BellaDati

BellaDati DOCUMENTATION

Version 2.7.9.5

Getting Started

The following pages contain information to help you get started using BellaDati:

- Logging in to BellaDati
- Exploring BellaDati Workspace
- Video Tutorials
- Troubleshooting

Logging in to BellaDati

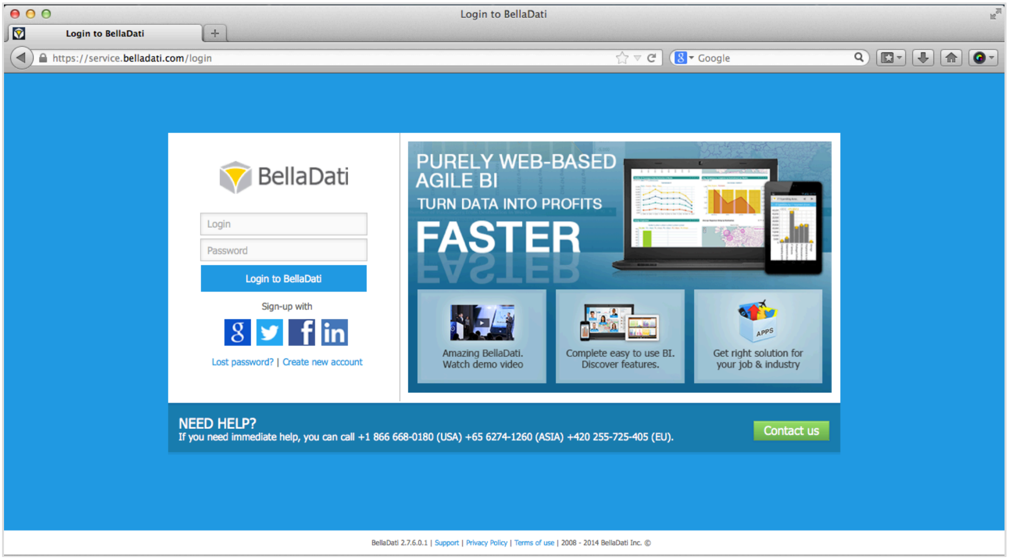
Anonymous access to BellaDati is not permitted and you are always prompted to log in.

The **Login panel** will be displayed if you are not logged in to BellaDati. You can do following:

1. **Login**: To log in to BellaDati, enter your **Username** and **Password** and click the **Log In** button. You can also use following services to log in:

- Log in using your **Google** account
- Log in using your **Facebook** account
- Log in using your **Twitter** account
- Log in using your **LinkedIn** account

1. **Lost Password**: Click this link in case you have lost your password or your BellaDati account has been locked (see login policy below). Select the appropriate option and enter your username (usually e-mail address) in the popup. Then click "Submit" button and now you should receive the instructions how to set your new password or unlock your account via e-mail in a few minutes. If you have forgotten your username, you will need to contact your BellaDati administrator for help.
2. **Create a New Account**: If you do not have a user account yet, you can create your own user account by clicking on the link and follow registering procedure.


Login to BellaDati
https://service.belladati.com/login
Google
BellaDati
Login
Password
Login to BellaDati
Sign-up with
Lost password? | Create new account
PURELY WEB-BASED
AGILE BI
TURN DATA INTO PROFITS
FASTER
Amazing BellaDati. Watch demo video
Complete easy to use BI. Discover features.
Get right solution for your job & industry
Contact us

NEED HELP?
If you need immediate help, you can call +1 866 668-0180 (USA) +65 6274-1260 (ASIA) +420 255-725-405 (EU).

BellaDati 2.7.6.0.1 | Support | Privacy Policy | Terms of use | 2008 - 2014 BellaDati Inc. ©

Security note: When you are using BellaDati Cloud, you can verify BellaDati site identity by clicking on thawte certificate logo here to prevent fraud of your password.
Data transfer security is then ensured by HTTPS encryption.

Login and Password Policy

- Password must be at least **8 characters long** and must contain at least **one uppercase [A-Z], one lowercase [a-z] and one numeric character [0-9]**.
- Language specific characters (like diacritic) are not supported.

- When the login fails three times, your BellaDati account become locked. An e-mail with verification link will be sent to your registered e-mail. Use this link to unlock your account.

Unlocking link will be valid for 24 hours only! Otherwise you need to create new request on BellaDati login page.

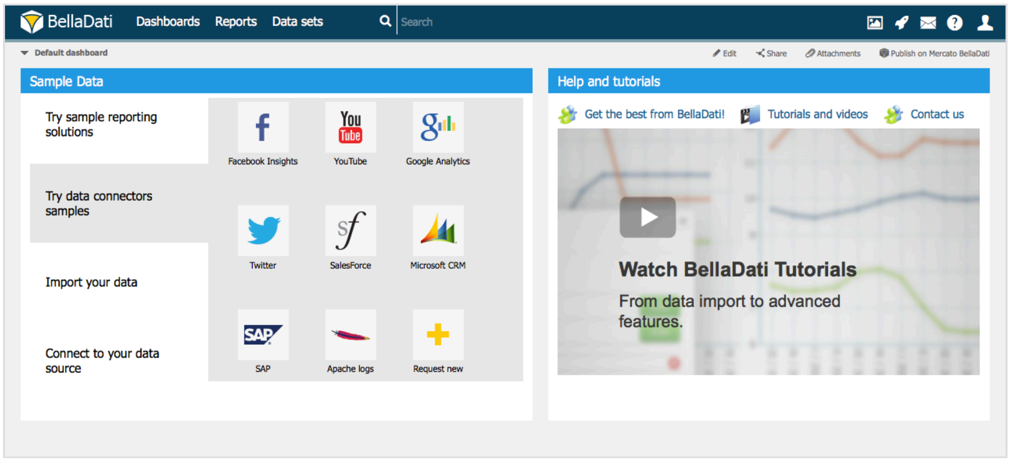
BellaDati On-Premise notes:

1. Maximum failed login attempts count can be set differently by domain administrator.
2. Authentication can be performed using LDAP or Active Directory services.

Exploring BellaDati Workspace

The Dashboard is the first screen you see when you login to BellaDati.

- **Menu** (navigation bar) is the same on every screen in BellaDati. It contains links which give you quick access to many of BellaDati's most useful functions. Menu structure depends on the roles assigned to you by administrator.
- **Main window** content changes according the context of your current work in BellaDati. Dashboard is the default page. An additional submenu is usually displayed on the left or top of the main window to allow executing context specific functions. This will be displayed in corresponding documentation sections.
- **Footer** provides supplemental function and is also the same on every screen in BellaDati.



Please note that your BellaDati screen may look slightly different from this screenshot when you are using BellaDati On-Premise.
The default content of BellaDati page after login may also differ if you specify particular URL before login.

More detailed description of navigation in BellaDati is following:

Main menu

Following functions are available for all BellaDati users if not stated otherwise:

- **BellaDati icon** - always navigates you to default BellaDati page (Dashboards)
- **Dashboards** - navigates to dashboards page
- **Reports** - navigates to reports page
- **Data sets** - navigates to data sets page and data source configuration; *data manager and domain administrator only*
- **Users** - navigates to user and user groups administration; *domain and system administrator only*
- **Domains** - navigates to domain management; *system administrator only*

- **Search field** - allows you to search among reports, data sets, indicators and attributes
- **Media Gallery** - allows you to manage your media and images
- **BellaApps** - allows you to import and export BellaDati apps
- **Contact Us** - get in touch with BellaDati support
- **Help** - navigates you to context help (help opens in separate browser's window)
- **YourName**, Logout - this link navigates you to your profile details, password change and safe logout from BellaDati; domain and system administrators can assign user roles or user groups through this

System administrator role is not required for BellaDati Cloud usage. However this role could be useful for BellaDati On-Premise, especially for large enterprise companies.

Footer

BellaDati footer displays:

- Installed BellaDati version
- Link to **support** (this documentation, bug reporting, video tutorials, blog, etc.)
- Privacy policy and data security conditions
- Terms of use (or EULA for BellaDati On-Premise)

BellaDati Concepts

Key concepts used in BellaDati are described below. See BellaDati glossary for details.

Data set

BellaDati has its own integrated data warehouse. This warehouse contains virtual databases that represents data with similar characteristics. These virtual databases are called data sets and reports are build on them. Each data set can be connected to multiple data source.

Possible actions: Importing data | Browsing data | Exporting data | Structure backup | Joining data sets | Watching data changes | Cleaning data | Sharing data | Defining attributes | Defining indicators | Creating and removing datasets

Data source

Imagine companies has already running their business. Such company has applications and systems installed or use services that generate a lot of data in underlying databases. Moreover employess produces Excel spreadsheets, text or CSV files of data. These databases and files are very suitable data sources for BellaDati analysis. Generally all third party systems BellaDati can import data from are called data sources.

Possible actions: Connecting to database | Connecting to URL | Connecting to FaceBook | Connecting to Google Services | Connecting to CRM | Scheduling automatic upload

Report

Report is basically a set of tables and charts created mainly for detailed overview and analytical purposes on data stored in data sets. Each report can also contain custom content, comments, attachments and can be easily shared with other BellaDati users or published to corporate intranet or public. Permanent export of each report to PDF, Excel, PNG or Power Point is possible.

Possible actions: Creating report | Managing Layout | Creating view | Creating table | Creating chart | Creating geo map | Creating KPI label | Cop ying report | Sharing report | Exporting report | Adding comments | Publishing report | Filtering data | Using Formulas | Searching and Filtering Reports

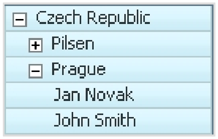
Dashboard

Dashboard typically consists of the most important tables or charts from reports and is primarily determined for managers who need quick overview of actual company situation. Each dashboard can be customized by adding special content (dashlets). Dashboards can also be shared for public via web.

Possible actions: Creating dashboard | Managing Layout | Creating Dashlet | Sharing Dashboard | Adding Attachment

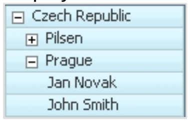
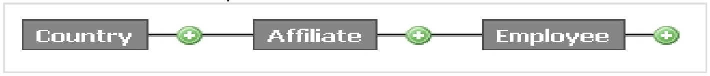
Detailed Glossary

Base concepts

Attribute	Attributes are describing indicators, usually in a form of general terms such as "country", "department", "product", "employee", etc. Attributes consist of **members** (attribute values, instances) eg. "Czech Republic", "Sales Department", "Product XY", "John Smith". *For example, a Sales record could have attributes such as sales person, store, region, date, etc.*
Dashboard	Dashboard typically consists of the **most important tables or charts** from reports and is primarily determined for managers who need quick overview of actual company situation. Special custom content can be added to every dashboard as a customization. Dashboards can also be **shared** for public via web.
Data set	A virtual database of BellaDati's integrated data warehouse. Each data set usually represents data with similar characteristics (e.g. invoices, wages, costs) from one data source. Data set consists of data set **dates, indicators, attributes and attribute translations.** Each report is build on single data set. More data sets can also be **joined** together.
Data set indicator	Data set indicators are defined within the **data set** and are available as **musters for report indicators**. Another settings (like aggregations, appearance, etc.) are not supported. Simply said, the data set indicators represents a raw numerical value (in the OLAP language it is a *fact*) with basic attributes - name, unit and rounding mode. Values of these indicators are straightforwardly stored in BellaDati's data warehouse directly from imported data.
Member / Attribute value	"Instance" of one **attribute**. For example, members of the "employee" attribute may be "Jan Novak", "John Smith" etc.  Czech Republic Pilsen Prague Jan Novak John Smith
Record	Particular data row stored in the data set. Each record consists of indicator values, attribute values and date/time information and has the same structure within single data set
Report	An analytic output, providing answers to user's research according to the gathered data. Each report can contain description, tags and consists of one or more views (charts and pivot tables), comments and possibly attachments.
Report indicator	Report indicators are created **in the report** from the **data set indicators** or **ad hoc**. Unlike the data set indicators, report indicators are supporting wide range of various settings - member aggregation, time aggregation, appearance, conditional formatting, extended formula support with report variables etc.

Detailed glossary

Term	Meaning
Alarm (data watch)	Notifies data manager about changes in indicator's values in a particular data set according fulfillment of one or more predefined conditions.
Chart	Graphic representation of analytic data view. There are a lot of chart types in BellaDati - eg. line chart, pie chart, bar chart, stack bar chart, horizontal bar chart, radar chart, horizontal heat map. Each of them offers a different way how to explore particular dimensions (time, indicators and attributes).
Comments	A short message or explaining information attached to report or table cells.
Conditional formatting	Conditional formatting allows user to adjust appearance of the particular indicators in table according to currently displayed values or their changes.
Copy	A clone of the existing report, table or chart. Any future change of the copy does not affect the original report.
Dashlet	A basic item of the dashboard. Dashlets usually represent your existing views (tables, charts) from reports. Another types of dashlets have informational, supplemental or customizing function.

Data source	Data source is typically a database, Microsoft Excel spreadsheet, text file or another services eg. Google Doc spreadsheet, Facebook or enterprise services like CRMs (SalesForce, Amiando etc.).
Date Units	Date Units are predefined time aggregations including Day of Week, Day of Month, Day of Year, Week of Year, Month Of Year, Quarter of Year or Seconds in Minute and Minutes in Hour.
Domain	Whole virtual space of the one registered organization. Users of one domain can't access data in another domains. Domains are completely independent. Separate domains can also be suitable for individual divisions or SBUs of large international companies.
Drill-down	An operation which results in displaying more detailed data with higher granularity according to the chosen drill-down path. If you drill-down a member, you will see its child members. Eg. drill-down of particular affiliate can display its employees.  Czech Republic Pilsen Prague Jan Novak John Smith
Drill-down path	A sequence of attributes which influences the results of the drill-down operation. It can be defined in the data set or chosen ad-hoc in the report. 
Fact	Facts are equal to the data set indicators.
Filters	Filters restricts data displayed in views according to selected members only or general member match pattern. Eg. you can set filter to show only the largest cities in a table or chart. General filter settings are also available when sharing data sets.
Formula	Formula is a tool allowing user to define its own new indicators. Despite using common mathematical functions, advanced functions such as regressions or getting different values of existing indicators in time or depending on their aggregation is possible.
Geo data	Geo data are pairs of location identification and its coordinates. In BellaDati, location can be represented as **point** or **r egion**. While point is identified by single pair of longitude and latitude coordinates, region comprises of multiple points creating the polygonal area.
Geo point	Geo point is one of the attribute types. It holds information about latitude and longitude coordinates and can be used in Geo Map view type to plot data into its particular location. Alternative to Geo points are separately maintained Geo Data.
Group of indicators	Group of indicator consists of one or more included indicators which have the same context (eg. wage components). Users can effectively work with the whole group like with a single indicator.
iFrame	iFrame is a feature, which allows users to embed their analytic views into the external website using HTML code.
Joined data set	An abstract data set, which represents data from two or more source data sets. This allows user to analyze mutual dependencies of data from different data sources or can easily assign member IDs to their names (codebook). Data sets can be connected together according specified condition - inner, outer or cross join. Joined data set reflects all the changes in the source data sets.
Member aggregation	Specifies the way, how the repeating data records of one member are aggregated (in one time unit). The aggregation possibilities are: sum, average, minimum, maximum and count (of different members).
Metric	Metrics are equal to the report indicators.
News	Dashlet, which shows actual and former changes mainly in reports and data sets within the domain. This dahlet also displays information about the author of those changes.
Pivot table	An analytic view in a form of flexible rows and columns. Users can adjust, what should be displayed on each axis (various attributes, indicators or time units) and choose the structure of the drill-down path for the current table. It is also possible to analyze indicators in pivot table through the conditional formatting.
Predefined import	Predefined import is a tool, which allows users to easily load columns settings from the first import during repeated imports.
Query Scheduler	A tool, which allows to schedule and control regular data synchronization. It's main purpose is to update data warehouse with actual data from data sources.

Roll-up	An operation, which displays less detailed data with lower granularity according to the chosen drill-down path. It's an inverse operation to drill-down.
Sample data	A set of predefined content, consisting of reports, dashboards, data sets and predefined imports.
Sharing	Sharing is a feature, which allows collaboration and cooperation among users. It's possible to share your data sets, reports or dashboards with other users in the same domain. You can also choose to delegate permission to edit your data sets and reports. Besides iFrame and iGoogle are another sharing tools, which allows you to share your views on corporate intranet or publicly via Internet.
Subset	Subset is a virtual copy of **Attribute** which holds only desired members. Subsets members can have custom order.
Time aggregation	Specifies the way, how time units with higher granularity are aggregated in the units with lower granularity. If you (for example) gather data in days but display them in months, the time aggregation determines if the "month" units show sum, average, maximum, minimum or count of the included day records.
Time Series	Time Series in another way of **date aggregation**. In contrast to **Date Units**, it aggregates values but displays them on continuous time axis.
Translation	Is one of the Data Set column type. It holds language translation of **Attribute** members (values).
User group	A set of individual users. The Domain administrator has a right to create, delete or edit these groups. He also adds new users to groups, remove users from groups and assigns user roles to the groups. User group is a very useful tool, because users can share their reports or data sets with the whole group instead of choosing of all its individual members.
User roles	User roles are designed to separate access to different functions for different types of users. Available user roles are "Domain administrator", "Report editor" and "Data manager". These roles can be combined without any restrictions. Only the Domain administrator has a right to delegate those roles to other users.
View	Basic element of the report - displays values of the indicators depending on user's criteria. Views represent flexible points of view to the user's data in a form of pivot table, chart or possibly custom content. Views allow you to use the "slice and dice" features.

Permissions and Roles

BellaDati distinguishes between two basic permission schemes:

- Assigning user roles
- Permissions assigned by sharing

User roles

BellaDati implements following user roles:

- **General BellaDati user** - this role is assigned by default to all BellaDati users and this cannot be changed. Such users have only the very basic access to BellaDati functions: report and dashboard view, user profile editing

This role is usually sufficient for **report** or **dashboard** consumers such as general managers or company management members.

He can't create his own reports, but other users (report editors) can share their reports with him - even with permission to edit their reports.

- **Report editor** - report editor is able to create, edit, comment and share analytical reports. He can create reports only from his own or shared data sets. Therefore it's usual that users with "report editor role" have also the "data manager" role.

- **Data manager** - data manager cares about the parts of the data warehouse. His job is to prepare and import data into particular data sets, control and edit the source data, create alarms and join existing data sets. He is also able to prepare translation for particular indicators, attributes and members. He is owner of data sets, which he creates during the imports. He can share data sets with other users (report editors) or directly use them if he has also "report editor" role.

- **Domain administrator** - domain administrator a specific and important user role. He cares about the users and user groups. He is able to create or import users, delete them, change their profile information and passwords and assign user roles to particular users or whole user groups (he may assign "domain administrator" role to other users as well) . He has available all the statistics of his domain. He can even delete all the content of domain (data sets, reports, dashboards) or forbid the publishing of domain content on the web. He is the only one user who sees all the data sets in his domain. Therefore this user role should be assigned to only one competent user.

It's possible to combine all user roles mentioned above. Eg. both roles data manager and report editor assigned at the same time allows such user performing the whole process from setting up a data source, modelling data set, report creation and sharing dashboards.

System administrator: There is also a System administrator role in BellaDati. This user role is not required for BellaDati Cloud usage. However this role could be useful for BellaDati On-Premise or Unlimited Cloud tariffs, especially for large enterprise companies or international business groups that require managing more separated domains (eg. for their SBU).

User roles can be assigned to user groups as well. These roles are merged with standard user roles results - particular user has both roles together. Here is an example:

- user has report editor role
- user is member of a user group, which have the data editor role
- in result, user has report and data editor roles, the second one is inherited from the user group.

Only domain or system administrators can reassign user roles.

Permissions

Permissions are granted to users while sharing data sets or reports. There two levels of shared permissions:

- Read-only access
- Full access

Owner: Each data set, report or dashboard has always assigned one user that has full access and also can manage sharing in addition to that. These user are called owners and usually are the creators of the data set, report or dashboard.

Permissions assigned by sharing particular data sets or reports have **priority** over standard user roles. This means user with only general user role assigned can have permission to edit particular data set or report which has been shared with him on full access level!

Data Sets

BellaDati BI has its own integrated data warehouse. This warehouse contains virtual databases that represents data with similar characteristics. These virtual databases are called data sets and reports ar e established on them. Each data set can be connected to multiple data source.

In data set following objects are defined and managed:

- Indicators
- Attributes
- Data sources

Following actions can be performed within data sets:

- Importing data
- Browsing, editing and exporting data
- Structure backup and restore
- Managing joins
- Data Mapping
- Watching data changes
- Cleaning data
- Sharing data
- Creating and removing datasets

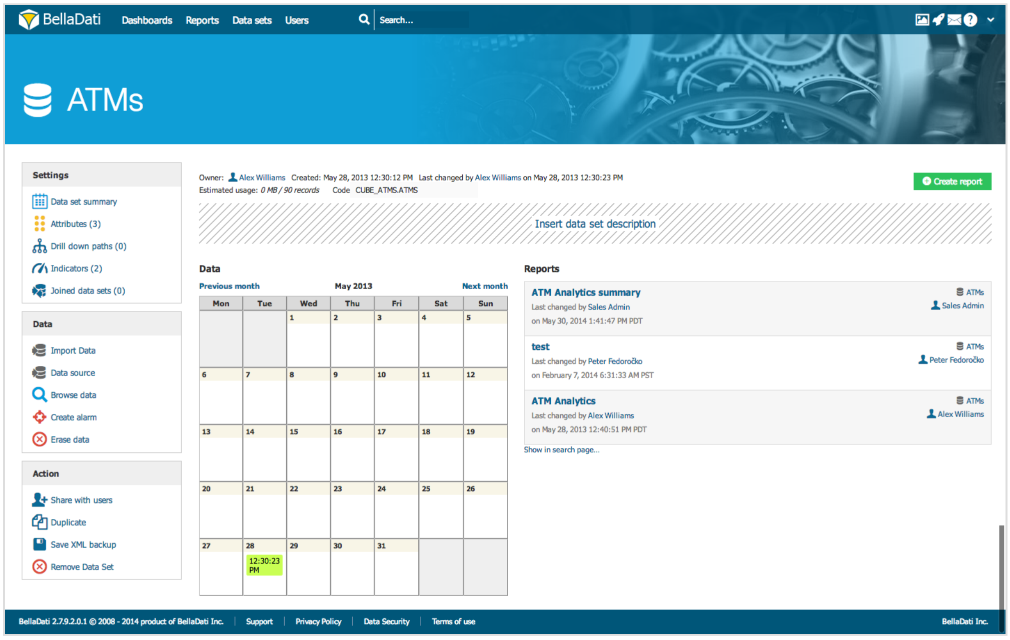
Only users with data manager role are allowed to manage the data sets. If you don't have this role, please contact your BellaDati administrator.

Data set summary window

Data set summary window displays:

- Calendar scheduler

Typical data set summary window looks like following:



Owner: Alex Williams Created: May 28, 2013 12:30:12 PM Last changed by Alex Williams on May 28, 2013 12:30:23 PM
Estimated usage: *0 MB / 90 records* Code CUBE_ATMS.ATMS

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28 12:30:23 PM	29	30	31		

ATM Analytics summary — ATMs — Sales Admin
Last changed by Sales Admin on May 30, 2014 1:41:47 PM PDT

test — ATMs — Peter Fedoročko
Last changed by Peter Fedoročko on February 7, 2014 6:31:33 AM PST

ATM Analytics — ATMs — Alex Williams
Last changed by Alex Williams on May 28, 2013 12:40:51 PM PDT

Action list (submenu layout)

- Data set name: Edit is possible by clicking the name (i.e. in-line edit).
- Attributes settings
- Indicators settings
- Joins settings

- Import data: Allows data manager to import new data from clipboard or files.
- Data source: Management of connection to external databases, URLs or third party systems.
- Browse data: Data browsing, editing and export.
- Create alarm: Data changes watching option.
- Erase data: Deletes all data from the data set.

- Share with users: Grants access to the data for other users or user groups, including data filter settings.
- Backup structure: Stores the whole structure of the data set and related reports to XML file.
- Remove data set: Allows removing the whole data set and related reports from BellaDati.

Creating Data Set

Only users with data manager role are allowed to create and manage the data set.

Open the **Data sets** page from main menu on the top of the screen.

1. Click "Create data set" in the left submenu. A popup window appears.
2. Enter name of the new data set.

Data set name must be unique in the whole domain. In case the name isn't unique, warning message will be displayed and the new data set will not be created.

New empty data set contains **no indicators and attributes defined**. There are two ways how to create them:

- Define indicators and attributes while importing data. If you already have existing data file, we recommend this option to set up the data set more interactively.
- Define indicators and attributes manually. The mapping to the imported data will be provided during the import settings stage.

The data set can be created also using the data import.

Importing Data

Data import process allows user to populate BellaDati's datawarehouse. Data can be imported from various sources.
There are two import types:

- **Manual** import from local files
- **Automatic** scheduled import from data sources

Manual import

You can manually import data in the following ways:

- Pasting from Clipboard
- Importing data in various formats - from CSV and XML to XLS/XLSX and ZIP.
- Adding row using data browser

Automatic import

Automatic import enables connecting to external sources and load the data periodically. It is available for following data sources:

- SQL Databases
- SAP HANA
- MongoDB
- URL/REST API using the HTTP protocol
- Google Analytics
- Google Drive
- SalesForce
- Facebook
- Twitter
- LinkedIn
- FTP
- Amiando
- YouTube
- Zendesk
- Existing data set

You can start the data import in already existing data set or together with creating new data set. To execute data import wizard, click on "Import data" item in the left menu in data set. When you are importing data to a new data set, you must specify it's unique name first. See creating data set for more details.

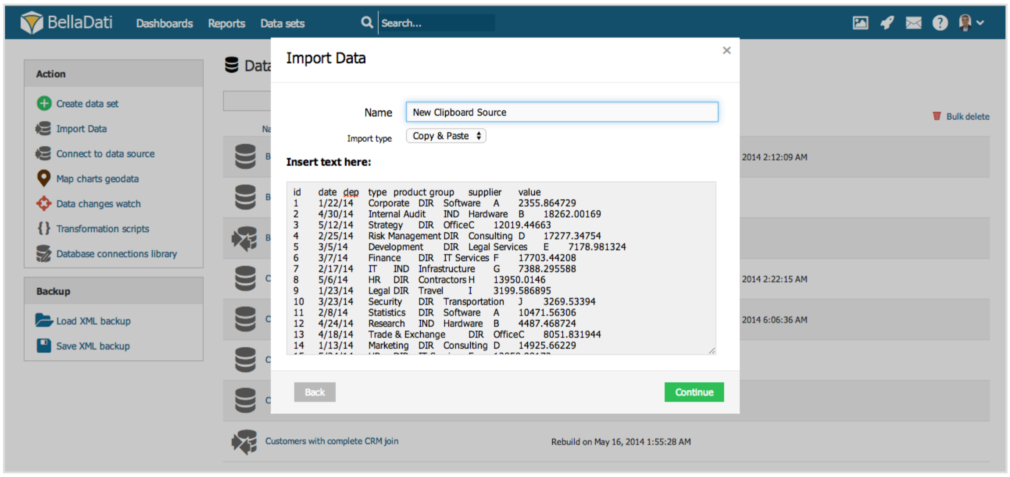
Importing from Clipboard

Clipboard provides a simple way how to quickly analyze small piece of your data in BellaDati.

Typically you can use it to analyze data directly from Microsoft Excel or a table on a webpage.

To import data from the clipboard:

1. Select desired area in Excel or a web page
2. Copy it to clipboard (CTRL+C/command C).
3. Open the data sets page and select **Import data**
4. In the left menu, enter the data set name and select **Copy and Paste**.
5. Paste (CTRL+V/command V) the clipboard content into text field and click **Continue**



Name: New Clipboard Source

Import type: Copy & Paste

Insert text here:

```
id	date	dep	type	product group	supplier	value
1	1/22/14	Corporate	DIR	Software	A	2355.864729
2	4/30/14	Internal Audit	IND	Hardware	B	18262.00169
3	5/12/14	Strategy	DIR	OfficeC	12019.44663
4	2/25/14	Risk Management DIR	Consulting	D	17277.34754
5	3/5/14	Development	DIR	Legal Services	E	7178.981324
6	3/7/14	Finance	DIR	IT Services F	17703.44208
7	2/17/14	IT	IND	Infrastructure	G	7388.295588
8	5/6/14	HR	DIR	Contractors H	13950.0146
9	1/23/14	Legal DIR	Travel	I	3199.586895
10	3/23/14	Security	DIR	Transportation	J	3269.53394
11	2/8/14	Statistics	DIR	Software	A	10471.56306
12	4/24/14	Research	IND	Hardware	B	4487.468724
13	4/18/14	Trade & Exchange	DIR	OfficeC	8051.831944
14	1/13/14	Marketing	DIR	Consulting	D	14925.66229
```

2014 2:12:09 AM
2014 2:22:15 AM
2014 6:06:36 AM

Customers with complete CRM join — Rebuild on May 16, 2014 1:55:28 AM

Importing from File

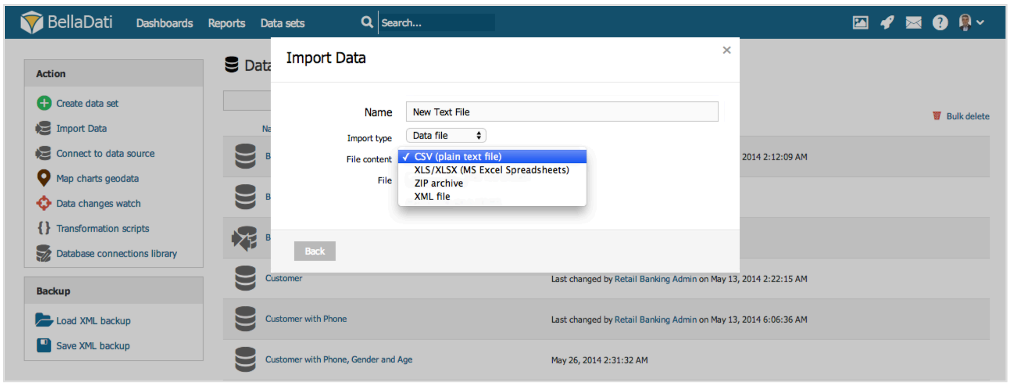
The following file formats are supported for manual import in BellaDati:

- **CSV** (plain text files)
- **Microsoft Excel** (XLS, XLSX) - Office 2003, 2007 and 2010 (previous versions not guaranteed)
- **XML** files
- **ZIP** files (containing one or more supported file formats above)

To import file:

- Go to the **Data Set** page
- Select **Import data**
- Choose **Data file** in **Inport type**
- Select appropriate **Data file** format

After selecting the data file, you need to wait until the file is uploaded.



Import Data

Name: New Text File

Import type: Data file

File content: ✓ CSV (plain text file) / XLS/XLSX (MS Excel Spreadsheets) / ZIP archive / XML file

File

Customer	Last changed by Retail Banking Admin on May 13, 2014 2:22:15 AM
Customer with Phone	Last changed by Retail Banking Admin on May 13, 2014 6:06:36 AM
Customer with Phone, Gender and Age	May 26, 2014 2:31:32 AM

Please note, that default **maximum file size** to import is **20MB**. **BellaDati Unlimited** or **BellaDati On-Premise** may have different file size limits. You can compress the file size when importing it in a ZIP archive (see below).

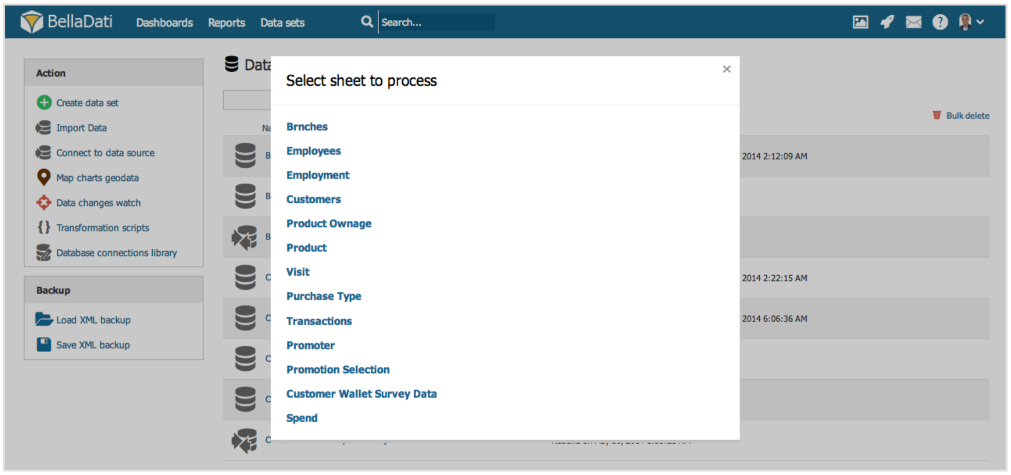
Importing from CSV

When you are importing from CSV, please continue directly to Import settings page.

Importing from Microsoft Excel

After uploading XLS/XLSX file you will be prompted to select the desired spreadsheet list.

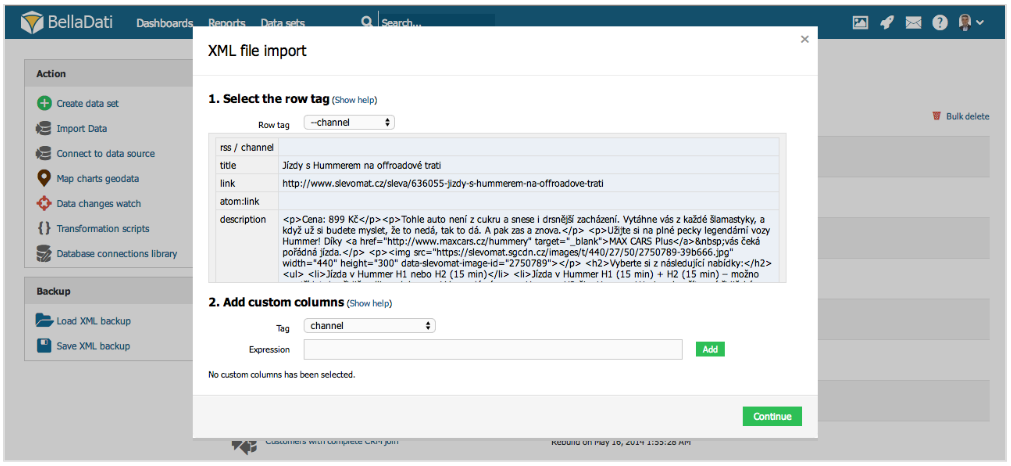
List selection will not appear when your Excel spreadsheet contains only single list.



Importing from XML

In the XML importing guide, you will be prompted to select the **row tag**, which represents repeatable data sentence. The following example illustrates it on XML file containing employees:

In this case, the **row tag** is <`employee`>.



XML file import

1. Select the row tag (Show help)

Row tag: --channel

rss / channel	
title	Jízdy s Hummerem na offroadové trati
link	http://www.slevomat.cz/sleva/636055-jizdy-s-hummerem-na-offroadove-trati
atom:link	
description	<p>Cena: 899 Kč</p><p>Tohle auto není z cukru a snese i drsnější zacházení. Vytáhne vás z každé šlamastyky, a když už si budete myslet, že to nedá, tak to dá. A pak zas a znova.</p> <p>Užijte si na plné pecky legendární vozy Hummer! Díky <a href="http://www.maxcars.cz/hummery" target="_blank">MAX CARS Plus</a> vás čeká pořádná jízda.</p> <p><img src="https://slevomat.sgcdn.cz/images/t/440/27/50/2750789-39b666.jpg" width="440" height="300" data-slevomat-image-id="2750789"></p> <h2>Vyberte si z následující nabídky:</h2> <ul> <li>Jízda v Hummer H1 nebo H2 (15 min)</li> <li>Jízda v Hummer H1 (15 min) + H2 (15 min) – možno

2. Add custom columns (Show help)

Tag: channel

Expression:

No custom columns has been selected.

1. Row tag: Select repeating tag in XML structure. Check extracted content in the preview on the left.
2. Optionally, you can add custom columns repeatedly: Select items and/or attributes when XML structure is not straightforward.

You can use the xPath syntax for the custom columns definition.

Importing from ZIP

Importing data compressed as ZIP archive represents a effective way how to reduce imported file size and also upload times significantly. It can contain the following file formats:

- Plain text (CSV)
- Microsoft Excel (XLS, XLSX)
- XML

Please follow corresponding chapters above to continue importing Microsoft Excel or XML file formats.

New data set will not be created until the import process will have been successfully completed.

Data Sources

Only users with **Data manager** role or full access permission to the data set can set up and control data sources. See BellaDati permissions and roles for details.

Data Sources are all third party remote systems which can be accessed by BellaDati.

