also applies if no columns are specified for aggregation. If no dimension column is specified, only a single row is created and all values in the columns to be aggregated are combined to a single value for each column. No rows are created for combinations that do not occur in the original table.

PARAMETER

The following parameters are available.

Dimension column	Name of dimension column. Source: Source table Data type: Date, Number, or Text Default value: {None} Specification: Optional
Aggregation column	Name of the column to be aggregated. Source: Aggregation column is transferred from the source table. Data type: Number

	Default value: {None} Specification: Optional
Aggregation type	Aggregation type for the column to be aggregated: Average, Sum, Minimum, Maximum or Number. Default value: Average, if aggregation column selected. Specification: Mandatory, if aggregation column selected.
Weighting	If the aggregation type is Average or Sum, a numerical column for weighting of the rows can be specified for each column to be aggregated. Specification: Optional

AGGREGATION TYPE

The following aggregation operations can be applied to the columns to be aggregated.

Minimum	Finds all rows that have a particular combination of values in the dimension columns and returns the lowest value that occurs in these rows in the column to be aggregated.
Maximum	Finds all rows that have a particular combination of values in the dimension columns and returns the highest value that occurs in these rows in the column to be aggregated.
Average value	Finds all rows that have a particular combination of values in the dimension columns and returns the average of the values in the column to be aggregated. For weighting purposes, an additional column can be specified for each source column, containing a weighting factor for each row. The weighting information is combined as a pair with the source column.
Sum	Finds all rows that have a particular combination of values in the dimension columns and returns the sum of the values in the column to be aggregated. For weighting, an additional column can be specified for each source column, containing a weighting factor for each row. The weighting information is combined as a pair with the source column.
Number	Finds all rows that have a particular combination of values in the dimension columns and returns the number of values in the column to be aggregated.
First row	Finds all rows that have a particular combination of values in the dimension columns and returns the value of the row with the lowest row index (according to the index column).

Last row	Finds all rows that have a particular combination of values in the dimension columns and returns the value of the row with the highest row index (according to the index column).

At least one dimension or aggregation column, or both, must be set.

If no aggregation columns or dimension columns are specified, the incoming table remains unchanged.

ERROR BEHAVIOR

The following error behavior can occur.

The columns to be aggregated are not all numerical.	The operator returns no data. Error message.

Example

The following table is to be aggregated based on the **Dim 1** and **Dim 2** columns.

Dim 1	Dim 2	Values 1	Values 2	Weight (values 2)
A	X	1	2	3
B	Y	3	4	4
C	Z	5	6	3
A	X	7	8	4
B	Y	9	10	3
C	Z	11	12	4

The sum is to be calculated for the **Values 1** column and the average for the **Values 2** column. The **Weighting (values 2)** column is used for weighting the **Values 2** column one row at a time.

Result:

Dim 1	Dim 2	Sum (values 1)	Average (values 2)
A	X	8 (1+7)	5,43 (2*3 + 8*4)/(3+4)
B	Y	12 (3+9)	6,57 (4*4 +

			10*3)/(4+3)
C	Z	16 (5+11)	9,43 (6*3 + 12*4)/(3+4)

7.3.4.2   Arithmetic

BEHAVIOR

Executes various arithmetical calculations. The operator sets any number of numerical operands against each other. The values are set against each other one row at a time according to the specified calculation type. The calculation always runs from top to bottom. In other words, two operands are always set against each other one row at a time and the result from the first two operands is then set against the third operand.

Compounding can be mapped by using a separate operator for each expression in brackets.

PARAMETER

The following parameters are available.

Operands	One numerical operand per operation for the "Square" and "Square root" calculation types, otherwise two numerical operands.
	Source: Source table, constants, user input or incoming values from other operators.
	Data type: Number
	Specification: Mandatory
Calculation type	
Addition (+)	Adds two columns row by row
Subtraction (-)	Subtracts 2 columns row by row
Division (/)	Divides the first column by the second column
Multiplication (*)	Multiplies two columns row by row
Percent (%)	Multiplies row by row the second column with the percent value of the first column
Square (x²)	Calculates the square of a column
Root	Calculates the square root of a column
Sine (sin)	Calculates for a column the sine value of an angle in degrees
Cosine (cos)	Calculates for a column the cosine value of an angle in degrees
Tangent (tan)	Calculates for a column the tangent value of an angle in degrees

Arcsine (asin)	Calculates for a column the arcsine of an angle in degrees
Arccosine (acos)	Calculates for a column the arccosine of an angle in degrees
Arctangent (atan)	Calculates for a column the arctangent of an angle in degrees
Logarithm (lg)	Calculates for a column the common logarithm
Logarithm (ln)	Calculates for a column the natural logarithm
Power (exp)	Calculates for a column S1 the S2nd power of S1 (S1 to the power of S2)
Minimum (min)	Calculates the minimum of column 1 and column 2
Maximum (max)	Calculates the maximum of column 1 and column 2
Absolute value (abs)	Calculates for a column the absolute value
	Default value: Addition (+) Specification: Mandatory You need to specify the source values for the trigonometric functions sin, cos, tan, asin, acos, and atan in degrees.

Example

Example: Result = Column 1 + Column 2 -– Column 3

Column 1	Column 2	Column 3	Result
1000	2000	50	2950
2000	3000	1000	4000
3000	4000	1200	5800

7.3.4.3   Average value

BEHAVIOR

Calculates the average of the values from several numerical source columns one row at a time, writes the result to a target column, and overwrites any existing values there. If the target column does not exist, it is created.

PARAMETER

The following parameters are available.

Column	Name of the column for which the average value is calculated. Column is transferred from the source table. Data type: Number Specification: Mandatory
Weighting	Weighting factor, which can be specified for each column to be aggregated: a column with values, a single value from a feed (single-value operator), an input value or a constant. Data type: Number Specification: Optional
Target column	Name of the column to which the result is written. The column name can be transferred from the source table or freely entered. Data type: Number Default value: Result_1 Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

The selected columns are not all numerical.	The operator returns no data. Error message.
A row does not contain a value in any of the source columns.	The affected rows are ignored.
A row contains no values in one or more source columns, but there is at least one column that contains a value.	Missing values are ignored in the calculation. If there is only a value in one other source column, this value is the result, if necessary multiplied by the weighting factor.
A row does not contain a value in one or more weighting columns.	The value **1** is used in the calculation for missing values.
An input box does not provide a weighting factor but has a default value.	The default value is used for the calculation.

An input box does not provide a weighting factor and does not have a default value.	The operator returns no data. Error message.
A single-value operator does not return a weighting factor.	The operator returns no data. Error message.

7.3.4.4   Rounding

BEHAVIOR

Rounds the values from a numerical source column to the specified number of decimal places (accuracy), writes the results to the target column and overwrites any existing values there. If the target column does not exist, it is created.

If the accuracy itself is specified as a decimal number, the decimal places are ignored, i.e., the integer value is used. Values that already have the same number or fewer decimal places than specified remain unchanged.

When rounding, the value is rounded down if the next decimal place is < 5, otherwise it is rounded up.

PARAMETER

The following parameters are available.

Source column	Name of the column whose values are rounded. Source: Source table Data type: Number Specification: Mandatory
Accuracy	Numerical value specifying the number of decimal places; Source: Source table, single-value operator, input value, or a constant. Data type: Number Specification: Mandatory
Target column	Name of the column to which the result is written. The column name can be transferred from the source table or freely entered. Data type: Number Default value: Result_1 Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

Accuracy column exists, but is not of the NUMERIC type.	The operator returns no data. Error message.
Accuracy column does not exist.	The operator returns no data. Error message.

7.3.4.5   Goal accomplishment

BEHAVIOR

Calculates the degree of goal accomplishment of column values one row at a time, based on the rating and the two planned values for 100% and 0%.

PARAMETER

The following parameters are available.

Value column	Name of the column for which the goal accomplishment is calculated. Source: Source table Data type: Number Specification: Mandatory
Rating	Rating of the column values for which the goal accomplishment is calculated. Valid values: Positive or Negative ▪ Positive: Higher values are assessed as positive, e.g., sales revenue ▪ Negative: Higher values are assessed as negative, e.g., process throughput time. Data type: Text Default value: Positive: Specification: Mandatory
100% relates to	target values that are compared with the source values. Source: Source table, single-value operator, input value, or a constant. Data type: Number

	Specification: Mandatory Goal accomplishment depends on the rating: ▪ Positive rating: Source values >= target values ▪ Negative rating: Source values <= target values
0% relates to	target values that are compared with the source values. Source: Source table, single-value operator, input value, or a constant. Data type: Number Specification: Mandatory Goal accomplishment depends on the rating: ▪ Positive rating: Target values <= source values ▪ Negative rating: Target values >= source values
Target column	Name of the column to which the result is written. Source: Source table or constant. Default value: Result_1 Data type: Number Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

No value specified for the upper limit.	Error message
No value specified for the lower limit.	Error message
Calculation value column exists, but is not of the **NUMERIC** type.	The operator returns no data. Error message.
Calculation value column does not exist.	The operator returns no data. Error message.

7.3.5   Text

7.3.5.1   Merge single texts

BEHAVIOR

Concatenates multiple text values.

By default, the number of characters in a text cell is limited to 2,000. This limitation applies to text cells that are part of a feed result (also of a partial result). The limitation does not apply to individual values during feed calculation.

Example

An SQL statement is assembled by the **Concatenate text** single-value operator. As long as it is handled as an individual value, this value can exceed the 2,000 characters. As soon as it is used in a table, however, it will be automatically shortened to 2,000 characters.

PARAMETER

The following parameters are available.

Text fragments	Any strings
	Source: User input, single-value operator, or constant
	Data type: Text
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

An input box provides an empty string but has a default value:	The default value is added.

An input value is not of the **Text** type.	The internal text representation of the value is added.

7.3.5.2   Find text index

BEHAVIOR

Finds the specified search text in a search column and writes the position of the found text to a numerical target column.

If the search text is not found, the position is -1.

PARAMETER

The following parameters are available.

Search column	Name of the column whose values are searched. Source: Source table Data type: Text Specification: Mandatory
Search text	String for which the search is performed. Source: Column values from source table, single value from a feed (single-value operator), input value, or a constant. Data type: Text Specification: Mandatory
Target column	Name of the column to which the search result is written. Data type: Number Default value: Result_1 Specification: Mandatory
First/last hit	If multiple results are found, the first or last hit is taken as the search result.

ERROR BEHAVIOR

The following error behavior can occur.

Search column exists, but is not of the TEXT type.	The operator returns no data. Error message.

7.3.5.3 Extract text

BEHAVIOR

Creates an extract from each value in a text column starting from the specified position (start index) and with the specified length and writes the result to a target column.

Searches the source column at the specified start index and using the specified length for the string and displays it in the target column. Start index and length must be >= 0, otherwise an empty entry appears in the target column.

PARAMETER

The following parameters are available.

Column	Name of the column whose values are searched. Source: Source table Data type: Text Specification: Mandatory
Start index	Start position of the string to be extracted. Source: Source column, single-value operator, input value, or constant. Size >= 0; Data type: Number Specification: Mandatory
Length	Number of characters in the string to be extracted. Source: Source column, single-value operator, user input, or constant. Number of characters >= 0 Data type: Number Specification: Mandatory
Target column	Name of the column to which the search result is written. Data type: Number Default value: Result_1 Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

No values specified for start index and length.	The operator returns no data. Error message.
An input box does not provide a start index or length and has no default value:	The operator returns no data. Error message.
Search column exists, but is not of the TEXT type.	The operator returns no data. Error message.

7.3.5.4   Replace text

BEHAVIOR

Replaces text in a search column with the specified Find or Replace text one row at a time, or writes the text to a target column.

If the search text cannot be found, the search text itself is written to the target column.

PARAMETER

The following parameters are available.

Column	Name of the column whose values are searched. Source: Source table Data type: Text Specification: Mandatory
Search text	String for which the search is performed. Source: Source table, single-value operator, input value, or constant. Data type: Text Specification: Mandatory
Replacement text	String that replaces the search text. Source: Source table, single-value operator, input value, or constant. Data type: Text Specification: Optional If no replacement text is specified, the search text found is replaced with a empty text.

Target column	Name of the column to which the replacement result is written.
	Data type: Text
	Default value: Result_1
	Specification: Optional
First/last/all hits	If multiple results are found, the first, last, or all hits is/are replaced.
	The specification relates to occurrence within the individual rows of the search column and not to the sequence of rows, i.e., NOT "First row", "Last row" and "All rows".

ERROR BEHAVIOR

The following error behavior can occur.

No values specified for search text	The operator returns no data.
	Error message.
An input box does not provide a search text and does not have a default value.	The operator returns no data.
	Error message.
Search column exists, but is not of the **TEXT** type.	The operator returns no data.
	Error message.

7.3.5.5   Convert text

BEHAVIOR

Converts all characters in the source column one row at a time, based on the specified transformation rule. The transformation rule includes all rows in the selected source column.

PARAMETER

The following parameters are available.