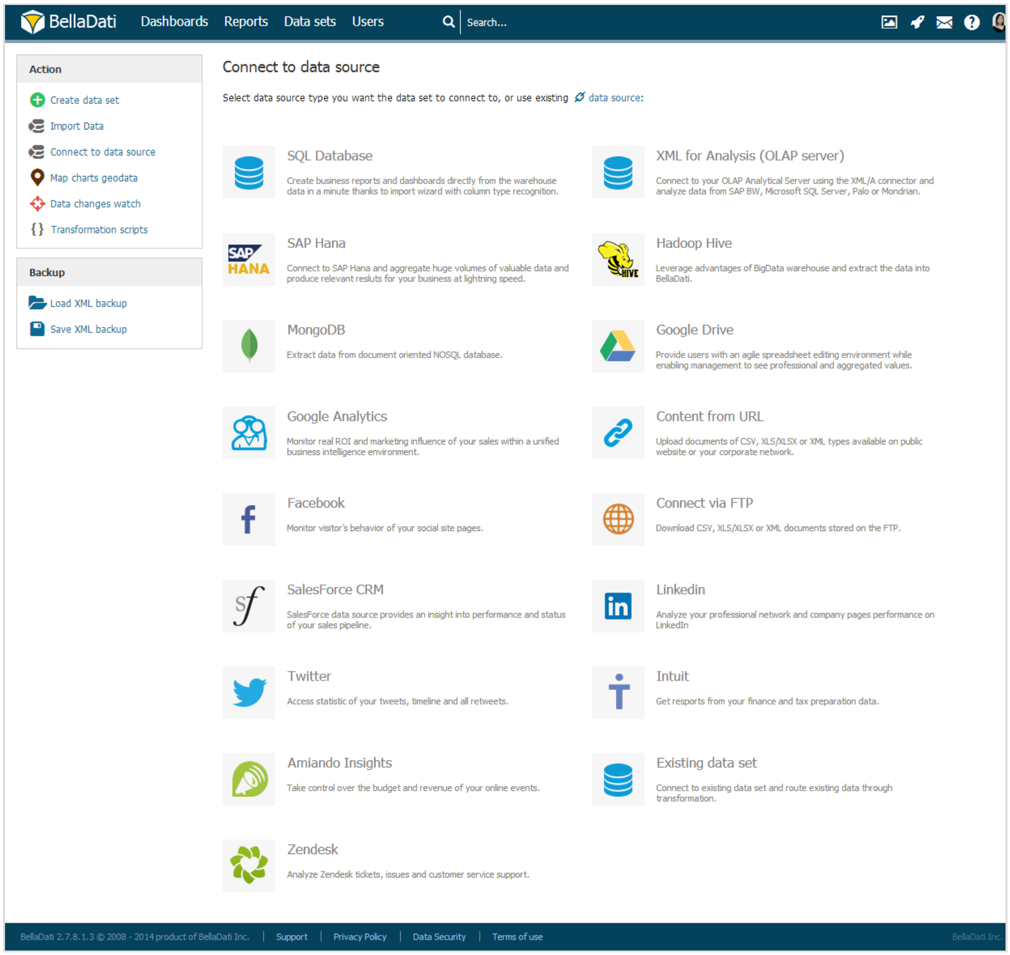
BellaDati contains a set of functions and wizards to help you establishing connection to these data sources, managing them and also provides diagnostic tools. Part of the data sources management is also automatic import scheduler.

In addition to remote **Data Sources**, BellaDati can import local files. See Importing Data for more detials about **Manual Import**.

BellaDati currently supports these data sources:

- SQL databases (PostgreSQL, MySQL, MS SQL, Oracle, SapDB...)
- Microsoft Analytic Services
- Content available on URL using the HTTP protocol (web services, shared files, etc.)
- FTP server
- SAP HANA
- MongoDB
- Google Analytics
- Google Drive
- Facebook
- LinkedIn
- Zendesk
- Twitter
- Salesforce
- Amiando Insights event management tool
- Intuit QuickBooks accounting software
- YouTube

All data must be first loaded into internal BellaDati data warehouse before they are accessible in reports.



Connect to data source

Select data source type you want the data set to connect to, or use existing data source:

SQL Database Create business reports and dashboards directly from the warehouse data in a minute thanks to import wizard with column type recognition.	**XML for Analysis (OLAP server)** Connect to your OLAP Analytical Server using the XML/A connector and analyze data from SAP BW, Microsoft SQL Server, Palo or Mondrian.
SAP Hana Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant reslults for your business at lightning speed.	**Hadoop Hive** Leverage advantages of BigData warehouse and extract the data into BellaDati.
MongoDB Extract data from document oriented NOSQL database.	**Google Drive** Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.
Google Analytics Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.	**Content from URL** Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.
Facebook Monitor visitor's behavior of your social site pages.	**Connect via FTP** Download CSV, XLS/XLSX or XML documents stored on the FTP.
SalesForce CRM SalesForce data source provides an insight into performance and status of your sales pipeline.	**Linkedin** Analyze your professional network and company pages performance on LinkedIn
Twitter Access statistic of your tweets, timeline and all retweets.	**Intuit** Get resports from your finance and tax preparation data.
Amiando Insights Take control over the budget and revenue of your online events.	**Existing data set** Connect to existing data set and route existing data through transformation.
Zendesk Analyze Zendesk tickets, issues and customer service support.	

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BellaDati Inc.

Creating Connection

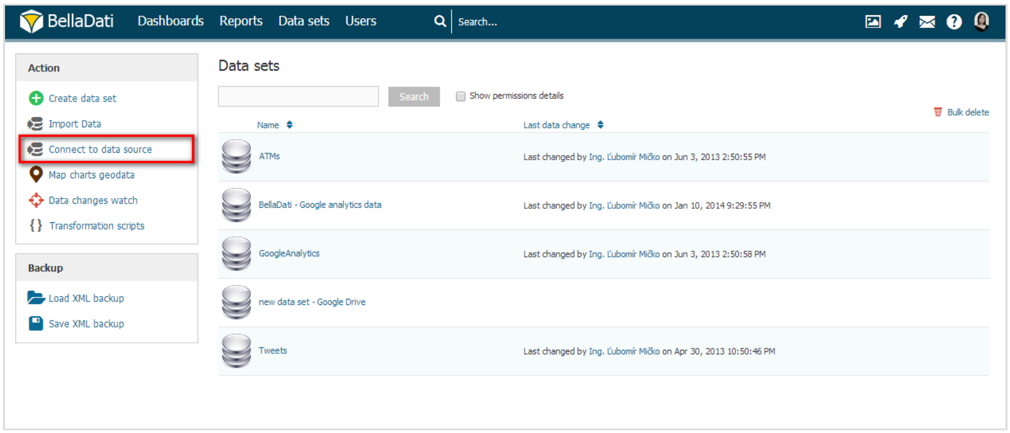
You can create new connection in:

- **Data Sets Panel** from **Action Menu**
- **Data Set Summary** from **Data Menu**

Connecting from Data Set Panel

You can connect to **Data Source** from **Action Panel** after clicking **Connect to Data Source**.

⚠ You have to provide name of newly created Data set.

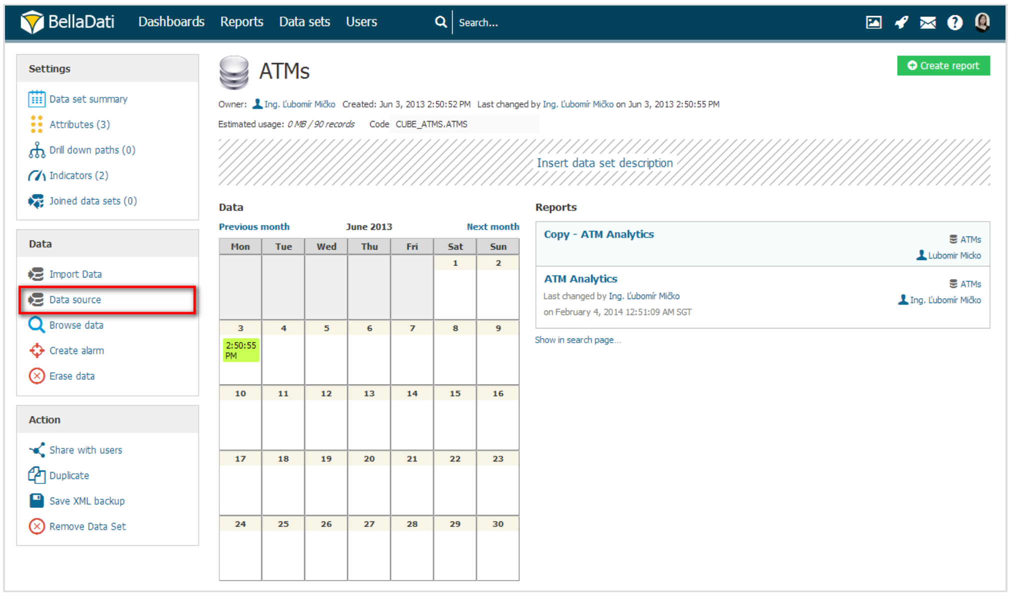


Data sets

Name	Last data change
ATMs	Last changed by Ing. Ľubomír Mičko on Jun 3, 2013 2:50:55 PM
BellaDati - Google analytics data	Last changed by Ing. Ľubomír Mičko on Jan 10, 2014 9:29:55 PM
GoogleAnalytics	Last changed by Ing. Ľubomír Mičko on Jun 3, 2013 2:50:58 PM
new data set - Google Drive	
Tweets	Last changed by Ing. Ľubomír Mičko on Apr 30, 2013 10:50:46 PM

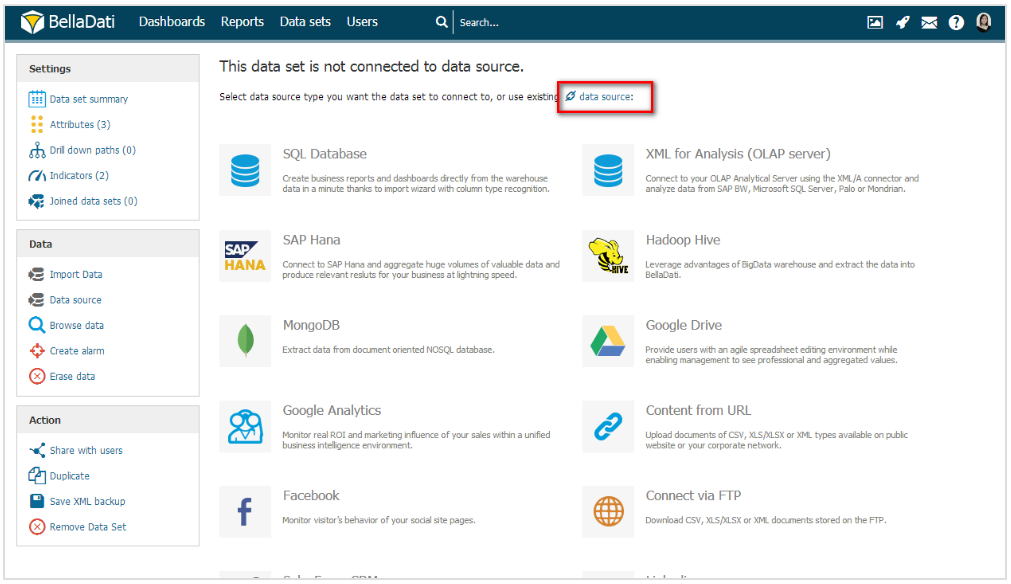
Connecting from Data Set Summary

You can connect to **Data Source** from **Data** box after clicking **Data Source**.



Reusing existing Data Source

If you intend to use the already configured data source more times, you can click "use existing data source" at the top of data source list. The data source configuration will be copied and you will be redirected to Import Settings page.



This data set is not connected to data source.

Select data source type you want the data set to connect to, or use existing data source:

SQL Database
Create business reports and dashboards directly from the warehouse data in a minute thanks to import wizard with column type recognition.

XML for Analysis (OLAP server)
Connect to your OLAP Analytical Server using the XML/A connector and analyze data from SAP BW, Microsoft SQL Server, Palo or Mondrian.

SAP Hana
Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant results for your business at lightning speed.

Hadoop Hive
Leverage advantages of BigData warehouse and extract the data into BellaDati.

MongoDB
Extract data from document oriented NOSQL database.

Google Drive
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Google Analytics
Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Content from URL
Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Facebook
Monitor visitor's behavior of your social site pages.

Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.

Modifications and Operations

General actions:

- **Add**: You can connect to **multiple data sources** within single data set (eg. analyzing different websites together). Same data structure (attributes and indicators mapping) is recommended in this case. You can select among more existing data sources via drop-down menu on the left.
- **Import data**: Launches instant synchronization (overwriting policy and repeating interval can be set).
- **Check availability**: Allows you to verify if the data source is available.
- **Import settings**: Allows you to change import mapping to reflect data source structure changes.
- **Schedule**: Links to Synchronization scheduler.
- **Delete**: Delete the data source and all it's settings. Data already imported will remain intact.
- **Basic info**: You can edit data source name here. Data source type is displayed here.
- **Cancel scheduled executions**: You can cancel future planned synchronization.

Each data source has specific configurable parameters - see details for particular data source.

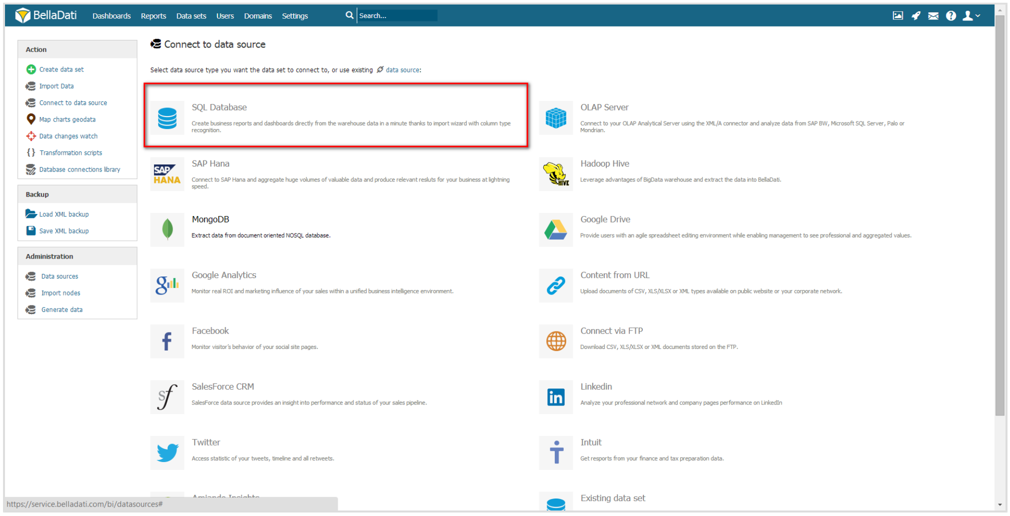
Connecting to SQL Database

BellaDati can be connected to numerous Databases.

Please consult with support particular solutions.

Connecting to Database

From **Data Source Connectors** page select **SQL Database Connector**.



Action
Create data set
Import Data
Connect to data source
Map charts geodata
Data changes watch
Transformation scripts
Database connections library

Backup
Load XML backup
Save XML backup

Administration
Data sources
Import nodes
Generate data

Connect to data source

Select data source type you want the data set to connect to, or use existing data source:

SQL Database
Create business reports and dashboards directly from the warehouse data in a minute thanks to import wizard with column type recognition.

OLAP Server
Connect to your OLAP Analytical Server using the XML/A connector and analyze data from SAP BW, Microsoft SQL Server, Palo or Mondrian.

SAP Hana
Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant resluts for your business at lightning speed.

Hadoop Hive
Leverage advantages of BigData warehouse and extract the data into BellaDati.

MongoDB
Extract data from document oriented NOSQL database.

Google Drive
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Google Analytics
Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Content from URL
Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Facebook
Monitor visitor's behavior of your social site pages.

Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.

SalesForce CRM
SalesForce data source provides an insight into performance and status of your sales pipeline.

Linkedin
Analyze your professional network and company pages performance on LinkedIn

Twitter
Access statistic of your tweets, timeline and all retweets.

Intuit
Get resports from your finance and tax preparation data.

Existing data set

https://service.belladati.com/bi/datasources#

Supported Databases

Depending on application usage (cloud or On-Premise) BellaDati is able to connect to these SQL databases:

Name	Supported versions	Driver versions
`Oracle`	10.1.0.5, 10.2.0.1-10.2.0.5, 11.1.0.7, 11.2.0.1, 11.2.0.2	v6-11.1.0.7, v6-11.2.0.1, v6-11.2.0.2, v14-10.1.0.5, v14-10.2.0.1, v14-10.2.0.2, v14-10.2.0.3 ,v14-10.2.0.4, v14-10.2.0.5
`MySQL`	3.1.3 and higher	5.1.13
`PostgreSQL`	8 and higher	9.0-801-jdbc4
`Microsoft SQL Server`	MSSQL 2008, MSSQL 2008 R2, MSSQL 2008 Express and higher	sqljdbc4
`SAP Max DB`	7.3 and higher	7.4.4 Build 003-000-002-502
`SAP HANA`	all	SAP In-Memory Database JDBC Driver, 1.00.48 Build 0372847-1510
`Hadoop Hive`	all	0.11
`Microsoft Access`	all	Java SE JDBC/ODBC
`Sybase`	all	jconn4
`Teradata`	11 and higher	terajdbc4

Database support varies by BellaDati Cloud or On-Premise integration environment.

Connection Parameters

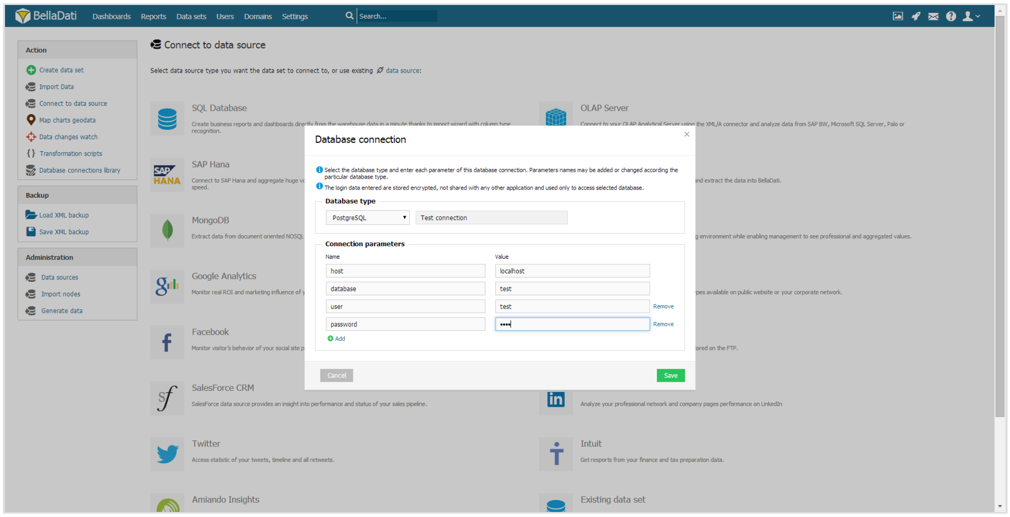
Connection parameters may vary depending on the selected database vendor. Most common parameters are the following

- **host**: IP address or domain name
- **database**: database name
- **password**
- **user**

Additional parameters can be specified by clicking on **Add** link in bottom left part of *Connection parameters* window. They can include:

- **port**
- **driver**: If different drivers are required for various database versions, you can select the right version here (eg. Oracle).

Connection parameters above may vary according database vendor. Please, refer to your database vendor`s documentation for details or see the Connection parameters examples for examples.



Database connection

Select the database type and enter each parameter of this database connection. Parameters names may be added or changed according the particular database type.

The login data entered are stored encrypted, not shared with any other application and used only to access selected database.

Database type

PostgreSQL | Test connection

Connection parameters

Name	Value
host	localhost
database	test
user	test
password	••••

Connection to the database will be checked immediately - if a problem arises, you will be informed via error message. Please also check your firewall settings - if BellaDati can connect to the data source.*

Direct connection using **localhost** keyword or localhost IP address is **disabled** due to security reasons. Please define an alias in hosts file (eg. C:\WINDOWS\system32\drivers\etc in Windows). Than use this alias in BellaDati.

Troubleshooting

If you cannot connect to your database, please verify:

1. **Host**, **port**, **driver** and **database name** (where applicable) are correct. **Host** should be an IP address or a domain name.
2. The **database server is reachable** from the server running BellaDati. For BellaDati cloud, this means your database must be reachable from the internet.
3. The **database server's firewall** allows incoming requests from the BellaDati server on the database port.
4. Database **username** and **password** are correct.

Querying Database

There are two options how to query database:

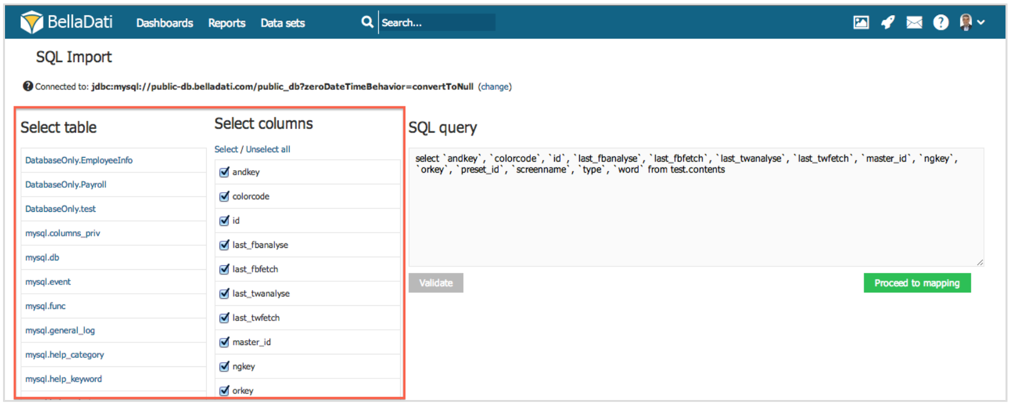
- **Database Discovery**
- **SQL Query Window**

Database Discovery

Database Discovery is a visual editor for specifying database queries. To obtain data from the your database:

1. Click **table** you want to query. BellaDati includes all columns by default.
2. Check **columns** you want to import. Use select/deselect all to quickly manipulate with columns.

BellaDati will construct corresponding SQL query in the right SQL window



SQL Import

Connected to: **jdbc:mysql://public-db.belladati.com/public_db?zeroDateTimeBehavior=convertToNull** (change)

Select table

- DatabaseOnly.EmployeeInfo
- DatabaseOnly.Payroll
- DatabaseOnly.test
- mysql.columns_priv
- mysql.db
- mysql.event
- mysql.func
- mysql.general_log
- mysql.help_category
- mysql.help_keyword

Select columns

Select / Unselect all

- ✓ andkey
- ✓ colorcode
- ✓ id
- ✓ last_fbanalyse
- ✓ last_fbfetch
- ✓ last_twanalyse
- ✓ last_twfetch
- ✓ master_id
- ✓ ngkey
- ✓ orkey

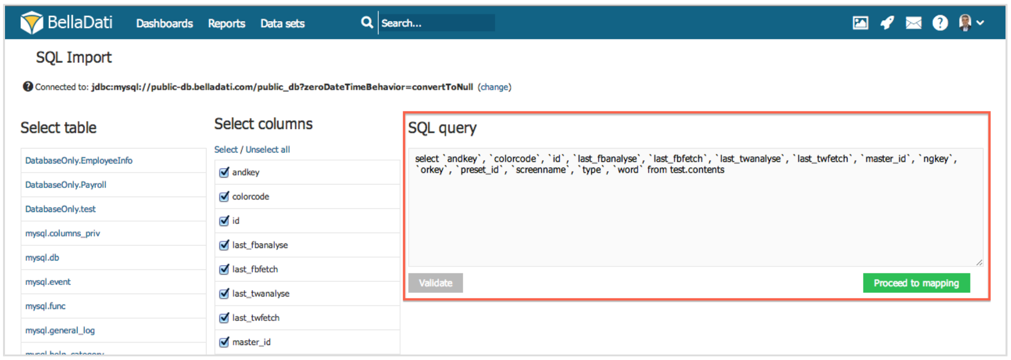
SQL query

```
select `andkey`, `colorcode`, `id`, `last_fbanalyse`, `last_fbfetch`, `last_twanalyse`, `last_twfetch`, `master_id`, `ngkey`,
`orkey`, `preset_id`, `screenname`, `type`, `word` from test.contents
```

SQL Query Window

For advanced users or queries, BellaDati offers **SQL Query Window**. Use **Query Window** to construct desired SQL commands.

Click **validate** button to make sure that your command is correct before proceeding with data mapping.



SQL Import

Connected to: **jdbc:mysql://public-db.belladati.com/public_db?zeroDateTimeBehavior=convertToNull** (change)

Select table

- DatabaseOnly.EmployeeInfo
- DatabaseOnly.Payroll
- DatabaseOnly.test
- mysql.columns_priv
- mysql.db
- mysql.event
- mysql.func
- mysql.general_log

Select columns

Select / Unselect all

- ✓ andkey
- ✓ colorcode
- ✓ id
- ✓ last_fbanalyse
- ✓ last_fbfetch
- ✓ last_twanalyse
- ✓ last_twfetch
- ✓ master_id

SQL query

```
select `andkey`, `colorcode`, `id`, `last_fbanalyse`, `last_fbfetch`, `last_twanalyse`, `last_twfetch`, `master_id`, `ngkey`,
`orkey`, `preset_id`, `screenname`, `type`, `word` from test.contents
```

Connection Modifications

Following data source parameters can be modified within the existing data source in *Data Set* page:

- Connection parameters
- SQL statement

When changing SQL query to extract more columns from the database, use **Reset values** function and then perform new import settings. Otherwise the additional columns will not be imported.

Connection parameters examples

PostgreSQL

host	db-host
port	5432
database	test
user	postgres
password	test
SQL test	`select * from test`

MySQL

host	db-host:3306
database	test
user	root
password	test
SQL test	`select * from test`

User account and accessed database must have the remote access enabled.
How Do I Grant Access To An Existing Database?

Oracle

host	db-host
port	1521
driver	V14_10_2_0_1
user	tester
password	test
SID	XE
SQL test	`select * from test`

MS SQL

host	db-host
port	1433
user	sa
password	test
database	test

SQL test	`select * from test`

SQL Server Authentication must be enabled.

You need an SQL account to access the MS SQL remotely.

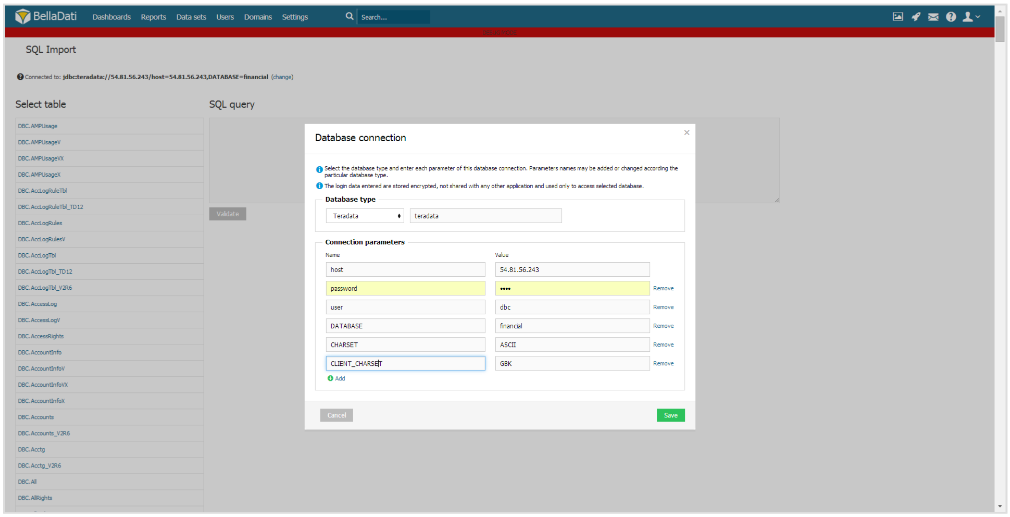
Sybase SQL Anywhere 11

host	db-host
port	2638
user	dba
password	sql
database	demo
SQL test	`select * from products`

Browse all JDBC parameters

Teradata 13

host	db-host
user	dbc
password	test
SQL test	`select * dbc.tables`



Connected to: **jdbc:teradata://54.81.56.243/host=54.81.56.243,DATABASE=financial** (change)

Database connection

Select the database type and enter each parameter of this database connection. Parameters names may be added or changed according the particular database type.

The login data entered are stored encrypted, not shared with any other application and used only to access selected database.

Database type

Teradata | teradata

Connection parameters

Name	Value
host	54.81.56.243
password	••••
user	dbc
DATABASE	financial
CHARSET	ASCII
CLIENT_CHARSET	GBK

Visit **Teradata** documentation for additional parameters https://developer.teradata.com/doc/connectivity/jdbc/reference/current/jdbcug_chapter_2.html#BABJIHBJ

Upgrading JDBC drivers

This page is relevant for on-premise users only.

If you have installed BellaDati using BellaDati installer, **stop BellaDati**, **replace the desired JDBC driver** file in the `BELLADATI_HOME/app/WEB-INF/lib` directory and **start** your BellaDati instance.

If you are using Application Server (GlassFish, Websphere etc) **replace the desired JDBC driver** file in `BELLADATI_HOME/app/WEB-INF/lib` directory of BellaDati WAR archive (it's a plain ZIP archive) and **redeploy** the application.

Using variables in SQL query

Date and Time Variables

If you need to change the SQL query dynamically, you can use predefined variables. BellaDati currently supports functions to get date, time or timestamp in user defined formats:

Name	Description	Examples

`$date(dateString)`	Evaluates the `dateString` and outputs the date in `yyyy-MM-dd` format. The `dateString`	`$date(now + 5d -4w)`
		`$date(2011-01-01 + 5d -4w)`
		`$date(actualMonth -1d)`

`$date(dateString, format)`	Works like `$date(dateString)`, but output format is controlled by `format` parameter	`$date(now + 5d -4w, dd-MM-yyyy)`
		`$date(2011-01-01 + 5d -4w, MMyyyy)`
		`$date(actualMonth -1d, yyyy-dd-MM)`

`$time(timeString)`	Evaluates the `timeString` and outputs the resulting time in `HH:mm:ss` format	`$time(now)`
		`$time(actualhour)`
		`$time(actualminute)`

`$time(timeString, format)`	Works like `$time(timeString)`, but output format is controlled by `format` parameter	`$time(now, HH:mm:ss)`
		`$time(actualhour, MMss)`
		`$time(actualminute, HHmmss)`

`$timestamp()`	Returns the current time stamp value	`$timestamp()`

`$firstValue(L_ATTRIBUTE_CODE)`	Returns the lowest value (sorted ascending) of the attribute specified by *attribute ID* stored in the current data set.
	
	Returns empty string if there are no data or the attribute code is not valid.
		`$firstValue(L_ID) //returns 123456`
		
		`$firstValue(L_DATE_ATTRIBUTE) //returns 2013-01-01`
		
		`$firstValue(L_TIME_ATTRIBUTE) //returns 10:00:54`

`$lastValue(L_ATTRIBUTE_CODE)`	Returns the highest value (sorted descending) of the attribute specified by *attribute ID* stored in the current data set.
	
	Returns empty string if there are no data or the attribute code is not valid.
		`$lastValue(L_ID) //returns 123456`
		
		`$lastValue(L_DATE_ATTRIBUTE) //returns 2013-12-31`
		
		`$lastValue(L_TIME_ATTRIBUTE) //returns 23:59:59`

`DateString`

- **now -** represents actual date
- **actualyear -** represents the first day of actual year (1.1.20XX). For example actualyear selected on 21.9.2010 represents date 1.1.2010
- **actualquarter -** represents the first day of actual quarter (1.1.20XX, 1.4.20XX, 1.7.20XX, 1.10.20XX). For example actualquarter selected on 21.9.2010 represents date 1.7.2010
- **actualmonth** - represents the first day of actual month (1.1.20XX, 1.2.20XX, ...). For example actaulmonth selected in 21.9.2010 represents date 1.9.2010
- **actualweek** - represents first day of actual week (Monday). For example actualweek selected on 21.9.2010 represents date 20.9.2010 (Monday of this week in calendar)
- **availableFrom, availableTo** - represents the first and last available date entry
- relative and absolute enterig of date can be adjusted by operators using this syntax: **date +|- n[d|w|m|q|y],** where **n** is integer, **d** represe nts day, **w** represents week, **m** represents month **q** represents quartal and **y** represents year. We can for example define time in this way: *actualyear + 2m -4d.* Today is 21.9.2010, so this value represents 1.1.2010 + 2 months - 4 days, which means date 25.2.2010.

`TimeString`

- **now** - represents actual time
- **actualhour** - represents the actual hour at 0 minutes and 0 seconds.