Text column	Name of the column whose values are converted.
	Source: Source table
	Data type: Text
	Specification: Mandatory

Conversion	Transformation rule for conversion of column values:
	▪ Numbers only: Removes all letters from the column values.
	▪ Upper-case letters: Converts all characters into upper case, according to the rules of the specified language.
	▪ Lower-case letters: Converts all characters into lower case, according to the rules of the specified language.
	▪ Remove space(s): Removes all spaces from the column values.
	▪ Letters only: Removes all figures (0-9) from the column values;
	Specification: Mandatory
Target column	Name of the column to which the conversion result is written.
	Data type: Text
	Default value: Result_1
	Specification: Optional
	If the target column is identical to the source column, the values in the source column are overwritten.

ERROR BEHAVIOR

The following error behavior can occur.

Column name and new name are identical.	Original column values are changed.
New column name already exists elsewhere.	Original column values are changed, i.e., an existing column is replaced.
Source column exists, but is not of the **TEXT** type.	The operator returns no data. Error message.

7.3.5.6   Create URL

BEHAVIOR

Allows the creation of any URL by entering the individual URL elements in corresponding input boxes without the need to specify the control characters **?**, **&** and **=**. The URL can be provided to other operators and data sources.

PARAMETER

The following parameters are available.

Source	Specifies whether the URL refers to a source on the Internet or a resource on the MashZone server, which can be accessed using an alias. Source: Constant Default value: Data from the Internet. Specification: Mandatory
Host	Initial section of a URL containing the host name. It can be preceded by http:// and https:// as the protocol. If no protocol is specified, http:// is used automatically. **Example** https://subdomain.myhost.com This can be followed by a path. **Example** https://subdomain.myhost.com/some/path This section can be concluded with a separator, the default is the slash (/). Source: Constant, user input, single-value operator Data type: Text Specification: Mandatory
Path	The section of a URL that comes after the host name. As protocol **Example** https://subdomain.myhost.com/some/path This section can be concluded with a separator, the default is the slash (/). Several path sections can be appended to one another, or to a host name that already contains part of the path. However, paths may not contain the special characters **=**, **&**, and **?**, as these are part of the parameter section. Source: Constant, user input, single-value operator Data type: Text Specification: Optional

Name	Name of a parameter of the URL. The first parameter is appended to the path with a ?, each subsequent one with a &
	Source: Constant
	Data type: Text
	Specification: Optional
Value	Name of a parameter value for the URL. Parameter values are appended to the preceding parameter name with an = sign.
	Source: Constant, user input, single-value operator
	Data type: Text
	Specification: Optional
Do not use UTF-8 to encode URL	Specifies whether the default masking of special characters (such as accented letters) using their UTF-8 codes is to be disabled. These characters must be masked in a valid URL. Only select this option if you are sure that all sections that make up the URL are already masked.
	Specification: Optional

Example

URL:
http://www.subdomain.mydomain.com/users/myuser/mypage.php?region=dach&table=revenues

Protocol=http

Host: www.subdomain.mydomain.com

Path: /users/myuser/mypage.php

Parameter:

- key: region, value: dach

- key: table, value: revenues

7.3.6   Date

7.3.6.1 Round up/down date

Converts date values from a date column to a rougher time unit and writes the results to a target column.

PARAMETER

The following parameters are available.

Source column	Name of the source column whose values are rounded. Source: Source table Data type: Date Specification: Mandatory
Accuracy	Accuracy of the new date format, defined by the unit: Year, Quarter, Month, Day, Hour, Minute, or Second, and Interval: Depending on the selected unit, e.g., 5 minutes or 1 year Data types: Numeric, Text Default values: 1, Minute If the accuracy of the source column is less accurate or the same as the target column format, the original value is retained. The date values are rounded according to the selected interval. Only the unit to be rounded is taken into account, e.g., when rounding to minutes, the seconds are ignored. Rounding type: Specifies how the selected time interval is to be rounded. ▪ Round up for half an interval: Automatically rounds up above an interval value higher than or equal to half of the interval value ▪ Round down for half an interval: Automatically rounds down below an interval value lower than or equal to half of the interval value ▪ Always round up: Always rounds up, regardless of the interval value ▪ Always round down: Always rounds down, regardless of the interval value
Target column	Name of the target column to which the converted date is written Data type: Date Default value: Result_1 Specification: Optional The target column can be identical to the source column. The values in the target column are overwritten. If the target column is not of the **Date** type, it is replaced by a new date

	column.	

ERROR BEHAVIOR

The following error behavior can occur.

The source column is not of the **Date** type.	The operator returns no data. Error message.
A row in the source column does not contain a value.	The affected rows are ignored.

Examples

2009-12-24T16:23	Day	2009-12-24
2009-12-24T16:23	Hour	2009-12-24T16
2009-12-24	Month	2009-12
2009-12-24	Quarter	2009-Q4
2009-12-24	Year	2009
2010-08-06T17:15:**27**	10 seconds	2010-08-06T17:15:**30**
2010-08-06T17:**07**:00	15 minutes	2010-08-06T**17**:00
2010-08-06T17:**18**:00	15 minutes	2010-08-06T**17**:**15**
2010-08-06T**02:18:04**	4 hours	2010-08-06T0**4:00:00**

Round up

2010-02-28T23:**07:00:00 AM**	15 minutes	2010-02-28T**23:00**
2010-02-28T23:**07:30**	15 minutes	2010-02-28T**11:15:00 PM**
2010-**02-28**T23:30:00	1 hour	2010-**03-01**T00

Round down

1970:01:01T09:00:**01**	6 hours	1970:01:01T**12**:00:00
1970:01:01T09:00:**00**	6 hours	1970:01:01T**06**:00:00

Always round up

2010-02-28T**11:15:00 PM**	15 minutes	2010-02-28T**11:15:00 PM**
2010-02-28T**11:15:01 PM**	15 minutes	2010-02-28T**11:30:00 PM**
2010-**02-28**T**20:00:01**	6 hours	2010-**03-01**T00

Always round down

2010-02-28T**11:15:00 PM**	15 minutes	2010-02-28T**11:15:00 PM**
2010-02-28T**11:14:59 PM**	15 minutes	2010-02-28T**23:00**
2010-**03-01**T**05:59:59**	6 hours	2010-**03-01**T**00**

7.3.6.2   Move single date

BEHAVIOR

Moves a date by a specified amount of time in a given direction and writes the results to a target column.

A date can only be moved by an amount of time whose unit is the same as or less accurate than the unit of the date itself. If the format of the moving period is more accurate than the format of the source date, the source date is retained. If you move a date by quarters, it is moved by three months for every quarter.

If a date accurate to the nearest day with a number of days > 28 is moved to a month that has fewer days, the result is the last day of the target month.

Example

You can move a date accurate to the nearest month by months, quarters or years, but not by days. A date accurate to the nearest year can only be moved by years, a date accurate to the nearest year by any unit.

PARAMETER

The following parameters are available.

Source column	Name of the source column whose date values are moved. Source: Source table Data type: Date Specification: Mandatory
Direction	Direction in which the date is moved. Valid values: Forward or Back Data type: Text Default value: Forward Specification: Mandatory
Value	Value by which the date is moved by the selected unit. Source: Manual entry or single value Data type: Number Default value: 1 Specification: Optional
Unit	Unit of time by which the date is moved. Data type: Text Default value: Minute Specification: As source The information **As source** allows a move even if the unit of the date values is unknown at the time of creation or if it can vary.
Target column	Name of the target column to which the result is written. Data type: Date Default value: Result_1 Specification: Optional The target column can be identical to the source column. The values in the target column are overwritten.

ERROR BEHAVIOR

The following error behavior can occur.

The source column is not of the **Date** type.	The operator returns no data. Error message.
A row in the source column does not contain a value.	The affected rows are ignored.
A date in the source column is less accurate than the amount to be moved.	The source value is retained.
A required parameter is missing.	The operator returns no data. Error message.

Examples

2009-12-24T16:23	10	YEAR	NEXT	2019-12-24T16:23
2009-12-24	10	DAY	NEXT	2010-01-03
2009-12-30	10	MONTH	BACK	2009-02-28
2009-11	1	QUARTER	NEXT	2010-02
2009-11	1	DAY	NEXT	2009-11
2011-01-01	3	As source	NEXT	2011-01-04
2011-Q1	3	As source	NEXT	2011-Q4

7.3.6.3   Move date

BEHAVIOR

Moves a source date by a specified amount of time in a given direction and outputs the result as a target column.

PARAMETER

The following parameters are available.

Target date	Date moved by a specific period of time. Objective: Single value Data type: Date Specification: Mandatory
Source date	Date to be moved by a specific period of time. Source: Single value Data type: Date Specification: Mandatory
Direction	Direction in which the date is moved. Valid values: Forward or Back Data type: Text Default value: Forward Specification: Mandatory
Value	Value by which the date is moved by the selected unit. Source: Manual entry or single-value operator Data type: Number Default value: 1 Specification: Optional Both positive and negative values are allowed.
Unit	Unit of time by which the date is moved. Data type: Text Default value: As source Specification: Optional When specifying a static unit a move can be implemented only if the source date has the same or a higher accuracy than the unit selected. The information **As source** allows a move even if the unit of the date values is unknown at the time of creation or if it can vary.

ERROR BEHAVIOR

The following error behavior can occur.

The source value is not of the **Date** type.	The operator returns no data. Error message.

The source does not contain a value.	The operator returns no data. Error message.
The source value is not as accurate as the amount to be moved.	The source value is retained.
A required parameter is missing.	The operator returns no data. Error message.

Examples

2011-01-11	3	As source	Forward	2011-01-04
2011-Q1	3	As source	Forward	2011-Q4

7.3.6.4 Replace date field

BEHAVIOR

Replaces the specified date fields (e.g., year) in all rows of the selected source column with the value specified in the **Date** field. The operator can be used to change the Year, Month, Day, Hour, Minute, and Second date fields for the values in a date column.

PARAMETER

The following parameters are available.

Source column	Name of the source column whose date fields are replaced. Source: Source table Data type: Date Specification: Mandatory

Date	Input value that is to replace the value of the date field. The input value must correspond to the internal date format: • YYYY-MM-DDTHH:MM:SS • YYYY-MM-DDTHH:MM • YYYY-MM-DDTHH • YYYY-MM-DD • YYYY-MM • YYYY-'Q'Q • YYYY YYYY=Year, MM=Month, DD=Day, T=Separator, HH=Hour, MM=Minute, 'Q'Q=Quarter **Example** 2009-12-24T16:23 (24.12.2009 16:23) 2010-03 (3rd quarter 2010)
Date fields	Date fields to be replaced by the input value in the date from the source column. Year, Month, Day, Hour, Minute, and Second are available as date fields.
Target column	Name of the target column to which the new date is written. Data type: Date Default value: Result_1 Specification: Optional The target column can be identical to the source column. The values in the target column are overwritten.

ERROR BEHAVIOR

The following error behavior can occur.

The source column is not of the **Date** type.	The column cannot be selected. If the data type of a date column is subsequently changed, an error message is displayed: The source column <Column name> is not a date column.
At least one selected data field is not included in the specified date format.	For these date fields, these values are set to 0. **Example** If the date **01/01/1970** is specified and Hour selected as the date field, all hours are set to **0** in the source date.

At least one selected date field does not exist in at least one row in the source table.	For these date fields, these values are set to 0. **Example** If the date is **01/01/2010** in the source column and the **Hours**, **Minutes**, and **Seconds** date fields are selected, the value in the cell is converted to 01/01/2010 00:00:00.
The specified date format does not correspond to the internal date format.	Error message
A row in the source column does not contain a value.	The affected rows are ignored.

Examples

Date = 01/01/1970

Date fields to be replaced = Year, Month, Day

05/25/2010 18:02		01/01/1970 18:02
03/13/2002 20:01:01		01/01/1970 20:01:01
02/24/2000 17:00		01/01/1970 17:00
01/12/2001 23:03:03		01/01/1970 23:03:03

7.3.6.5   Filter by date

BEHAVIOR

Searches a date column for the latest or earliest date and transfers these rows to the results table. All other rows are filtered out. The search can be limited to particular dimensions. If one or more dimensions are specified, the operator determines the feed row with the earliest or latest date within the feed rows with identical dimension values and transfers this to the result table. If there are several feed rows with the earliest or latest date, all of them are transferred to the results table.

PARAMETER

The following parameters are available.

Source column	Name of the source column for which the earliest or latest date values are determined.
	Source: Source table
	Data type: Date
	Specification: Mandatory
Earliest/latest date	Determines the earliest or latest date values in the source column.
	Default value: Earliest date
Dimension column	Dimension for which the earliest or latest date values are determined. Acts as a filter to restrict the values determined.
	Data type: Text
	Specification: Mandatory
	Multiple dimension columns can be set.

ERROR BEHAVIOR

The following error behavior can occur.

The source column or one of the dimension columns does not exist.	The operator returns no data. Error message.
The source column is not of the **Date** type.	The operator returns no data. Error message.

7.3.7 Single values

7.3.7.1 Change data type

BEHAVIOR

Changes the data type of the incoming single value to the **Number**, **Text**, or **Date** data types.

Conversion of **Text** to **Numerical**	Numerical value of the text taking into account the decimal separator. If the decimal separator is set correctly, any thousands separator is detected automatically.
Conversion of **Numerical** to **Text**	Text representation of the number in the specified format. If nothing is specified here, the results are formatted in the internal date format.
Conversion of **Text** to **Date**	Date value of the text in the internal format, based on the specified format and, where applicable, the language. The date must be in the **AD** era. Date values before the common era are not supported. The time format must be specified. The time format is made up of sequences of characters, which stand for date fields, e.g., year, month, day of the week, or minute, in the relevant language; separated by separators. In addition, the corresponding language must be specified. Non-editable text must be enclosed in quotation marks. When using the **Q** or **q** symbol for quarters, all other symbols except **Y** and **y** for years are ignored. Only the order of **Q/q** and **Y/y** is relevant.

Conversion of **Date** to **Text**	Text representation of the date in the internal format, or based on the language and the specified format
	Non-editable text must be enclosed in quotation marks.
	The format and language specifications are optional. If no format is specified, the data is output in the internal date format. If no language is specified, English (EN) is applied as the default language.
Conversion of **Numerical** to **Date**	Date value corresponding to the value of the number as milliseconds since 01/01/1970
Conversion of **Date** to **Numerical**	Number of milliseconds since 01/01/1970

Internal number format

Anglo-Saxon style number format with a period as the decimal separator and at least one decimal place, but without grouping characters.

Internal date format

yyyy-Q for specifying to the nearest quarter, otherwise yyyy-MM-ddThh:mm:ss The number of digits corresponds to the accuracy of the date, and the remaining digits are omitted. This is the transfer format.

Quarterly specifications

These are indicated by a **Q** within the section of the format that is not in single quotation marks.

Prerequisites for conversion of text into quarterly date values:

1. It is expected that a source value containing a quarterly date consists of just two sequences of figures indicating the year and the quarter. Any non-numerical characters can occur before, after and between them, e.g., Quarter 04/2009.

2. The pattern uses **Y** or **y** as the symbol for the year and **Q** or **q** for the quarter, e.g., quarter **Q/y** or **Q Y**.

Procedure:

1. The (first) two sequences of digits are determined from the source value.

2. The section of the format that is not enclosed between single quotation marks is used to determine whether **q** / **Q** or **y** / **Y** appears first.

3. If **q** or **Q** appears first, the first sequence of digits is interpreted as the quarter and the second as the year, otherwise the reverse.

PARAMETER

The following parameters are available.

Single value	Source: Single-value operator Data type: Date, Number, or Text Specification: Mandatory
New type	New single-value data type Default value: Text Specification: Mandatory
Format	Time format for conversion from Date type to Text type and vice versa. The following formatting symbols are available when converting date into text: ▪ Year: y or Y ▪ Quarter: Q ▪ Month: M ▪ Day of the week: E or e ▪ Day of the month: d ▪ Day of the year: D ▪ Hour: H or h ▪ Minute: m ▪ Second: s ▪ AM/PM: a ▪ Time zone: z (e.g., GMT) ▪ RFC time zone: Z (e.g., -0900) ▪ Era: G (must always be AD) ▪ Default value: MM/dd/yyyy The following formatting symbols are available when converting text to date: ▪ Year: y ▪ Quarter: Q ▪ Month: M ▪ Day of the week: E ▪ Day of the month: d ▪ Day of the year: D ▪ Hour (0-23): H ▪ Hour (1-24): k ▪ Hour AM/PM (0-11): K

	▪ Hour AM/PM (1-12): h
	▪ Minute: m
	▪ Second: s
	▪ AM/PM: a
	▪ Time zone: z
	▪ RFC time zone: Z
	▪ Era: G
	Default value: yyyy-MM-dd'T'HH:mm:ss;
	Permitted separators in both cases:
	Dash/minus (-), underscore (_), slash (/), period (.), colon (:), comma (,), tab character, and space.
	Specification: Mandatory
Language	Language if the target format is of the **Date** type.
	Available languages: de and en.
	Specification: Mandatory when using names of months and names of days of the week
Decimal separator	Separator for the decimal places, if the target format is of the **Number** type.
	Default value: **Comma** (,)
	Specification: Mandatory

▪ The characters in the time format can be combined in any order and repeated any number of times.
Exceptions:

For a month, the number of characters must be >= 3 (MMM or MMMM) if the month is specified in text format (JAN, FEB, etc.) and <3 if it is specified as a figure. In this case, a language must also be specified so that the name of the month can be transformed correctly.

For a year format such as 2009, **y** can be specified any number of times, i.e., **yy** and **yyyy** return **2009**.
For a year format such as 09, however, **yyyy** returns the year **9** and **yy** the year **2009**.

When formatting date values as days of the week for a date to text conversion, an e/E number < 4 returns the day abbreviations (MON, TUE, etc.), while e/E = or > 4 returns the full name of the day.

▪ Only the month (M), minute (m), time zone (z), RFC time zone (Z) and week of the year (w) are case-sensitive.

▪ When converting text to date, if the **Q** or **q** symbol is used for quarters all other symbols except Y and y are ignored. Only the order of Q/q and Y/y is decisive then.
For the reverse conversion from date to text, the Q/q can be combined with any other symbols, but may only occur once (not QQ/yy)

- Quarter entries are currently only possible in the form **YYYY-Q** or **YYYY-QQ**. These strings may only consist of the year, separator, and quarter.

- All other strings must be enclosed in single quotation marks ('). Spaces can be inside or outside, e.g., 'On' dd.MM.yy 'at' hh:mm, or 'On 'dd.MM.yy' at 'hh:mm' '.

- The space pattern in the source and target format must match, e.g., "2 .3 .09" -> "d .M .y" but not "2. 3. 09" -> "d .M .y".

ERROR BEHAVIOR

The following error behavior can occur.

Text -> date: Time format contains characters that are not indicated by quotation marks and are not available as date characters in the transferred language.	The operator returns no data. Error message.
Text -> date: Single value contains non-empty strings that do not match the time format.	The operator does not return a date value. A warning message is output.
Text -> date: Single value contains empty cells	The operator does not return a date value. A warning message is output.
Text -> number: Single value contains strings that cannot be directly interpreted as numbers, e.g., because they contain units.	**Tolerance**: All non-numerical characters are ignored and a numerical value is created from the rest. **Exception**: If, e, E, +e, +E, or -E is embedded in figures, they are interpreted as part of "computerized scientific notation" of the number and are not ignored. No message is output. **Error**: If the string is still not successfully changed, the affected cell remains empty. A warning message is output.
Number -> date: The source number has decimal places.	The number is rounded to a value without decimal places and the data type is changed using this value.

Examples

Source format: "22.3.2009"

Time format: "d.M.y" or "DDDD.MM.YYYY",

but not "DD.MMM.YYYY "

Source format: "03/22/09 30:24 PM"

Time format: "MM/DD/YY hh:mm a" or "M/d/y HH:mm A"

but not "M/d/y HH:MM A" or "m/d/y HH:mm A"

Source format: "Time: 2009-FEBRUARY-01T22:33:44"

Time format: "Time: 'y-MMM-d'T'h:m:s" or "'Time:' y-MMMMM-d'T'h:m:s",

but not "'Time: 'y-MM-d'T'h:m:s"

Source format: "3rd quarter 2009"

Time format: "QY" or "Q'. quarter' y or "QQ/yyyy";

but not "YQ"

7.3.7.2   Copy single value

BEHAVIOR

Creates an independent copy of a single value, without changing the input value.

PARAMETER

The following parameters are available.

Single value	Single value to be copied.
	Specification: Mandatory

ERROR BEHAVIOR

The following error behavior can occur.

Input value is empty.	The operator returns an empty output value of the same type.

7.3.7.3   Column to value

BEHAVIOR

Filters a single value from the data feed. If the filter delivers multiple values, the first value found is returned.

Determines the first value found from a column in the source table, based on the specified condition, and returns this as a single value. If no value is found, **No value** is returned. If no value is specified, there is no filtering and the first value found is returned.

PARAMETER

The following parameters are available.

Action	Executed if particular conditions are met.
	Possible actions:
	▪ Let values pass (from source table)
	▪ Block values (from source table)
	if
	▪ all conditions are met
	▪ one condition is met
	Default value: Let values pass if all conditions are met.
	Specification: Mandatory
Column	Name of the column whose values are filtered.
	Source: Source table
	Data type: Number, Text, Date;
	Specification: Mandatory
Comparison operator	Operator that compares the values from the source column with the comparison values.
	Available comparison operators depend on the data type of the source column.
	Default value: is equal to
	Specification: Mandatory

Comparison values	Values that are compared with the values from the source column.
	Source: Source table, single-value operator, input value, or a constant.
	Data type: Must be identical to that of the source column.
	Comparison value missing
	▪ Condition met: If a comparison value is missing, the condition is assumed to be met.
	▪ Condition not met: If a comparison value is missing, the condition is assumed to not be met.
	Specification: Mandatory

COMPARISON OPERATORS

Figure	▪ Is equal to
	▪ Is not equal to
	▪ Is less than
	▪ Is less than or equal to
	▪ Is greater than
	▪ Is greater than or equal to
	▪ Is empty
	▪ Is not empty
Text	▪ Is equal to
	▪ Is not equal to
	▪ Starts with
	▪ Ends with
	▪ Contains
	▪ Does not contain
	▪ Is empty
	▪ Is not empty
Date	▪ Before
	▪ After
	▪ In
	▪ Before or on
	▪ On or after

	▪ Is empty ▪ Is not empty

7.3.7.4   Value to column

BEHAVIOR

Converts an individual value into a column so that it can be connected to an operator.

Creates a feed table from a single-value operator with a column of the source operator type and a row containing the value of the source operator. The name of the column corresponds to the name of the source operator (only possible for user input) or is assigned the default name **Single value**.

PARAMETER

The following parameters are available.

Single-value operator	Returns the value that is converted into a data feed. Data type: Text, Number, or Date Specification: Mandatory
Target column	Name of the column to which the conversion result is written. Data type: Text Default value: Result_1 Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

The single-value operator does not return a value.	The operator returns no data. Error message.

7.3.8   Geolocations

7.3.8.1   Aggregate geolocations

BEHAVIOR

Calculates an entire route, consecutive legs (sections of routes), or a closed area from imported GPS data.

One or more numerical columns in a table (aggregation columns) can be aggregated using no, one or several dimension columns. In all rows that have the same values in all dimension columns, the values in the columns to be aggregated are combined into one row based on an aggregation rule, i.e., the result contains one row for each combination of dimension columns. This also applies if no columns are specified for aggregation. If no dimension column is specified, only a single row is created and all values in the columns to be aggregated are combined to a single value for each column. No rows are created for combinations that do not occur in the original table.

Prerequisite

You have installed at least the MashZone **Professional** edition.

You have installed the Google Maps API key in Administration and accepted the Google Maps terms (Page 73).

PARAMETER

The following parameters are available.

Mode	Indicates the usage of the GPS data imported. ▪ Entire route: Calculates an entire route from the GPS data. ▪ Leg: Calculates consecutive sections of routes from the GPS data. ▪ Area/closed route Calculates a closed area from the GPS data. Corresponds to the entire route with the first waypoint added as the last waypoint so that the route is always closed. Specification: Mandatory
Index column	Indicates the column determining the order of coordinates. Data type: Number Specification: Mandatory

	Index values can begin with any value, and the order of indices may have gaps (e.g., -3, -1, 3, 4.56, 6, 10.99). If multiple rows have the same index value or if index values are missing the order of these rows is not defined and can change with each calculation. Cells with missing index values are ignored.
Latitude (lat)	Indicates the column containing the latitudes. Data type: Number Specification: Mandatory The coordinates must be entered in the data source as decimal values (decimal degrees).
Longitude (long)	Indicates the column containing the longitudes. Data type: Number Specification: Mandatory The coordinates must be entered in the data source as decimal values (decimal degrees).
Route identification columns	Name of the columns used for assigning the coordinates to particular routes (dimension column). Data type: Date, Number, or Text Default value: {None} Specification: Optional
Aggregation column	Name of the column to be aggregated. Source: Aggregation column is transferred from the source table. Data type: Number Default value: {None} Specification: Optional
Aggregation type	Aggregation type for the column to be aggregated: Average, Sum, Minimum, Maximum, Number, first row, last row. Default value: Average, if aggregation column selected. Specification: Mandatory, if aggregation column selected.
Weighting	If the aggregation type is Average or Sum, a numerical column for weighting of the rows can be specified for each column to be aggregated. Specification: Optional
Route optimization	Enables an optimal reduction of waypoints calculated for a route and thus reduces the calculation effort for a route.
▪ Optimize number of waypoints	Reduces the number of waypoints that are not required for the global and local characteristics of the route. Specification: Optional

▪ Tolerance	Tolerance of number of waypoints Default value: 100 Specification: Optional
▪ Limit the maximum number of waypoints	You enter the maximum number of waypoints of a route to limit this number. Specification: Optional; requires the option **Optimize number of waypoints** to be enabled.
▪ Maximum number	Maximum number of waypoints to be calculated. Specification: Mandatory if the option **Limit the maximum number of waypoints** is enabled.
▪ Optimize display for zoom	Reduces or increases the number of waypoints depending on the zoom factor specified.
Target column	Name of the column to which the result is written. The column name can be transferred from the source table or freely entered. Data type: Text Default value: Result_1 Specification: Mandatory

AGGREGATION TYPE

The following aggregation operations can be applied to the columns to be aggregated.