- **actualminute** - represents the actual minute at 0 seconds
- **actualsecond** - represents the actual second

Connecting to Microsoft Analysis Services (SSAS)

Prerequisites

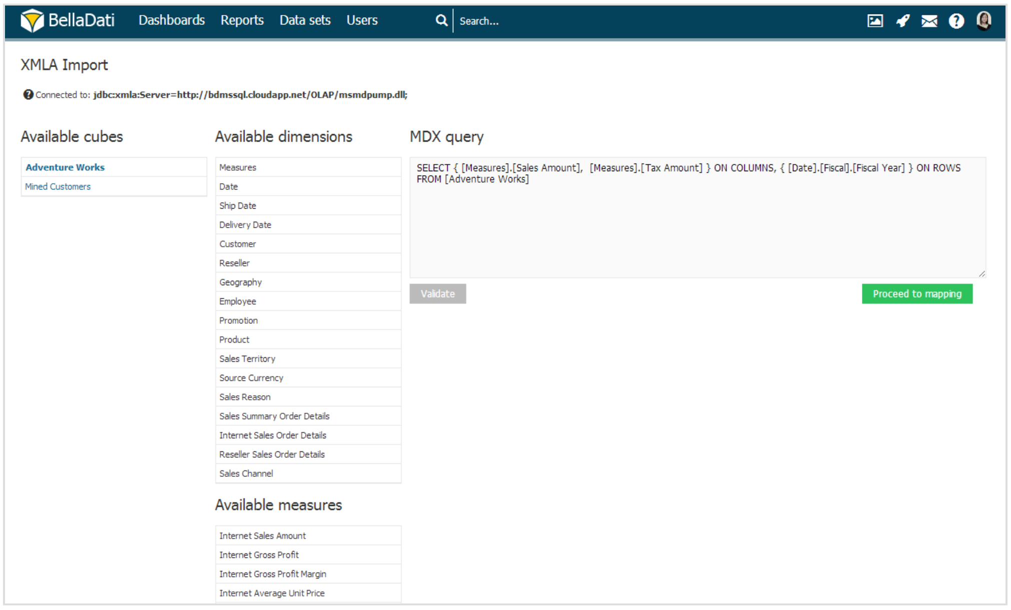
Microsoft SQL Server 2005+ with configured XMLA Analysis Services endpoint. To allow XML for Analysis :

- configure the firewall http://technet.microsoft.com/en-us/library/ms174937
- configure the IIS http://technet.microsoft.com/en-us/library/gg492140

Exploring OLAP cubes and creating MDX query

Connection string URL format:

MDX query example:



XMLA Import

Connected to: jdbc:xmla:Server=http://bdmssql.cloudapp.net/OLAP/msmdpump.dll;

Available cubes

- Adventure Works
- Mined Customers

Available dimensions

- Measures
- Date
- Ship Date
- Delivery Date
- Customer
- Reseller
- Geography
- Employee
- Promotion
- Product
- Sales Territory
- Source Currency
- Sales Reason
- Sales Summary Order Details
- Internet Sales Order Details
- Reseller Sales Order Details
- Sales Channel

Available measures

- Internet Sales Amount
- Internet Gross Profit
- Internet Gross Profit Margin
- Internet Average Unit Price

MDX query

```
SELECT { [Measures].[Sales Amount],  [Measures].[Tax Amount] } ON COLUMNS, { [Date].[Fiscal].[Fiscal Year] } ON ROWS
FROM [Adventure Works]
```

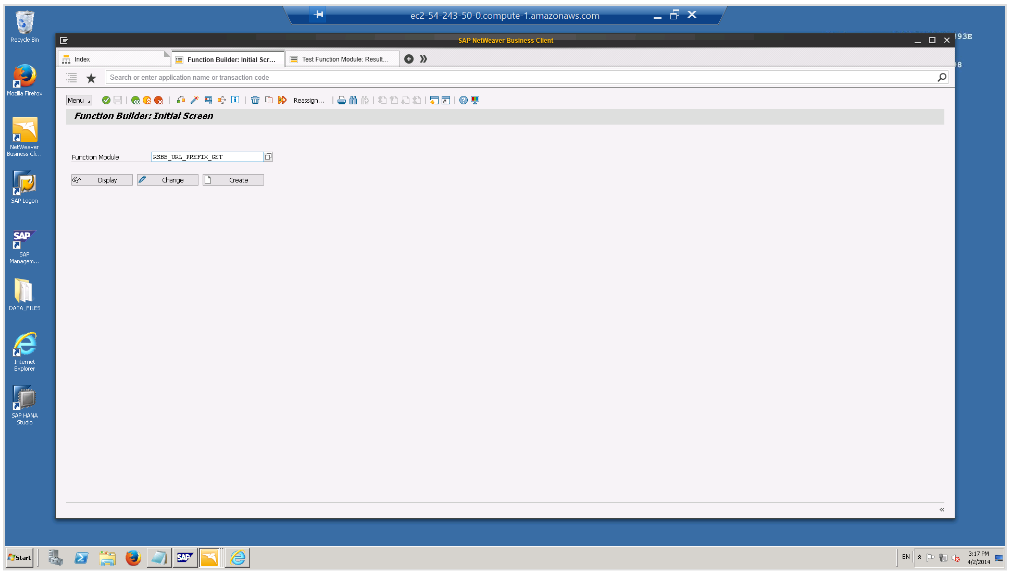
Connecting to SAP BW

Prerequisites

SAP Netweaver BW 7.3+. SOAP web services must be enabled in order to use the XML for Analysis interface. Further requirements:

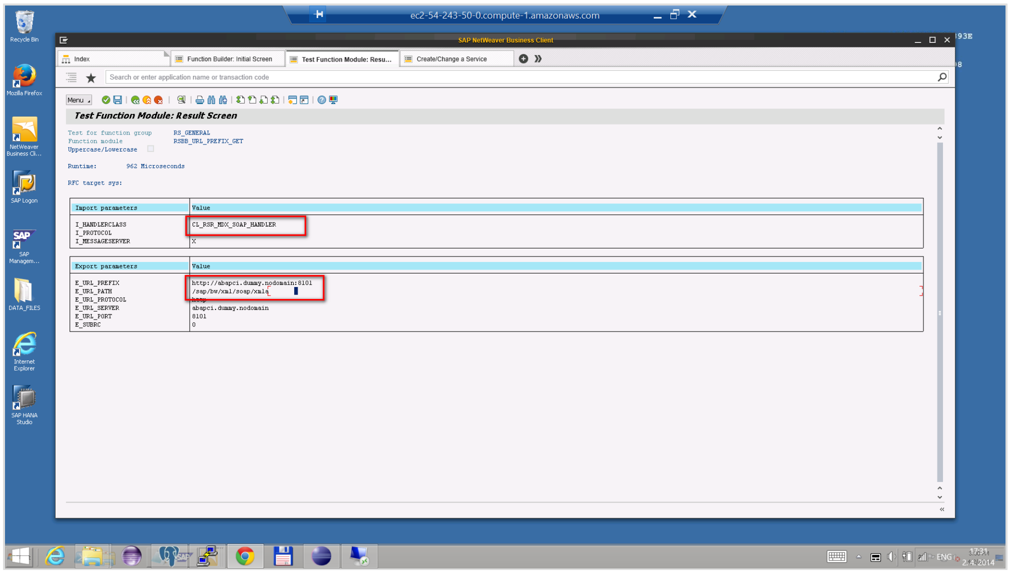
- web services and ICF must be enabled, see http://help.sap.com/saphelp_nw73/helpdata/en/b3/1dd13ffc9a4a21e10000000a1550b0/frameset.htm

Screenshots from testing the ICF module:


ec2-54-243-50-0.compute-1.amazonaws.com
SAP NetWeaver Business Client
Index
Function Builder: Initial Scr...
Test Function Module: Result...
Search or enter application name or transaction code
Menu
Reassign...
Display
Change
Create

Function Builder: Initial Screen

Function Module RSBB_URL_PREFIX_GET


ec2-54-243-50-0.compute-1.amazonaws.com
SAP NetWeaver Business Client
Index
Function Builder: Initial Screen
Test Function Module: Resu...
Create/Change a Service
Search or enter application name or transaction code
Menu

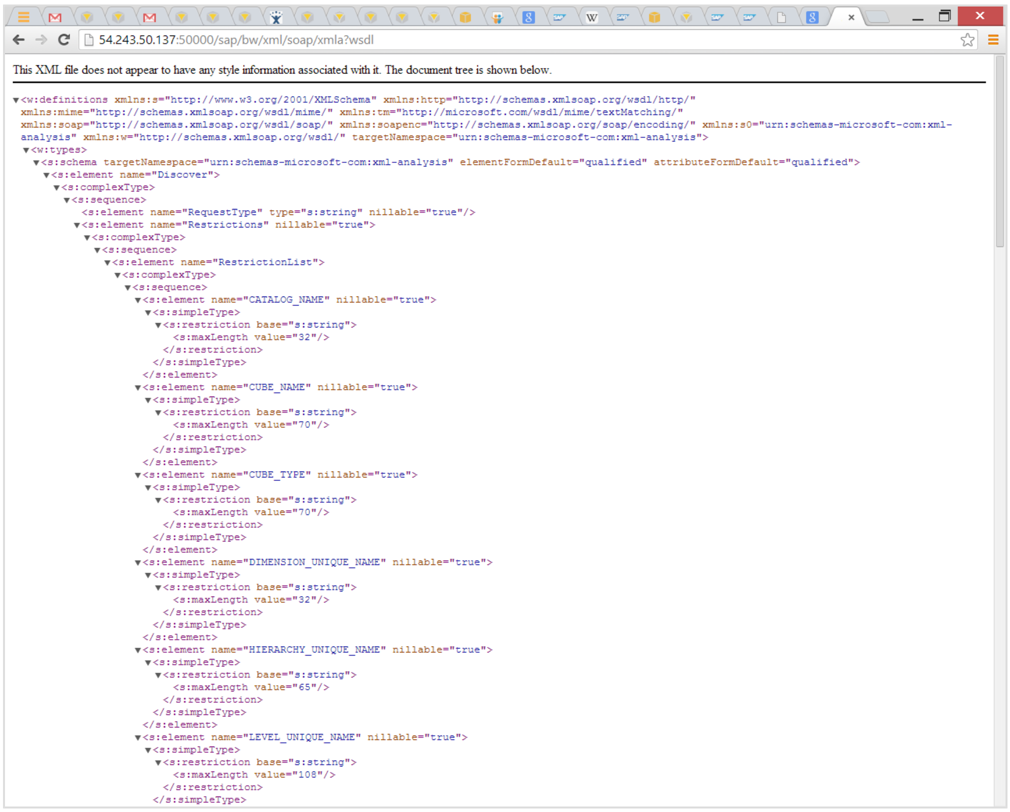
Test Function Module: Result Screen

```
Test for function group    RS_GENERAL
Function module            RSBB_URL_PREFIX_GET
Uppercase/Lowercase

Runtime:        962 Microseconds

RFC target sys:
```

Import parameters	Value
I_HANDLERCLASS	CL_RSR_MDX_SOAP_HANDLER
I_PROTOCOL	
I_MESSAGESERVER	X

Export parameters	Value
E_URL_PREFIX	http://abapci.dummy.nodomain:8101
E_URL_PATH	/sap/bw/xml/soap/xmla
E_URL_PROTOCOL	http
E_URL_SERVER	abapci.dummy.nodomain
E_URL_PORT	8101
E_SUBRC	0

You can then easily verify that everything is configured well - just try to get the WSDL schema over the HTTP. This is the result:


54.243.50.137:50000/sap/bw/xml/soap/xmla?wsdl

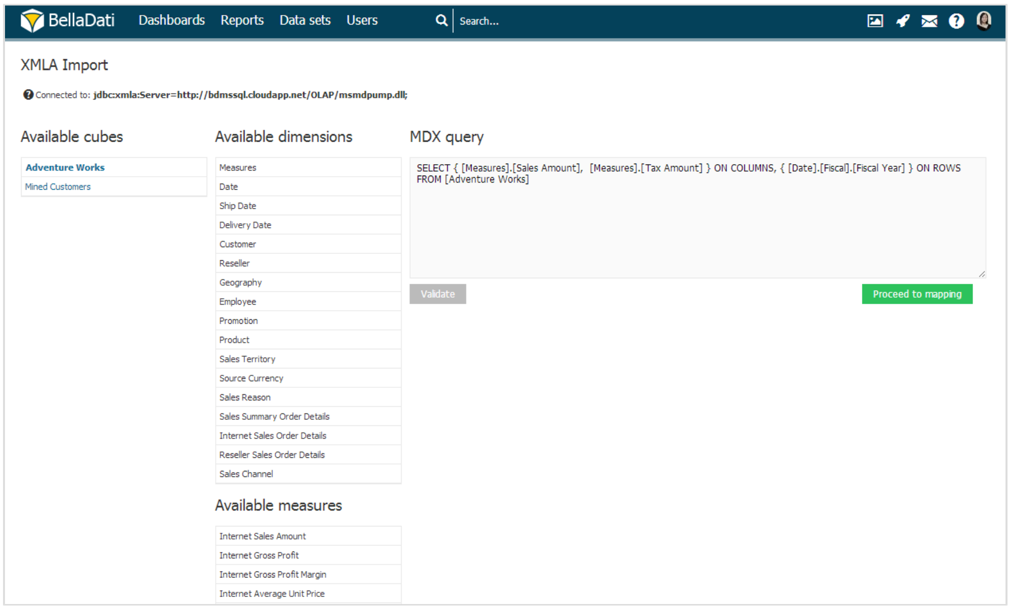
This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
▼<w:definitions xmlns:s="http://www.w3.org/2001/XMLSchema" xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
 xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
 xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:s0="urn:schemas-microsoft-com:xml-
 analysis" xmlns:w="http://schemas.xmlsoap.org/wsdl/" targetNamespace="urn:schemas-microsoft-com:xml-analysis">
  ▼<w:types>
    ▼<s:schema targetNamespace="urn:schemas-microsoft-com:xml-analysis" elementFormDefault="qualified" attributeFormDefault="qualified">
      ▼<s:element name="Discover">
        ▼<s:complexType>
          ▼<s:sequence>
              <s:element name="RequestType" type="s:string" nillable="true"/>
            ▼<s:element name="Restrictions" nillable="true">
              ▼<s:complexType>
                ▼<s:sequence>
                  ▼<s:element name="RestrictionList">
                    ▼<s:complexType>
                      ▼<s:sequence>
                        ▼<s:element name="CATALOG_NAME" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="32"/>
                              </s:restriction>
                            </s:simpleType>
                          </s:element>
                        ▼<s:element name="CUBE_NAME" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="70"/>
                              </s:restriction>
                            </s:simpleType>
                          </s:element>
                        ▼<s:element name="CUBE_TYPE" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="70"/>
                              </s:restriction>
                            </s:simpleType>
                          </s:element>
                        ▼<s:element name="DIMENSION_UNIQUE_NAME" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="32"/>
                              </s:restriction>
                            </s:simpleType>
                          </s:element>
                        ▼<s:element name="HIERARCHY_UNIQUE_NAME" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="65"/>
                              </s:restriction>
                            </s:simpleType>
                          </s:element>
                        ▼<s:element name="LEVEL_UNIQUE_NAME" nillable="true">
                          ▼<s:simpleType>
                            ▼<s:restriction base="s:string">
                                <s:maxLength value="108"/>
                              </s:restriction>
                            </s:simpleType>
```

Exploring OLAP cubes and creating MDX query

Connection string URL format:

MDX query example:



XMLA Import

Connected to: **jdbc:xmla:Server=http://bdmssql.cloudapp.net/OLAP/msmdpump.dll;**

Available cubes

- **Adventure Works**
- Mined Customers

Available dimensions

- Measures
- Date
- Ship Date
- Delivery Date
- Customer
- Reseller
- Geography
- Employee
- Promotion
- Product
- Sales Territory
- Source Currency
- Sales Reason
- Sales Summary Order Details
- Internet Sales Order Details
- Reseller Sales Order Details
- Sales Channel

Available measures

- Internet Sales Amount
- Internet Gross Profit
- Internet Gross Profit Margin
- Internet Average Unit Price

MDX query

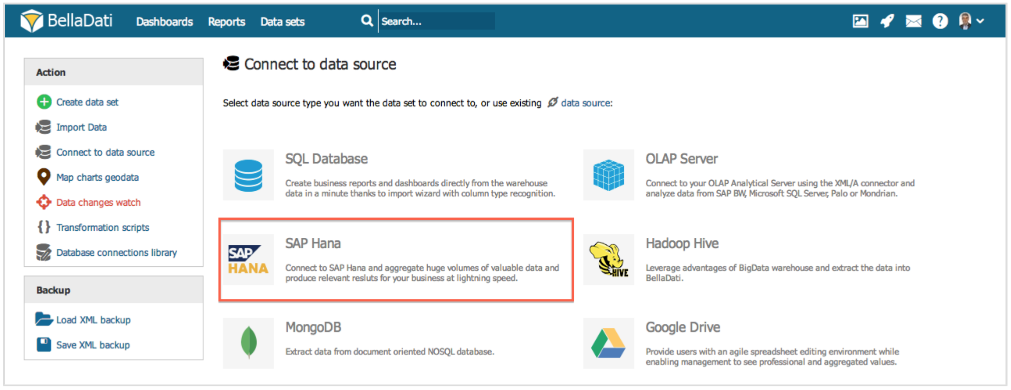
```
SELECT { [Measures].[Sales Amount],  [Measures].[Tax Amount] } ON COLUMNS, { [Date].[Fiscal].[Fiscal Year] } ON ROWS
FROM [Adventure Works]
```

Connecting to SAP HANA

BellaDati can be connected to SAP HANA in-memory Big Data database.

Connecting to HANA

From **Data Source Connectors** page select **SAP HANA**.



Select data source type you want the data set to connect to, or use existing data source:

Create business reports and dashboards directly from the warehouse data in a minute thanks to import wizard with column type recognition.

Connect to your OLAP Analytical Server using the XML/A connector and analyze data from SAP BW, Microsoft SQL Server, Palo or Mondrian.

Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant resluts for your business at lightning speed.

Leverage advantages of BigData warehouse and extract the data into BellaDati.

Extract data from document oriented NOSQL database.

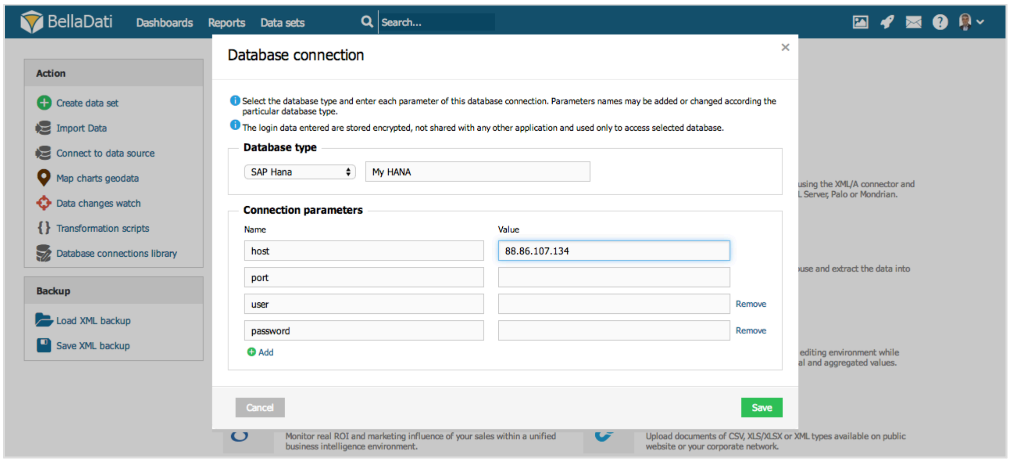
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Connection Parameters

You must specify following parameters:

- **host**: IP address or domain name
- **port**
- **password**
- **user**

Additional parameters can be specified by clicking on **Add** link in bottom left part of *Connection parameters* window.



Select the database type and enter each parameter of this database connection. Parameters names may be added or changed according the particular database type.

The login data entered are stored encrypted, not shared with any other application and used only to access selected database.

Database type

SAP Hana	My HANA

Connection parameters

Name	Value
host	88.86.107.134
port	
user	
password	

Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Connection to the database will be checked immediately - if a problem arises, you will be informed via error message. Please also check your firewall settings - if BellaDati can connect to the data source.*

Querying Database

There are two options how to query SAP HANA:

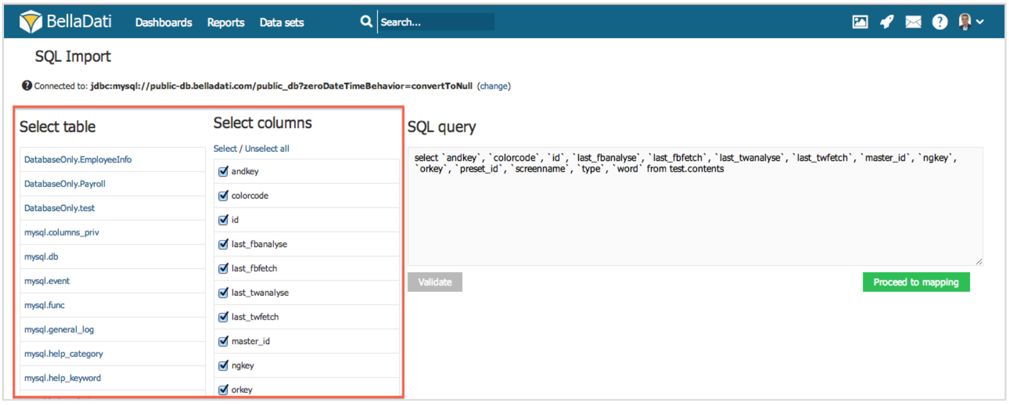
- **Database Discovery**
- **SQL Query Window**

Database Discovery

Database Discovery is a visual editor for specifying database queries. To obtain data from the your database:

1. Click the **table** you want to query. BellaDati includes all columns by default.
2. Check **columns** you want to import. Use select/deselect all to quickly manipulate with columns.

BellaDati will construct corresponding SQL query in the right SQL window



Connected to: jdbc:mysql://public-db.belladati.com/public_db?zeroDateTimeBehavior=convertToNull (change)

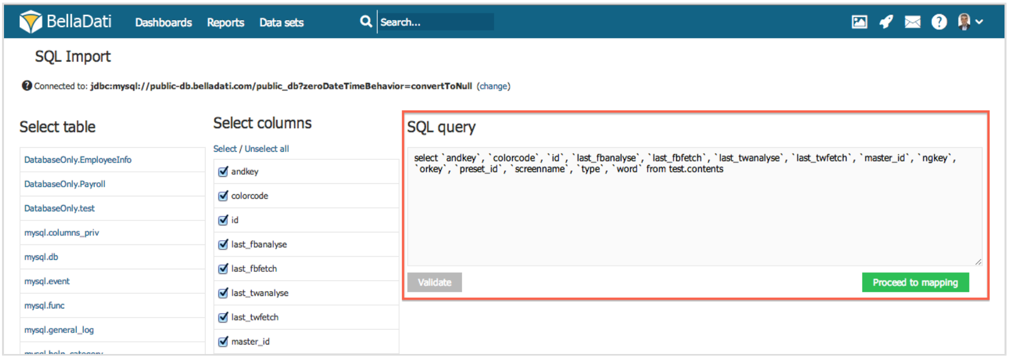
Select table	Select columns
DatabaseOnly.EmployeeInfo	✓ andkey
DatabaseOnly.Payroll	✓ colorcode
DatabaseOnly.test	✓ id
mysql.columns_priv	✓ last_fbanalyse
mysql.db	✓ last_fbfetch
mysql.event	✓ last_twanalyse
mysql.func	✓ last_twfetch
mysql.general_log	✓ master_id
mysql.help_category	✓ ngkey
mysql.help_keyword	✓ orkey

```
select `andkey`, `colorcode`, `id`, `last_fbanalyse`, `last_fbfetch`, `last_twanalyse`, `last_twfetch`, `master_id`, `ngkey`,
`orkey`, `preset_id`, `screenname`, `type`, `word` from test.contents
```

SQL Query Window

For advanced users or queries, BellaDati offers **SQL Query Window**. Use **Query Window** to construct desired SQL commands.

Click **validate** button to make sure that your command is correct before proceeding with data mapping.



Connected to: jdbc:mysql://public-db.belladati.com/public_db?zeroDateTimeBehavior=convertToNull (change)

Select table	Select columns
DatabaseOnly.EmployeeInfo	✓ andkey
DatabaseOnly.Payroll	✓ colorcode
DatabaseOnly.test	✓ id
mysql.columns_priv	✓ last_fbanalyse
mysql.db	✓ last_fbfetch
mysql.event	✓ last_twanalyse
mysql.func	✓ last_twfetch
mysql.general_log	✓ master_id

```
select `andkey`, `colorcode`, `id`, `last_fbanalyse`, `last_fbfetch`, `last_twanalyse`, `last_twfetch`, `master_id`, `ngkey`,
`orkey`, `preset_id`, `screenname`, `type`, `word` from test.contents
```

Connecting to URL

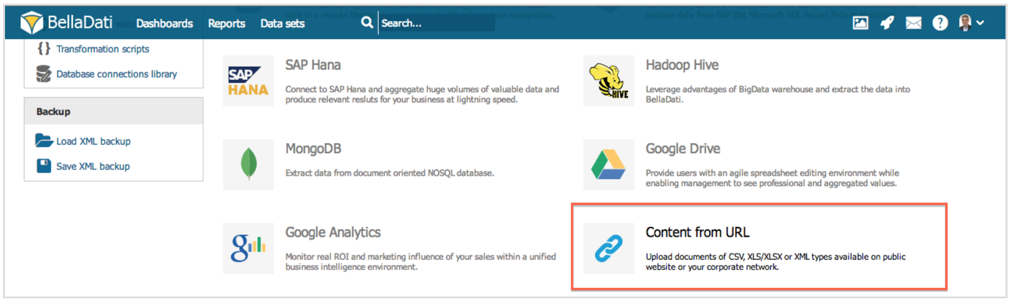
BellaDati can import data from URLs, web services and REST APIs.

Connecting to URL has similarities with file import. In addition URL imports can be scheduled to execute automatically and repeatedly.

URL popup offers advanced section for **authentization** and specific **HTTP headers** settings.

Connecting to URL

From **Data Source Connectors** page select **Connect from URL**.



SAP Hana
Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant resluts for your business at lightning speed.

Hadoop Hive
Leverage advantages of BigData warehouse and extract the data into BellaDati.

MongoDB
Extract data from document oriented NOSQL database.

Google Drive
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Google Analytics
Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Content from URL
Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

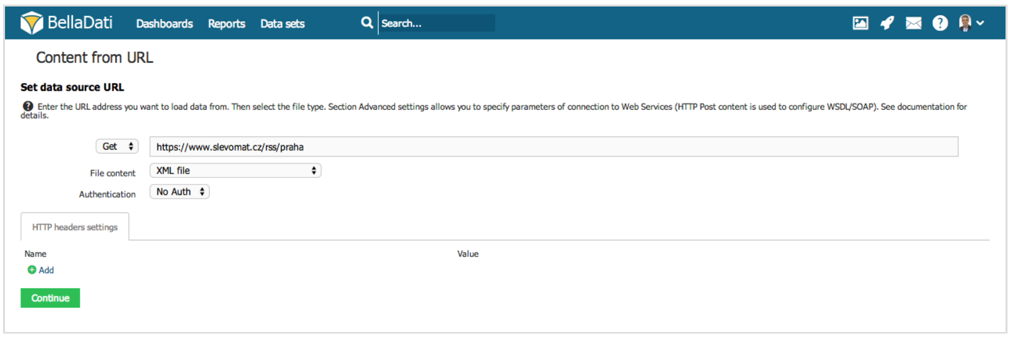
Connection Parameters

Enter following parameters to connect to URL source:

- **URL**: Web address
- **File content**: Select the file format - CSV (text file), Excel (XLS, XLSX), XML or ZIP
- **Authentication:** No Authentication, Simple, oAuth1a, oAuth2

Then continue setting like for file import.

Login and password are optional parameters.



Content from URL

Set data source URL

Enter the URL address you want to load data from. Then select the file type. Section Advanced settings allows you to specify parameters of connection to Web Services (HTTP Post content is used to configure WSDL/SOAP). See documentation for details.

Get: https://www.slevomat.cz/rss/praha
File content: XML file
Authentication: No Auth

Date and Time Variables

If you need to change the URL or HTTP post content dynamically, you can use predefined variables. BellaDati currently supports functions to get date, time or timestamp in user defined formats:

Name	Description	Examples
`$date(dateString)`	Evaluates the `dateString` and outputs the date in `yyyy-MM-dd` format. The `dateString`	`$date(now + 5d -4w)` `$date(2011-01-01 + 5d -4w)` `$date(actualMonth -1d)`

`$date(dateString, format)`	Works like `$date(dateString)`, but output format is controlled by `format` parameter	`$date(now + 5d -4w, dd-MM-yyyy)`
		`$date(2011-01-01 + 5d -4w, MMyyyy)`
		`$date(actualMonth -1d, yyyy-dd-MM)`

`$time(timeString)`	Evaluates the `timeString` and outputs the resulting time in `HH:mm:ss` format	`$time(now)`
		`$time(actualhour)`
		`$time(actualminute)`

`$time(timeString, format)`	Works like `$time(timeString)`, but output format is controlled by `format` parameter	$time(now, HH:mm:ss)
		`$time(actualhour, MMss)`
		`$time(actualminute, HHmmss)`

`$timestamp()`	Returns the current time stamp value	`$timestamp()`

`DateString`

- **now -** represents actual date
- **actualyear -** represents the first day of actual year (1.1.20XX). For example actualyear selected on 21.9.2010 represents date 1.1.2010
- **actualquarter -** represents the first day of actual quarter (1.1.20XX, 1.4.20XX, 1.7.20XX, 1.10.20XX). For example actualquarter selected on 21.9.2010 represents date 1.7.2010
- **actualmonth** - represents the first day of actual month (1.1.20XX, 1.2.20XX, ...). For example actaulmonth selected in 21.9.2010 represents date 1.9.2010
- **actualweek** - represents first day of actual week (Monday). For example actualweek selected on 21.9.2010 represents date 20.9.2010 (Monday of this week in calendar)
- relative and absolute enterig of date can be adjusted by operators using this syntax: **date +|- n[d|w|m|q|y],** where **n** is integer, **d** represents day, **w** represents week, **m** represents month **q** represents quartal and **y** represents year. We can for example define time in this way: *actualyear + 2m -4d.* Today is 21.9.2010, so this value represents 1.1.2010 + 2 months - 4 days, which means date 25.2.2010.

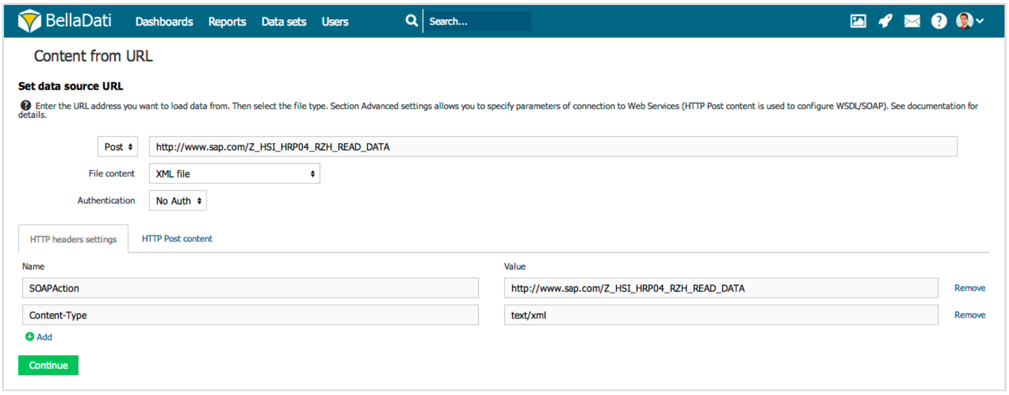
`TimeString`

- **now** - represents actual time
- **actualhour** - represents the actual hour at 0 minutes and 0 seconds.
- **actualminute** - represents the actual minute at 0 seconds
- **actualsecond** - represents the actual second

Connecting to SOAP web Services

BellaDati is able to connect resources available on network via the HTTP protocol. Except this simple usage, we can connect also more complex resources available as Web services. Web services are using the SOAP protocol, which is based on the plain HTTP protocol. The SOAP message comes in standard XML format, which is in BellaDati perfectly supported. Here is an example how to do it:

1. Enter the endpoint URL of your web service and choose the XML file format.
2. Open the advanced settings, choose the POST method and set the following parameters:
   a. SOAPAction - value is contained in the WSDL file, which describes your web service. It is defined in the *soapAction* tag, e.g.: <soap:operation soapAction="http://www.sap.com/Z_HSI_HRP04_RZH_READ_DATA"/>
   b. Content-Type - set the value to *text/xml*
3. Insert the POST content in the depicted structure:



Content from URL

Set data source URL

Enter the URL address you want to load data from. Then select the file type. Section Advanced settings allows you to specify parameters of connection to Web Services (HTTP Post content is used to configure WSDL/SOAP). See documentation for details.

Post	http://www.sap.com/Z_HSI_HRP04_RZH_READ_DATA
File content	XML file
Authentication	No Auth

HTTP headers settings | HTTP Post content

Name	Value	
SOAPAction	http://www.sap.com/Z_HSI_HRP04_RZH_READ_DATA	Remove
Content-Type	text/xml	Remove

Add

Continue

Connecting to REST web services

You can connect to REST web services over HTTP using BellaDati. Just select the proper HTTP GET header type and file type (eg. CSV).

Authentication

The following authentication methods are supported:

- **Basic and Digest HTTP Access Authentication** (RFC2617 standard).

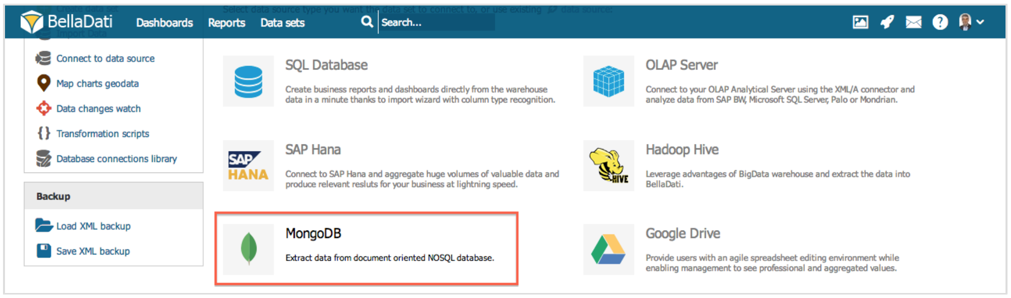
REST API supports **OAuth** standard with security token.

Connecting to MongoDB

BellaDati can be connected to MongoDb NoSQL database.

Connecting to MongoDB

From **Data Source Connectors** page select **MongoDB**.


BellaDati
Dashboards
Reports
Data sets
Search...
Connect to data source
Map charts geodata
Data changes watch
Transformation scripts
Database connections library
Backup
Load XML backup
Save XML backup
SQL Database
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OLAP Server
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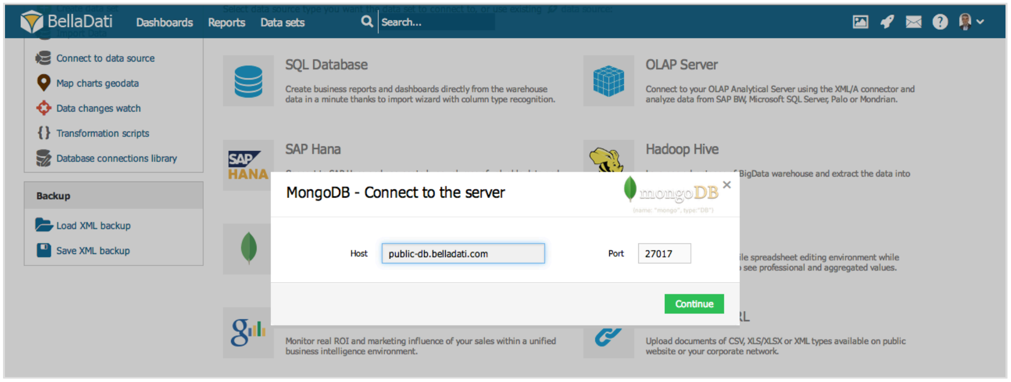
Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant reslults for your business at lightning speed.
Hadoop Hive
Leverage advantages of BigData warehouse and extract the data into BellaDati.
MongoDB
Extract data from document oriented NOSQL database.
Google Drive
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Connection Parameters

You must specify following parameters:

- **host**: IP address or domain name
- **port**



Selecting Database

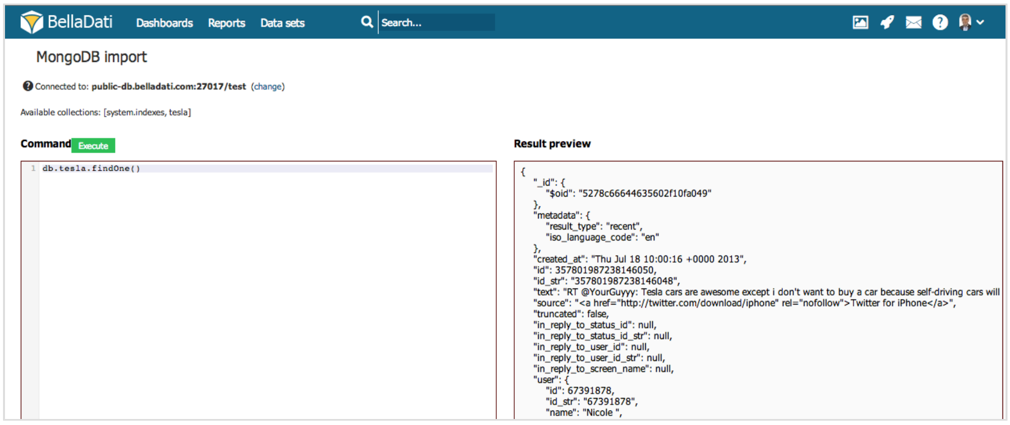
Select required database from drop down menu. BellaDati will open **Mongo Console**.

Defining Query

You can easily change actual database by clicking on **change** link.

BellaDati lists all **collections** from selected databases. Don't forget to use desired **collection** in your queries.

Write Mongo query and hit **Execute**. Results will be displayed in the right window on Mongo Console. Click **Proceed to data mapping** to import data.



MongoDB import

Connected to: **public-db.belladati.com:27017/test** (change)

Available collections: [system.indexes, tesla]

Command Execute