Minimum	Finds all rows that have a particular combination of values in the dimension columns and returns the lowest value that occurs in these rows in the column to be aggregated.
Maximum	Finds all rows that have a particular combination of values in the dimension columns and returns the highest value that occurs in these rows in the column to be aggregated.
Average value	Finds all rows that have a particular combination of values in the dimension columns and returns the average of the values in the column to be aggregated. For weighting purposes, an additional column can be specified for each source column, containing a weighting factor for each row. The weighting information is combined as a pair with the source column.
Sum	Finds all rows that have a particular combination of values in the dimension columns and returns the sum of the values in the column to be aggregated. For weighting, an additional column can be specified for each source column, containing a weighting factor for each row. The weighting information is combined as a pair with the source column.

Number	Finds all rows that have a particular combination of values in the dimension columns and returns the number of values in the column to be aggregated.
First row	Finds all rows that have a particular combination of values in the dimension columns and returns the value of the row with the lowest row index (according to the index column).
Last row	Finds all rows that have a particular combination of values in the dimension columns and returns the value of the row with the highest row index (according to the index column).

ERROR BEHAVIOR

The following error behavior can occur.

Index column missing	Error message
Empty cells in the index column	Error message
Longitudes column missing	Error message
Latitudes column missing	Error message
Double indices in index column	Error message
Target column exists, but is not of the TEXT type.	The existing column is replaced. Error message

Example

The following table is to be aggregated based on the **Route** column (route identification column (dimension column)). The **KPI** column is aggregated using the **Sum** aggregation type, the columns **Time** and **Name** are aggregated using the **First row** aggregation type.

Route	Index	Width	Length	Name	Measure	Time
A	1	49.338166	7.191524	North route	2	22.08.2010 17:32:27
A	2	49.338235	7.191487	North route	4	22.08.2010 17:03:21
B	48	47.234568	7.206987	South	32	13.08.2010

				route		08:09:45
A	3	49.338396	7.191025	North route	3	22.08.2010 16:56:01
B	59	47.234966	7.207305	South route	44	13.08.2010 08:26:05
B	60	47.235023	7.207785	South route	45	13.08.2010 08:59:17

Result of **Entire route** mode:

Route	Coordinates	Name	Measure	Time
A	49.338166,7.19124 49.338235,7.191487 49.338396, 7.191025 … as encoded string	North route	9	22.08.2010 17:32:27
B	47.234568,7.206987 47.234966,7.207305 47.235023,7.207785 … as encoded string	South route	123	13.08.2010 08:09:45

Result of **Leg** mode:

Route	Coordinates	Name	Measure	Time
A	49.338166,7.191524 49.338235,7.191487 … as encoded string	North route	6	22.08.2010 17:32:27
A	49.338235,7.191487 49.338396, 7.191025 … as encoded string	North route	7	22.08.2010 17:03:21
B	47.234568,7.206987 47.234966,7.207305 … as encoded string	South route	76	13.08.2010 08:09:45
B	47.234966,7.207305 47.235023,7.207785 … as encoded string	South route	89	13.08.2010 08:26:05

7.3.8.2 Retrieve geolocations

BEHAVIOR

Imports a column containing addresses and uses the Google Maps API to determine the corresponding coordinates (lat/long) and writes them to the relevant target columns.

In addition to the **Latitude (lat)** and **Longitude (long)** target columns you can create further columns containing information on the events and their individual address fields, e.g., level of accuracy, city, country, and zip code.

The number of possible Google Maps queries depends on the Google Maps API key registered. For unsigned API keys, Google limits the maximum number of queries to 2,500 in 24 hours.

Prerequisite

You have installed at least the MashZone**Professional** edition.

You have installed the Google Maps API key in Administration and accepted the Google Maps terms (Page 73).

PARAMETER

The following parameters are available.

Address column	Name of the column containing the addresses to be imported. Source: Source table Data type: Text Specification: Mandatory
Options	Provides further options
Specify search area	Restricts the search to a particular region (country) in Google Maps. Default value: US (United States) Specification: Optional If you do not specify a region, Google Maps tries to determine a region from the address data first. If no region can be identified, Google Maps conducts a default search in the region **US (United States)**. A global search is not supported.
Multiple results	Allows output of multiple results if multiple identical addresses were found. Data type: Number Specification: Optional

Maximum number	Specifies the maximum number of events.
	Default value: 1
	Specification: Optional
Sort results by accuracy	Sorts multiple identical events by their accuracy.
	Specification: Optional
Latitude (lat)	Name of the column into which the latitudes determined will be imported.
	Data type: Number
	Default value: Result_lat
	Specification: Optional
Longitude (long)	Name of the column into which the longitudes determined will be imported.
	Data type: Number
	Default value: Result_long
	Specification: Optional
Configure additional result columns	Enables you to specify additional columns into which data determined by Google Maps will be imported, e.g., city or region.
	You can select address boxes on the **Base fields**, **Administrative area**, and **Other fields** tabs.
	▪ Result column: Name of the result column to be created
	▪ Short name: Creates a column with a short name of the content.
	▪ Return results in the following language: Returns results in the language selected
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

Google does not deliver any results	Error message
Google returns error code	Error message
Address column not of **TEXT** type	Error message
Target column exists, but is not of the proper type.	The existing column is replaced.

7.3.9 Special

7.3.9.1 User and runtime info

BEHAVIOR

Provides system information on the logged-in user or the current date. The operator can also generate a random number.

The value type of the resulting single value changes accordingly.

PARAMETER

The following parameters are available.

Information type	The single-value operator can return the following types of information: ▪ User data ▪ Today's date ▪ Random number Default value: User data Specification: Mandatory
Property	Properties of the logged-in user; displayed if **User data** is selected as the information type. The following values can be selected: Login, First name, Last name, E-mail Default value: Login Specification: Mandatory
Accuracy	Specifies the accuracy of the date, displayed if **Today's date** is selected as the information type. The following values can be selected: Minute, Hour, Day, Month, Year Default value: Day Specification: Mandatory
Number range	Number range of the random number; displayed if **Random number** is

	selected as the information type.
	The following values can be selected: Integers, Floating point numbers
	Default value: Decimal number
	Specification: Mandatory
Upper/lower limit	Upper or lower limit of the value range for the random number; displayed if **Random number** is selected as the information type.
	Default value: {None}
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

In **User data** mode, no user information is available (e.g., e-mail not specified).	An empty text value is created.
In **Random number** mode, the upper limit is lower than the lower limit or the lower limit is higher than the upper limit.	An error message is displayed.

7.3.9.2   Note

BEHAVIOR

Enables you to enter and save any number of notes in a data feed.

A note includes a comment area and a header with a title. A note can be resized with the help of the mouse.

PARAMETER

The following parameters are available.

Title	Note title editable by double-click
	Data type: Text
	Specification: Optional

Set color	Button for setting the note's background color
Comment area	Editable area for entering any text Data type: Text Specification: Optional

Topics in this area

7.3.10   Other

7.3.10.1   Output

BEHAVIOR

Completes the feed definition and outputs the calculation result for the feed definition.

The penultimate operator of the feed definition must be connected to the **Output** operator.

The operator is inserted in the feed definition by default and cannot be deleted.

7.4   User input

The following user input (Page 63) is available in the Feed Editor (Page 57).

Date (Page 285)	Enables dynamic entry of date values in data feed processing.
Text (Page 286)	Enables dynamic entry of text in data feed processing.
Figure (Page 287)	Enables dynamic entry of numerical values in data feed processing.

7.4.1   Date

BEHAVIOR

Enables dynamic entry of date values in data feed processing. User input is an interface to a data feed, allowing a user to enter data manually in a dashboard. The input has the format **yyyy-MM-dd'T'HH:mm:ss** (up to the required accuracy) or **yyyy-'Q'Q**.

PARAMETER

The following parameters are available.

Name	Name of user input Source: Constant Data type: Text Specification: Optional The names of the individual user input must be unique within the feed definition.
Debug value	Value used for a test calculation in the Feed Editor. Source: Constant Data type: Date Specification: Optional
Default value	The value is used if the user does not provide any input. Source: Constant Data type: Date Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

The value entered does not correspond to the required data format.	An empty value of the Date type is returned.

7.4.2   Text

BEHAVIOR

Enables dynamic entry of text in data feed processing. User input is an interface to a data feed, allowing a user to enter data manually in a dashboard.

PARAMETER

The following parameters are available.

Name	Name of user input
	Source: Constant
	Data type: Text
	Specification: Optional
	The names of the individual user input must be unique within the feed definition.
Debug value	Value used for a test calculation in the Feed Editor.
	Source: Constant
	Data type: Text
	Specification: Optional
Default value	The value is used if the user does not provide any input.
	Source: Constant
	Data type: Text
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

The value entered does not correspond to the required data format.	An empty value of the **Text** type is returned.

7.4.3 Figure

BEHAVIOR

Enables dynamic entry of numerical values in data feed processing. User input is an interface to a data feed, allowing a user to enter data manually in a dashboard. The input is done with a period (.) as the decimal separator and with no thousand grouping character (e.g., 1234.56).

PARAMETER

The following parameters are available.

Name	Name of user input
	Source: Constant
	Data type: Text
	Specification: Optional
	The names of the individual user input must be unique within the feed definition.
Debug value	Value used for a test calculation in the Feed Editor.
	Source: Constant
	Data type: Number
	Specification: Optional
Default value	The value is used if the user does not provide any input.
	Source: Constant
	Data type: Number
	Specification: Optional

ERROR BEHAVIOR

The following error behavior can occur.

The value entered does not correspond to the required data format.	An empty value of the **Number** type is returned.

7.5   LDAP connection

In **MashZone 9**, an LDAP system is connected via central user management. Detailed information on how to configure an LDAP connection is available in the central user management help in chapter **Configuration > User management > What you can configure > LDAP connection**.

7.6   SSO integration

With the connection of MashZone to SAML, SAML2, and Kerberos you can integrate MashZone in a single sign-on scenario.

SAML (Security Assertion Markup Language) and Kerberos enable single sign-on (SSO) of a user for multiple applications in parallel. This means after login to one application, the user is automatically authorized to use additional applications.

From version 9.0 **Enterprise** edition, MashZone supports user login via SAML 1.x, SAML 2, and Kerberos.

If you have configured an SAML 2 connection you can create an external link (Page 51) for the display components **Imaged** and **Text**.

7.6.1   Configure parameters

To integrate MashZone in a single sign-on scenario using SAML or Kerberos, you can configure the required parameters using central user management (Page 104). You configure the parameters on the **Configuration** page in user management.

For detailed information on meaning and configuration of the parameters, please refer to the central user management online help.

SAML CONNECTION

For an SAML connection, the HTTP query when calling MashZone must be added a so-called SAML artifact that MashZone verifies at an authentication service. The SAML artifact is usually provided by the application calling. Among other data, the artifact contains the data of the user who wants to log in to MashZone. If the artifact is valid and the user is known to MashZone and active, login is successful and the user is granted access to MashZone.

With SAML 1 and 2, the user names of the involved applications must match when a non-LDAP user logs in. The passwords may be different. For an LDAP user, the LDAP DN must match for the involved applications. With SAML 2, the applications must not necessarily access the same LDAP system.

SAML 1 PARAMETERS

For login to MashZone with SAML 1, you need to set the following parameters in the file **mashzone.properties** and in central user management (Page 102).

With the following entry in the file **mashzone.properties** you configure SAML 1 access.

The file **mashzone.properties** is located in the directory **\server\bin\work\work_mashzone_[?]\base\webapps\mashzone\WEB-INF** of your MashZone installation. You can edit the file using any text editor.

- mashzone.saml.artifact.param.name=

  artifact name; URL parameter for receiving the SAML 1.x artifact (provided by an authentication service)

With the following entries in central user management you configure SAML 1 access.

- com.aris.umc.saml.active=true
- com.aris.umc.saml.provider.url=http://<hostname>:8585/services/SAML
- com.aris.umc.saml.login.mode.dn.active=true
- com.aris.umc.saml.login.mode.keyword.active=false
- com.aris.umc.saml.login.mode.keyword.name=uid

If login is performed using the LDAP distinguished name and MashZone is not connected to an LDAP system, login is impossible. Login is possible, however, if the LDAP distinguished name contains the user name to be used as an alternative (useLoginNameFromDN=true).

SAML 2 PARAMETERS

With the following entries in central user management you configure SAML 2 access.

- com.aris.umc.saml.active
- com.aris.umc.saml.assertion.timeoffset
- com.aris.umc.saml.assertion.ttl
- com.aris.umc.saml.keystore.alias
- com.aris.umc.saml.keystore.location
- com.aris.umc.saml.keystore.password
- com.aris.umc.saml.keystore.type
- com.aris.umc.saml.truststore.alias
- com.aris.umc.saml.truststore.location
- com.aris.umc.saml.truststore.password
- com.aris.umc.saml.truststore.type

KERBEROS

Kerberos is an authentication protocol that enables mutual authentication of applications in a network by means of key cryptography. MashZone is able to apply the user's login data for the operating system (e.g., MS Windows) to automatically log the user in to MashZone in the Web browser.

KERBEROS PARAMETERS

With the following entries in central user management you configure the Kerberos access.

- com.aris.umc.kerberos.active
- com.aris.umc.kerberos.config
- com.aris.umc.kerberos.debug
- com.aris.umc.kerberos.kdc
- com.aris.umc.kerberos.keyTab
- com.aris.umc.kerberos.realm
- com.aris.umc.kerberos.servicePrincipalName
- com.aris.umc.kerberos.whitelist

7.6.2   SSO integration in My webMethods

You can integrate MashZone under My webMethods in an SSO scenario by SAML (Page 288).

7.6.2.1 Configure SAML 1.x parameters

To integrate MashZone in an SSO scenario under My webMethods you need to configure the following parameters as follows.

In the file **mashzone.properties**

The file **mashzone.properties** is located in the **server\bin\work\work_mashzone_m\base\webapps\mashzone\WEB-INF** directory of your MashZone installation.

▪ mashzone.saml.artifact.param.name=SAMLart

In user management

▪ com.aris.umc.saml.active=true

▪ com.aris.umc.saml.provider.url=http://<hostname>:8585/services/SAML

▪ com.aris.umc.saml.login.mode.dn.active=true

▪ com.aris.umc.saml.login.mode.keyword.active=true

▪ com.aris.umc.saml.login.mode.keyword.name=uid

Instead of <hostname> you enter the name of the PC on which the My webMethod server is running into which you want to integrate MashZone via SSO.

Based on these settings, users created in the My webMethods user management and users of an LDAP system can access MashZone.

We recommend that you connect My webMethods and MashZone with the same LDAP system. Information on connecting My webMethods to an LDAP system is available in the relevant My webMethods documentation.

7.6.2.2 Integrate MashZone in My webMethods server

You can connect MashZone to My webMethods using the **MashZone** (Page 293) and **wm_xt_ssolink** (Page 295) portlets.

While the **wm_xt_ssolink** (Page 295) portlet is part of the default My webMethods installation, you need to install the **MashZone** portlet in My webMethods yourself.

The following chapters provide an overview of how to install the **MashZone** portlet and use the portlets to embed MashZone in My webMethods workspaces.

Detailed information on using My WebMethods is available in the My WebMethods documentation.

7.6.2.2.1 Install MashZone portlet

You can install the **MashZone** portlet together with My webMethods or at a later time.

- Use the Software AG Installer to install the portlet together with My webMethods. It will be activated when you start My webMethods Server.

- If you have already installed My webMethods, you can install the portlet at a later time using the Software AG Installer. To activate the portlet on the server, use the **mws update** application or the **My webMethods administration interface**.

The **ARIS MashZone** portlet is located in the Software AG Installer product tree under **My webMethods User Interface**.

Detailed information on installing a portlet under My WebMethods is available in the My WebMethods documentation.

After you installed or activated the portlet it is available in My webMethods. To use it you need to add it to Workspace Tools.

ADD MASHZONE PORTLET TO MY WEBMETHODS WORKSPACE TOOLS

Prerequisite

My webMethods Server is started.

Procedure

1. Open a Web browser.

2. Open the My webMethods Server user interface by entering the required address (default: "localhost:8585") in the browser's address bar.

3. Log in as system administrator using the default user name **sysadmin** and password **manage**.

4. Open the folder **Folders/Administration/Administration Dashboard/Content/Publish/**.

5. Click the **Browse** button next to the **Portlet** field.

6. Click the arrow next to MashZone to select the entry **MashZone** in the **Drawing** folder.

7. Click **Select**.

8. Click **Next**.

9. Select the folder in which the MashZone portlet is to be published.

   a. Click the **Browse** button.

   b. Open the folder **Folders/My webMethods Applications/webMethods Application Data/My webMethods Server**.

   c. Click the arrow next to Workspace Tools to select the entry **Workspace Tools**.

   d. Click **Select**.

10. Click **Next**.

11. Enter a name for the MashZone portlet, e.g., MashZone, which will be displayed in My webMethods under Workspace Tools.

12. Click **Next**.

13. Click **Finish**.

After you log in to My webMethods the entry **MashZone** is available in My webMethods under Workspace Tools.

7.6.2.2.2   Use MashZone portlet

You can connect MashZone to My webMethods using the **MashZone** portlet.

The connection enables you to display MashZone or individual dashboards in an embedded window (frame) on a My webMethods Web page (workspace).

Prerequisite

You have installed and activated the **MashZone** portlet (Page 292) so that it is available in the **Workspace Tools** bar.

Procedure

1.   Start My webMethods.

2.   Insert the **MashZone** portlet from the **Workspace Tools** bar in a workspace.

3.   Set the portlet properties.

    a.   As **SAML authentication** enter the URL to MashZone, e.g.,
        http://<host>:<port>/mashzone.

    b.   Enter **SAMLart** for the artifact parameter.

        This is a default value. If you change it you also need to change the corresponding parameter in the file **mashzone.properties**.

The portlet is configured for the integration of MashZone.

If the MashZone SAML login to My WebMethods is properly configured and the user is known to MashZone and active, MashZone starts without another login page.

If you want to display a particular dashboard in the frame, you need to copy the dashboard link (Page 42) in MashZone and paste it in the portlet in the **URL** box.

Only a single frame must be added to a My WebMethods workspace. If you add more frames, SSO problems can be the result.

For security reasons, the usage of X-Frame in iframes is limited to the **SAMEORIGIN** option by default. This value can be loosened by inserting the following key values in the **mashzone.properties** file. Please note that not all browsers support the **ALLOW FROM <URI>** option. After changing the file you need to restart the MashZone server.

```
#xframe-options.enabled=[true|false]
mashzone.httpheader.xframe.options.enabled=true
#options: [SAMEORIGIN|DENY|ALLOW FROM <URI>]
mashzone.httpheader.xframe.options=SAMEORIGIN
Detailed information on X-Frame options is available here:
```

https://developer.mozilla.org/en-US/docs/Web/HTTP/X-Frame-Options

(https://developer.mozilla.org/en-US/docs/Web/HTTP/X-Frame-Options)

Example: MashZone portlet properties

Example: Workspace with dashboard view

7.6.2.2.3   Use wm_xt_ssolink portlet

You can connect MashZone to My webMethods using the SSO link portlet **wm_xt_ssolink**. This enables MashZone to open by mouse click in a new browser window without new login.

The **wm_xt_ssolink** portlet is installed together with My webMethods by default.

Procedure

1. Start My webMethods.

2. In the My webMethods configuration, activate the **wm_xt_ssolink** portlet so that it becomes available in the **Workspace Tools** bar.

3. Insert the portlet from the **Workspace Tools** bar in a workspace.

4. Set the portlet properties.

    a. Rename the portlet, e.g., Link to MashZone.

    b. As **SAML authentication** enter the URL to MashZone, e.g.,
        http://<host>:<port>/mashzone.

    c. Select **SAMLart** as the artifact parameter.

        This is a default value. If you change it you also need to change the corresponding parameter in the file **mashzone.properties**.

The portlet is configured for the integration of MashZone.

You can click the link in the portlet to start MashZone in a separate browser window.

If the MashZone SAML login to My WebMethods is properly configured and the user is known to MashZone and active, MashZone starts without another login page.

If you use the **POST** method and the root context of MashZone is specified as a URL, the latter must end in a slash,
for example http://<host>:<port>/mashzone**/**

Example: wm_xt_ssolink portlet properties

Example: Workspace with wm_xt_ssolink **portlet**

7.7   Database connection

Databases are connected via the standardized **JDBC** interface. The required JDBC drivers are database-specific and are either part of the database installation or can be acquired from the manufacturer of the database system used.

The JDBC database connection requires the JDBC driver suitable for the database to be queried. Selecting a suitable JDBC driver is not critical because only standard JDBC features are used.

You can acquire the JDBC driver suitable for your database from the manufacturer of your database system.

Technically, execution of DDL (data definition language) commands, such as **create** or **insert** is not prohibited, however, we recommend that you do not run this type of command with MashZone. To minimize the risk of accidental changes to the database schema used, we recommend accessing the database schema via a role or user with only a read-only privilege.

Database queries are time-critical processes that may take up to several minutes, depending on their complexity. Therefore, you should set the cache time (Page 64) significantly higher than the longest response time expected for a database query.

During the configuration of a database connection set the pool size to a value that corresponds at least to the minimum of data sources used in a dashboard, which use this connection simultaneously.

The following database systems and relevant JDBC drivers have been tested: Oracle 9i, Oracle 10g, Oracle11g, IBM DB2 9.1, MS SQL Server 2005, MS SQL Server 2008, MySQL 5.1.

- Always use the JDBC driver suitable for the queried database version. Do not use different driver versions of the same database type at the same time.

- If the JDBC driver of a database system contains multiple driver classes, the driver class instantiated by the initial call of a connector is used. This also applies if another driver class is configured for other DB connections with the same DB URL.

- The JDBC drivers of the database systems **MS SQL Server 2000** and **MS SQL Server 2005** cannot be used together.

- The JDBC driver of the database system **MySQL** returns empty date columns as **0000-00-00**. You can prevent this from happening by using the argument **zeroDateTimeBehavior=convertToNull**   of the JDBC URL.

  Example:

  jdbc:mysql://dbsrv1:3306/umg?zeroDateTimeBehavior=convertToNull

- When you create a database connection for Oracle 12, the database URL must be specified with the **@** sign, e.g., **jdbc:oracle:thin:@<host>:<port>:<SID>**.

If you are using the **Oracle** database system instead of the default **PostgreSQL** database as a persistence layer (see chapter MashZone persistence layer (Page 316)) you must not install a custom Oracle JDBC driver for the JDBC operator (see chapter Install database drivers (Page 79)).

7.8 Dashboard URL parameters

You can start a dashboard by entering a URL in your Web browser (Page 35).

To do this, enter a particular URL in your Web browser. The URL consists of a base URL followed by a unique GUID for the relevant dashboard, and certain parameters.

The individual parameters are added with the **&** character and the values are assigned to the parameters with the **=** character. The URL must close with the parameter **#MashZone**.

http://[servername]:[port]/mashzone/app/Viewer.html?[GUID]&<parameter>=<value>#MashZone

Example

http://mypc:16360/mashzone/app/Viewer.html?guid=abc&language=de#MashZone

Tip

You can display the URL of a dashboard and copy it to the clipboard.

URL SELECTION

By specifying URL parameters you can dynamically select specific elements of display components (Page 36), such as certain chart coordinates. The elements are selected when displaying a dashboard and, for example, used as filters.

For each selection, the component ID, name of the selection coordinate, and the selection value are required in the following format:

[cn]Component ID[.]Coordinate name[=]Selection value

Example

Two components per URL are selected. Component with ID=**1**, coordinate **Location**, and value **Berlin**; component with ID=**2**, coordinate **Branch**, and value **Cologne**:

http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc**&cn1.Location=Berlin&cn2. Branch= Cologne**#MashZone

Tip

The required input is available in the Composer in the pop-up menu of the relevant display component under the item **Component** (e.g., table) >**Data retrieval**>**URL selection**.

See also the descriptions of the individual display components in the appendix (Page 109).

For the number of usable selection parameters only the limitation by the length of a URL applies. Non-existing components or selection coordinates (observe capitalization) are ignored. URL parameter names and values must always be entered UTF-8 encoded (URL-encoded).

Depending on the data type, selection values require the following formatting:

- Number - Numbers without grouping characters with a period as a decimal separator if decimal places occur
- Date - Internal date format, i.e. yyyy-QQ for specifying to the nearest quarter, otherwise yyyy-MM-ddThh:mm:ss

URL PARAMETER

guid	Unique internal ID to identify a dashboard. Tip The GUID (**internal ID**) is located in the dashboard properties.
tabidx	Index of a dashboard tab that is initially displayed when calling a dashboard. All tabs, i.e., visible and hidden tabs, are considered. The index starts at 0 (0,1,2,…). Example Let us assume the following tabs exist and the index is displayed below each of them: Tab1 | Tab2 | Tab3 | Tab4 　　0　　　1　　　2　　　3 Tab2 is hidden, i.e., the tab is not displayed in the dashboard. However, you can still display this tab using a URL parameter: http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc&tabidx=1#MashZone
language	Language in which the MashZone interface is displayed. At present, the following values are supported: de (German) en (English) fr (French) Example http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc&language=en#MashZone If no valid session is running, the call of the URL is redirected to the MashZone login page. The login page does not interpret URL parameters and the **language** parameter is ignored. The call of the actual URL is only implemented after successful login to MashZone.
plainmode	Hides the border of the application in which the dashboard is displayed. If this parameter has the value **true** only the dashboard is displayed. Example http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc&plainmode=true#MashZone Prerequisite Availability depends on your license. Two pop-up menus are available in the dashboard view without frame.

	In the bottom left corner of the dashboard, you can set the zoom factor.
	In the top right corner, various options are available, such as Share, Print, or Save as image, depending on your license key.
user	User name that a user logs in with to MashZone. This parameter is valid only in combination with the parameter **password**.
	Specifying both parameters circumvents the MashZone login page. No further login to MashZone is required.
	Example
	http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc&user=system&password=manager#MashZone
	Prerequisite
	The parameter combination **user**/**password** must exist in user management.
password	Password that a user logs in with to MashZone. This parameter is valid only in combination with the parameter **user**.
	Specifying both parameters circumvents the MashZone login page. No further login to MashZone is required.
	Example
	http://[servername]:[port]/mashzone/app/Viewer.html?guid=abc&user=system&password=manager#MashZone
	Prerequisite
	The parameter combination **user**/**password** must exist in user management.