```
db.tesla.findOne()
```

Result preview

```
{
    "_id": {
        "$oid": "5278c66644635602f10fa049"
    },
    "metadata": {
        "result_type": "recent",
        "iso_language_code": "en"
    },
    "created_at": "Thu Jul 18 10:00:16 +0000 2013",
    "id": 357801987238146050,
    "id_str": "357801987238146048",
    "text": "RT @YourGuyyy: Tesla cars are awesome except i don't want to buy a car because self-driving cars will
    "source": "<a href="http://twitter.com/download/iphone" rel="nofollow">Twitter for iPhone</a>",
    "truncated": false,
    "in_reply_to_status_id": null,
    "in_reply_to_status_id_str": null,
    "in_reply_to_user_id": null,
    "in_reply_to_user_id_str": null,
    "in_reply_to_screen_name": null,
    "user": {
        "id": 67391878,
        "id_str": "67391878",
        "name": "Nicole ",
```

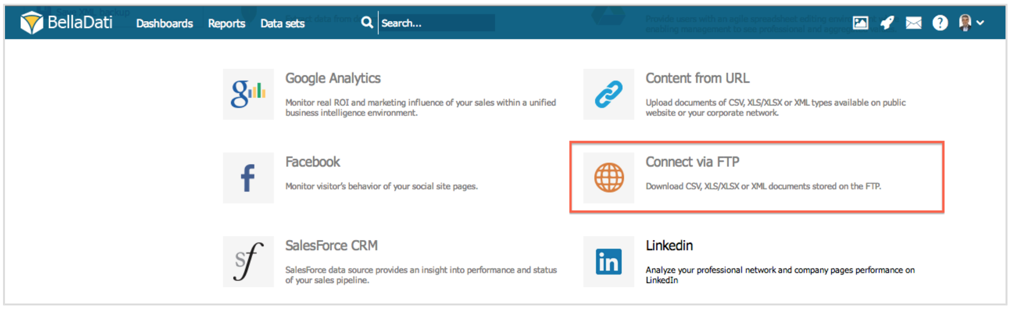
Connecting to FTP

BellaDati can import data from files stored at FTP servers.

Connecting to FTP is similar to local file import. However, FTP imports can be scheduled and advanced security can be achieved using **SSL** (FTPS/FTPES modes) in conjuction with basic authentication.

Connecting to FTP

From **Data Source Connectors** page select **Connect via FTP**.



Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Monitor visitor's behavior of your social site pages.

Download CSV, XLS/XLSX or XML documents stored on the FTP.

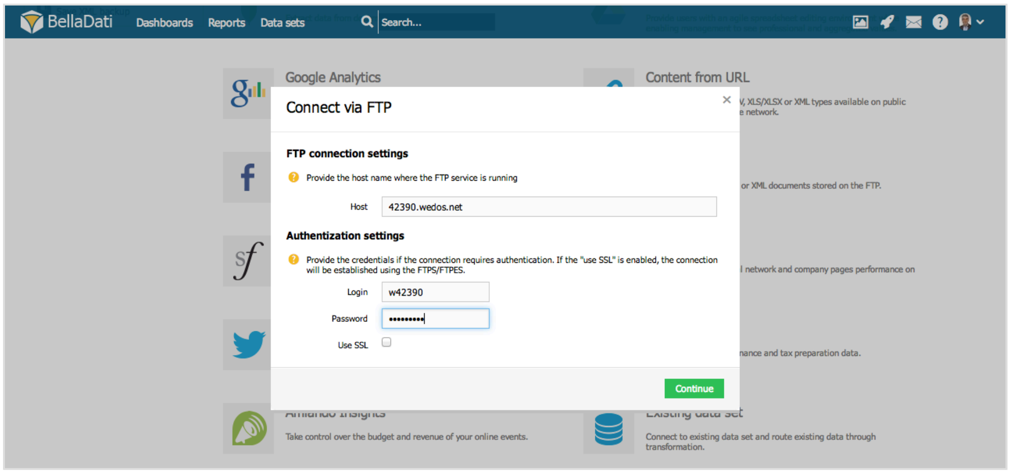
SalesForce data source provides an insight into performance and status of your sales pipeline.

Analyze your professional network and company pages performance on LinkedIn

Connection Parameters

Enter following parameters to connect to FTP server:

1. **Host**: FTP server address
2. **Login**
3. **Password**
4. **Use SSL**: Enables FTPS/FTPES mode. *(optional)*



FTP connection settings

Provide the host name where the FTP service is running

Host 42390.wedos.net

Authentization settings

Provide the credentials if the connection requires authentication. If the "use SSL" is enabled, the connection will be established using the FTPS/FTPES.

Login w42390

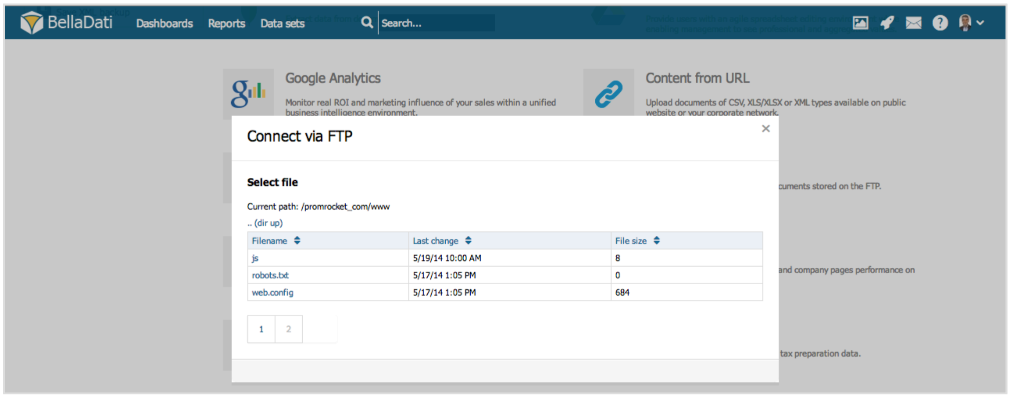
Password •••••••••

Use SSL ☐

Login and password are optional parameters.

Selecting files

BellaDati will display server files structure. Select file you want to import.



Connect via FTP

Select file

Current path: /promrocket_com/www

.. (dir up)

Filename	Last change	File size
js	5/19/14 10:00 AM	8
robots.txt	5/17/14 1:05 PM	0
web.config	5/17/14 1:05 PM	684

Defining file content

Select file format. Continue to file import settings to learn more about available file types.

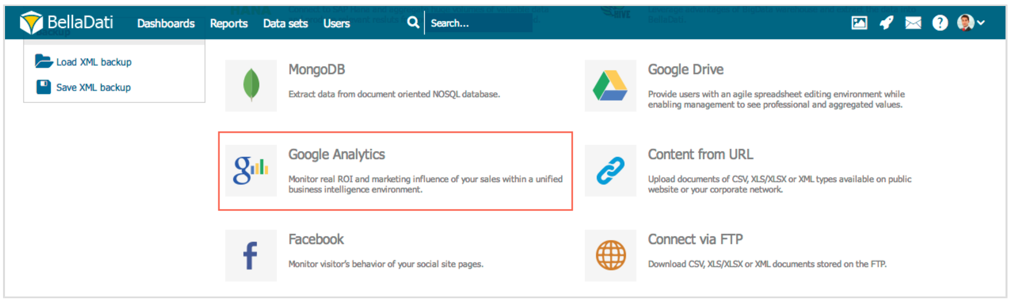
Scheduled imports can be set up for files imported via FTP. Continue to Scheduling Import to learn more.

Connecting to Google Analytics

BellaDati allows you to connect and analyze data from Google Analytics.

In order to connect to a Google Analytics data source:

- Click **Data sets** from the **Main menu**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **Google Analytics** as indicated in the red box below.


BellaDati
Dashboards
Reports
Data sets
Users
Search...
Load XML backup
Save XML backup
MongoDB
Extract data from document oriented NOSQL database.
Google Drive
Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.
Google Analytics
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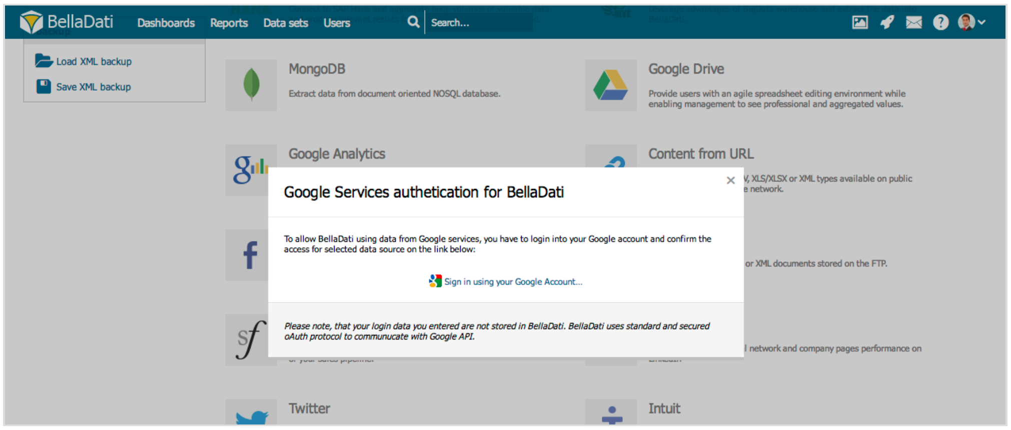
Content from URL
Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.
Facebook
Monitor visitor's behavior of your social site pages.
Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.

Authentication

Following window will request granting BellaDati access to your Google account.
Click **Sign in using your Google account** to open login screen.



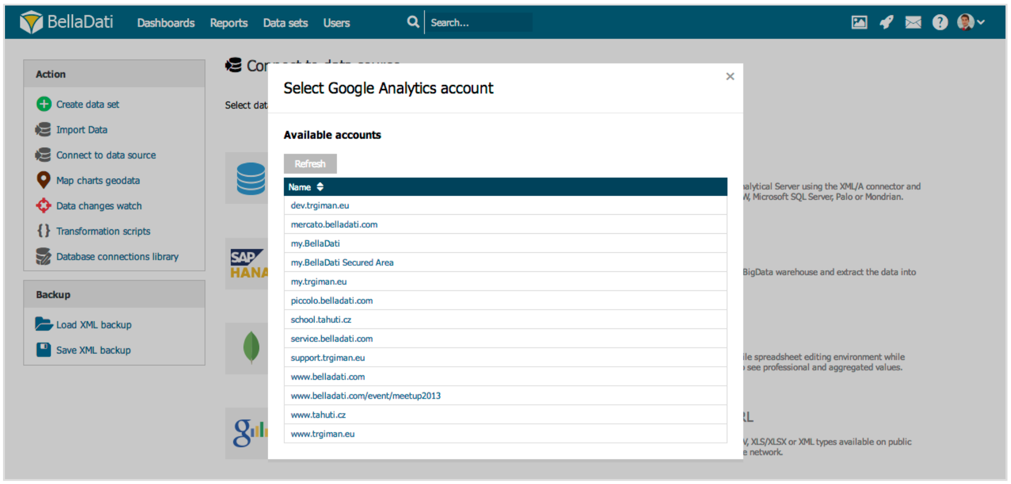
Google Services authetication for BellaDati

To allow BellaDati using data from Google services, you have to login into your Google account and confirm the access for selected data source on the link below:

Please note, that your login data you entered are not stored in BellaDati. BellaDati uses standard and secured oAuth protocol to communucate with Google API.

Select Page

BellaDati lists all available web pages. Select one to continue.



Select Google Analytics account

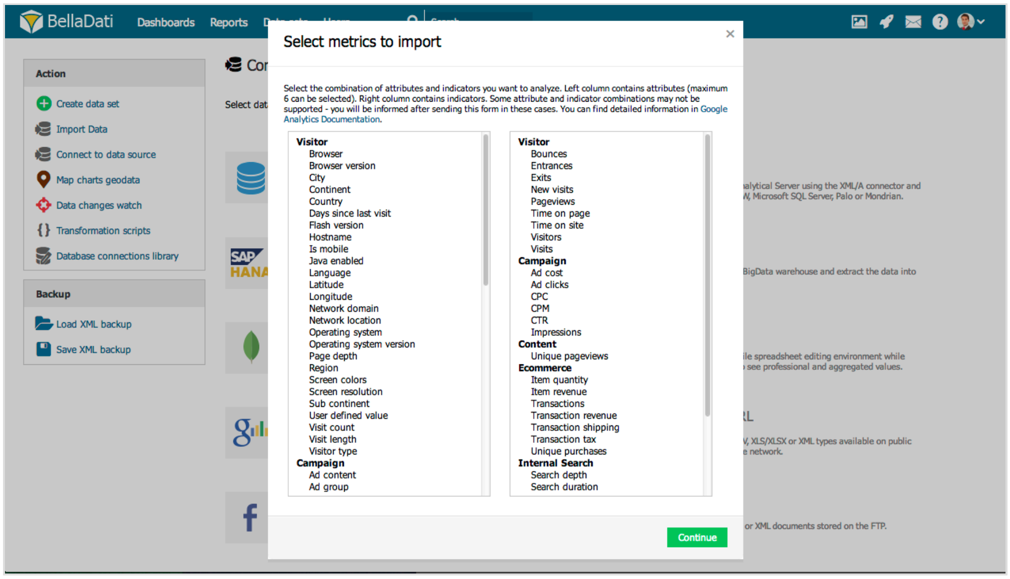
Available accounts

Name
dev.trgiman.eu
mercato.belladati.com
my.BellaDati
my.BellaDati Secured Area
my.trgiman.eu
piccolo.belladati.com
school.tahuti.cz
service.belladati.com
support.trgiman.eu
www.belladati.com
www.belladati.com/event/meetup2013
www.tahuti.cz
www.trgiman.eu

Select Dimensions and Metrics

Click on desired attributes and indicators to be imported.

Some metrics and attributes combinations are not allowed. See Google Analytics documentation for details.



Select metrics to import

Select the combination of attributes and indicators you want to analyze. Left column contains attributes (maximum 6 can be selected). Right column contains indicators. Some attribute and indicator combinations may not be supported - you will be informed after sending this form in these cases. You can find detailed information in Google Analytics Documentation.

Visitor	**Visitor**
Browser	Bounces
Browser version	Entrances
City	Exits
Continent	New visits
Country	Pageviews
Days since last visit	Time on page
Flash version	Time on site
Hostname	Visitors
Is mobile	Visits
Java enabled	**Campaign**
Language	Ad cost
Latitude	Ad clicks
Longitude	CPC
Network domain	CPM
Network location	CTR
Operating system	Impressions
Operating system version	**Content**
Page depth	Unique pageviews
Region	**Ecommerce**
Screen colors	Item quantity
Screen resolution	Item revenue
Sub continent	Transactions
User defined value	Transaction revenue
Visit count	Transaction shipping
Visit length	Transaction tax
Visitor type	Unique purchases
Campaign	**Internal Search**
Ad content	Search depth
Ad group	Search duration

Modifications

The following modifications are available for the existing Google Analytics data source:

- **From/To date interval**: Influences the period data are imported within (see entering date/time parameters section below).
- Authentication revocation

Entering date/time parameters

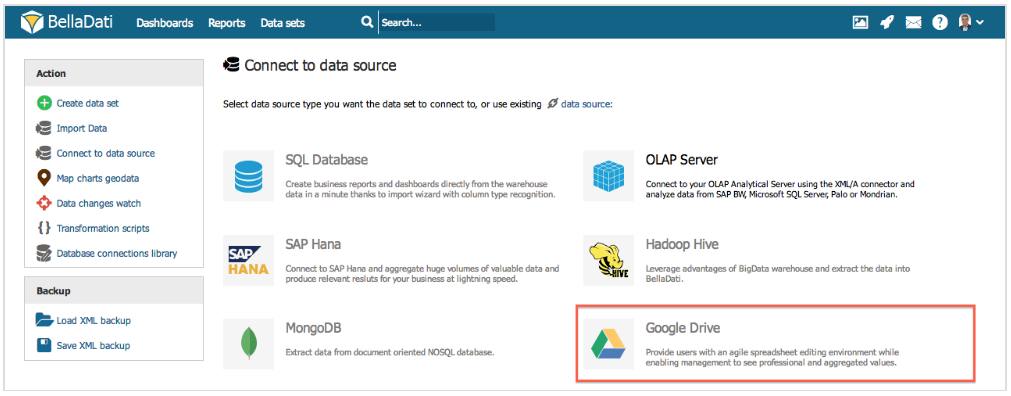
- you can enter time (date) **absolutely in two different formats: dd.MM.yyyy** (e.g. 1.12.2010), or **yyyy-MM-dd** (e.g. 2010-12-01)
- it's also possible to enter date **relatively:**
  - **now -** represents actual date
  - **actualyear -** represents the first day of actual year (1.1.20XX). For example actualyear selected on 21.9.2010 represents date 1.1.2010
  - **actualquarter -** represents the first day of actual quarter (1.1.20XX, 1.4.20XX, 1.7.20XX, 1.10.20XX). For example actualquarter selected on 21.9.2010 represents date 1.7.2010
  - **actualmonth** - represents the first day of actual month (1.1.20XX, 1.2.20XX, ...). For example actaulmonth selected in 21.9.2010 represents date 1.9.2010
  - **actualweek** - represents first day of actual week (Monday). For example actualweek selected on 21.9.2010 represents date 20.9.2010 (Monday of this week in calendar)
  - relative and absolute enterig of date can be adjusted by operators using this syntax: **date +|- n[d|w|m|q|y],** where **n** is integer, **d** represents day, **w** represents week, **m** represents month **q** represents quartal and **y** represents year. We can for example define time in this way: *actualyear + 2m -4d.* Today is 21.9.2010, so this value represents 1.1.2010 + 2 months - 4 days, which means date 25.2.2010.

Connecting to Google Drive

BellaDati allows you to connect and analyze data from Google Drive Spreadsheets.

In order to connect to a Google Drive data source:

- Click **Data sets** from the **Main menu**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **Google Drive** as indicated in the red box below.



Select data source type you want the data set to connect to, or use existing data source:

Create business reports and dashboards directly from the warehouse data in a minute thanks to import wizard with column type recognition.

Connect to your OLAP Analytical Server using the XML/A connector and analyze data from SAP BW, Microsoft SQL Server, Palo or Mondrian.

Connect to SAP Hana and aggregate huge volumes of valuable data and produce relevant reslults for your business at lightning speed.

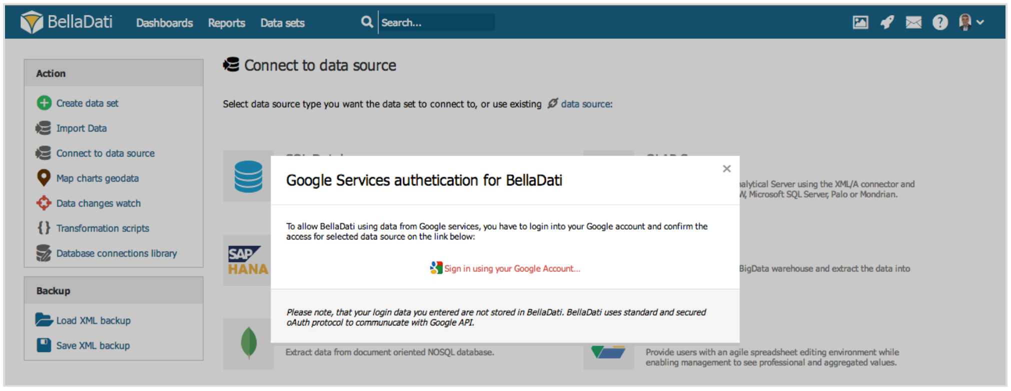
Leverage advantages of BigData warehouse and extract the data into BellaDati.

Extract data from document oriented NOSQL database.

Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Authentication

Following window will request granting BellaDati access to your Google account.
Click **Sign in using your Google account** to open login screen.

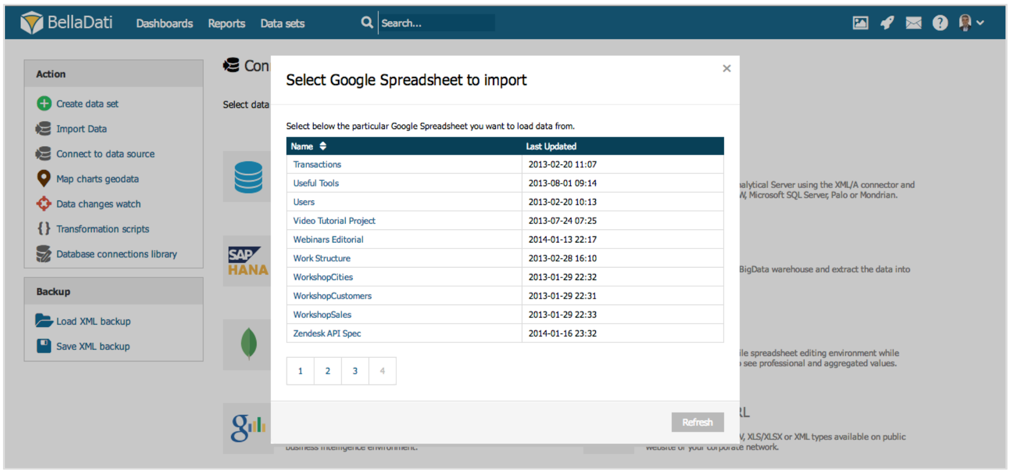

Google Services authetication for BellaDati
Sign in using your Google Account...

To allow BellaDati using data from Google services, you have to login into your Google account and confirm the access for selected data source on the link below:

Please note, that your login data you entered are not stored in BellaDati. BellaDati uses standard and secured oAuth protocol to communucate with Google API.

Select Data Set

BellaDati lists all available spreadsheets. Select one to continue.



Select below the particular Google Spreadsheet you want to load data from.

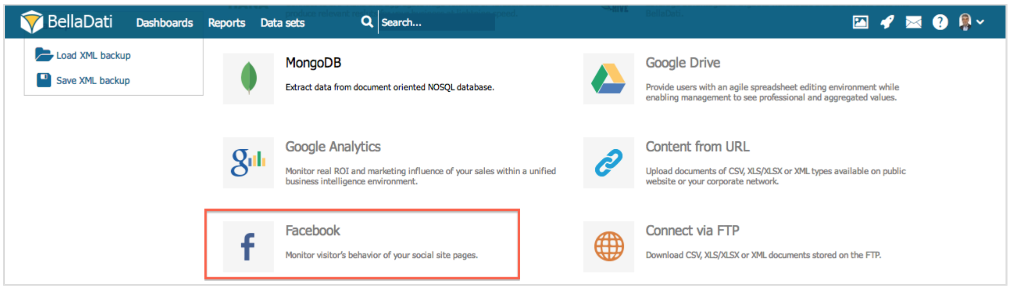
Name	Last Updated
Transactions	2013-02-20 11:07
Useful Tools	2013-08-01 09:14
Users	2013-02-20 10:13
Video Tutorial Project	2013-07-24 07:25
Webinars Editorial	2014-01-13 22:17
Work Structure	2013-02-28 16:10
WorkshopCities	2013-01-29 22:32
WorkshopCustomers	2013-01-29 22:31
WorkshopSales	2013-01-29 22:33
Zendesk API Spec	2014-01-16 23:32

Connecting to Facebook

BellaDati allows you to connect and analyze data from Facebook.

In order to connect to a Facebook data source:

- Click **Data sets** from the **Main menu**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **Facebook** as indicated in the red box below.



Extract data from document oriented NOSQL database.

Provide users with an agile spreadsheet editing environment while enabling management to see professional and aggregated values.

Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Monitor visitor's behavior of your social site pages.

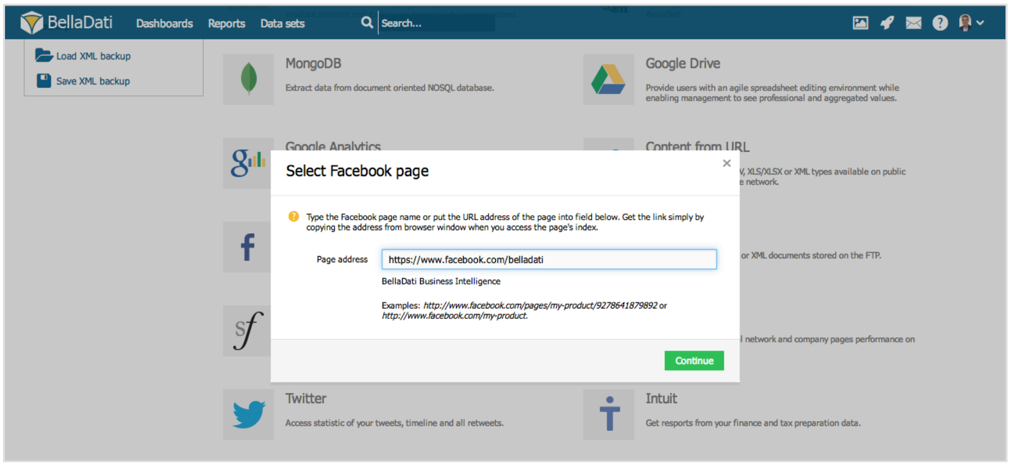
Download CSV, XLS/XLSX or XML documents stored on the FTP.

Authentication

Following window will request granting BellaDati access to your Facebook account.
Click **Sign in using your Facebook account** to open login screen.

Selecting Facebook Page

Paste Facebook page URL from which you would like to analyze data.



Select Facebook page

Type the Facebook page name or put the URL address of the page into field below. Get the link simply by copying the address from browser window when you access the page's index.

Page address: https://www.facebook.com/belladati

BellaDati Business Intelligence

Examples: *http://www.facebook.com/pages/my-product/9278641879892* or *http://www.facebook.com/my-product.*

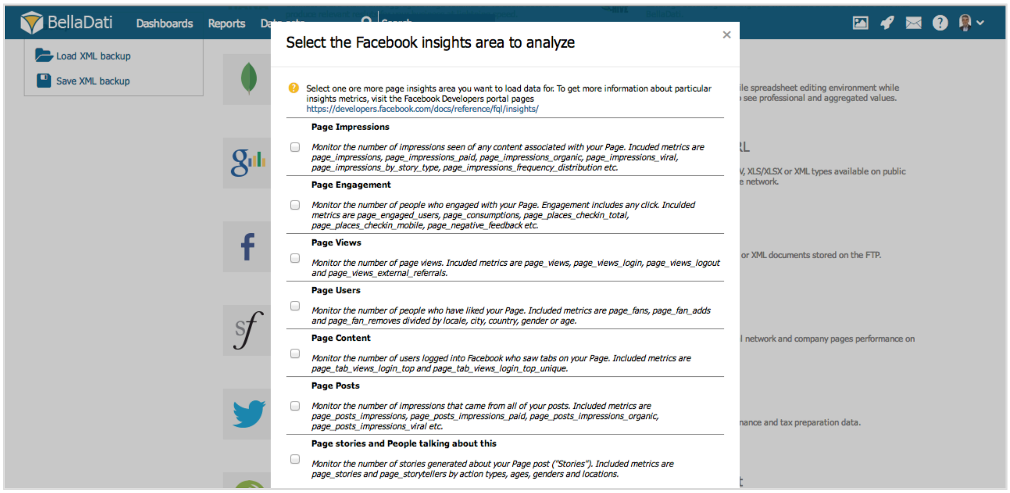
Access statistic of your tweets, timeline and all retweets.

Get resports from your finance and tax preparation data.

Selecting Data

Select data you want to analyze. BellaDati offers:

- Page Impressions
- Page Views
- Page Engagement
- Page Users
- Page Content
- Page Posts
- Page Stories



Select the Facebook insights area to analyze

Select one ore more page insights area you want to load data for. To get more information about particular insights metrics, visit the Facebook Developers portal pages https://developers.facebook.com/docs/reference/fql/insights/

Page Impressions

Monitor the number of impressions seen of any content associated with your Page. Incuded metrics are page_impressions, page_impressions_paid, page_impressions_organic, page_impressions_viral, page_impressions_by_story_type, page_impressions_frequency_distribution etc.

Page Engagement

Monitor the number of people who engaged with your Page. Engagement includes any click. Inculded metrics are page_engaged_users, page_consumptions, page_places_checkin_total, page_places_checkin_mobile, page_negative_feedback etc.

Page Views

Monitor the number of page views. Incuded metrics are page_views, page_views_login, page_views_logout and page_views_external_referrals.

Page Users

Monitor the number of people who have liked your Page. Included metrics are page_fans, page_fan_adds and page_fan_removes divided by locale, city, country, gender or age.

Page Content

Monitor the number of users logged into Facebook who saw tabs on your Page. Included metrics are page_tab_views_login_top and page_tab_views_login_top_unique.

Page Posts

Monitor the number of impressions that came from all of your posts. Included metrics are page_posts_impressions, page_posts_impressions_paid, page_posts_impressions_organic, page_posts_impressions_viral etc.

Page stories and People talking about this

Monitor the number of stories generated about your Page post ("Stories"). Included metrics are page_stories and page_storytellers by action types, ages, genders and locations.

Import Settings

Once you select desired area, you will be able to proceed to data import.

Select the requested columns and change column types if necessary via Import settings. Once import settings are configured and you can click **C ontinue** on the top right corner to start data importing.

You can also check Facebook API for an overview of current Fcebook data available for developers.

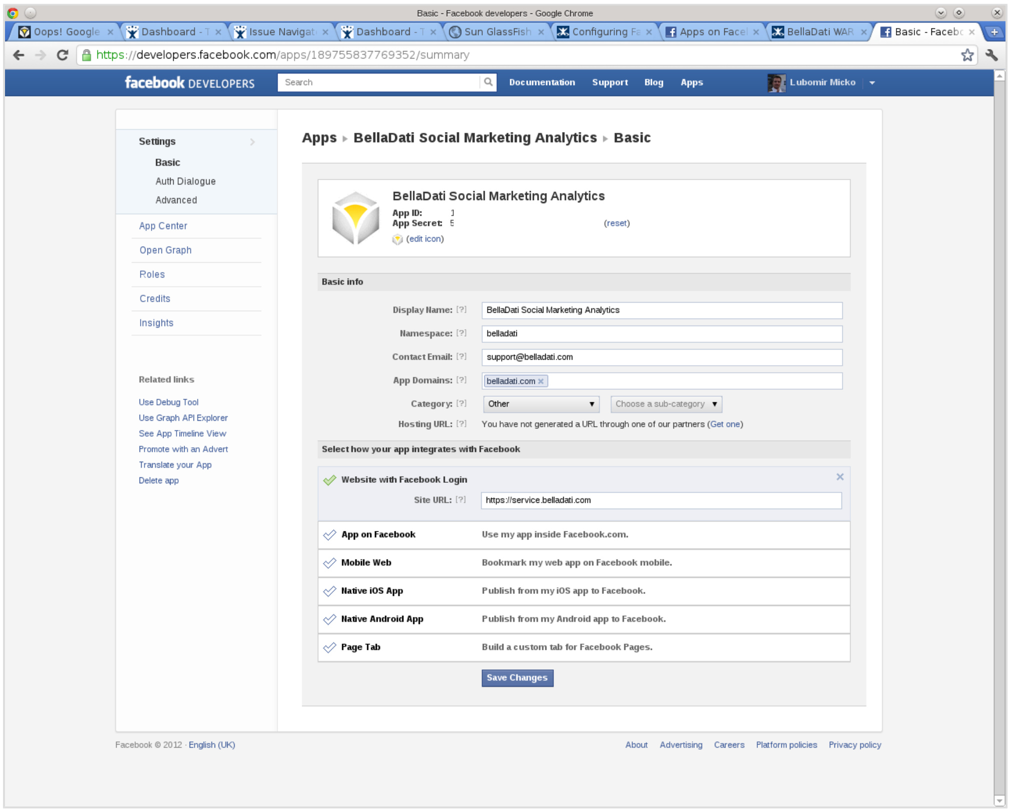
Configuring Facebook connector

⚠ This section is for the OnPremise installation users only. If you are using the Cloud version, the Facebook Connector is ready and you dont't need to do any configuration changes.

Creating Facebook Application

To be able to access Facebook Insights (via the Open Graph Protocol), you need to create a Facebook Application. All you need is to configure the application domain and callback URL, which corresponds to the URL, where is your BellaDati instance running.

Here is how it can look like:



Apps ▸ BellaDati Social Marketing Analytics ▸ Basic

BellaDati Social Marketing Analytics
App ID: 1
App Secret: 5 (reset)

Basic info

Display Name: [?]	BellaDati Social Marketing Analytics
Namespace: [?]	belladati
Contact Email: [?]	support@belladati.com
App Domains: [?]	belladati.com
Category: [?]	Other / Choose a sub-category
Hosting URL: [?]	You have not generated a URL through one of our partners (Get one)

Select how your app integrates with Facebook

✓ Website with Facebook Login	Site URL: [?] https://service.belladati.com
App on Facebook	Use my app inside Facebook.com.
Mobile Web	Bookmark my web app on Facebook mobile.
Native iOS App	Publish from my iOS app to Facebook.
Native Android App	Publish from my Android app to Facebook.
Page Tab	Build a custom tab for Facebook Pages.

Configuring BellaDati

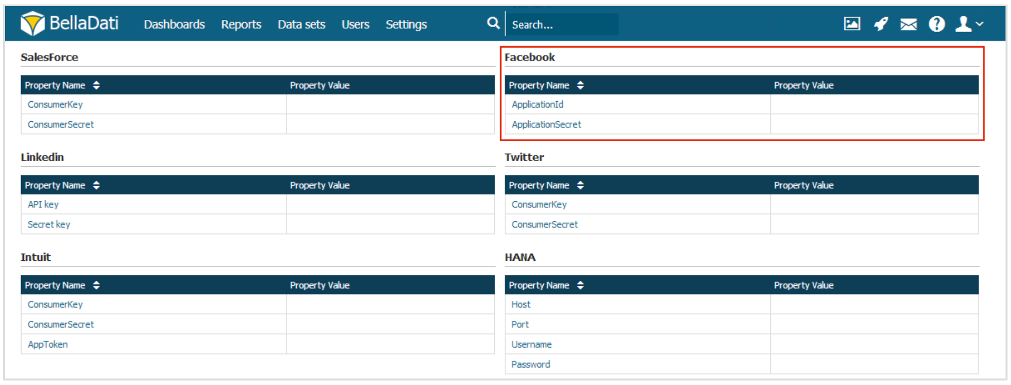
Once you have created an application, you will receive the:

- Application ID
- Application Secret

Example:

This parameters must be defined in the `application.properties` file of you OnPremise installation. To edit application properties:

1. **Login** to BellaDati
2. Select **Settings** from the **Main Menu**
3. Navigate to **Configuration**
4. Scroll to **Facebook** table
5. Click **Edit** in **ApplicationID** row and paste your **ApplicationID**
6. Click **Edit** in **ApplicationSecret** row and paste your **Application Secret**
7. **Restart** BellaDati



SalesForce

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Facebook

Property Name	Property Value
ApplicationId	
ApplicationSecret	

Linkedin

Property Name	Property Value
API key	
Secret key	

Twitter

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Intuit

Property Name	Property Value
ConsumerKey	
ConsumerSecret	
AppToken	

HANA

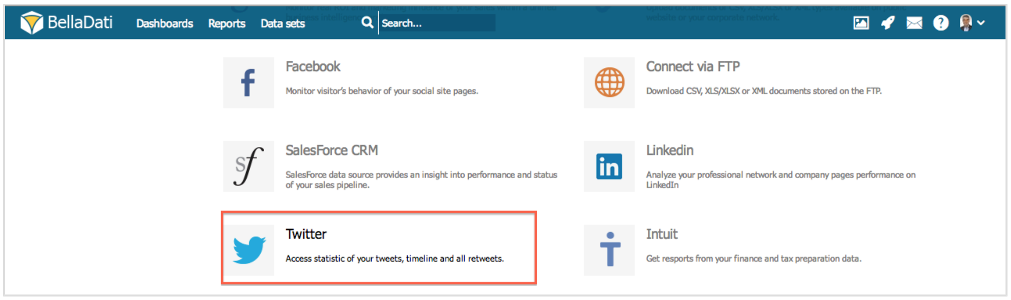
Property Name	Property Value
Host	
Port	
Username	
Password	

Connecting to Twitter

BellaDati allows you to connect and analyze data from Twitter.

In order to connect to a Twitter data source"

- Click **Data sets** from the **Main menu**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **Twitter** as indicated in the red box below.


BellaDati
Dashboards
Reports
Data sets
Search...
Facebook
Monitor visitor's behavior of your social site pages.
Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.
SalesForce CRM
SalesForce data source provides an insight into performance and status of your sales pipeline.
Linkedin
Analyze your professional network and company pages performance on LinkedIn
Twitter
Access statistic of your tweets, timeline and all retweets.
Intuit
Get resports from your finance and tax preparation data.

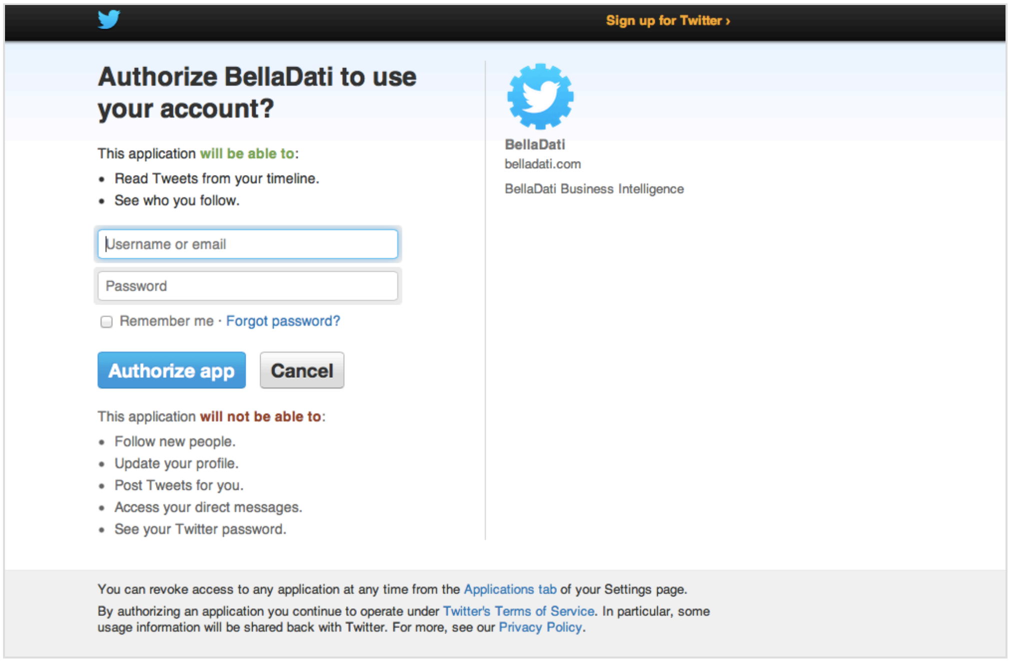
Authentication

Following window will request granting BellaDati access to your Twitter account.
Click **Sign in using your Twitter account** to open login screen.

Authorization

You have to authorize BellaDati to access data of your Twitter account.

If you are not logging into your Twitter account yet, the following screen will be shown and you need to enter your Twitter username and password and then click on **Authorize app**.



Authorize BellaDati to use your account?

This application will be able to:

- Read Tweets from your timeline.
- See who you follow.

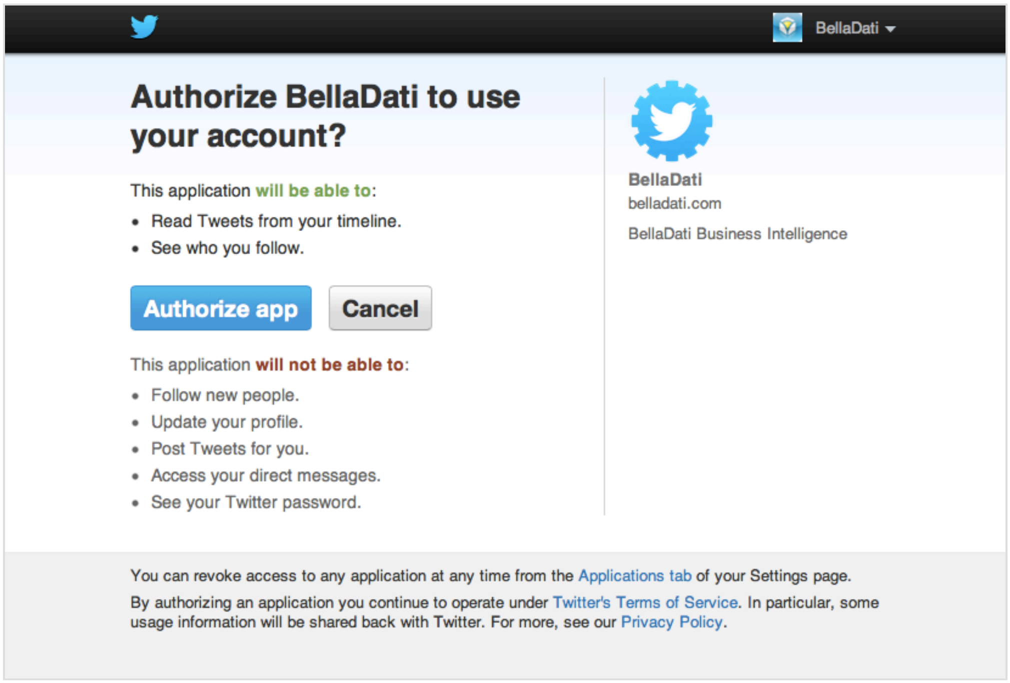
This application will not be able to:

- Follow new people.
- Update your profile.
- Post Tweets for you.
- Access your direct messages.
- See your Twitter password.

BellaDati
belladati.com
BellaDati Business Intelligence

You can revoke access to any application at any time from the Applications tab of your Settings page.
By authorizing an application you continue to operate under Twitter's Terms of Service. In particular, some usage information will be shared back with Twitter. For more, see our Privacy Policy.

If you are already logged into your Twitter account, click on **Authorize app** directly to proceed with Data set selection.



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- Follow new people.
- Update your profile.
- Post Tweets for you.
- Access your direct messages.
- See your Twitter password.

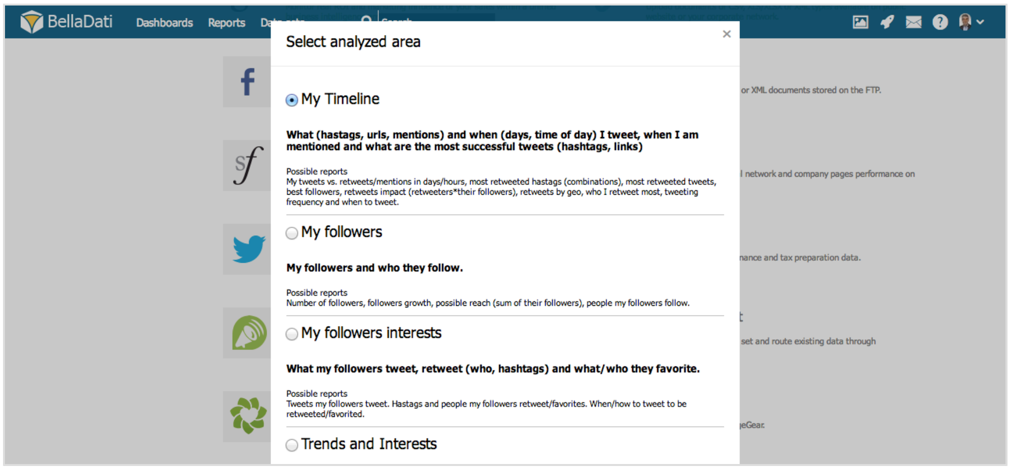
BellaDati
belladati.com
BellaDati Business Intelligence

You can revoke access to any application at any time from the Applications tab of your Settings page.
By authorizing an application you continue to operate under Twitter's Terms of Service. In particular, some usage information will be shared back with Twitter. For more, see our Privacy Policy.

Aggregated data are stored in BellaDati according to the Twitter API terms of use. Authentication is provided by Twitter servers thus we do not store your login credentials.

Select Data Set

The following page shows all the available areas (data sets) for your analysis.



Select analyzed area

[✓ My Timeline]

What (hastags, urls, mentions) and when (days, time of day) I tweet, when I am mentioned and what are the most successful tweets (hashtags, links)

Possible reports
My tweets vs. retweets/mentions in days/hours, most retweeted hastags (combinations), most retweeted tweets, best followers, retweets impact (retweeters*their followers), retweets by geo, who I retweet most, tweeting frequency and when to tweet.

My followers

My followers and who they follow.

Possible reports
Number of followers, followers growth, possible reach (sum of their followers), people my followers follow.

My followers interests

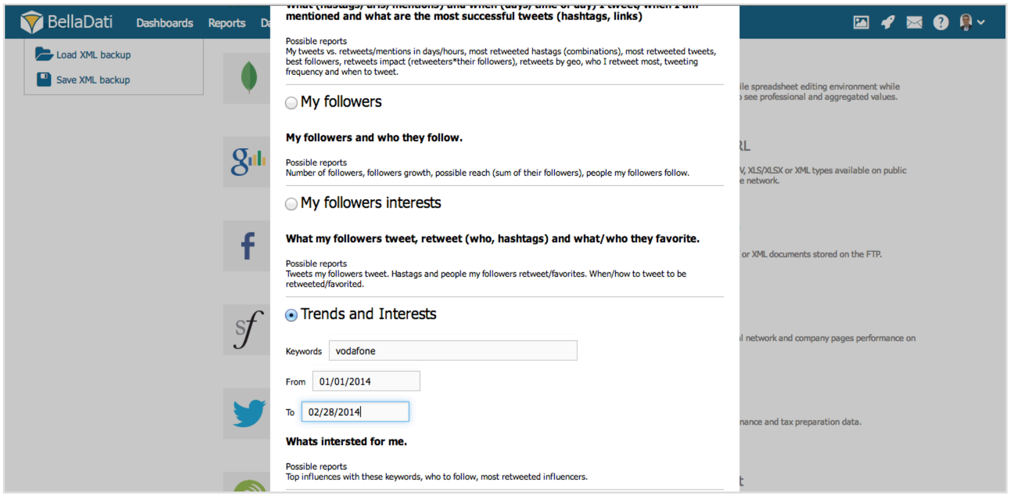
What my followers tweet, retweet (who, hashtags) and what/who they favorite.

Possible reports
Tweets my followers tweet. Hastags and people my followers retweet/favorites. When/how to tweet to be retweeted/favorited.

Trends and Interests

Select desired area and click **Continue**.

For **Trends and Interests**, you can specify keywords in **Search Query** to obtain trending Tweets. Separate the keywords using space in between as shown in the image below.



mentioned and what are the most successful tweets (hashtags, links)

Possible reports
My tweets vs. retweets/mentions in days/hours, most retweeted hastags (combinations), most retweeted tweets, best followers, retweets impact (retweeters*their followers), retweets by geo, who I retweet most, tweeting frequency and when to tweet.

○ My followers

My followers and who they follow.

Possible reports
Number of followers, followers growth, possible reach (sum of their followers), people my followers follow.

○ My followers interests

What my followers tweet, retweet (who, hashtags) and what/who they favorite.

Possible reports
Tweets my followers tweet. Hastags and people my followers retweet/favorites. When/how to tweet to be retweeted/favorited.

[✓ Trends and Interests]

Keywords: vodafone

From: 01/01/2014

To: 02/28/2014

Whats intersted for me.

Possible reports
Top influences with these keywords, who to follow, most retweeted influencers.

Import Data

Once you select desired area, you will be able to proceed to *Import Data*.

Select the requested columns and change column types if necessary via Import settings. Once import settings are configured and you can click **C ontinue** on the top right corner to start data importing.

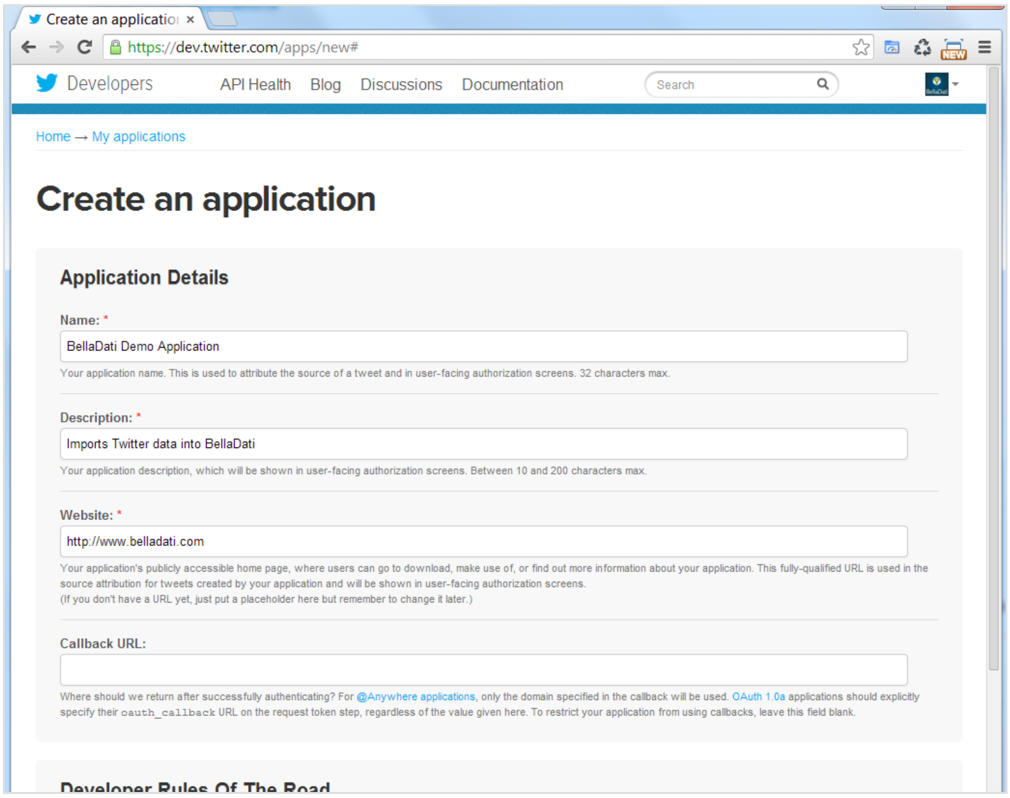
You can also check Twitter REST API for an overview of current Twitter data available for developers.

Configuring Twitter connector

This section is for BellaDati On-Premise users only. If you are using BellaDati in the Cloud, the Twitter connector is ready and you don't need to make any configuration changes.

Creating a Twitter Application

To be able to access Twitter, you need to create a Twitter application.



Create an application

Application Details

Name: *
BellaDati Demo Application
Your application name. This is used to attribute the source of a tweet and in user-facing authorization screens. 32 characters max.

Description: *
Imports Twitter data into BellaDati
Your application description, which will be shown in user-facing authorization screens. Between 10 and 200 characters max.

Website: *
http://www.belladati.com
Your application's publicly accessible home page, where users can go to download, make use of, or find out more information about your application. This fully-qualified URL is used in the source attribution for tweets created by your application and will be shown in user-facing authorization screens.
(If you don't have a URL yet, just put a placeholder here but remember to change it later.)

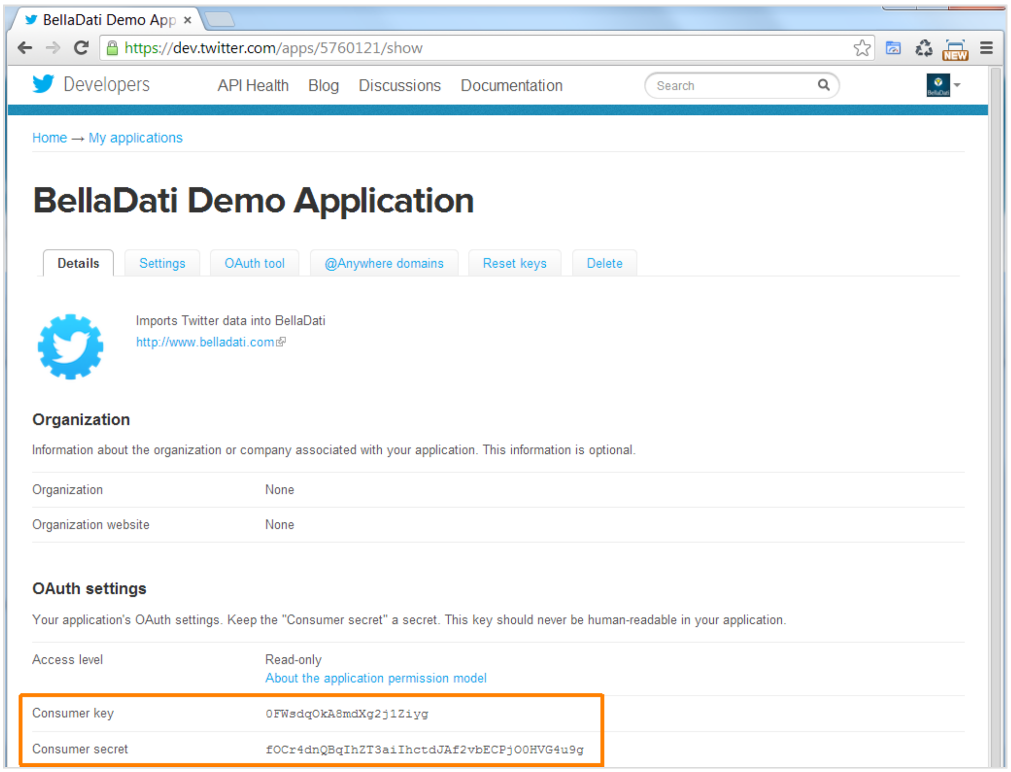
Callback URL:

Where should we return after successfully authenticating? For @Anywhere applications, only the domain specified in the callback will be used. OAuth 1.0a applications should explicitly specify their oauth_callback URL on the request token step, regardless of the value given here. To restrict your application from using callbacks, leave this field blank.

Developer Rules Of The Road

Configuring BellaDati

After you have created an application, you can get your consumer key and consumer secret on the next page:



BellaDati Demo Application

Imports Twitter data into BellaDati
http://www.belladati.com

Organization

Information about the organization or company associated with your application. This information is optional.

Organization	None
Organization website	None

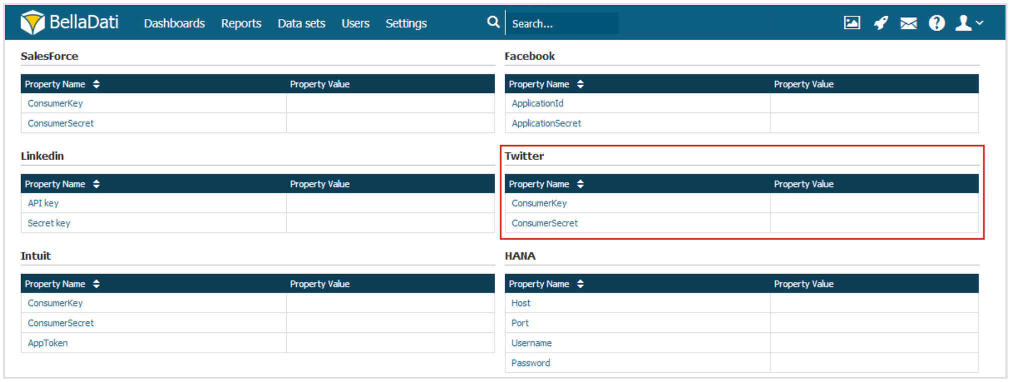
OAuth settings

Your application's OAuth settings. Keep the "Consumer secret" a secret. This key should never be human-readable in your application.

Access level	Read-only About the application permission model
Consumer key	0FWsdqOkA8mdXg2j1Ziyg
Consumer secret	fOCr4dnQBqIhZT3aiIhctdJAf2vbECPjO0HVG4u9g

These parameters must be set in the `application.properties` file of your On-Premise installation. To edit application properties:

1. **Login** to BellaDati
2. Select **Settings** from the **Main Menu**
3. Navigate to **Configuration**
4. Scroll to the **Twitter** table
5. Click **Edit** in **ConsumerKey** row and paste your **Consumer key**
6. Click **Edit** in **ConsumerSecret** row and paste your **Consumer secret**
7. **Restart** BellaDati



SalesForce

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Facebook

Property Name	Property Value
ApplicationId	
ApplicationSecret	

Linkedin

Property Name	Property Value
API key	
Secret key	

Twitter

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Intuit

Property Name	Property Value
ConsumerKey	
ConsumerSecret	
AppToken	

HANA

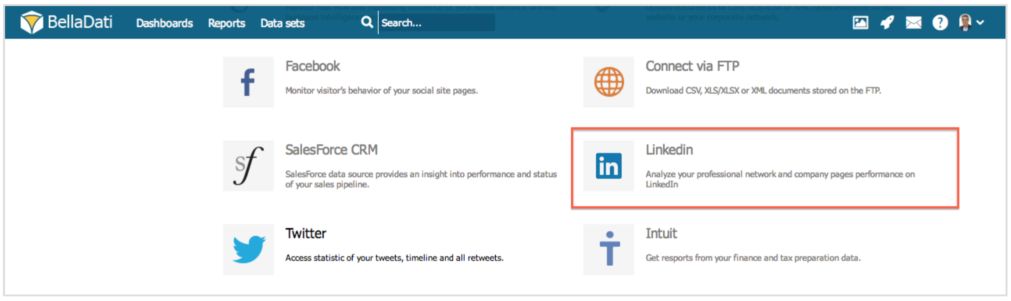
Property Name	Property Value
Host	
Port	
Username	
Password	

Connecting to LinkedIn

BellaDati allows you to connect and analyze data from LinkedIn.

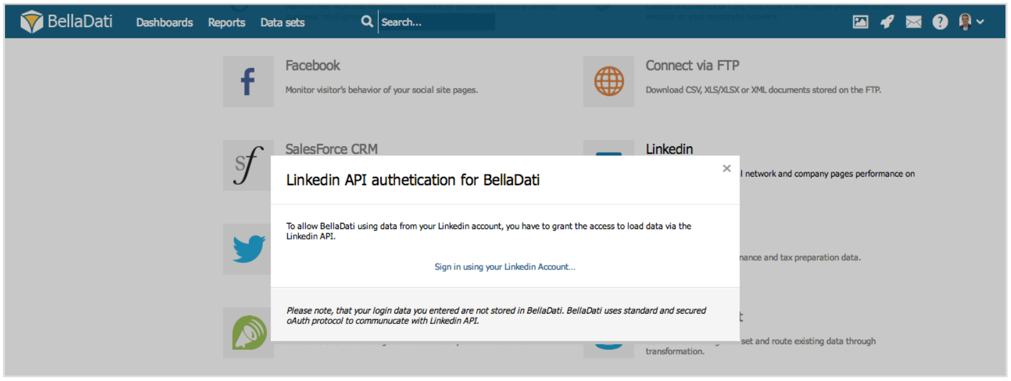
In order to connect to LinkedIn data source:

- Click **Data sets** from the **Main menu**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **LinkedIn** as indicated in the red box below.


BellaDati
Dashboards
Reports
Data sets
Search...
Facebook
Monitor visitor's behavior of your social site pages.
Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.
SalesForce CRM
SalesForce data source provides an insight into performance and status of your sales pipeline.
Linkedin
Analyze your professional network and company pages performance on LinkedIn
Twitter
Access statistic of your tweets, timeline and all retweets.
Intuit
Get resports from your finance and tax preparation data.

Authentication

Following window will request granting BellaDati access to your LinkedIn account.
Click **Sign in using your LinkedIn account** to open login screen.



Linkedin API authetication for BellaDati

To allow BellaDati using data from your Linkedin account, you have to grant the access to load data via the Linkedin API.

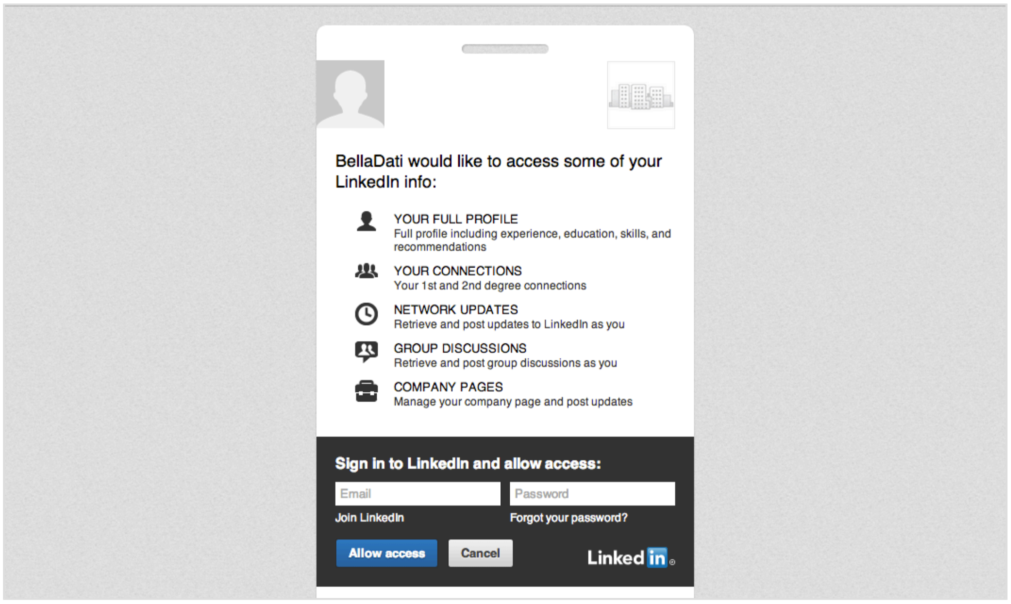
Sign in using your Linkedin Account...

Please note, that your login data you entered are not stored in BellaDati. BellaDati uses standard and secured oAuth protocol to communucate with Linkedin API.

Authorization

You have to authorize BellaDati to access data of your LinkedIn account.

If you are not logging into your LinkedIn account yet, the following screen will be shown and you need to enter your LinkedIn username and password and then click on **Authorize app**.


BellaDati would like to access some of your LinkedIn info:

YOUR FULL PROFILE
Full profile including experience, education, skills, and recommendations

YOUR CONNECTIONS
Your 1st and 2nd degree connections

NETWORK UPDATES
Retrieve and post updates to LinkedIn as you

GROUP DISCUSSIONS
Retrieve and post group discussions as you

COMPANY PAGES
Manage your company page and post updates

Sign in to LinkedIn and allow access:

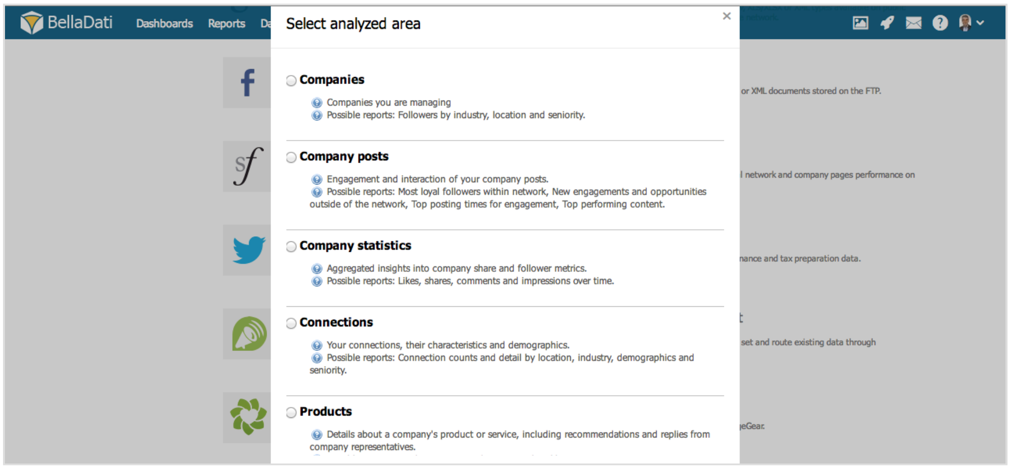
If you are already logged into your LinkedIn account, click on **Authorize app** directly to proceed with Data set selection.

Aggregated data are stored in BellaDati according to the LinkedIn API terms of use. Authentication is provided by LinkedIn servers thus we do not store your login credentials.

Select Data Set

The following page shows all the available areas (data sets) for your analysis.

Select desired area and click **Continue**.


BellaDati
Dashboards
Reports
or XML documents stored on the FTP.
l network and company pages performance on
nance and tax preparation data.
set and route existing data through
geGear.

Select analyzed area

Companies
Companies you are managing
Possible reports: Followers by industry, location and seniority.

Company posts
Engagement and interaction of your company posts.
Possible reports: Most loyal followers within network, New engagements and opportunities outside of the network, Top posting times for engagement, Top performing content.

Company statistics
Aggregated insights into company share and follower metrics.
Possible reports: Likes, shares, comments and impressions over time.

Connections
Your connections, their characteristics and demographics.
Possible reports: Connection counts and detail by location, industry, demographics and seniority.

Products
Details about a company's product or service, including recommendations and replies from company representatives.

Import Data

Once you select desired area, you will be able to proceed to *Import Data*.

Select the requested columns and change column types if necessary via Import settings. Once import settings are configured and you can click **C ontinue** on the top right corner to start data importing.

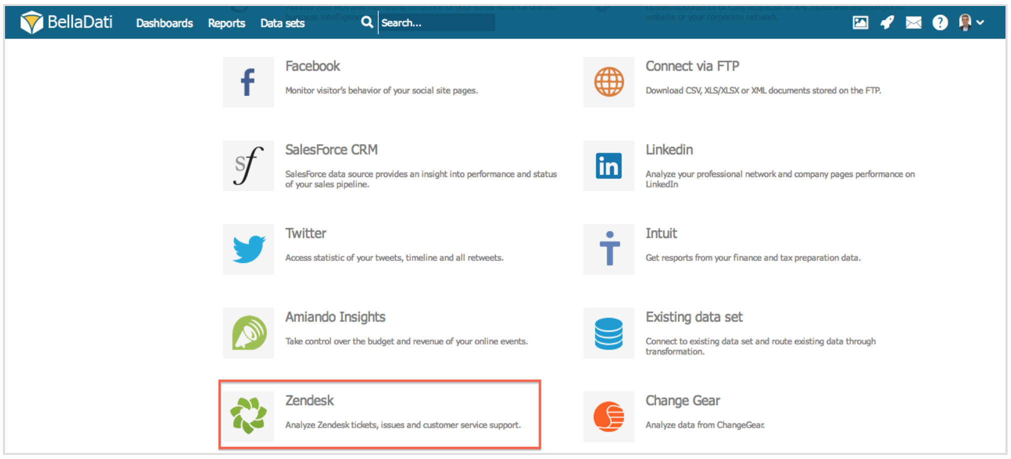
You can also check LinkedIn REST API for an overview of current LinkedIn data available for developers.

Connecting to Zendesk

BellaDati allows you to connect and analyze data from Zendesk that offers help desk ticketing, issue tracking, and customer service support.

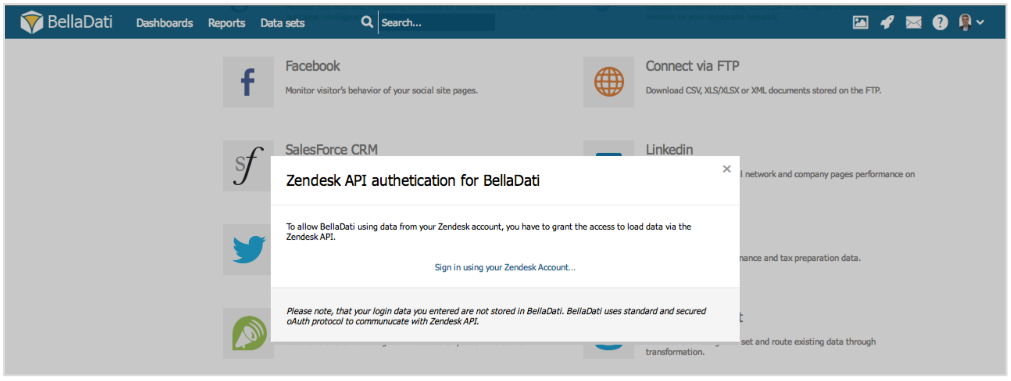
In order to connect to Zendesk data source:

- Click **Data sets** from the **Main menu.**
- Select **Connect to data sources** at the left menu under **Action** panel.
- Click on the logo of **Zendesk** as indicated in the red box below.


BellaDati
Dashboards
Reports
Data sets
Search...
Facebook
Monitor visitor's behavior of your social site pages.
Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.
SalesForce CRM
SalesForce data source provides an insight into performance and status of your sales pipeline.
Linkedin
Analyze your professional network and company pages performance on LinkedIn
Twitter
Access statistic of your tweets, timeline and all retweets.
Intuit
Get resports from your finance and tax preparation data.
Amiando Insights
Take control over the budget and revenue of your online events.
Existing data set
Connect to existing data set and route existing data through transformation.
Zendesk
Analyze Zendesk tickets, issues and customer service support.
Change Gear
Analyze data from ChangeGear.

Authentication

Following window will request granting BellaDati access to your Zendesk account.
Click **Sign in using your Zendesk account** to open login screen.


Zendesk API authetication for BellaDati

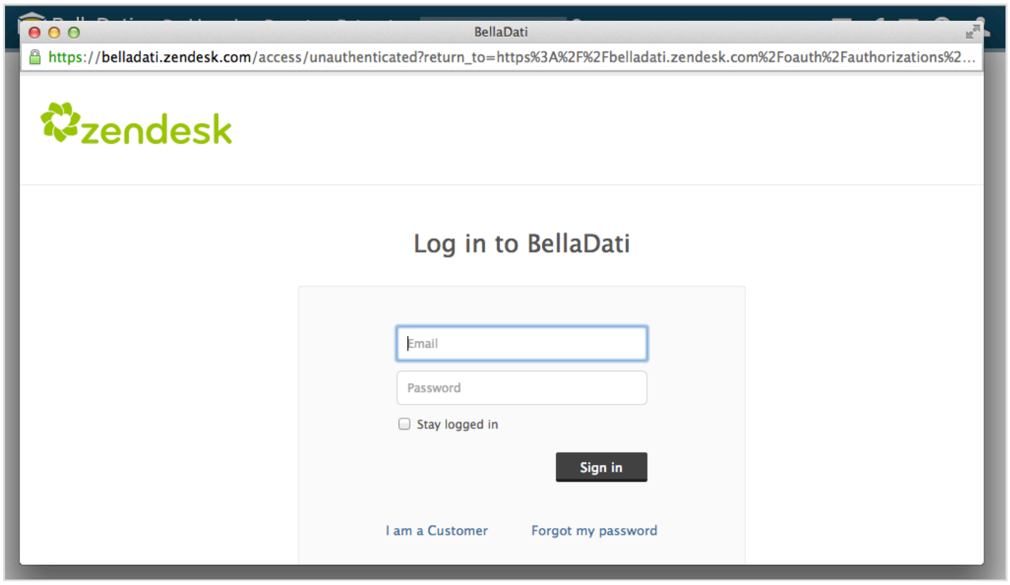
To allow BellaDati using data from your Zendesk account, you have to grant the access to load data via the Zendesk API.

Sign in using your Zendesk Account...

Please note, that your login data you entered are not stored in BellaDati. BellaDati uses standard and secured oAuth protocol to communucate with Zendesk API.

Authorization

Login in to your Zendesk account.


BellaDati
https://belladati.zendesk.com/access/unauthenticated?return_to=https%3A%2F%2Fbelladati.zendesk.com%2Foauth%2Fauthorizations%2…
zendesk
Log in to BellaDati
Email
Password
Stay logged in
Sign in
I am a Customer
Forgot my password

Aggregated data are stored in BellaDati according to the Zendesk API terms of use. Authentication is provided by Zendesk servers thus we do not store your login credentials.

Select Resource

The following page shows all the available resources (data sets) you can connect to. It includes:

- Tickets
- Users
- Groups
- Topics
- Ticket Metrics
- Forums
- Categories
- Organizations
- Satisfaction Rating

Select desired area and click **Continue**.

Import Data

Once you select desired area, you will be able to proceed to *Import Data*.

Select the requested columns and change column types if necessary via Import settings. Once import settings are configured and you can click **C ontinue** on the top right corner to start data importing.

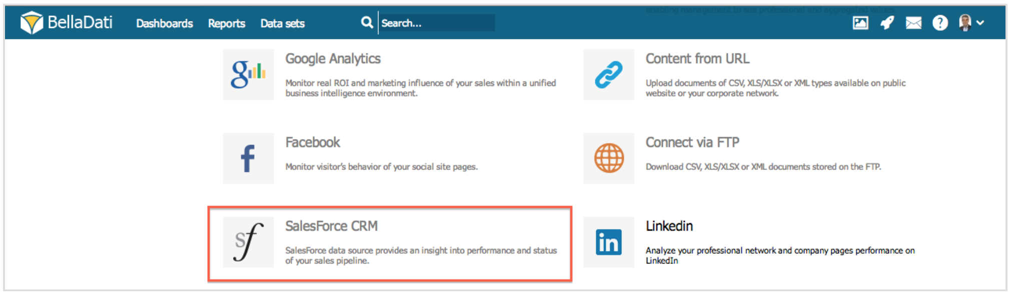
You can also check Zendesk REST API for an overview of current LinkedIn data available for developers.

Connecting to Salesforce

BellaDati can be connected to Salesforce datasource.

Connecting to Salesforce

From **Data Source Connectors** page select **Salesforce CRM**.



Google Analytics

Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Content from URL

Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

Facebook

Monitor visitor's behavior of your social site pages.

Connect via FTP

Download CSV, XLS/XLSX or XML documents stored on the FTP.

SalesForce CRM

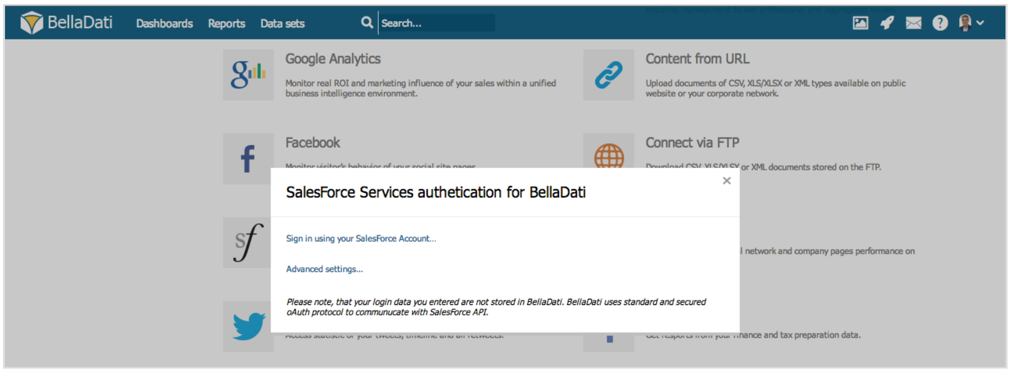
SalesForce data source provides an insight into performance and status of your sales pipeline.

Linkedin

Analyze your professional network and company pages performance on LinkedIn

Authentication

Login to Salesforce and grant access to data stored there.



SalesForce Services authetication for BellaDati

Sign in using your SalesForce Account...

Advanced settings...

Please note, that your login data you entered are not stored in BellaDati. BellaDati uses standard and secured oAuth protocol to communucate with SalesForce API.

The login data you enter are stored encrypted and not shared with any other application. This login and password is used only to enable data transfer from secured SalesForce API and is not allowed to extract any other personal information from your Salesforce account.

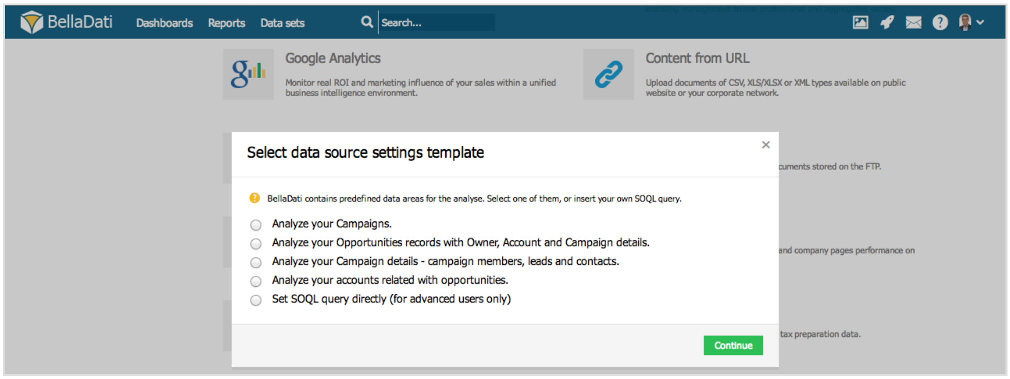
Data Area Selection

Select predefined Salesforce areas or create general SOQL query:

Predefined objects include:

- Campaigns
- Opportunities records with Owner, Account and Campaign details
- Campaign details - campaign members, leads and contacts
- Accounts related with opportunities

To create your own objects, continue to SOQL Salesforce documentation (for advanced users only)



Select data source settings template

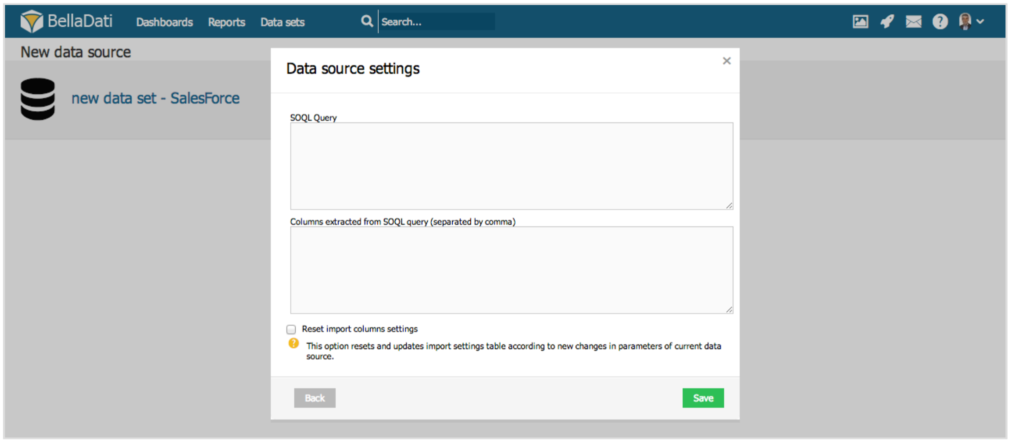
BellaDati contains predefined data areas for the analyse. Select one of them, or insert your own SOQL query.

- Analyze your Campaigns.
- Analyze your Opportunities records with Owner, Account and Campaign details.
- Analyze your Campaign details - campaign members, leads and contacts.
- Analyze your accounts related with opportunities.
- Set SOQL query directly (for advanced users only)

Continue

Extracting SOQL Columns

You may require only a subset of columns returned by executed SOQL query. This function allows you to define which columns will be finally imported to BellaDati's data warehouse.



Data source settings

SOQL Query

Columns extracted from SOQL query (separated by comma)

Reset import columns settings

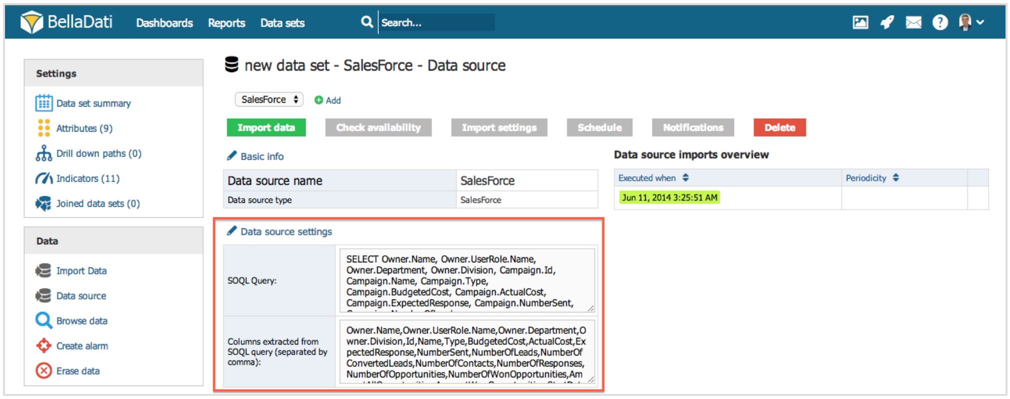
This option resets and updates import settings table according to new changes in parameters of current data source.

Back Save

Modifications

Following specific data source parameters can be modified within the existing data source via data set summary:

- SOQL query
- Extracted SOQL columns
- **SalesForce authentication revoke**: You can terminate BellaDati's access to your data in SalesForce.



new data set - SalesForce - Data source

Basic info

Data source name	SalesForce
Data source type	SalesForce

Data source imports overview

Executed when	Periodicity
Jun 11, 2014 3:25:51 AM	

Data source settings

SOQL Query:	SELECT Owner.Name, Owner.UserRole.Name, Owner.Department, Owner.Division, Campaign.Id, Campaign.Name, Campaign.Type, Campaign.BudgetedCost, Campaign.ActualCost, Campaign.ExpectedResponse, Campaign.NumberSent,
Columns extracted from SOQL query (separated by comma):	Owner.Name,Owner.UserRole.Name,Owner.Department,Owner.Division,Id,Name,Type,BudgetedCost,ActualCost,ExpectedResponse,NumberSent,NumberOfLeads,NumberOfConvertedLeads,NumberOfContacts,NumberOfResponses,NumberOfOpportunities,NumberOfWonOpportunities,Am

Configuring SalesForce connector

This section is for the OnPremise installation users only. If you are using the Cloud version, the SalesForce Connector is ready and you don't need to do any configuration changes.

To be able to access the SalesForce API, you need to create new remote SalesForce Application. All you need is to configure the applicatio callback URL, which corresponds to the URL, where your BellaDati instance is running. For example

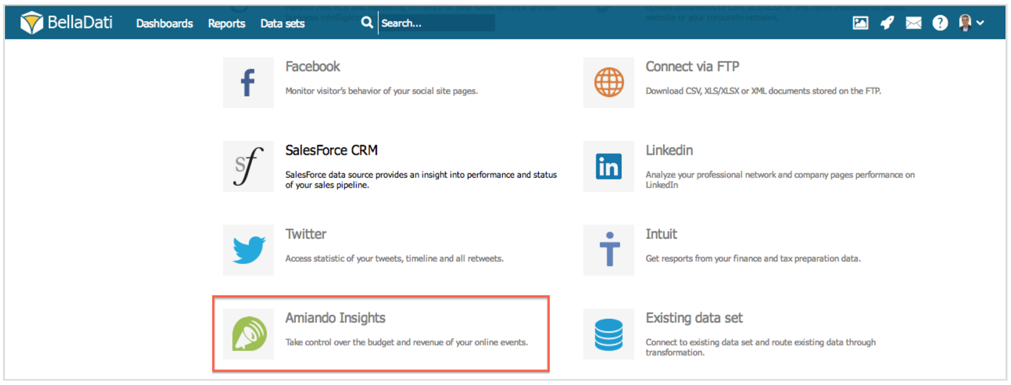
Here is how it can look like:

Once you have created an application, you will receive the `Consumer key` and `Consumer Sercet`. This parameters must be defined in the `application.properties` file of you on-premise distribution (read more about the WAR configuration here).

Connecting to Amiando

To import data from Amiando, perform the following steps:

1. Get Amiando API key and enter it in BellaDati.
2. Choose which columns do you want to import in import settings.



Facebook

Monitor visitor's behavior of your social site pages.

Connect via FTP

Download CSV, XLS/XLSX or XML documents stored on the FTP.