7.9 User-defined vector graphics

In addition to the vector maps supplied with MashZone, you can create your own vector maps (vector graphics).

To do so, create a definition file in XML format and save it in the relevant MashZone directory. The map definitions are available in the Composer's data view.

The default map directory **maps** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\assets\maps

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

XML ELEMENTS

The XML definition file contains specific elements for structuring the vector map.

<descriptions>

The map is displayed in the selection box **Map definition** with the name as specified in the **<descriptions>** block in the definition file. If no <description> entry is found for the language in which MashZone is currently running the <description> is used with language="en". If this <description> entry is missing, as well, the file name is displayed in the selection box.

<polygonItem>

In addition to the <descriptions> block, the definition file consists of any number of <polygonItem> elements. Each <polygonItem> element is drawn as a separate polygon in the vector map.

<polygonName>

A <polygonItem> must consist of a <polygonName> and a <path> element.

The <polygonName> element is necessary for linking a row of the assigned data feed with the corresponding polygon.

The assigned data feed must have a feed column whose values are identical with the values of the various **<polygonName>** elements. The column is linked with the **ID** element of the vector map in the data view.

<**path>**

The <path> element is used for determining the actual polygon. The contents of the <path> element is an SVG path.

To create an SVG path, MashZone supports capital letters only, which you can use to define a polygon with absolute positions.

The following capital letters are available:

- M = moveto
- L = lineto
- H = horizontal lineto
- V = vertical lineto
- C = curveto
- S = smooth curveto
- Q = quadratic Belzier curve
- T = smooth quadratic Belzier curveto
- A = elliptical Arc
- Z = closepath

DEFINITION FILE

The definition file must be structured as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE polygons SYSTEM "polygons.dtd">
<polygons xmlns:svg="http://www.w3.org/2000/svg">
     <descriptions>
          <description language="en" name="Map" />
          <description language="de" name="Karte" />
     </descriptions>
     <polygonItem>
```

```
        <polygonName>id1</polygonName>
        <path>M 145.71428,62.362186 C 145.71428,91.554386 114.37422,115.21934
            75.714279,115.21934 37.054349,115.21934 5.7142786,91.554386
            5.7142786,62.362186 5.7142786,33.169996 37.054349,9.5050457
            75.714279,9.5050457 114.37422,9.5050457 145.71428,33.169996
            145.71428,62.362186 z
        </path>
    </polygonItem>
</polygonItem>
</polygons>
```

Tip

Use a vector graphic program to create your own vector graphic with the required <path> element. For example, you can use the program **Inkscape** which you can download for free from the manufacturer's website.

7.10   User-defined color schemes

In addition to the color schemes supplied with MashZone, you can create your own color schemes.

For some components (e.g., the line and column chart), you can assign various color palettes to the data points and displayed elements. These components have individual color palettes, and each of them is based on an individual color scheme.

See also

Format display component (Page 49)

To create an individual color scheme, create a definition file in XML format and save it in the relevant MashZone directory.

The default color scheme directory **colorschemes** is located in your installation directory under

ppmmashzone\server\bin\work\work_mashzone_?\mashzone_data\assets\colorschemes

? = [s|m|l] depends on the memory configuration selected during MashZone installation.

The schema file will be imported during the next start of the Composer and displayed in the selection box of the color palette.

During the export of a dashboard, the definition files with the user-defined schemes are not imported. The color scheme assigned to a component is retained and displayed after an import, even if the original definition file does not exist.

XML ELEMENTS

The XML definition file contains specific elements for structuring the color scheme.

<descriptions>

Indicates the name of the color scheme in the language in which MashZone was started. The element receives one **<description>** element for each language. If there is no matching <description> element for the current language of MashZone the color scheme is displayed with the English element. If no English element exists, the name of the color scheme file is displayed in the selection box.

<colors>

The element contains the list of colors to be included in this color scheme. The individual colors must be separated with a comma.

The definition file must be structured as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE colorscheme SYSTEM "colorscheme.dtd">
    <colorscheme>
    <descriptions>
    <description language="en" name="custom colors" />
    <description language="en" name="user-defined colors" />
    </descriptions>
    <colors>0xff0000, 0x00ff00, 0x0000ff</colors>
</colorscheme>
```

7.11   Migration from MashZone version 2.3 to version 9.10

This chapter describes how you migrate content and configurations from MashZone version 2.3 to version 9.10.

From version **9.6**, the user **administrator** with the password **manage** is available. This user has all relevant administration privileges and can be used as an alternative to the **system** user. The **system** user is still available to you.

The following content and system configurations are part of migration.

▪   MashApps (dashboards)

▪   Data feeds

User management

▪   Users

▪   User groups

▪   Function and license privileges

▪   Configuration (umc.settings) including LDAP settings

Administration settings

▪   Aliases of resource directories, database connections, PPM connection, and RTBS connections

▪   E-mail templates

▪   Proxy settings

▪   Attachments (e.g., images, maps, color schemes)

▪   The selected path to the Event Type Store of the webMethods Event Bus Administration is not transferred and must be reset after migration.

Prerequisite

You have imported your MashZone 9.10 license into user management (Page 103).

Procedure

1. Stop the MashZone 2.3 server.

2. Install MashZone version 9.10 in parallel to version 2.3.

3. Copy the file derby-10.5.3.0.jar to the MashZone 9.10 installation directory under ppmmashzone/server/bin/work/work_umcadmin_?/base/webapps/umc/WEB-INF/lib.

   The file is located in the MashZone 2.3 installation directory under /system/umc/webapp/WEB-INF/lib.

4. Start the MashZone 9.10 system components.

   Click **Start MashZone 9.10** in the Windows program group **Software AG > Start Servers**.

   Under Linux, you need to run the following shell script.

   <MashZone 9.10 installation directory/ppmmashzone/server/start_mashzone.sh

5. Migrate the user configuration from MashZone version 2.3 to version 9.10 by means of user management.

   a. Open user management (Page 102).

   b. Click ⬚ **Configuration**.

   c. Import the configuration file **umc.properties** from MashZone 2.3.

      The file is located in the MashZone 2.3 installation directory under /system/umc/webapp/WEB-INF/classes.

6. Migrate users and user groups.

   a. Open a command line in the <MashZone 9.10 installation directory/ppmmashzone/server/bin/work/work_umcadmin_?/tools/bin.

   b. Export users and user groups from MashZone 2.3. To do so, run the **y-datadump.bat** program with the following parameters in the open command line.

      y-datadump.bat -s http://<host name>:4080 migrate -u system -p manager -c org.apache.derby.jdbc.EmbeddedDriver -d org.hibernate.dialect.DerbyDialect -url "jdbc:derby:<installation directory>/system/umc/db" -f umcdump.zip

      If you specified a port other than the default port 4080 for the load balancer when installing MashZone 9.10, you must specify the URL to the ARIS Server explicitly with this port.

      Example: y-datadump.bat -s http://myhost.domain:8081 migrate ...

      Migration under Linux

      Before executing the command under a Linux system, copy the entire contents of the directory **<MashZone 2.3 installation directory>/system/umc/db** to the directory **<MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_umcadmin_?/tools/bin/db**. Then execute the command as follows.

      y-datadump.sh -s http://<host name>:4080 migrate -u system -p manager -c org.apache.derby.jdbc.EmbeddedDriver -d org.hibernate.dialect.DerbyDialect -url "jdbc:derby:<MashZone 9.10 installation

directory>/ppmmashzone/server/bin/work/work_umcadmin_?/tools/bin/db" -f umcdump.zip

   c. Import users and user groups into MashZone 9.10. To do so, run the **y-datadump.bat** program with the following parameters in the open command line.

       y-datadump.bat -t default import -u system -p manager -f umcdump.zip

       If you specified a port other than the default port for the load balancer when installing MashZone 9.10, you must specify the URL to the ARIS Server explicitly with this port.

       Example: y-datadump.bad -s http://myhost.domain:8081 -t default import ...

7. Migrate the entire contents and configurations of MashZone 2.3.

   a. Open a command line in the <MashZone 9.10 installation directory>/server/bin/work/work_mashzone_?/tools/migration.

   b. Export contents and configuration of MashZone 2.3 to the directory **migration**. To do so, run the **exporttool.bat** tool in the open command line as follows.

       exporttool.bat -folder migration

       Please note that the **MASHZONE_HOME** environment variable must be specified properly.

   c. Copy the **migration** directory from <MashZone 2.3 installation directory>/importexport to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/mashzone_data/import export.

   d. Open a command line in the <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/tools/runtool.

   e. Import the contents of the **migration** directory. To do so, run the **importtool.bat** tool in the open command line as follows.

       importtool.bat -user system -password manager -folder migration

       If the password of the **system** user was changed in MashZone 2.3 you must use the new password here instead of **manager**.

8. Migrate attachments.

   a. Copy the attachments from <MashZone 2.3 installation directory>/assets to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/mashzone_data/assets.

   b. Copy the contents from<MashZone 2.3 installation directory>/resources to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/mashzone_data/resourc es.

       Existing files in the target directory (such as, the **demo** folder) should not be overwritten.

       After copying the resources, go to MashZone 9.10 Administration and check all resource directories (Page 68) for correct path data. If path data referencing folders in the MashZone 2.3 installation exists, we recommend that you copy these folders to the

MashZone 9.10 installation, as well, and adjust the path data accordingly in Administration.

All required contents and configurations have been transferred from MashZone version 2.3 to version 9.10.

7.12   Migration from MashZone version 9.x to version 9.10

This chapter describes how you migrate content and configurations from MashZone version 9.x to version 9.10.

From version **9.6**, the user **administrator** with the password **manage** is available. This user has all relevant administration privileges and can be used as an alternative to the **system** user. The **system** user is still available to you.

The following content and system configurations are part of migration.

- Dashboards
- Data feeds

User management

- Users
- User groups
- Function and license privileges
- Configuration (umc.settings) including LDAP settings

Administration settings

- Aliases of resource directories, database connections, PPM connection, and RTBS connections
- E-mail templates
- Proxy settings
- Attachments (e.g., images, maps, color schemes)
- The selected path to the Event Type Store of the webMethods Event Bus Administration is not transferred and must be reset after migration.

Since MashZone 9.x and 9.10 work with the same port numbers they cannot run in parallel. Therefore, you need to export everything from MashZone 9.x and then import everything into MashZone 9.10.

In the following paths, you need to replace the **?** with the relevant letter. ? = [s|m|l] depends on the memory configuration selected during MashZone installation.

Prerequisite

You have imported your MashZone 9.10 license into user management (Page 103).

Procedure

1. Install MashZone version **9.10** in parallel to version **9.x** into a separate directory.
2. Start the MashZone 9.x system components.

    Click **Start MashZone 9.x** in the Windows program group **Software AG > Start Servers**.

3.   Export the user configuration from MashZone version **9.x** using central user management.

    a.   Open central user management (Page 102) of MashZone 9.x.

    b.   Click **Configuration**.

    c.   Export the configuration.

4.   Export the users and user groups from MashZone version **9.x** using central user management.

    a.   Open central user management (Page 102) of MashZone 9.x.

    b.   Click **User management**.

    c.   Click **More functions > Save data**. Specify a password designed to protect the export file.

5.   Export the entire contents and configurations of MashZone 9.x.

    a.   Open a command line in the <MashZone 9.x installation directory>/server/bin/work/work_mashzone_?/tools/runtool.

    b.   Export contents and configuration of MashZone 9.x. To do so, run the **exporttool.bat** tool in the open command line as follows.

       exporttool.bat -user system -password manager -flat true -folder migration

       Copy the **migration** directory from <MashZone 9.x installation directory>/server/bin/work/work_mashzone_?/mashzone_data/importexport to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/mashzone_data/importexport

6.   Stop the MashZone 9.x system components.

    Click **Stop MashZone 9.x** in the Windows program group **Software AG > Stop Servers**.

7.   Start the MashZone 9.10 system components.

    Click **Start MashZone 9.10** in the Windows program group **Software AG > Start Servers**.

8.   Import the user configuration into MashZone version **9.10** using central user management.

    a.   Open central user management (Page 102) of MashZone 9.10.

    b.   Click **Configuration**.

    c.   Import the configuration file exported from MashZone 9.x into MashZone 9.10.

9.   Import the users and user groups into MashZone version **9.10** using central user management. Passwords of users already existing in MashZone 9.10 are retained upon import.

    a.   Open central user management (Page 102) of MashZone 9.10.

    b.   Click **User management**.

    c.   Import the user data exported from MashZone 9.x into MashZone 9.10.

       Click **More functions > Restore data**. Enter the password you specified.

10.   Import the entire contents and configurations of MashZone 9.x.

a. Open a command line in the <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/tools/runtool

b. Import the contents of the **migration** directory. To do so, run the **importtool.bat** tool in the open command line as follows.

importtool.bat -user system -password manager -folder migration

11. Migrate attachments.

a. Copy your attachments from <MashZone 9.x installation directory>/server/bin/work/work_mashzone_?/mashzone_data/assets to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone/mashzone_data/assets..

b. Copy the content of <MashZone 9.x installation directory>/server/bin/work/work_mashzone_?/mashzone_data/resources to <MashZone 9.10 installation directory>/ppmmashzone/server/bin/work/work_mashzone_?/mashzone_data/resources.

Existing files in the target directory (such as, the **demo** folder) should not be overwritten.