SalesForce CRM

SalesForce data source provides an insight into performance and status of your sales pipeline.

Linkedin

Analyze your professional network and company pages performance on LinkedIn

Twitter

Access statistic of your tweets, timeline and all retweets.

Intuit

Get resports from your finance and tax preparation data.

Amiando Insights

Take control over the budget and revenue of your online events.

Existing data set

Connect to existing data set and route existing data through transformation.

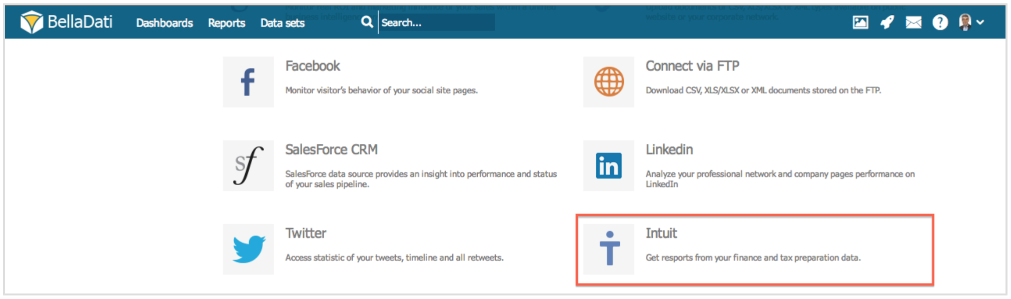
BellaDati selects predefined columns from Amiando only. Please contact our support for options how to obtain another data from Amiando.

Specific Modifications

- API key change
- Import settings: Reset import columns settings

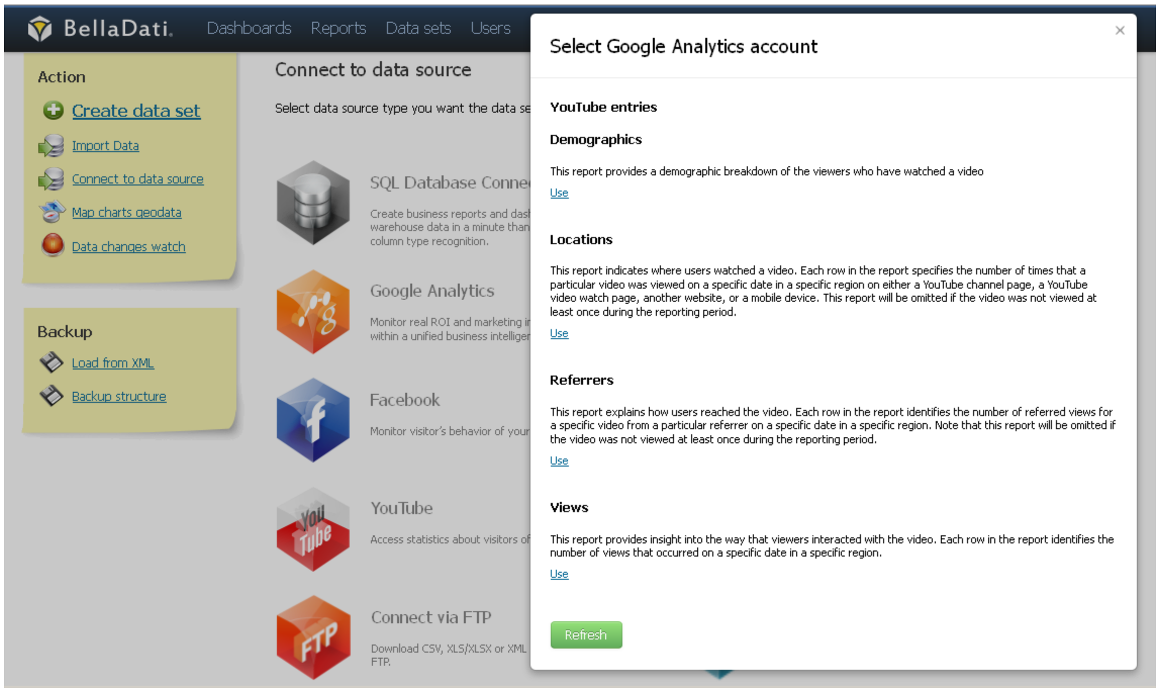
Connecting to Intuit

BellaDati allows you to load your data from Intuit Quickbooks accounting tool.


BellaDati
Dashboards
Reports
Data sets
Search...
Facebook
Monitor visitor's behavior of your social site pages.
Connect via FTP
Download CSV, XLS/XLSX or XML documents stored on the FTP.
SalesForce CRM
SalesForce data source provides an insight into performance and status of your sales pipeline.
Linkedin
Analyze your professional network and company pages performance on LinkedIn
Twitter
Access statistic of your tweets, timeline and all retweets.
Intuit
Get resports from your finance and tax preparation data.

Connecting to YouTube

BellaDati provides connector to YouTube.



Select Google Analytics account

YouTube entries

Demographics

This report provides a demographic breakdown of the viewers who have watched a video

Use

Locations

This report indicates where users watched a video. Each row in the report specifies the number of times that a particular video was viewed on a specific date in a specific region on either a YouTube channel page, a YouTube video watch page, another website, or a mobile device. This report will be omitted if the video was not viewed at least once during the reporting period.

Use

Referrers

This report explains how users reached the video. Each row in the report identifies the number of referred views for a specific video from a particular referrer on a specific date in a specific region. Note that this report will be omitted if the video was not viewed at least once during the reporting period.

Use

Views

This report provides insight into the way that viewers interacted with the video. Each row in the report identifies the number of views that occurred on a specific date in a specific region.

Use

Authentication

You have to grant BellaDati access to your data on YouTube first. Please log in using your Google account credentials.

The login data you entered are stored encrypted and not shared with any other application. This login and password is used only to enable data transfer from secured Google API and is not allowed to extract any other personal information from your Google Account.

YouTube Entries Selection

Now select one of the YouTube entries (data areas):

- **Demographics**: This report provides a demographic breakdown of the viewers who have watched a video.
- **Locations**: This report indicates where users watched a video. Each row in the report specifies the number of times that a particular video was viewed on a specific date in a specific region on either a YouTube channel page, a YouTube video watch page, another website, or a mobile device. This report will be omitted if the video was not viewed at least once during the reporting period.
- **Referrers**: This report explains how users reached the video. Each row in the report identifies the number of referred views for a specific video from a particular referrer on a specific date in a specific region. Note that this report will be omitted if the video was not viewed at least once during the reporting period.
- **Views**: This report provides insight into the way that viewers interacted with the video. Each row in the report identifies the number of views that occurred on a specific date in a specific region.

Then continue Import settings.

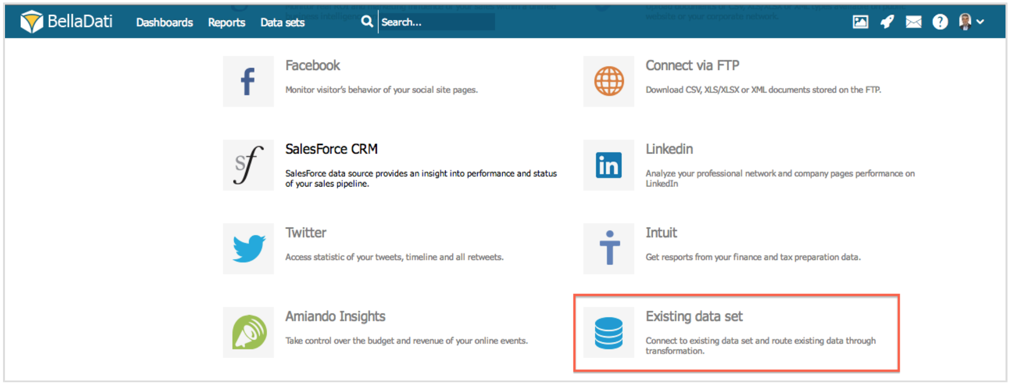
Modifications

The following parameters and actions can be performed for the existing YouTube data source:

- Revoke access to Google services

Connecting to Existing Data Set

You can connect to existing **Data Set** by selecting **Existing Data Set** connector in *Data Sources* window.


BellaDati
Dashboards
Reports
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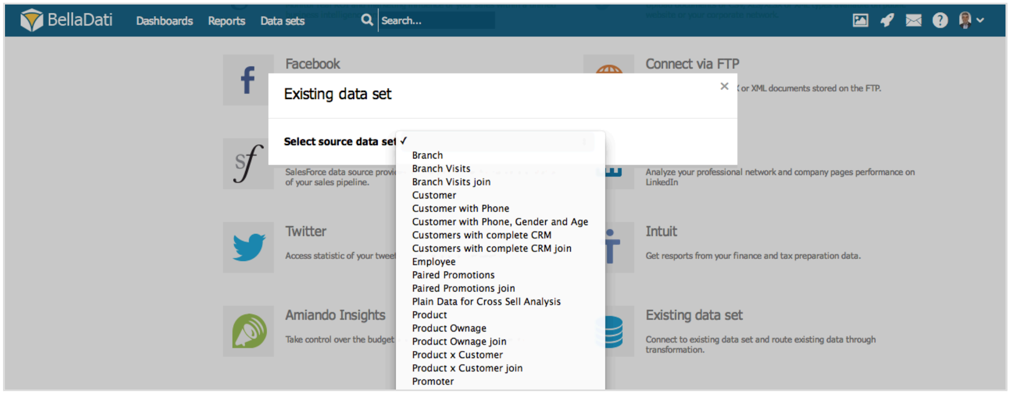
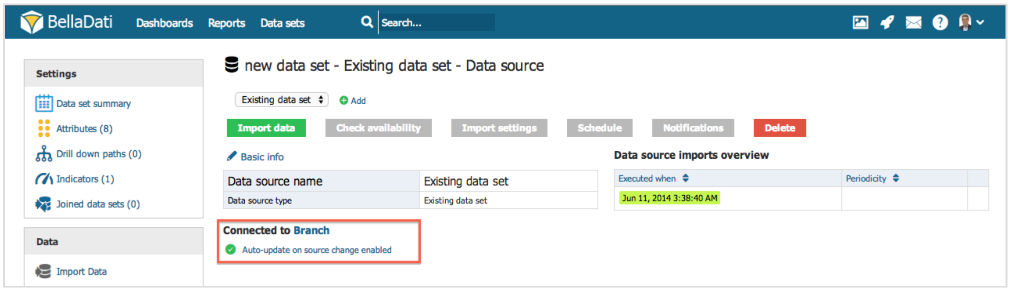
Intuit
Get reports from your finance and tax preparation data.
Amiando Insights
Take control over the budget and revenue of your online events.
Existing data set
Connect to existing data set and route existing data through transformation.

Select desired **Data Set** from the list of all available tables in the domain.



Auto Update on Source Change

In order to ensure that Data Set will be automatically updated after change in its source Data Set, click on **Auto-update on source change enabled** link in *Data Source* window of appropriate **Data Set**.

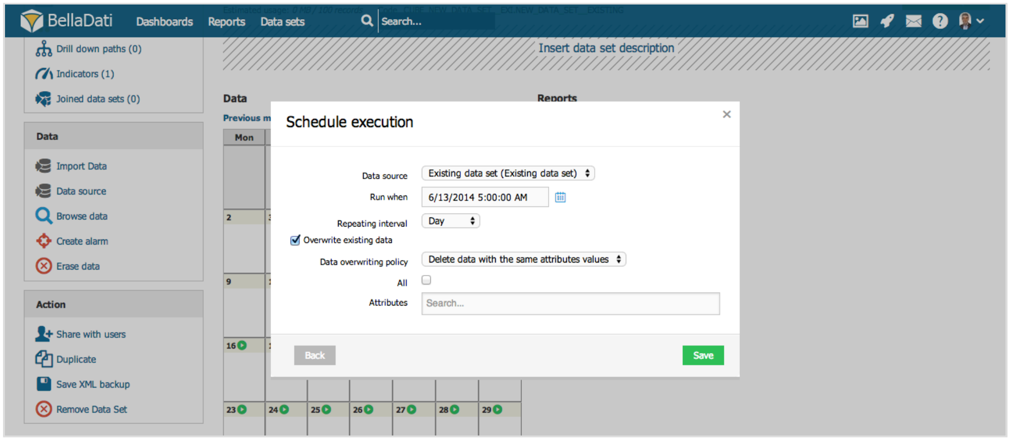


Data source name	Existing data set
Data source type	Existing data set

Executed when	Periodicity
Jun 11, 2014 3:38:40 AM	

Scheduling Import

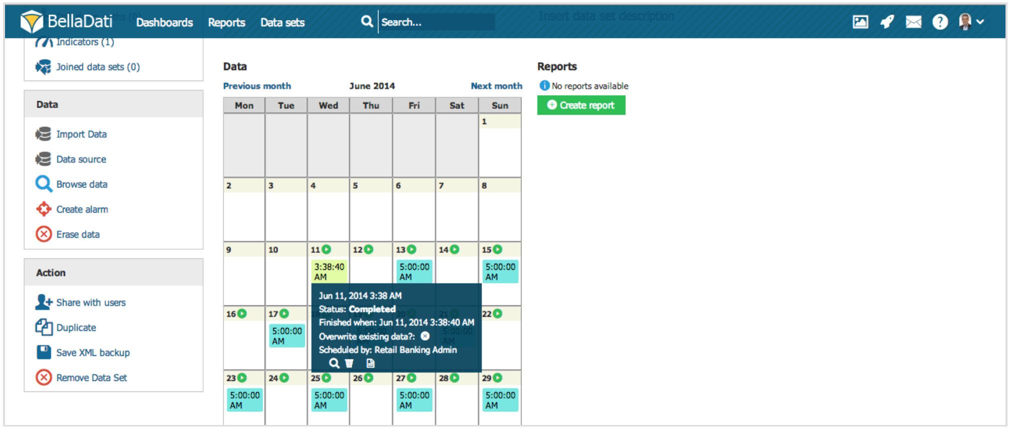
BellaDati's integrated scheduler allows you to control, monitor and schedule automatic import from data sources. The overview is represented by a navigable calendar.


Schedule execution

Data source: Existing data set (Existing data set)
Run when: 6/13/2014 5:00:00 AM
Repeating interval: Day
☑ Overwrite existing data
Data overwriting policy: Delete data with the same attributes values
All: ☐
Attributes: Search...

Actions available:

- **Schedule import**
  - Set the exact time of automated execution
  - Configure the data overwriting policy if required
  - If you need the import to be repeated after specific period, configure the **repeating interval** (day, week, month, quarter, year). Leave it empty, to execute the import once.
- Tooltips actions (only for already finished imports):
  - Browse imported data*
  - Display the import results summary: Useful for import statistic or problems diagnostics.
  - **Delete imported data**: Deletes all data created within the particular import.
  - **Cancel import** (cross symbol): You can cancel future scheduled imports.


Jun 11, 2014 3:38 AM
Status: Completed
Finished when: Jun 11, 2014 3:38:40 AM
Overwrite existing data?:
Scheduled by: Retail Banking Admin

Additional tooltip information for executed imports:

- Download the original file
- Execution date and time
- Status: Completed, Running
- Overwrite existing data: yes, no
- Scheduled by: author name

1. Synchronizations can be scheduled only in the future. If no scheduling action is available, please verify whether the calendar displays the right period.

2. Calendar shows the last month where an import has been performed. If no import has occured yet, the month with the nearest scheduled import will appear. Otherwise actual month is displayed.

Import Settings

Import settings page allows you to control **ETL** (Extract-Transform-Load) operations and verify the structure of data being imported. The main task is to define the mapping of tabular data to attributes, indicators and date/time dimensions.
Following adjustments and actions are available:

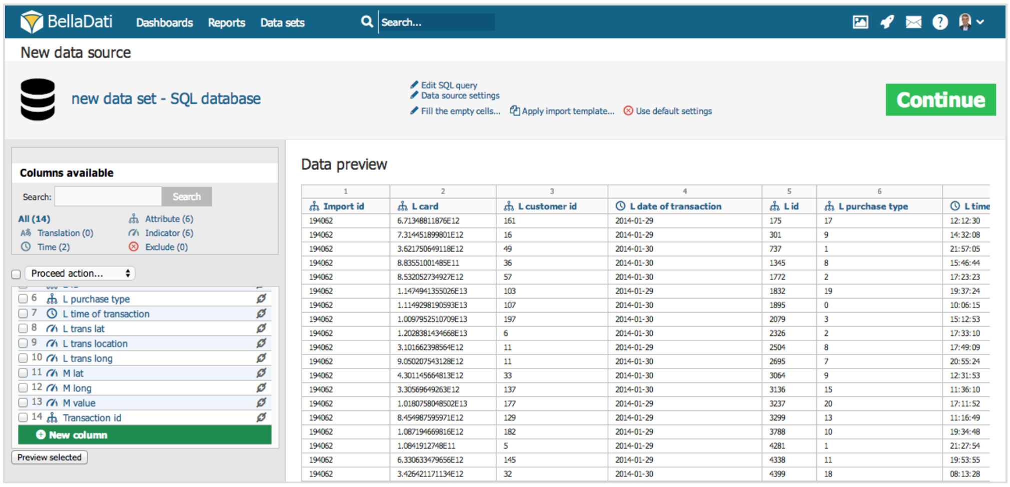
- **First row is header**: Use the texts in the first row as names for corresponding columns; *only for plain text (clipboard), CSV or Excel*
- **Excluded rows**: Allows you to exclude some rows from the beginning of the file imported (eg. additional information, not data).; *only for plain text (clipboard), CSV or Excel*
- **Encoding**: Select appropriate encoding for the source file (UTF-8, ISO-8859-1, Win-1250, Win-1252, Auto are available); *only for plain text, CSV or XML*
- **Separator**: Auto-detection (the most frequent separator is the semicolon ";"), otherwise select character that separates each column (comma, tab, semicolon, space, vertical bar, custom); *only for plain text (clipboard) and CSV*

- **Fill the empty cells**: Generally for the whole import, or this substitution can be performed individually for particular columns.
- **Apply import template**: See "import templates" chapter below.
- **Use default settings**: Resets all import settings to defaults.

Another functions are:

- Data cleaning and transforming using the transformation scripting
- Assigning imported columns to existing attributes or indicators
- **Renaming columns**
- **Column merging**
- Adding new columns
- **Preview changes**

Automatic encoding detection is not always reliable. We recommend to check for strange characters in the preview.



New data source

new data set - SQL database

Columns available

Search:

All (14) | Attribute (6)
Translation (0) | Indicator (6)
Time (2) | Exclude (0)

6		L purchase type
7		L time of transaction
8		L trans lat
9		L trans location
10		L trans long
11		M lat
12		M long
13		M value
14		Transaction id

Data preview

1	2	3	4	5	6	
Import id	L card	L customer id	L date of transaction	L id	L purchase type	L time
194062	6.71348811876E12	161	2014-01-29	175	17	12:12:30
194062	7.314451899801E12	16	2014-01-29	301	9	14:32:08
194062	3.621750649118E12	49	2014-01-30	737	1	21:57:05
194062	8.83551001485E11	36	2014-01-30	1345	8	15:46:44
194062	8.532052734927E12	57	2014-01-30	1772	2	17:23:23
194062	1.1474941355026E13	103	2014-01-29	1832	19	19:37:24
194062	1.1149298190593E13	107	2014-01-30	1895	0	10:06:15
194062	1.0097952510709E13	197	2014-01-30	2079	3	15:12:53
194062	1.2028381434668E13	6	2014-01-30	2326	2	17:33:10
194062	3.101662398564E12	11	2014-01-29	2504	8	17:49:09
194062	9.050207543128E12	11	2014-01-30	2695	7	20:55:24
194062	4.301145664813E12	33	2014-01-30	3064	9	12:31:53
194062	3.30569649263E12	137	2014-01-30	3136	15	11:36:10
194062	1.0180758048502E13	177	2014-01-29	3237	20	17:11:52
194062	8.454987595971E12	129	2014-01-29	3299	13	11:16:49
194062	1.087194669816E12	182	2014-01-29	3788	10	19:34:48
194062	1.0841912748E11	5	2014-01-29	4281	1	21:27:54
194062	6.330633479656E12	145	2014-01-29	4338	11	19:53:55
194062	3.426421171134E12	32	2014-01-30	4399	18	08:13:28

Availability of the adjustments on the screenshot above could vary depending on file format imported. Options are stated for **manual import**, see data sources for specific information about automated imports.

Column Settings

If you want to change the type of particular column, click on the name of the selected column in the list of columns (in the left side of the import screen). It's also possible to change meaning of more columns to one type in just ne step - just mark selected columns by clicking in the checkboxes next to them and then select their meaning from menu above.

There are five possible meanings of columns:

Date/Time - time index of particular rows. It can be displayed in a lot of different time formats (also depending on language - for more information see the related part of this chapter). You can choose multiple date/time columns in single import.

Attribute - defines categories of the drill-down path. It's usually a short text (e.g. affiliate, product, customer, employee, division etc.). Every attribute column creates exactly one attribute in the data set. Those attributes can be freely combined in the drill-down paths.

GEO Point - you can map the longitude/latitude onto the GEO point attribute type. This attribute can be then used in Geo Map view type to plot data into its particular location.

Translation - defines language translation of other column identified as Attribute

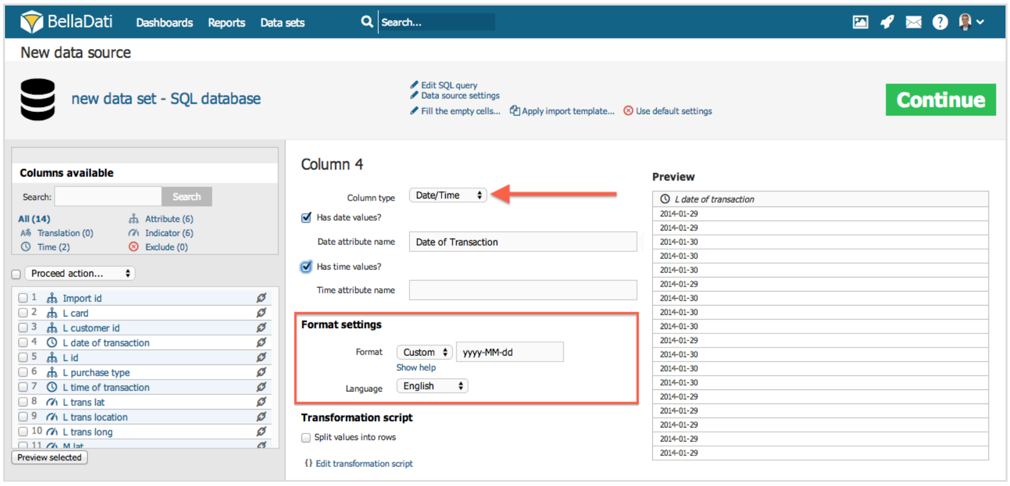
Indicator - indicators are usually the numeric data, which are the main point of the user's interest.

Don't import - these columns won't be imported at all (it's useful if column contains no, invalid or unimportant data).

Preview of marked columns may be displayed by clicking on the "Preview selected" button. In this way you can gen a better view into you data and their meaning settings. If your data contain too much columns, you can use a search label above the column list to find appropriate column a check its settings. Under this searching field is displayed statistics, which shows number of particular types of columns.

Date/Time

If your source data contains date/time values, you can map them to the appropriate **Date Attributes** or **Time Attributes**. Single column can contain both, date and time, e.g. *5 Apr 2014 10:43:43 AM*. In this case, the date part, *5 Apr 2014* will be mapped to date attribute, the time part, *1 0:43:43 AM* to time attribute. See the following example:



New data source

new data set - SQL database

Column 4

Column type: Date/Time

☑ Has date values?

Date attribute name: Date of Transaction

☑ Has time values?

Time attribute name:

Format settings

Format: Custom yyyy-MM-dd

Language: English

Transformation script

☐ Split values into rows

Preview

L date of transaction
2014-01-29
2014-01-29
2014-01-30
2014-01-30
2014-01-30
2014-01-29
2014-01-30
2014-01-30
2014-01-30
2014-01-29
2014-01-30
2014-01-30
2014-01-30
2014-01-29
2014-01-29
2014-01-29
2014-01-29
2014-01-29

Date/Time Format

Every time column has a specific type of format. This format should be automatically detected during import. However it's possible, that you have your time data in some very specific format. In this case you can use the list of available format in different languages.

If you don't choose from available formats, you can also define your own specific custom format for your data. In this case, you should choose your language from the list below and enter a code, which describes your data format according to these meanings (note, that the number of characters influences the interpretation of the code):

Code	Meaning	Number of characters in code
y	Year	Two characters (yy) represents two digits year number (89). Otherwise is the code interpreted as four digits year number (1989).
M	Month in year	Three or more characters (MMM) are interpreted as text representation of month (e.g. "January" or "Jan"). In other cases are characters interpreted as number of month in year (1-12).
d	Day in month	Number of characters (d) in code should be equal to minimal number of digits in source data. It's always a numeric format.
E	Day in week	Number of character determines, if the day is displayed in its full name (EEEE - "Monday") or in its shortcut (EE - "Mo").

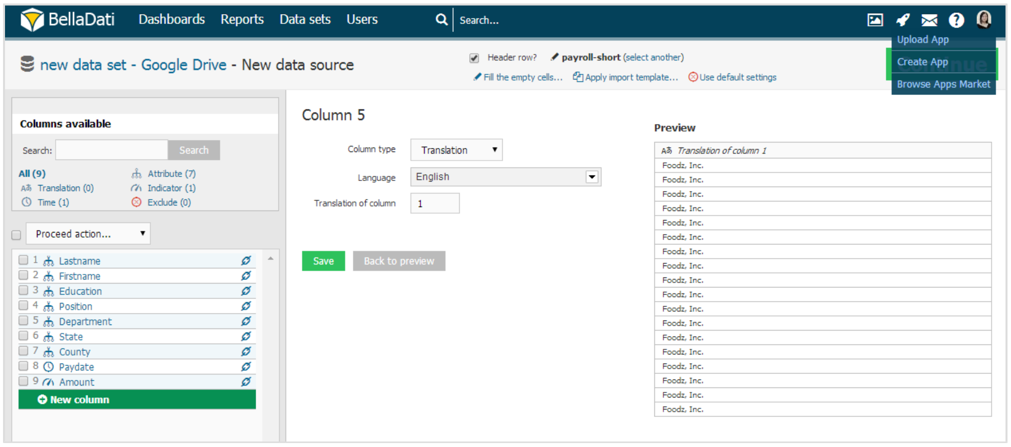
Separator character should be equal to separator character contained in source data (space, dot, semicolon, etc.). If your source data contains time in more separated columns (months, days, years), it's necessary to merge those columns first (described in previous part of this chapter). Next table shows some combination of source data and appropriate time code.

Source data	Appropriate code
09/15/10	MM.dd.yy
26/03/1984	dd/MM/yyyy
15.September 2010	dd.MMMM yyyy
15 Sep 10	dd MMM yy
Wed 15 09 10	EE dd MM yy
Sep 15, 2010	MMM d, yyyy

Translation

BellaDati allows you to directly import **Attribute translations**. In order to set up **Attribute translation** navigate to column with language metaphrase and:

- choose **Translation** in **Column Type**
- select translation **Language**
- specify **index** of **original column**



Column 5

Column type: Translation

Language: English

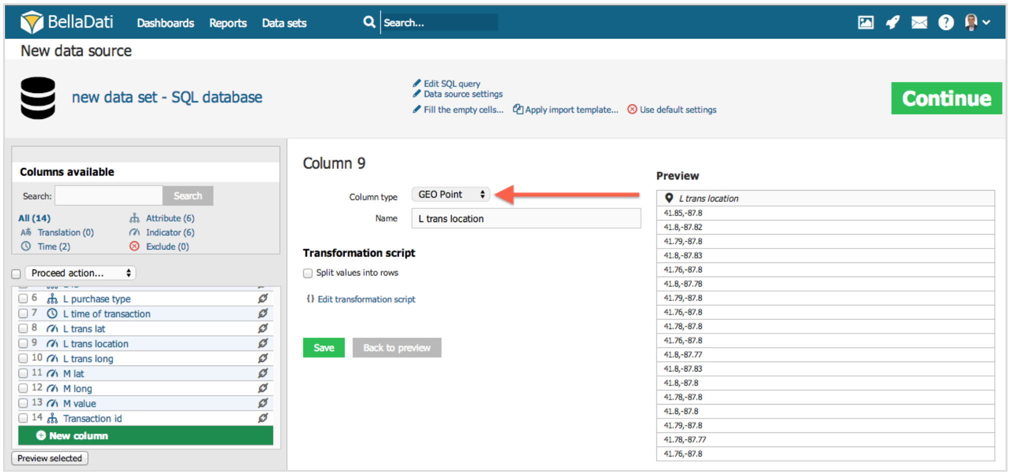
Translation of column: 1

Preview

Translation of column 1
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.
Foodz, Inc.

GEO Point

In order to map the longitude/latitude onto the GEO Point attribute, you have to specify the longitude/latitude in single column in format longitude;latitude, e.g. **99.32;43.56**. Decimal separator is . (dot). You can do it using the transformation script, e.g. **value(1) + ";" value(2)**. in case the longitude is stored in column 1 and latitude in column 2.



Column 9

Column type: GEO Point

Name: L trans location

Transformation script

Preview

L trans location
41.85,-87.8
41.8,-87.82
41.79,-87.8
41.8,-87.83
41.76,-87.8
41.8,-87.78
41.79,-87.8
41.76,-87.8
41.78,-87.8
41.76,-87.8
41.8,-87.77
41.8,-87.83
41.8,-87.8
41.78,-87.8
41.8,-87.8
41.79,-87.8
41.78,-87.77
41.76,-87.8

Filling of Empty Cells

It's usual that imported data contains empty cells. It's usually necessary to replace this empty cells with own values (e.g. "0", "none", "N/A" etc.). If you want to do this, you have two possibilities, how to fill in these empty cells:

1. **globally** - fill empty cells with chosen value in all columns (located below batch column settings)
2. **locally** - fill empty cells with chosen value in particular column (located in the window of particular column settings)

Global changing is available in the top blue line directly under encoding settings. After clicking just type the value, which will be entered in all empty cells in your data.

Local changing is available after clicking on column name in the list. There you can enter your own value for empty cells (but only for this particular column). You can freely combine these two methods - for example you can fill in all the empty cells with "0" value, but one particular attribute column can be refilled with "N/A" value.

Merging Columns

Column merging function enables to load data from more source columns to one target column during import process.

Typical use cases are:

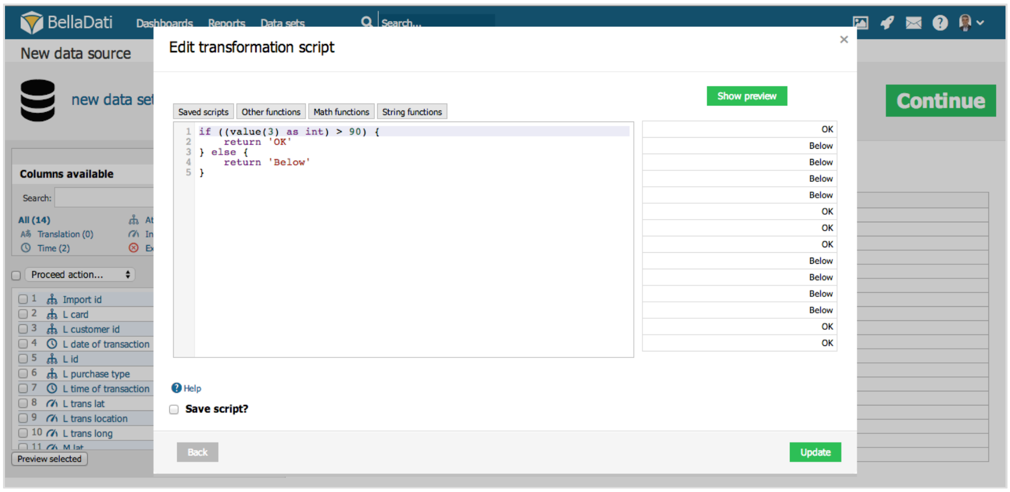
- Time is separated in more columns (days, months and years or time in different columns)
- Two columns representing one entity (eg. first name and surname of one person)

Click the chain icon in the columns list, choose another column to merge with and select appropriate separator which will be added between values (space, comma, dot, semicolon, pipe). You can disconnet merged columns too.

Another way to merge columns and set up more advanced options is by transformation scripts.

Transformation Scripts

Transformation scripts allow advanced data transformations during import. These scripts are based on Groovy programming language syntax.



```
if ((value(3) as int) > 90) {
    return 'OK'
} else {
    return 'Below'
}
```

```
OK
Below
Below
Below
Below
OK
OK
OK
Below
Below
Below
Below
OK
OK
```

Transformation scripts allows you the following:

- Modify values stored in BellaDati data warehouse according defined functions and conditions.
- Create new columns (date/time, attributes, indicators) with transformed or combined values from other columns. Values in different cells are indexed from 0 and displayed near column names within import settings screen.
- Perform advanced calculations in date/time (eg. period of some action undertaken between two dates).

Basic script commands:

- value() - returns actual value of the current cell
- value(index) - returns value of cell on desired (indexed) position in the actual row
- name() - returns name of the column
- name(index) - returns name of the column at desired position
- format() - returns value of the format in actual column (only time and indicator column types)
- actualDate() - returns actual date in dd.MM.yyyy format
- actualDate('MM/dd/yyyy') - returns actual date in chosen format (e.g. MM/dd/yyyy)
- excludeRow() - excludes the row

These transformations are applied for each import including scheduled automatic imports from Data Sources.

Go to Transformation scripting guide for more details.

Reusing Transformation Scripts

Previously defined transformation scripts can be invoked for your convenience. You can choose from any existing transformation scripts used in all data sets you have access to. Transformation script list is available after clicking on "Use existing script" link in column settings.

Import Templates

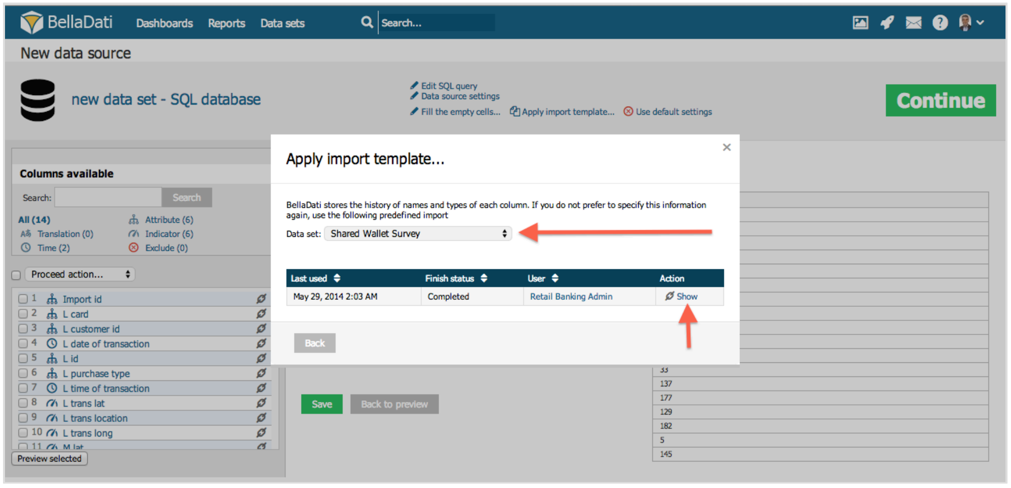
This function allows you to reuse import settings from previous imports or different data sets. It is available by clicking on "Apply import template" link on the top of the page.

In the popup, you can:

- Select data set
- Select import template assigned to this data set according requested date and import status
- Display import template details (column settings)
- Sort import templates

Applying the template will overwrite all current import settings.

You can choose from any existing import settings used in all data sets you have access to. These templates are created automatically after the import has been successfully finished.


Apply import template...

BellaDati stores the history of names and types of each column. If you do not prefer to specify this information again, use the following predefined import

Data set: Shared Wallet Survey

Last used	Finish status	User	Action
May 29, 2014 2:03 AM	Completed	Retail Banking Admin	Show

Data Overwriting Policy

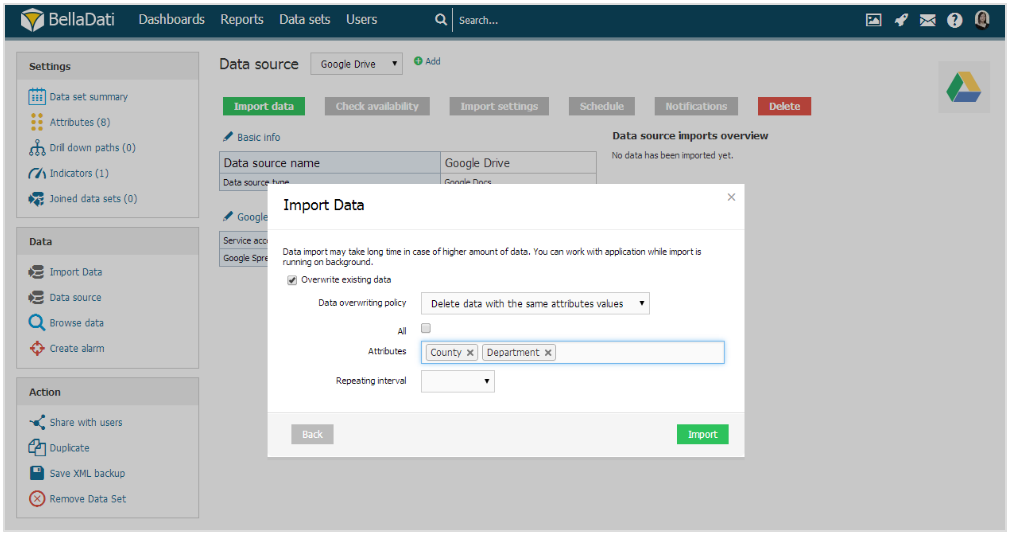
When there are already existing data in the data set, you can choose the following options what to do with these data:

- **No overwrite**: Imported data will be appended to existing (default).
- **Delete data with the same attributes values**: Deletes all existing records with the same combination of attributes as in the imported data.
- **Delete all data** before import.

Delete data with the same attributes values

When deleting data according attributes, BellaDati allows you to:

- select **All** attributes.
- select **specific** attributes - the import procedure will compare desired attributes and will overwrite the row if the current attribute is equal to the value already stored in the database.


Import Data

Data import may take long time in case of higher amount of data. You can work with application while import is running on background.

☑ Overwrite existing data

Data overwriting policy: Delete data with the same attributes values

All: ☐

Attributes: County, Department

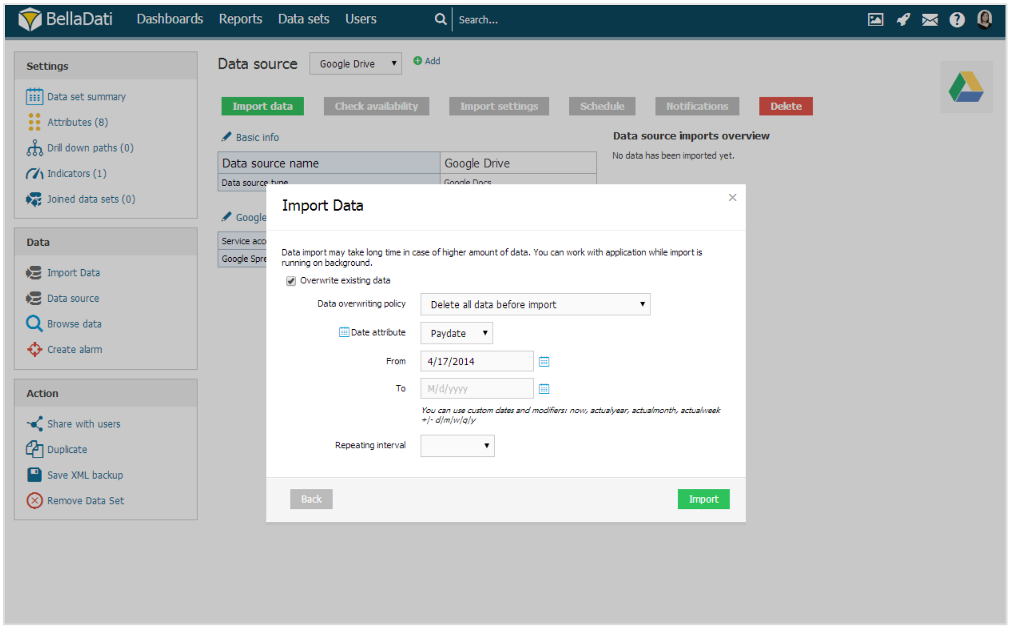
Repeating interval:

Delete all data before import

When deleting all data before import, BellaDati allows you to select specific **time interval**. Setup **From** and **To** to restrict data erasing.

Use calendar icons to comfortably select desired time intervals.

You can use custom dates and modifiers: now, actualyear, actualmonth, actualweek +|- d|m|w|q|y.



Import Data

Data import may take long time in case of higher amount of data. You can work with application while import is running on background.

[✓] Overwrite existing data

Data overwriting policy	Delete all data before import
Date attribute	Paydate
From	4/17/2014
To	M/d/yyyy
	You can use custom dates and modifiers: now, actualyear, actualmonth, actualweek +/- d/m/w/q/y
Repeating interval	

Data source name	Google Drive
Data source type	Google Docs

Import Progress

Import of lot of data may take a long time to complete.

Data are being imported asynchronously, therefore BellaDati functions are still available during import. The user can be logged out during the import too.
Data set summary page shows actual import progress bar with estimated time and percentage.

Before import finishes, you are able to:

- **Cancel** running import: All data related to this import will be erased from BellaDati data warehouse.
- **Nofity by e-mail**: An e-mail will be send to you after the import has been finished.

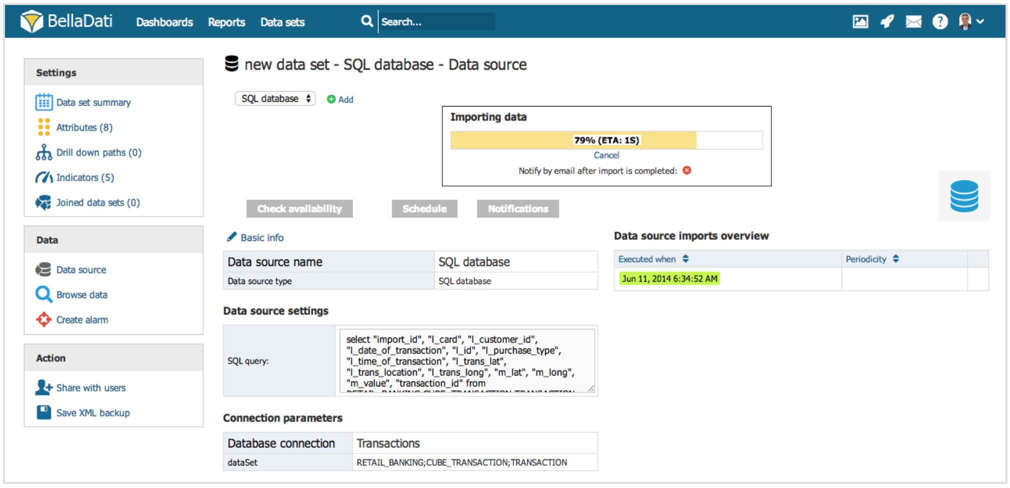
Import Results

You can display the detailed results for each import. Each import can reach the following status:

- green - successfully finished import without errors
- orange - finished import containing errors
- red - aborted or unfinished import
- gray - deleted import
- blue - scheduled future import (only in case of external data sources)

Records with errors has not been imported!

Quick access to the most recent import is possible via top blue light bar - hoover over the date nearby "Updated by".



new data set - SQL database - Data source

Importing data

79% (ETA: 1S)

Cancel

Notify by email after import is completed:

Data source name	SQL database
Data source type	SQL database

Data source imports overview

Executed when	Periodicity
Jun 11, 2014 6:34:52 AM	

Data source settings

SQL query:

```
select "import_id", "l_card", "l_customer_id",
"l_date_of_transaction", "l_id", "l_purchase_type",
"l_time_of_transaction", "l_trans_lat",
"l_trans_location", "l_trans_long", "m_lat", "m_long",
"m_value", "transaction_id" from
```

Connection parameters

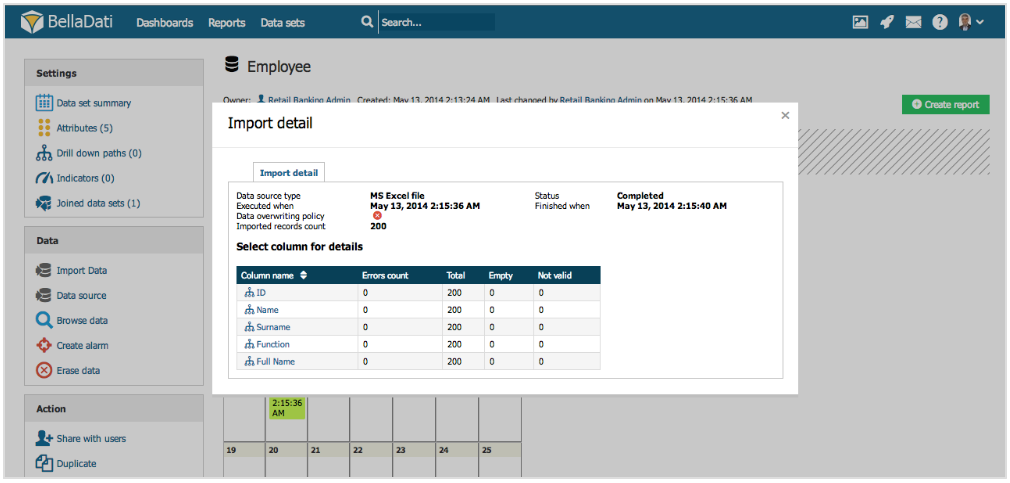
Database connection	Transactions
dataSet	RETAIL_BANKING;CUBE_TRANSACTION;TRANSACTION

If errors occurred during import, you can find the reasons in the import detail popup:

- The column name with the error is highlighted in red and errors count is displayed.
- Details for each column (click on it's name):
  - Total: Successfully imported records count.
  - Empty: Records count containing no values in selected columns (these records are imported however).
  - Number (only for indicators): Record counts with numeric values.
  - Not valid: Records with errors count (these records are not imported).
  - Error details: Displays records number in source file to find problem.

Typical errors during import are:

- Date/time format mismatch: Check and set the proper format for date/time column in Import Settings.
- You are trying to assign an indicator not numeric values: Consider setting such column as attribute.



Owner: Retail Banking Admin Created: May 13, 2014 2:13:24 AM Last changed by Retail Banking Admin on May 13, 2014 2:15:36 AM

Import detail

Import detail

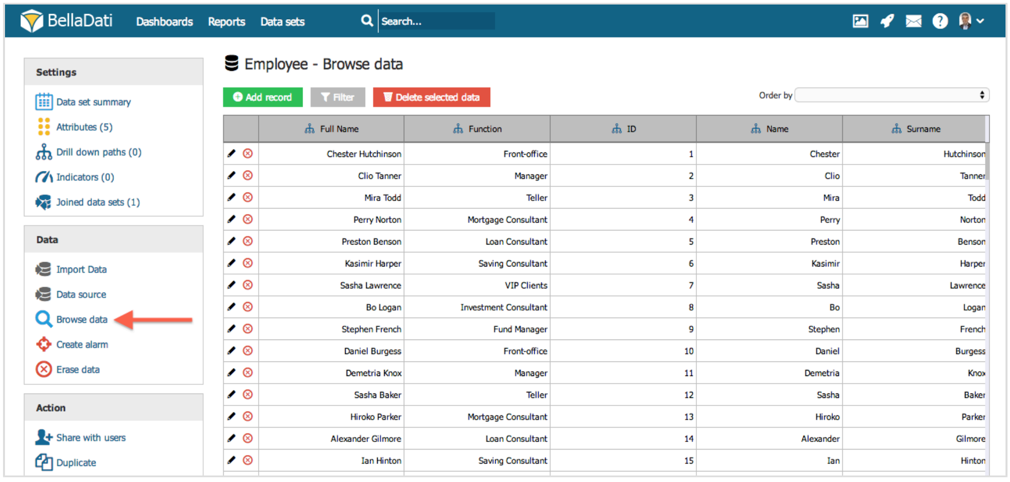
Data source type	MS Excel file	Status	Completed
Executed when	May 13, 2014 2:15:36 AM	Finished when	May 13, 2014 2:15:40 AM
Data overwriting policy	✗		
Imported records count	200		

Select column for details

Column name	Errors count	Total	Empty	Not valid
ID	0	200	0	0
Name	0	200	0	0
Surname	0	200	0	0
Function	0	200	0	0
Full Name	0	200	0	0

Browsing Data

Browsing existing data within data set is available after clicking to "Browse data" in left sub-menu.



Full Name	Function	ID	Name	Surname
Chester Hutchinson	Front-office	1	Chester	Hutchinson
Clio Tanner	Manager	2	Clio	Tanner
Mira Todd	Teller	3	Mira	Todd
Perry Norton	Mortgage Consultant	4	Perry	Norton
Preston Benson	Loan Consultant	5	Preston	Benson
Kasimir Harper	Saving Consultant	6	Kasimir	Harper
Sasha Lawrence	VIP Clients	7	Sasha	Lawrence
Bo Logan	Investment Consultant	8	Bo	Logan
Stephen French	Fund Manager	9	Stephen	French
Daniel Burgess	Front-office	10	Daniel	Burgess
Demetria Knox	Manager	11	Demetria	Knox
Sasha Baker	Teller	12	Sasha	Baker
Hiroko Parker	Mortgage Consultant	13	Hiroko	Parker
Alexander Gilmore	Loan Consultant	14	Alexander	Gilmore
Ian Hinton	Saving Consultant	15	Ian	Hinton

Data browser allows you to perform following actions:

- Edit data - individually per record (row)
- Delete row
- Order displayed data by: date or any other attribute
- Filter displayed data:
  - by date interval
  - by attributes members filtering
- Add new record (row)
- **Data export**: Save data in CSV: Data can be saved in CSV directly or in ZIP format to save download time a space on your storage.

Please note, due to browsers' performance issues, maximum 2000 rows of data is displayed in data browsing window. Use filters to display only desired subset of all data stored.

Deleting one row is performed immediately after clicking corresponding icon! There is no confirmation message displayed before.

Managing Indicators

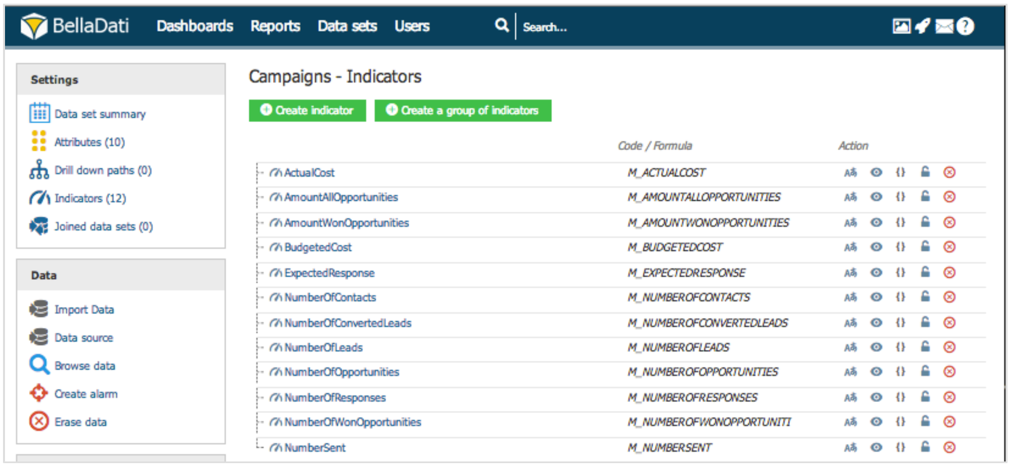
Managing the indicators is a part of BellaDati's **data warehouse modelling**. Values of particular indicators represent the point of the examination interest. Indicators have usually numeric values (wages, costs, incomes etc.).

We are distinguishing two types of indicators:

- **data set indicators** are defined within the data set and are available as musters for report indicators. Another settings (like aggregations, appearance, etc.) are not supported. Simply said, the data set indicators represents a **raw numerical value** (in the OLAP language it is a fact) with basic attributes - name, unit and rounding mode. Values of these indicators are straightforwardly stored in BellaDati's data warehouse directly from imported data.

Each **data set indicator** is represented by its code (unless defined by formula). This code always begins with "M_" prefix and serves as unique identification for usage in formulas. *Note: Indicator code is not editable and is assigned during it's creation.*

- **report indicators** are created in the report from the data set indicators or ad hoc. Unlike the data set indicators, report indicators are supporting wide range of various settings - aggregations, appearance, conditional formating, extended formula support with Report Variables etc. Report indicators can contain also **non-numerical values**.



Campaigns - Indicators

	Code / Formula	Action
ActualCost	M_ACTUALCOST	
AmountAllOpportunities	M_AMOUNTALLOPPORTUNITIES	
AmountWonOpportunities	M_AMOUNTWONOPPORTUNITIES	
BudgetedCost	M_BUDGETEDCOST	
ExpectedResponse	M_EXPECTEDRESPONSE	
NumberOfContacts	M_NUMBEROFCONTACTS	
NumberOfConvertedLeads	M_NUMBEROFCONVERTEDLEADS	
NumberOfLeads	M_NUMBEROFLEADS	
NumberOfOpportunities	M_NUMBEROFOPPORTUNITIES	
NumberOfResponses	M_NUMBEROFRESPONSES	
NumberOfWonOpportunities	M_NUMBEROFWONOPPORTUNITI	
NumberSent	M_NUMBERSENT	

- **Formula indicators**: Their value is calculated according assigned mathematical formula or another operation. Values of indicators created by formula are not imported to data set, they are evaluated from formula. Formula indicators can be defined on report level as well. See Formula Reference Guide for details.

Data set indicators contain numeric values only. Formula indicators on the other side can contain also textual values or member counts.

Creating data set indicator

New indicator can be created by following ways:

- Within data set (data set indicators)
- During the import
- Transforming an attribute into an data set indicator
- When inserting data row manually

Data set indicator settings

When you click on the name of particular indicator name in the data set, you can adjust a lot of different parameters of this indicator. You can define or change:

- Indicator name
- Indicator unit
- Decimal format (see chapter below)
- Type of rounding
- Assign indicator to group
- Formula. This function is available only when the indicator is defined by formula or when creating new one.

Those adjustments will take effect in each occurrence of this indicator (data sets, reports, dashboards).

⚠ When the data set is a part of join, you can choose if you want to propagate new indicator to joined data set (by checking the propagate option in dialog window).

Decimal format

Decimal format is a useful tool to:

- insert separate characters into indicator
- insert additional characters into unit
- adjust number of decimal positions

Indicators without adjusted decimal format are displayed with a comma after each three positions of digits (thousands, millions etc.) and with dot between whole number and decimal places. You can use prepared help window in BellaDati for some examples, how to define the decimal format. Basic description is also in the table below:

Code	Meaning
#	Represents one digit
,	Separator of digit places (thousands, millions etc.). It's displayed as a comma in English localization.
.	Decimal separator. It's displayed as a dot in english localization.
%	Multiply value by 100 and add % symbol
"	If you want to display any of described operational character (., #), you have to place it between " characters. It's a useful function, when you deal with shortcuts which ends with "." character.

Decimal format examples:

Actual value	Display	Code
1234	1234	#
1234	$1234	$#
1234.56	$1 235	$#,###
1234.56	1 234,6	#,###.#
1234.56	$1 234, 56	$#,###.##
1234	$1 234 k	$#,### k
0.56	56 %	# %
0.5612345	56.12345%	#.#####%

✓ You can display brief decimal format help by clicking on "Show help" link in the popup window.

Removing Indicator

Click on the cross icon (Remove link) at the end of corresponding row in indicators' list. Then confirm the removal in popup.

⚠ Indicator removal will affect all reports and dashboards where the indicator has been used!

Grouping Indicators

Indicators grouping enables better structuring and organizing of your indicators. Each indicator can be assigned to the indicator group and each group can be nested to another group.

The main advantage of indicator groups is that you handle all contained indicators as a single object.

Each group contains embedded functions like **sum** or **average** from the nested indicators or sub-groups.

Indicator groups should contain indicators with similar characteristics - eg. financial indicators, performance indicators etc.

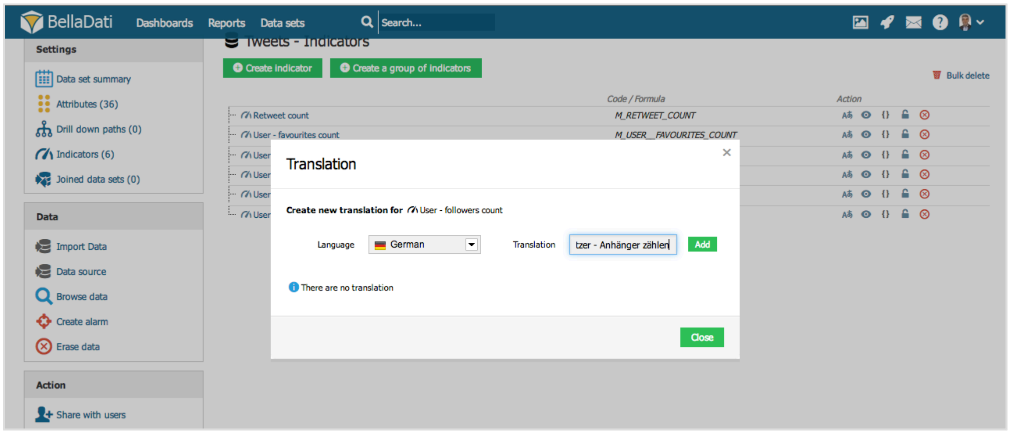
There are three ways how to create indicator groups:

- manually on the data set indicators page
- in the indicator settings dialog window
- within the report

Translating Indicators

Translation is useful tool when you have imported data in one language but then you want to display your data in another language - eg. for presentation to managers. Then if you change the language in user profile or switch it in your browser, all the translated indicators will be displayed in new alternative language. Indicators without translation remain displayed the same way (unchanged).

Logout and repeated login to BellaDati may be needed to reflect language change.



Go to desired data set via data set menu.

1. Select "Indicators" in the left submenu.
2. Click on the translation icon at next to the name of selected indicator. A popup will appear. All existing translations of actual are displayed in the table below.
3. Select the target language in "Language" drop-down box.
4. Type translated name into "Translation" field.
5. Click "Add" button. The new translation will be added to the table below.
6. Choose another language and repeat the process or click "Close" to close popup.

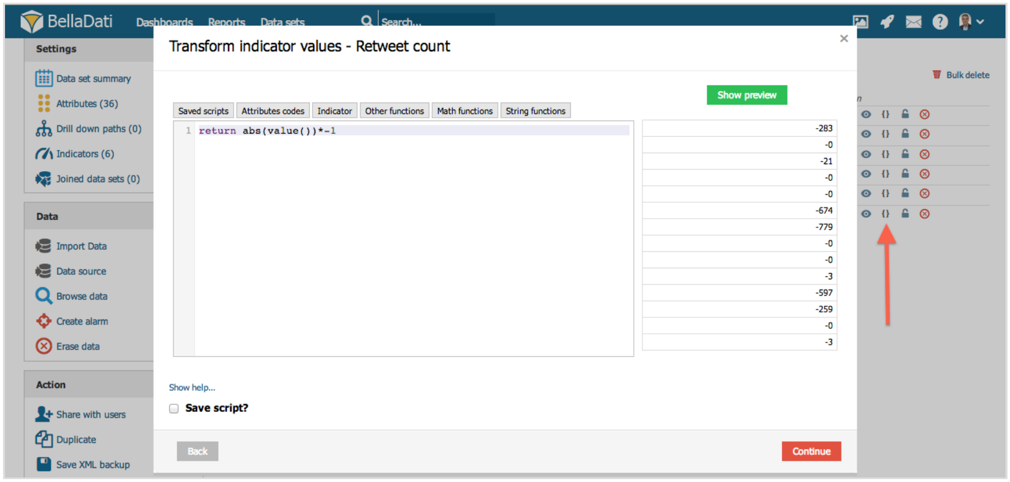
To **edit existing translation**, please remove the actual translation first by clicking the cross icon at the end of corresponding row. Then add the translation again according instructions above.

Indicator traslation will not be reflected in views, where the indicator has been renamed before! See report indicator editing for details.

Transforming Indicator values

Transforming indicator values using script

You can transform the indicator values using the transformation script.