After copying the resources, go to MashZone 9.10 Administration and check all resource directories (Page 68) for correct path data. If path data referencing folders in the MashZone 9.x installation exists, we recommend that you copy these folders to the MashZone 9.10 installation, as well, and adjust the path data accordingly in Administration.

All required contents and configurations have been transferred from MashZone version **9.x** to version **9.10**.

7.13 Use multiple MashZone instances

You can distribute the computing load to multiple MashZone instances by using multiple MashZone instances in parallel that are installed on different computers.

Prerequisite

MashZone including infrastructure is installed on one computer and is running. This MashZone instance will be called master instance from now on.

ENABLE PORT IN FIREWALL

Procedure

On the computer running the infrastructure, the PostgreSQL server port (default: 17049) and the ZooKeeper port (default 17050) must be enabled in the firewall so that MashZone instances running on other computers can connect to the infrastructure. If you changed the default ports you can identify the ports as follows.

1. Launch Cloud Controller on the computer with the infrastructure.

Windows: Click **PPM and MashZone Cloud Controller** in the **<Software AG < Administration** program group.

Linux: Call the **acc.sh** script as follows.

<installation directory>\ppmmashzone\server\acc\acc.sh –h localhost –p 17005 – u Clous – pwd g3h31m

The port number depends on the product version installed: Version **9.5** -> p 17001, **9.6** -> p 17002, **9.7** -> p 17003, **9.8** -> p 17004, **9.9** -> p 17005, **9.10** -> p 17006

2. Enter the following commands:

   a. To identify the ZooKeeper port execute the following command in Cloud Controller. The port is located under clientPort.

      show instance zoo_[s|m|l]

   b. To identify the PostgreSQL server port execute the following command in Cloud Controller. The port is located under postgresql.port.

      show instance postgres_[s|m|l]

The extension **s**, **m**, or **l** depends on the memory model selected during installation. If you are not sure which model you selected you can display the specific names with the **list** command in Cloud Controller.

Please note that all MashZone servers of the array must be directly connected within a network (all MashZone servers are located in the same subnet). Communication via proxy servers between MashZone servers within the array is not supported.

INSTALLATION OF ADDITIONAL MASHZONE INSTANCES

Procedure

1. Install MashZone on an additional browser.
2. After the installation stop the infrastructure and MashZone on this computer as follows.

   Windows: Click **Stop MashZone** in the program group **Software AG > Stop servers**.

   Linux: Call the **stop_mashzone.sh** script as follows.

   <installation directory>\ppmmashzone\server\stop_mashzone.sh

CONFIGURATION OF ADDITIONAL MASHZONE INSTANCES

To enable the MashZone instance to connect to the remote infrastructure, you need to adjust the URL to ZooKeeper and mark the MashZone instance as a non-master instance.

Procedure

1. Start Cloud Controller as described above.
2. Execute the following command.

   reconfigure mashzone_[s|m|l] +zookeeper.connect.string="{URL zum entfernten Zookeeper}" +master.instance=false

   For example, the URL to the remote ZooKeeper is pcXYZ:17050, with pcXYZ being the name or IP address of the computer running ZooKeeper. You identify the port on the ZooKeeper computer as described above.

3. Execute the following command.

    invoke resetInstanceId on mashzone_[s,m,l]

If the MashZone instance is already running you need to stop it first and then restart it for the changes to take effect.

Non-master instances can be stopped and started anytime during runtime. The master instance must run all the time, however, because otherwise local file access is impossible.

It is possible that not all MashZone instances are known at the load balancer. You stop and restart the load balancer to log in all MashZone instances at the load balancer. To do so, launch Cloud Controller as described above on the computer running the infrastructure, and execute the following commands.

▪ stop loadbalancer_[s|m|l]

▪ start loadbalancer_[s|m|l]

START AND STOP INDIVIDUAL INSTANCES

For starting, you can use the existing start scripts on the computer running the MashZone master instance with the infrastructure.

Infrastructure components must not run on computers with non-master instances. You cannot use the existing start scripts here, but need to start MashZone separately using Cloud Controller:

Procedure

1. Start Cloud Controller as described above.

2. Execute the command **start mashzone_[s|m|l]**.

To stop a MashZone instance, you can execute the command **stop mashzone_[s|m|l]** in Cloud Controller.

SPECIAL ASPECTS OF THE MASTER INSTANCE

All local file accesses take place on the computer running the MashZone master instance.

▪ Resource aliases point to the computer running the master instance, i.e., the file system of the computer running the master instance is read in the file selection dialog. All local files to be used within MashZone must be stored on this computer.

▪ The import/export directory of the master instance is used.

▪ Assets, such as maps and color schemes are read by the master instance.

IMPORTANT INFORMATION

▪ If you want to use custom JDBC drivers, they must exist on all MashZone instances in the corresponding directory.

    (Default: <installation directory>\ppmmashzone\server\bin\work\work_mashzone_m\mashzone_data\jdbcdrivers)

▪ If new drivers are added to the folder, the relevant MashZone instance must be stopped and restarted as described above.

- If the system is to support SAML, the entry **mashzone.saml.artifact.param.name** in the file **<installation directory>\ppmmashzone\server\bin\work\work_mashzone_m\base\webapps \mashzone\WEB-INF\mashzone.properties** must be set to the same value for all instances. If the value was changed, the relevant MashZone instance must be stopped and restarted as described above.

- In an array of multiple MashZone instances, only installations with the exact same version must be used.

7.14   Infrastructure

A product installation comprises the individual product components and, as their common base, different infrastructure components. All products installed access the same infrastructure that consists of various functional components required for running the product components. The infrastructure components can be installed on any computer, regardless of the product components. This enables a flexible installation of the individual products and infrastructure components distributed on various computers.

Management and administration of all components is carried out using Cloud Agent (CA) (Page 311) and Cloud Controller (CC).

The following components are also part of the infrastructure.

- Apache ZooKeeper (Page 314)

- Load balancer (Page 314)

- Central user management (Page 315)

7.14.1   Cloud Agent

Cloud Agent is a Windows service that enables you to install, configure, start, stop, and monitor product and infrastructure components on a single computer. Cloud Agent is set up as a service during installation and starts automatically. Each installation of product and infrastructure components has its own Cloud Agent.

7.14.2   Cloud Controller

Cloud Agent (Page 311) is controlled by Cloud Controller. Cloud Controller is a command line program used for sending commands to an active Cloud Agent. The Cloud Agent addressed can run on a local computer or any computer accessible in the network. Cloud Controller is able to control multiple Cloud Agent (Page 311)s and thus to create and manage installations distributed on multiple computers.

Communication between Cloud Controller and Cloud Agent (Page 311)(s) can be encrypted. To transmit commands to a Cloud Agent, authentication via user name and password is required.

The Cloud Controller default configuration allows it to control only the Cloud Agent installed on the local computer (localhost) and does not require user login. Cloud Agent, user name, and password are predefined and transferred as parameters to Cloud Controller upon starting.

```
acc.bat "<installation directory>\ppmmashzone\server\generated.apptypes.cfg" -h
localhost -p 17004 -u Clous -pwd g3h31m
```

The port number depends on the product version installed: Version **9.5** -> p 17001, **9.6** -> p 17002, **9.7** -> p 17003, **9.8** -> p 17004, **9.9** -> p 17005

You can start Cloud Controller in the Windows program group **Start > All Programs > Software AG > Administration**.

7.14.2.1 Commands

Key Cloud Controller commands are listed in the following table. They support you during the configuration of the individual components. Start Cloud Controller and in the command line, enter the command **help** to display available Cloud Controller commands and related descriptions.

Cloud Controller command	Description
list	Lists all components installed on the selected Cloud Agent node. Default: localhost
start <instance id>	Starts the component specified with <instance id>
stop <instance id>	Stops the component specified with <instance id>
startall	Starts all components in a specific sequence. You can set this sequence in Cloud Agent.
stopall	Stops all components in the reverse start sequence.
killall	Closes all components regardless of the current state or existing connections. Use kill <instance id> to close a specific component. Use this command only if components no longer respond to other commands.
enhance [driver]	Use the **enhance** command to install required drivers. **Install database drivers** enhance <client> with dbDriver local file <path to DB driver> **Install SAP JCO drivers** enhance <client> with dbDriver local file <path to SAP JCO driver> Please note that you need to enter path data in Java standard. This means that you need to use "/" instead of "\" even under Windows operating systems. **Example** The Oracle database driver ojdbc6.jar is stored under C:\Temp. Enter the following command to install this driver for the PPM client **umg_en**. enhance umg_en with dbDriver local file C:/Temp/ojdbc6.jar

Cloud Controller command	Description
enhance [PPM components]	To install PPM components, such as Content Packages or Extractors at a later time, use this command: **CSV2PPM Extractor** enhance <client> with extractor com.aris.ppm.enhancements.csv2ppm <version> type zip **ppm4mm Content Package** enhance <client> with contentPackage com.aris.ppm.enhancements.ppm4mm <version> type zip Please note that the selected component must already exist in the repository of your installation. The local repository of your installation for PPM extensions is located here: <installation directory>\ppmmashzone\server\bin\agentLocalRepo\com\aris\ppm\enhancements. For the version please refer to the name of the subdirectory of the relevant component. For example, if **95.1.0** is specified under <installation directory>\ppmmashzone\server\bin\agentLocalRepo\com\aris\ppm\enhancements\jdbs2ppm, the version is **95.1.0**.
enhance [user]	The command **enhance** can also be used for creating a new user in central user management. enhance <instance id> with createUser trigger only options tenant.name="default" tenant.user.name=system tenant.user.pwd=manager affected.user=user1 affected.pwd=user1 affected.first.name="John" affected.last.name="Doe" affected.email="test@test.de" affected.description="description" Creates a new user **user1** with the password **user1**. Please use the name of the component **User management** for the instance ID (default: umcadmin).
show config	Displays the current configuration of Cloud Agent and Cloud Controller.
show instance <instance id>	Displays the current configuration of a component. **Example** show instance ppm_core Returns all configuration parameters of the **ppm_core** component.

Cloud Controller command	Description
reconfigure <instance id> <parameter>	This command is used for reconfiguring components. You can change all parameters saved in the configuration file under <installation directory<\ppmmashzone\server\bin\work\work_<instance id>\runtimeinfo.properties.

Changing these values in this file does not affect the instance running. Parameters can be changed only with Cloud Controller.

Please note that you need to enter path data in Java standard. This means that you need to use "/" instead of "\" even under Windows operating systems.

Replace a backslash **** used in the password with a double backslash ****.

Example

You want to change the RMI communication between PPM client and server to SSL encryption. The following commands need to be executed in Cloud Controller.

- stop ppm_core
- reconfigure ppm_core ssl.enabled="true" ssl.keystorefile="<path to keystore file>" ssl.keystorepassword="<keystorepassword>"
- start ppm_core |

7.14.3   Apache ZooKeeper

Product components and common infrastructure components use Apache ZooKeeper as a central registration service. Apache ZooKeeper is a service that centrally saves configuration information and names for the components registered. It also enables distributed synchronization and provides group services. Apache ZooKeeper enables the operation of distributed installations. Each installation has its own ZooKeeper instance. The individual ZooKeeper instances synchronize, i.e., they exchange data about the configuration of the respective installations.

7.14.4   Load balancer

The load balancer controls the server load distribution for distributed applications or servers. Multiple computers form an array that appears to behave like a single system. The load balancer is connected upstream of the Web application servers and distributes the incoming queries because a single host can only respond to only a limited number of HTTP queries. The upstream load balancer adds information to the HTTP query in order to send queries of the same user to the same server.

7.14.4.1 Load balancer

By default, the load balancer enables unencrypted access via HTTP (port 4080) and encrypted access via HTTPS/SSL (port 4443). Additional configuration for activating the SSL encryption is not required. By default, a certificate generated by the load balancer is used for HTTPS support. Most browsers do not support it, however, because it does not contain any valid root certificate of an approved certification authority. The following chapter describes how to create a valid certificate for HTTPS support of the load balancer.

7.14.4.2 Integrate SSL certificate

This section explains how to create a valid certificate for HTTPS support of the load balancer. The SSL certificate to be generated must be adapted to the load balancer host name in order to avoid client warnings, especially Web browser warnings, and to ensure proper functioning.

To use SSL you need a valid certificate by a certification authority for the server hosting the load balancer. Ensure that the certificate is compatible with the Java version used by the client.

- You can purchase a certificate from an official certification authority. Most clients, and particularly Web browsers accept such a certificate.

- If your company is using a specific certification authority integrate it in the trust store of each client.

The certificate consists of two parts: the private key (file extension **.key**) to unencrypt the information returned to the client, and the server certificate (file extension **.crt**). An example on generating these files is described in chapter PPM server.

Procedure

1. Add both files to a ZIP file.

2. Copy the ZIP file to a location where Cloud Controller can access it.

3. Start Cloud Controller.

4. Stop the load balancer in Cloud Controller.

5. In Cloud Controller, enter the command **enhance <instanceID of the load balancer component> with sslCertificate local file "<path to ZIP file>".**

    If the load balancer instance ID is **loadbalancer_m** and your ZIP file is located at **c:\temp\lbcert.zip**, enter the command **enhance loadbalancer_m with sslCertificate local file "c:\\temp\\lbcert.zip"**.

    Please note the use of double backslashes or single slashes, e.g.: **"c:/temp/lbcert.zip"**.

6. Restart the load balancer.

The SSL certificate is now available.

7.14.5 Central user management

Central user management manages users, user groups (Page 102), and product licenses (Page 103) for MashZone. Central user management enables central single sign-on for both products.

This means that users logged in to one product do no longer need to log in to another product. user management data is managed by administrators with the **Administrator** function privilege.

7.14.6   Change persistence layer

By default, MashZone uses a PostgreSQL database as a persistence layer to save all MashZone-specific data. You can replace this database with another one. To do so, you need the other database and a suitable JDBC driver.

7.14.6.1   Oracle

If you are using the **Oracle** database system instead of the default **PostgreSQL** database as a persistence layer, you must not install a custom Oracle JDBC driver for the JDBC operator (see chapter Install databse drivers (Page 79)).

Procedure

1. Create the required database structures in the Oracle database. The necessary scripts are located in the MashZone installation directory>/ppmserver/server/support/databasescripts, or you can contact Product Support for information.

    ▪ Edit the script **envset.bat**. Specify the following parameters by setting the values for the relevant environment variables:

        ▪ the connection to the database (**TARGET_HOST**, **TARGET_PORT**, **TARGET_SERVICE_NAME**)

        ▪ the required database user for the persistence layer (**CIP_APP_USER**)

        ▪ an existing database user with DBA privileges (**CIP_INSTALL_USER**, **CIP_INSTALL_PWD**, this login generates the database schemas)

        ▪ Name of the tablespace and name of the temporary tablespace (**CIP_TS_DATA**, **CIP_TS_TEMP**)

    ▪ Create the required database user by running the script **cip_create_app_user.bat**. Any existing database user is deleted.

    ▪ Generate the database schema for the master tenant by executing the command **cip_create_schema_for_tenant.bat MASTER**.

    ▪ Generate the database schema for the default tenant by executing the command **cip_create_schema_for_tenant.bat CIP_DEFAULT**.

    ▪ You can also specify schema names other than **MASTER** and **CIP_DEFAULT**. The names must comply with the Oracle name conventions. Names differing from the standard must be specified when assigning the database connection (see step 5) in the argument **com.aris.cip.db.schema**.

2. Stop all components except for ZooKeeper (see chapter Cloud Controller (Page 311)).

3. Use an ACC command (Page 312) to add the JDBC driver to the runtime environment of the components **CloudSearch** and **MashZone**.

    Enhance <component> with commonsClasspath local file "<complete driver path>"

Example

ACC> enhance cloudsearch_m with commonsClasspath local file "C:/temp/ojdbc6.jar"

ACC> enhance mashzone_m with commonsClasspath local file "C:/temp/ojdbc6.jar"

Under Windows, use the slash **/** as a separator in file paths.

4. Register the database connection within the system.

ACC> register external service db
url="jdbc:oracle:thin:@<db-url>:<db-port>:<db-Name>"
driverClassName="oracle.jdbc.OracleDriver" username="<user name>"
password="<password>" maxIdle=15 maxActive=100 maxWait=10000
removeAbandoned=true logAbandoned=true defaultAutoCommit=false host=<db-host-ip>
port=<db-host-port>

5. Then assign the new database connection to the tenants **default** and **master**.

ACC> assign tenant default to service db0000000001

ACC> assign tenant master to service db0000000001

If the generated Oracle database schemas differ from the default **CIP_DEFAULT** and **MASTER**, you need to specify the changed names in the attached argurment **com.aris.cip.db.schema**.

Example

The **Master** tenant is to use the database schema **CIP_MASTER**.

ACC> assign tenant master to service db0000000001 com.aris.cip.db.schema=cip_master

Please enter the schema name in lower-case letters.

6. Then unassign the **default** and **master** tenants from the previous database.

ACC> unassign tenant default from service db0000000000

ACC> unassign tenant master from service db0000000000

The **Oracle** database system is set up as a persistence layer.

7.14.6.2 Microsoft SQL

If you want to use MS SQL as new persistence layer, you need to reconfigure the **envset.bat** file and then run the **inst.bat** batch file to create a database.

After the MashZone installation, these files are located in the following directory.

<MashZone installation directory>/ppmmashzone/server/support/databasescripts/MSSQL

Perform the following steps.

7.14.6.2.1 Set up database instance for MashZone

You need to set up an MS SQL database instance for MashZone first.

The following includes summarized information on how to set up an MS SQL database instance. Detailed information is available in the MS SQL database documentation.

Prerequisites

- You have installed an MS SQL database instance. We recommend that the name of the instance be spelled in capital letters, e.g., "MSSQLSERVER". You need the name of the database instance (e.g., "MSSQLSERVER") and the port number (e.g., 1433) of the database server.

- You have administration privileges on the system on which you are going to set up the database.

- You have local access to the system that the MashZone server runs on.

- You have a suitable Microsoft JDBC driver.

- The MashZone infrastructure is already installed.

- The MashZone server and infrastructure have not been started. (Status=STOPPED).

Procedure

1. Open the **SQL Server Management Studio** application and connect to the server instance that you want to configure.

2. Open the Properties dialog of the instance tree root.

3. Go to the **Security** page and enable the **SQL Server and Windows Authentication mode** option.

4. Go to the page **Permissions** and make sure that your login name is assigned to the **Connect SQL** authorization.

   a. To do so, select your login name (e.g., "EUR\y9999") in the top table ("Roles").

   b. Go to the bottom table ("Permissions for…") and look for the row containing **Connect SQL** in the **Permissions** column. The associated field in the **Grantor** column must contain the text **sa** and the **Grant** check box must be enabled.

5. Open the **SQL Server Configuration Manager** application and go to **Client Protocols**.

6. Make sure that **TCP/IP** is enabled.

The MS SQL database instance is set up.

7.14.6.2.2 Create a database schema

After you have set up a database instance, you need to create a database schema.

Prerequisite

You have a suitable Microsoft JDBC driver (e.g., sqljdbc.jar, sqljdbc4.jar, etc.).

Procedure

1. Edit the **envset.bat** batch file as follows.

   SET MSSQL_SAG_MSSQL_SERVER_NAME=<server name>

   SET MSSQL_SAG_MSSQL_LOGIN_NAME=<user/password>

   SET MSSQL_SAG_DATABASE_NAME=<database name>

   SET MSSQL_SAG_FILEGROUP_FILE_DIR=<server files location>

2. Open a command line and execute the **inst.bat** batch file. The execution is finished when the line **INSTALLATION SUCCESSFUL** is shown.

The database schema has been created and the database created is displayed in the **SQL Server Management Studio** application.

Example

SET MSSQL_SAG_MSSQL_SERVER_NAME=PCY999901\MYSQLSERVER

SET MSSQL_SAG_MSSQL_LOGIN_NAME=SYSTEM/MANAGER

SET MSSQL_SAG_DATABASE_NAME=AMZ

SET MSSQL_SAG_FILEGROUP_FILE_DIR=C:\mssqldata\AMZ

7.14.6.2.3 Configuration of provisioning

After you created and initialized an MS SQL database as described in the previous sections, you need to connect it to the persistence layer of MashZone.

Procedure

1. Stop all components except for ZooKeeper (see chapter Cloud Controller (Page 311)).

2. Use an ACC command (Page 312) to add the JDBC driver to the runtime environment of the components **CloudSearch** and **MashZone**.

   Enhance <component> with commonsClasspath local file "<complete driver path>"

   Example

   ACC> enhance cloudsearch_m with commonsClasspath local file "C:/dbdriver/sqljdbc4-4.0.2206.100.jar"

   ACC> enhance mashzone_m with commonsClasspath local file "C:/dbdriver/sqljdbc4-4.0.2206.100.jar"

   Under Windows, use the slash **/** as a separator in file paths.

3. Register the database connection within the system.

   ACC> register external service db url="jdbc:sqlserver://<hostname>:<dbport>;databaseName=<DbName>" driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver" username="ARIS9" password="*ARIS!1dm9n#" maxIdle=15 maxActive=100 maxWait=10000 removeAbandoned=true logAbandoned=true defaultAutoCommit=false host=<hostname> port=<dbport>

4. Then assign the new database connection to the tenants **default** and **master**.

   ACC> assign tenant default to service db0000000001

   ACC> assign tenant master to service db0000000001

   If the generated MS SQL database schemas differ from the default **CIP_DEFAULT** and **MASTER**, you need to specify the changed names in the attached argurment **com.aris.cip.db.schema**.

   Example

The **master** tenant is to use the database schema **CIP_MASTER**.

ACC> assign tenant master to service db0000000001 com.aris.cip.db.schema=cip_master

Please enter the schema name in lower-case letters.

5. Then unassign the **default** and **master** tenants from the previous database.

ACC> unassign tenant default from service db0000000000

ACC> unassign tenant master from service db0000000000

The **Microsoft SQL** database system is set up as a persistence layer.

7.15 Adapt Terracotta runtime libraries

You can manually adapt the Terracotta runtime libraries in MashZone and Terracotta.

To be able to use Terracotta connections (Page 98) in MashZone, you need to install a Terracotta Server Array (TSA) (http://www.softwareag.com/corporate/products/terracotta/default.asp) and the corresponding Terracotta license in MashZone (Page 101). In addition to updating the license, you need to make sure that MashZone and TSA are started with the same Terracotta libraries.

If MashZone or TSA use Terracotta libraries from different installed versions, problems may occur.

Short names and definitions of paths:

<MashZone lib>	<MashZone installation directory>\ppmmashzone\server\bin\work\work_mashzone_m\base\webapps\mashzone\WEB-INF\lib\
<TSA lib>	<TSA installation directory>\...\lib\ The actual path depends on your TSA version installed.
<RTBS lib>	<MashZone installation directory>\ppmmashzone\server\bin\work\work_rtbs_m\base\rtbs\WEB-INF\lib

Procedure

1. Verify that TSA and MashZone use the same Terracotta server array libraries.

    In the directories **<TSA lib>**, **<MashZone lib>**, and **<RTBS lib>** all existing **ehcache*.jar** and **terracotta*.jar** files must have the same version number.

2. Stop the MashZone server.

    To do so, click **Stop MashZone <version>** in the program group **Software AG/Stop server**.

3. Delete the existing libraries in the <MashZone lib> directory.

    a. Delete all jar files with the string **ehcache*.jar**.

    b. Delete all jar files with the string **terracotta*.jar**.

4. Delete the existing libraries in the <RTBS lib> directory.

    a. Delete all jar files with the string **ehcache*.jar**.

b. Delete all jar files with the string **terracotta*.jar**.

5. Copy all required Terracotta libraries to MashZone and RTBS.

   a. Copy all **ehcach*.jar** and **terracotta*.jar** files in the **<TSA lib>** directory and paste them into the **<MashZone lib>** directory.

   b. Copy all **ehcach*.jar** and **terracotta*.jar** files in the **<TSA lib>** directory and paste them into the **<RTBS lib>** directory.

6. Start the MashZone server again.

   To do so, click **Start MashZone <version>** in the program group **Software AG/Start server**.

The required libraries have been adapted in all relevant directories.

After replacing the libraries, you may have to adapt the **ehcach.xml** files used (Page 98) so that they are valid for the new libraries. Furthermore, you need to ensure that new and existing Terracotta connections refer to the corresponding Terracotta server. For example, it may be necessary to adapt the TerracottaConfig URL in the **ehcache.xml** file.

8   Security aspects

This chapter describes all security-relevant aspects concerning the installation of MashZone with all required components.

- Change the initial password that you use for logging in to MashZone as an administrator. See chapter Change password (Page 106).

- Please adhere to the password guidelines and note expiring passwords.

- Always keep your product installation updated. Regularly check if new fixes are available for your installation and install them. Detailed information is available in the document **MashZone Installation**.

- Always keep your operating system, and components and applications installed updated. Always perform required security updates, particularly for your Web browser and plug-ins (e.g., Adobe Flash).

- To protect your system from unauthorized access you should grant direct system access (e.g., remote via RDP or directly via a management console) only to a limited group of users.

- Restrict network access by operating server components behind a firewall. You should enable access only to the most necessary services on the server (such as database, MashZone system, load balancer) in the firewall.

- Hide network ports used exclusively for internal communication between server components.

LOAD BALANCER

- Safeguard the MashZone communication channels. Communication takes place directly with load balancer via a TCP/IP network. See also chapters Load balancer (Page 314) and following.

- Do not use a self-signed certificate for load balancer, instead let your keystore sign it by an auhorized institution.

- To close the so-called "Logjam" security gap you need to generate a so-called "Diffie-Hellman" group for load balancer. To do so, proceed as follows:

  - Switch to the directory
    <installation
    directory>\server\bin\agentLocalRepo\.unpacked\httpd-run-prod-<version>-runnable.
    zip\httpd\bin. Replace <installation directory> with the path to your PPM installation and <version> with the version installed on your machine.

  - Open a command line and enter the following command:

    openssl dhparam -out dhparams.pem 2048

    This generates a user-defined DH group in a file called **dhparams.pem** in the same directory.

  - Now you need to attach the contents of this file to the SSL certificate of the server in the following directory.

    <installation directory>\server\bin\work\work_<loadbalancerInstanceId>\httpd\conf

  - Restart load balancer to apply the changes.

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