```
return abs(value())*-1
```

```
-283
-0
-21
-0
-0
-674
-779
-0
-0
-3
-597
-259
-0
-3
```

How to access the column values?

Accessing the value we want to process is a key issue. Scripts provide a function value() which returns the current value. There are more advanced possibilities to access values:

`String value()` - returns the current value
`String value(String columnCode)` - returns the value of the specified column
`LocalDate rowDate()` - returns date of the current row
`LocalTime rowTime()` - returns time of the current row

To get more information about the transformation, visit the developers section Transformation scripting.

Build indicators with formula

Visit Formula Reference Guide page.

Adding Permissions to Indicators

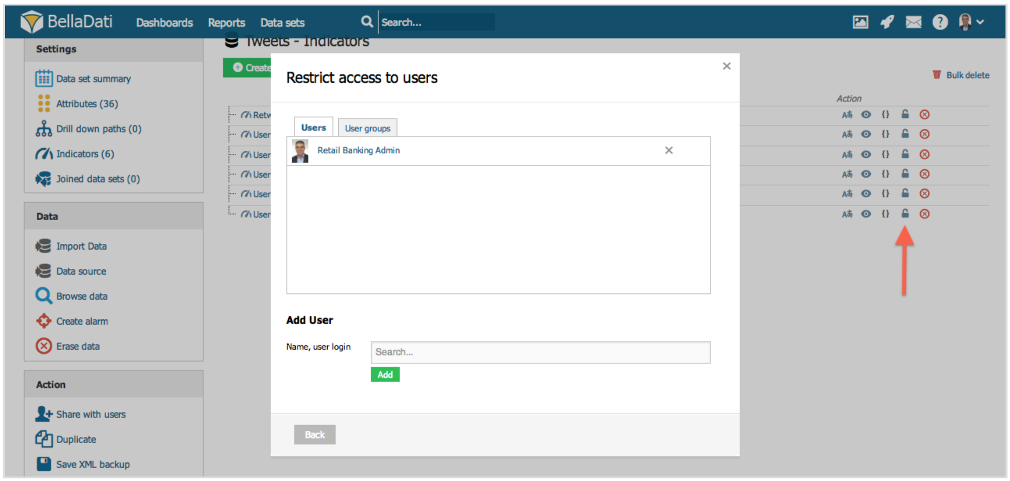
BellaDati let you limit access to **Indicators** only for selected **users** or **user groups.**

Adding Access Rights

Note
Note, that by default Indicators have **Global Permission**. Every user with access to data set has access to its indicators.

In order to assign access rights, navigate to **Data Set** and select **Indicators** in **Settings.** Click on **lock icon** in row indicating the indicator.

- Switch between **User** and User **Groups** tab.
- Search **User** or **User Group** name(s).
- Click **Add.**



Note
When Indicator has assigned access rights at least to one user, it looses Global Permission and becomes restricted to other users.

Removing Access Right

To remove access right for particular user:

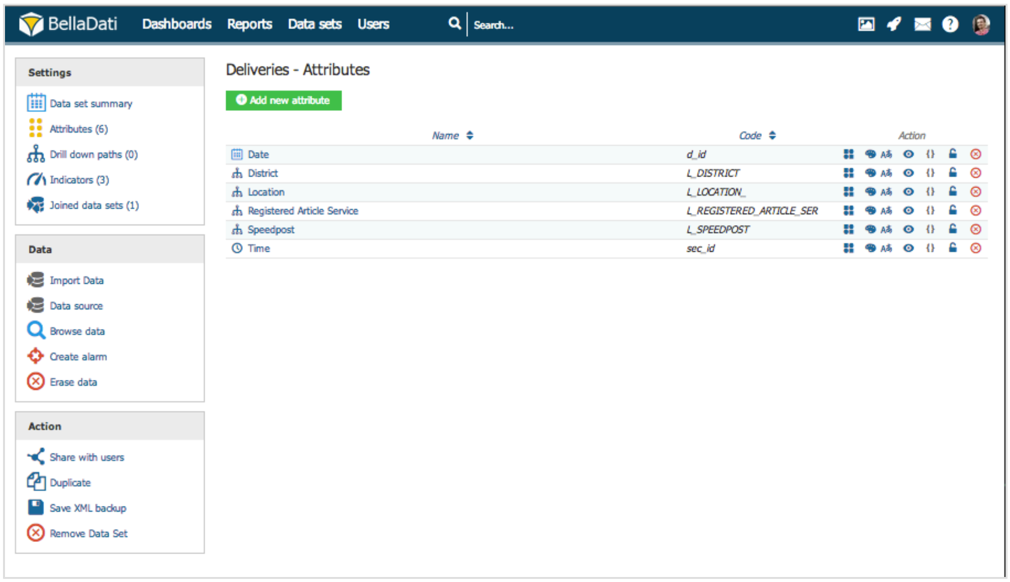
- Switch between **User** and User **Groups** tab.
- Click on c**ross icon** next to User name.

- Build indicators with formula

Managing Attributes

Attributes definition is a part of the BellaDati's **data warehouse modelling**. All attributes have an unique code beginning with "L_" prefix (L as level) that serves as unique identifier (eg. for counts, filtering, custom members definition, etc.).

Instance of particular attribute is called member.



Deliveries - Attributes

Name	Code	Action
Date	d_id	
District	L_DISTRICT	
Location	L_LOCATION_	
Registered Article Service	L_REGISTERED_ARTICLE_SER	
Speedpost	L_SPEEDPOST	
Time	sec_id	

Creating Attribute

Attributes can be created in three different ways:

- during the data import
- manually on the data set attributes page
- during drill-down path definition

Attribute name must be unique in the whole data set. Otherwise warning message will be displayed and the attribute will not be saved.

When the data set is a part of **join**, you can choose if you want to propagate new attribute to joined data set (by checking the propagation option in dialog window).

Editing Attribute

You can modify the attribute by clicking on it's name in the list.

1. All changes in attributes name will influence immediately all existing Reports and Dashboards containing affected attributes.
2. Changing of attribute name does not affect it's code
3. Changing of attribute name will not affect attribute's names in joined data sets.

Deleting Attribute

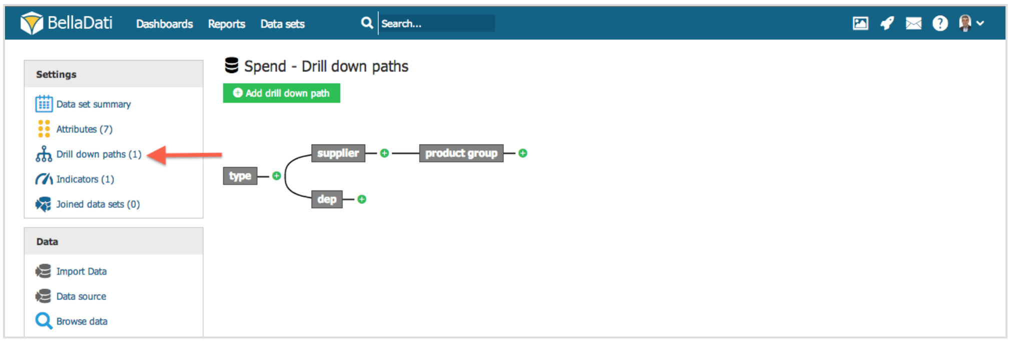
The attribute will be deleted with all corresponding data.

Attribute removal will influence immediately all existing Reports and Dashboards (including filters and custom members). All data assigned to this attribute will be deleted.

Defining Drill-down Path

Predefined drill-down path specifies the meaningful sequence might by useful for further drill-down operation in report (see attached video tutorial below). Each data set can contain more drill-down paths. The simplest drill-down path is linear, however BellaDati supports more complex structures like trees.

Predefined drill-down paths are available int the report when performing ad-hoc drill-down (by clicking on + in the table), or in the drill-down settings.



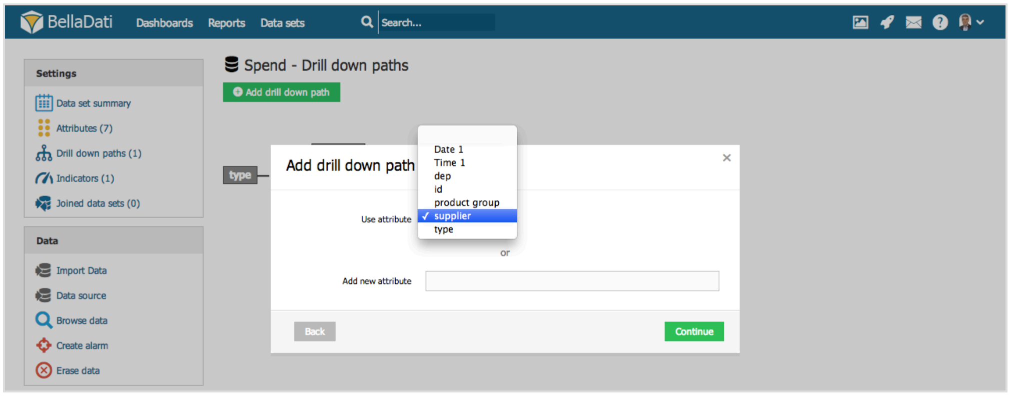
1. Go to desired data set via data set menu.
2. Select "Attributes" in the left submenu.

Predefined drill-down paths significantly simplifies creating reports by analysts and performing drill-down operation in reports and on dashboards. Therefore we recommend defining these paths on the data set level.

Adding new drill-down path

1. Click "Add drill down path" at the bottom of the page. A popup will appear.
2. Select first attribute in "Use attribute" drop-down box and click on "Save" button.
3. Click the green plus icon on the right of existing attribute in drill-down path to add another attribute and repeat steps above to create whole drill-down path.

By clicking on green plus icon in the middle of existing drill-down path, you can branch out current drill-down path to more sub-paths.



You can create an new attribute during drill-down path definition by filling in the field "Add new attribute" in the popup. See managing attributes for details.

Editing drill-down path

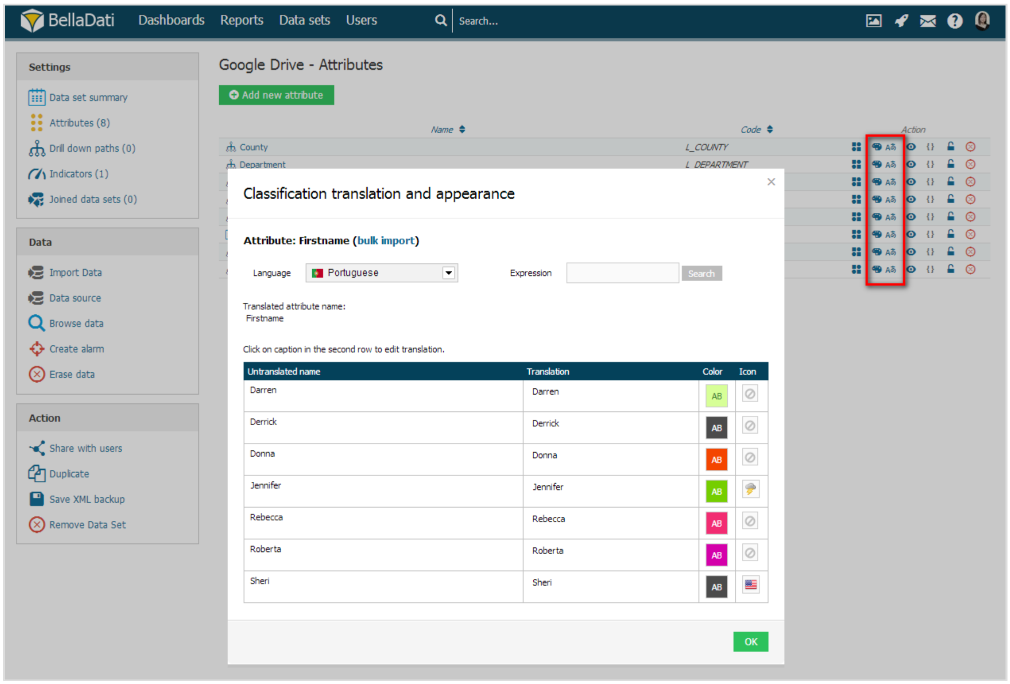
- Removing attribute: Hoover over the desired attribute, click on the right top cross symbol and confirm this action in popup.

Members Appearance

This function allows you to adjust following appearance options for individual attribute members:

- color
- icon

Both can be assigned to particular member simultaneously.



Classification translation and appearance

Attribute: Firstname (bulk import)

Language: Portuguese   Expression: [ ] Search

Translated attribute name:
Firstname

Click on caption in the second row to edit translation.

Untranslated name	Translation	Color	Icon
Darren	Darren	AB	⊘
Derrick	Derrick	AB	⊘
Donna	Donna	AB	⊘
Jennifer	Jennifer	AB	⛈
Rebecca	Rebecca	AB	⊘
Roberta	Roberta	AB	⊘
Sheri	Sheri	AB	🇺🇸

OK

1. Go to desired data set via data set menu.
2. Select "Attributes" in the left submenu.
3. Click on the translations and appearance icon at the end of the row of selected indicator. A popup will appear. Actual color and icon assignation is displayed in the table below.
4. **Color**: Click icon in "Color" column in the row of corresponding member. A color selection tool will appear. Click on desired color. Note: Clicking on "Default" field will reset member color to default (none).
5. **Icon**: Click icon in "Icon" column in the row of corresponding member. An icon selection tool will appear. Select desired category in drop-down box and then click required icon. Note: Clicking on left top symbol will reset member color to default (no icon).
6. Click "OK" to close popup.

When there are lot of members, you can filter them by using "Expression" field. Just type in the part of the names of requested members and then click "Update" button. Empty field means no member filter is active.

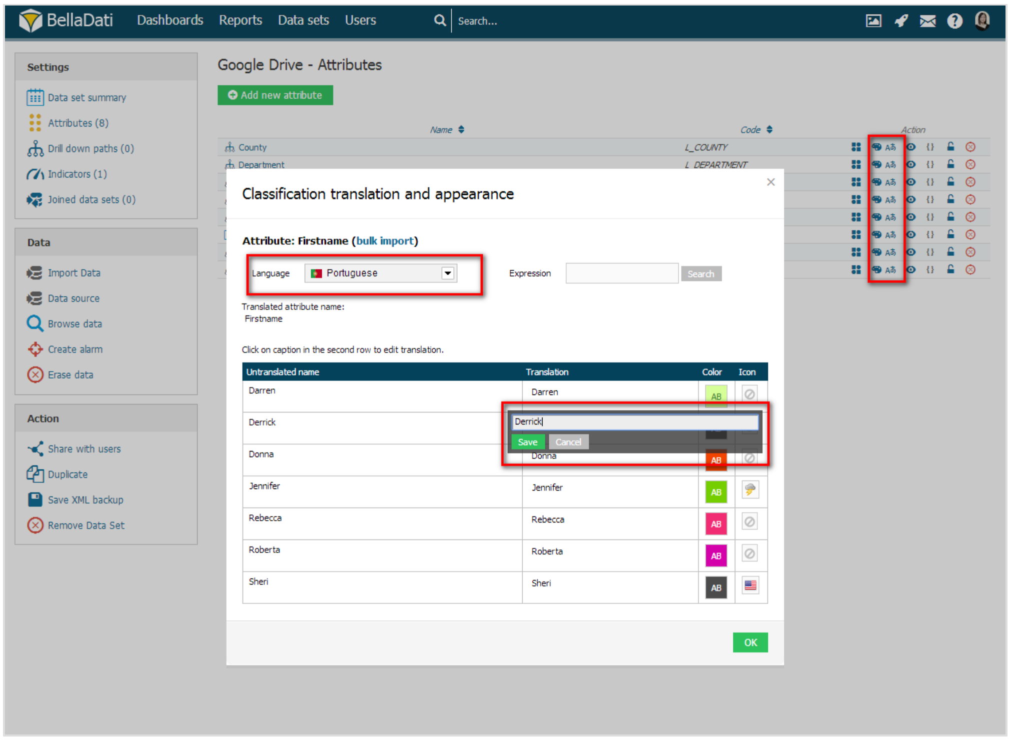
All changes in member appearance will influence immediatelly all existing Reports and Dashboards displaying these members.

Translating Attributes and Members

This function allows you to add or edit translantions for:

- Attributes
- Attribute members

Translation is useful tool when you have imported data in one language but then you want to display your data in another language - eg. for presentation to managers. Then if you change the language in user profile or switch it in your browser, all the translated attributes and members will be displayed in new alternative language. Attributes and members without translation remain displayed the same way (unchanged).



Classification translation and appearance

Attribute: Firstname (bulk import)

Language: Portuguese

Expression:

Translated attribute name:
Firstname

Click on caption in the second row to edit translation.

Untranslated name	Translation	Color	Icon
Darren	Darren	AB	⊘
Derrick	Derrick		
Donna	Donna	AB	⊘
Jennifer	Jennifer	AB	
Rebecca	Rebecca	AB	⊘
Roberta	Roberta	AB	⊘
Sheri	Sheri	AB	

1. Go to desired data set via data set menu.
2. Select "Attributes" in the left sub-menu.
3. Click on the translations and appearance icon at the end of the row of selected attribute. A popup will appear.
4. Select the target language in "Language" drop-down box. Now you see actual attribute and its' members translations in the selected language (indicated also in drop-down box - With translation section).
5. Edit the attribute translation by clicking it's name in "Translated attribute name:" row via in-line edit function (bold). Then click "Save" button.
6. Edit members translation by clicking their names on corresponding row in "Translation" column and in-line editing. Then click "Save" button.
7. Click "OK" to close popup.

Attributes and members translation is available in reports as well.

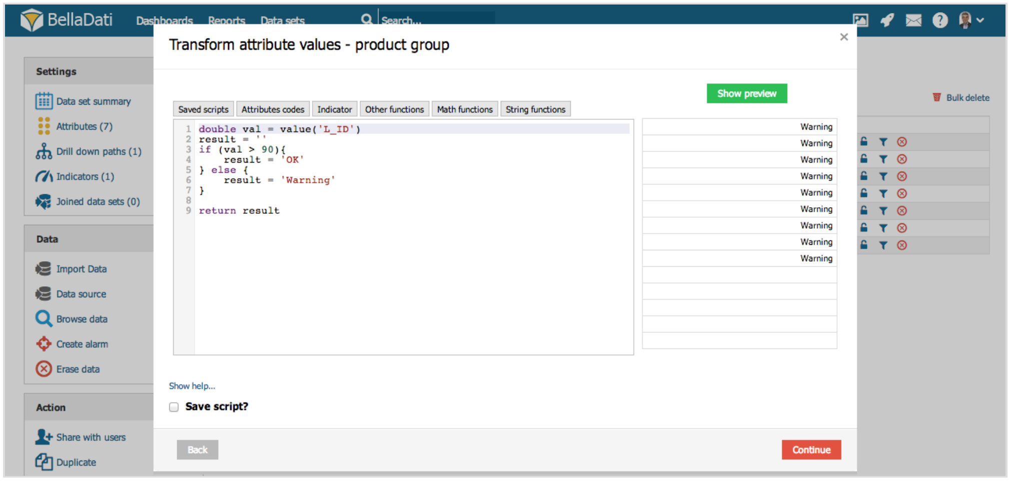
When there are lot of members, you can filter them by using "Expression" field. Just type in the part of the names of requested members and then click "Update" button. Empty field means no member filter is active.

All attribute and member translations will influence immediately all existing Reports and Dashboards using these attributes and members.

Transforming Attribute Values

Transforming attribute values using script

You can transform the attribute values using the transformation script.



```
double val = value('L_ID')
result = ''
if (val > 90){
    result = 'OK'
} else {
    result = 'Warning'
}

return result
```

```
Warning
Warning
Warning
Warning
Warning
Warning
Warning
Warning
Warning
```

How to access the column values?

Accessing the value we want to process is a key issue. Scripts provide a function value() which returns the current value. There are more advanced possibilities to access values:

`String value()` - returns the current value
`String value(String columnCode)` - returns the value of the specified column
`LocalDate rowDate()` - returns date of the current row
`LocalTime rowTime()` - returns time of the current row

To get more information about the transformation, visit the developers section Transformation scripting.

Creating Attribute Subsets

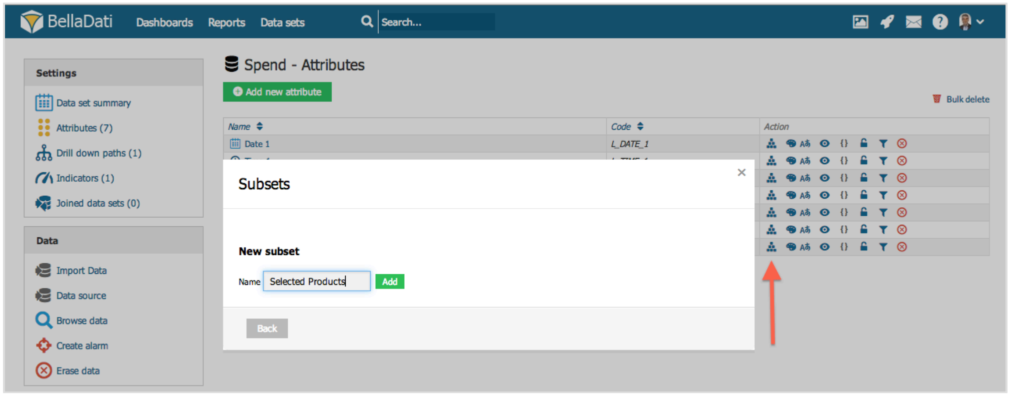
Attribute **Subset** is a virtual copy of attribute allowing you to:

- select and use only desired members (include/exclude members)
- define custom order of members

Creating Subset

Navigate to **Attribute management** by selecting **Attribute** in **Settings** panel of Data Set. Click on the **Subset** icon of particular attribute. *Subset editor* window will be opened.

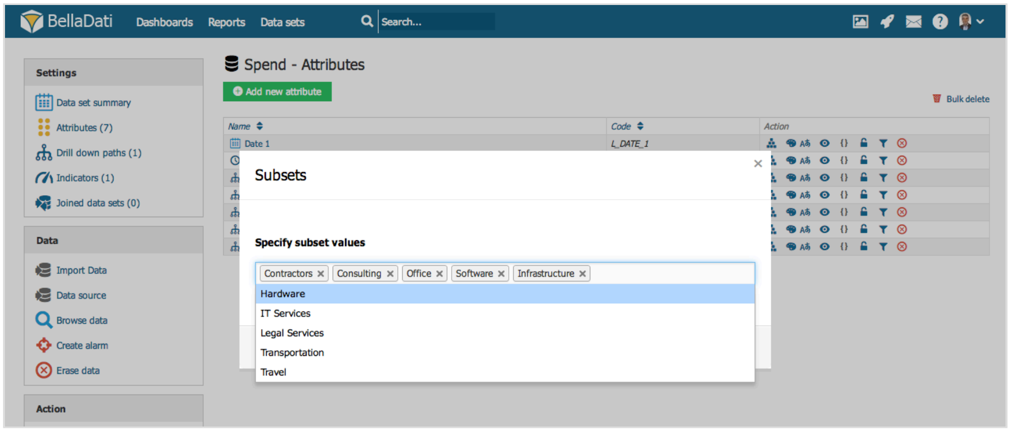
1. Provide subset **name**
2. Hit **Add button**



New **Subset** will be created.

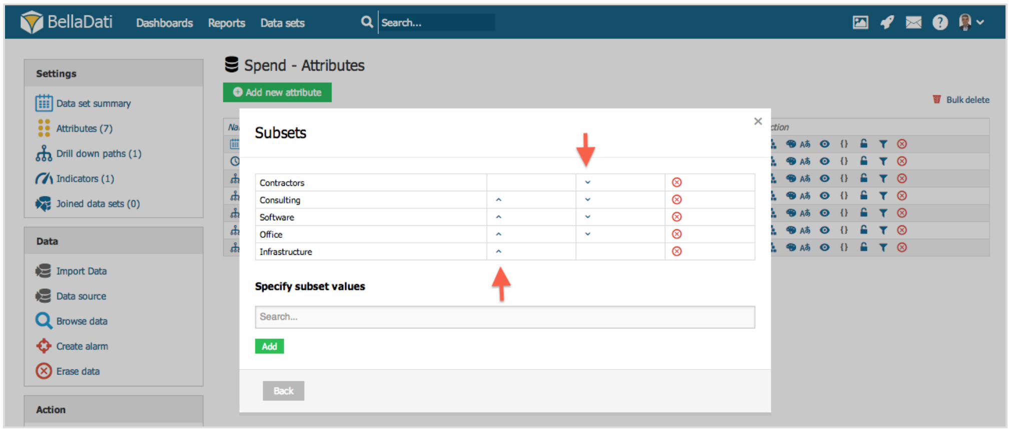
Selecting Members

Use BellaDati Search input to **Specify subset values** and click **Add**.



Specifying Order

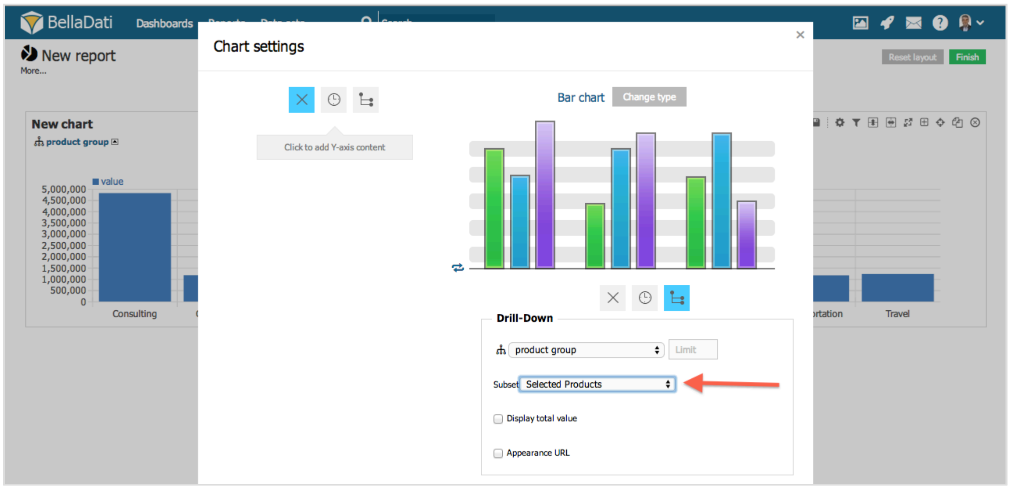
Use **Up/Down** arrow to define custom order of **Members** within the **Subset**.



Using Subsets

You can use existing **Subsets** instead of default **Attributes** and **Drill-down** paths in Reports. To apply Subset:

- Choose parent attribute of the **Subset** in **View Settings**
- Pick form the offered **Subsets**
- **Confirm** selection



Adding Permissions to Attributes

BellaDati let you limit access to **Attributes** only for selected **users** or **user groups.**

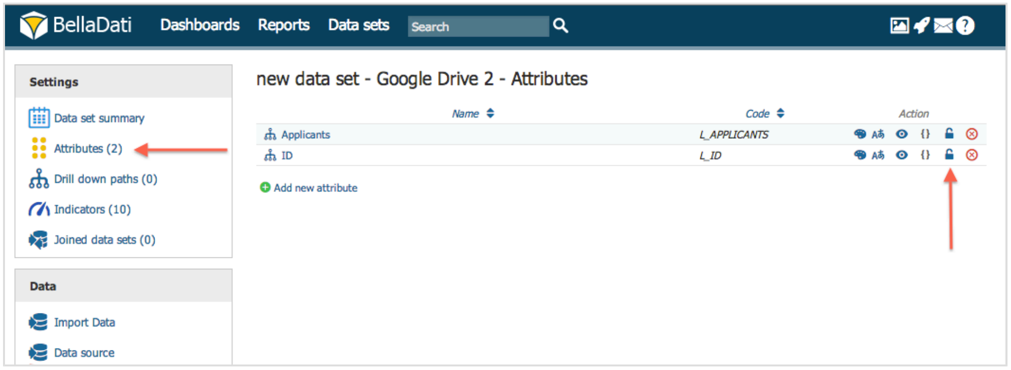
Adding Access Rights

Note
Note, that by default Attributes have **Global Permission**. Every user with access to data set has access to its attributes.

In order to assign access rights, navigate to **Data Set** and select **Attributes** in **Settings.** Click on **lock icon** in row indicating the attribute.

- Switch between **User** and User **Groups** tab.
- Search **User** or **User Group** name(s).
- Click **Add.**

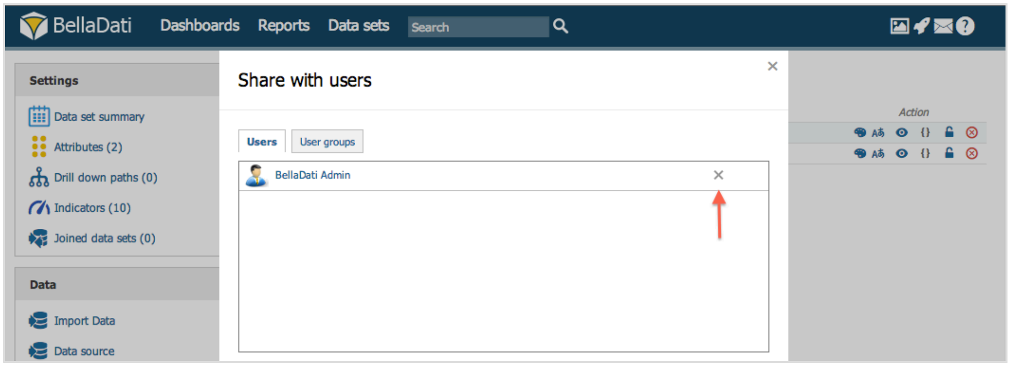
Note
When Attribute has assigned access rights at least to one user, it looses Global Permission and becomes restricted to other users.



Removing Access Right

To remove access right for particular user:

- Switch between **User** and User **Groups** tab.
- Click on c**ross icon** next to User name.

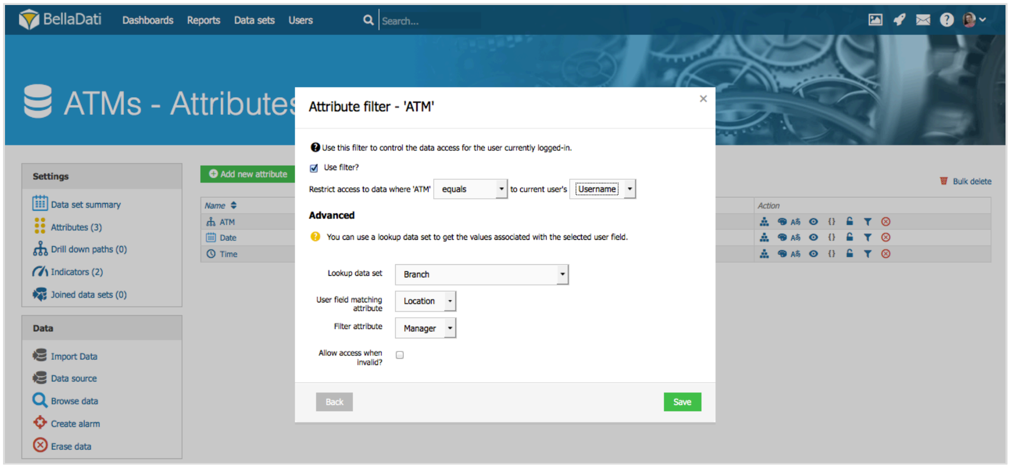


Setting Permission Filter (Lookup Table)

Permission filters allow you to define portion of the data (filter) which will be available to logged in user. Permission filters are always set up on particular **attribute and** has to correspond with user profile information.

In order to create Permission filter, click on **Filter** icon next to desired attribute.

1. Check **Use filter**
2. Select filtering **condition** (equals / not equal to)
3. Select user **profile parameter** (username / email / name / surname)
4. Choose **lookup table** if you want to filter by advanced parameters stored in dataset
5. Pick **matching attribute** and **filter attribute**



Attribute filter - 'ATM'

Use this filter to control the data access for the user currently logged-in.

[✓] Use filter?

Restrict access to data where 'ATM' equals to current user's Username

Advanced

You can use a lookup data set to get the values associated with the selected user field.

Lookup data set	Branch
User field matching attribute	Location
Filter attribute	Manager
Allow access when invalid?	☐

Back Save

Joining Data Sets

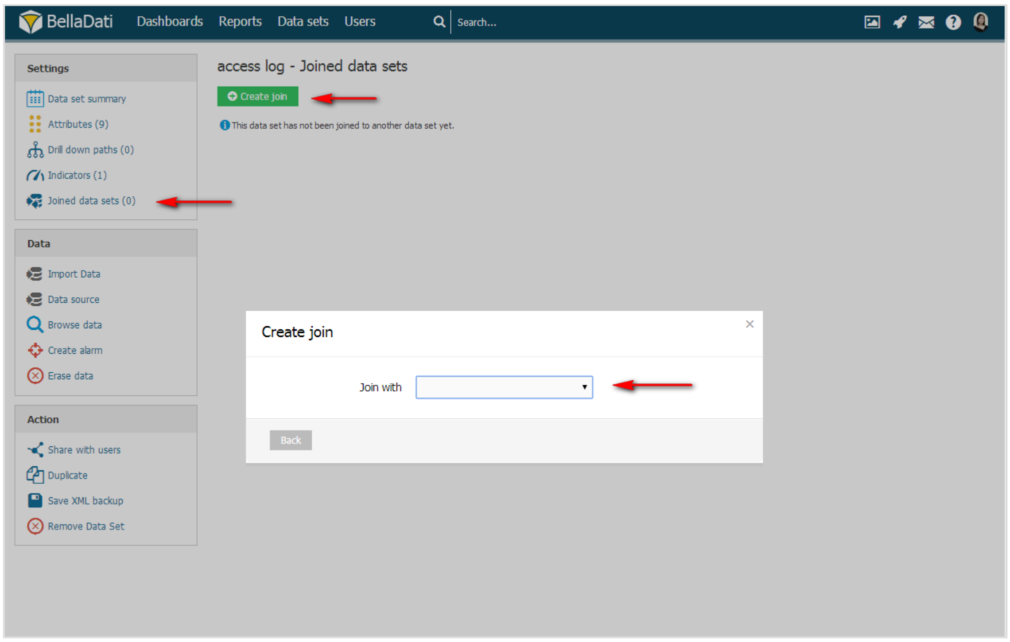
Joined data sets allow you to analyze data from more data sets together and therefore use data from more data sources in a single report.

The principle is similar to joining SQL database tables.

Creating Join

To create join in BellaDati:

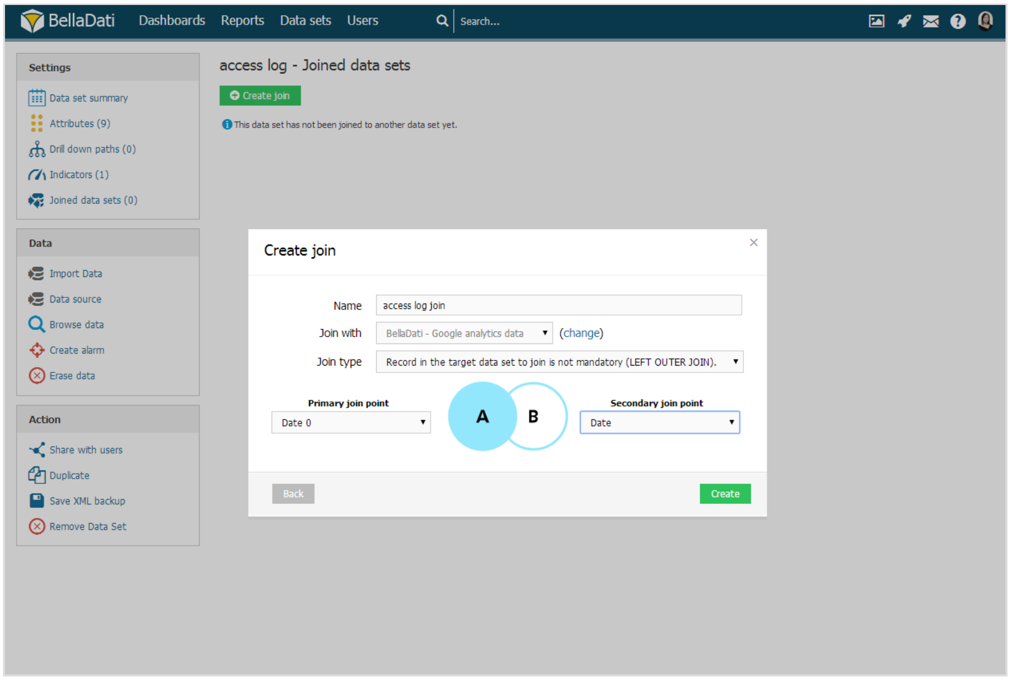
1. Navigate to one of the **Data Sets** you want to use in join
2. Click on **Joined Data Sets** in **Settings** section of the left action bar
3. Choose **Create Join**
4. Select **Data Set** to be joined with



Join condition

Each join has to have specified following parameters:

- **Name**: Joined data set name.
- **Join with**: Name of the source data set to join with.
- **Join condition**: Date/time in both records are taken in account or not.
  - With Time Match: Date/time in both records are taken in account.
  - Without Time Match: Date/time in both records are **not** taken in account.
  - Custom: Cross join with option to specify **own condition**.
- **Join type**: Standard join types available - match always depends on **attributes**.
  - Left outer join: Record in the target data set is not mandatory.
  - Inner join: Record in the target data set is mandatory.
  - Cross join: No attribute match required.



access log - Joined data sets

This data set has not been joined to another data set yet.

Create join

Name	access log join
Join with	BellaDati - Google analytics data (change)
Join type	Record in the target data set to join is not mandatory (LEFT OUTER JOIN).

Primary join point: Date 0

Secondary join point: Date

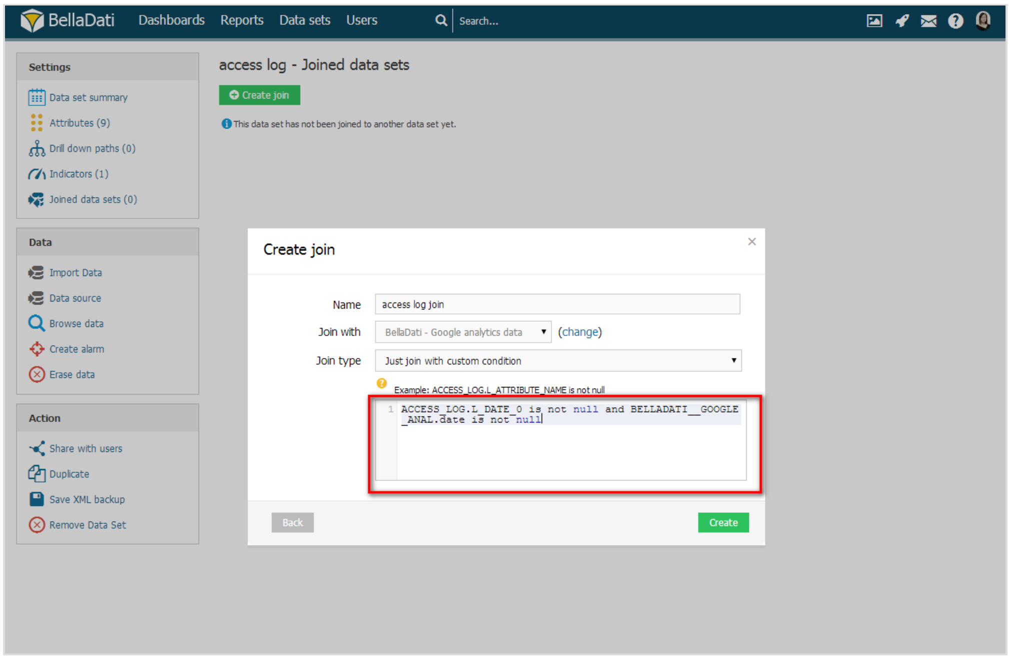
The resulting joined data set will contain all the attributes and indicators from all source data sets.

Custom Join Condition

BellaDati allows you to define you own **joining condition**. To do so:

1. Select **Custom** in **Join Condition**
2. **Cross join** will be automatically applied
3. Type **joining condition** to restrict the output

BellaDati offers you **autocomplete** to easily construct joining conditions.



access log - Joined data sets

This data set has not been joined to another data set yet.

Create join

Name	access log join
Join with	BellaDati - Google analytics data (change)
Join type	Just join with custom condition

Example: ACCESS_LOG.L_ATTRIBUTE_NAME is not null

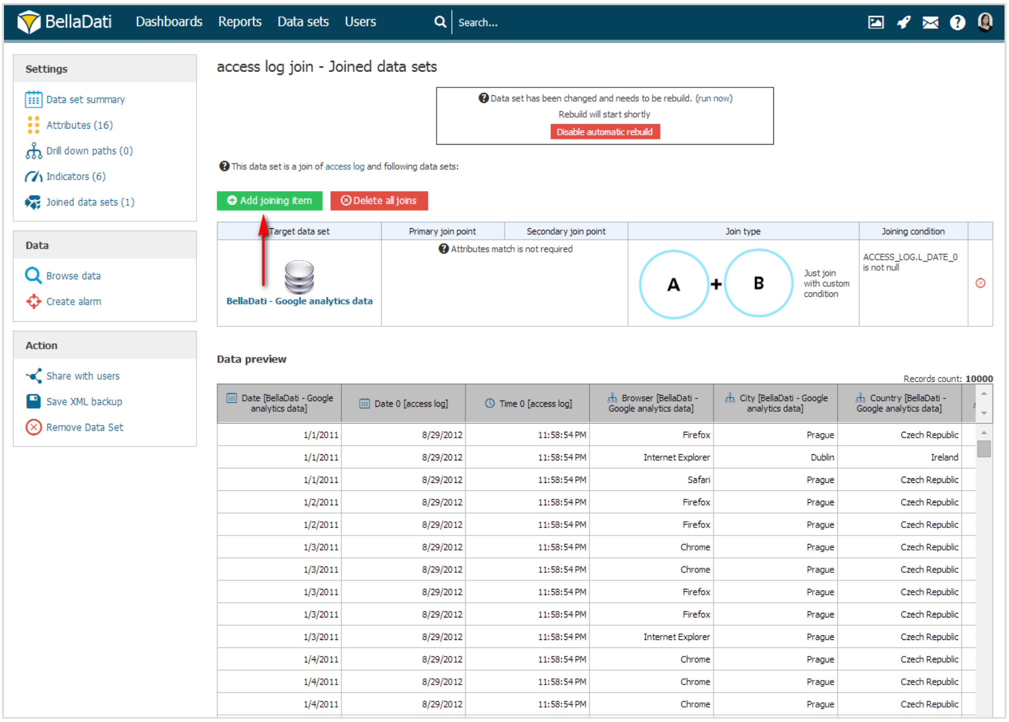
```
ACCESS_LOG.L_DATE_0 is not null and BELLADATI__GOOGLE
_ANAL.date is not null
```

Multiple Join Points

One data set could be joined with more data sets (eg. join by department ID to get department full name, address, country, total sales and then join by product ID to get products name, price, weight and mass). Each join is called **join point**.

To add another **joining point** into existing join:

1. Click on **add joining item**
2. Select desired **Data Set**
3. Continue with **Join Conditions**



access log join - Joined data sets

Data set has been changed and needs to be rebuild. (run now)
Rebuild will start shortly

This data set is a join of access log and following data sets:

Target data set	Primary join point	Secondary join point	Join type	Joining condition
BellaDati - Google analytics data	Attributes match is not required		Just join with custom condition	ACCESS_LOG.L_DATE_0 is not null

Data preview

Records count: **10000**

Date [BellaDati - Google analytics data]	Date 0 [access log]	Time 0 [access log]	Browser [BellaDati - Google analytics data]	City [BellaDati - Google analytics data]	Country [BellaDati - Google analytics data]
1/1/2011	8/29/2012	11:58:54 PM	Firefox	Prague	Czech Republic
1/1/2011	8/29/2012	11:58:54 PM	Internet Explorer	Dublin	Ireland
1/1/2011	8/29/2012	11:58:54 PM	Safari	Prague	Czech Republic
1/2/2011	8/29/2012	11:58:54 PM	Firefox	Prague	Czech Republic
1/2/2011	8/29/2012	11:58:54 PM	Firefox	Prague	Czech Republic
1/3/2011	8/29/2012	11:58:54 PM	Chrome	Prague	Czech Republic
1/3/2011	8/29/2012	11:58:54 PM	Chrome	Prague	Czech Republic
1/3/2011	8/29/2012	11:58:54 PM	Firefox	Prague	Czech Republic
1/3/2011	8/29/2012	11:58:54 PM	Firefox	Prague	Czech Republic
1/3/2011	8/29/2012	11:58:54 PM	Internet Explorer	Prague	Czech Republic
1/4/2011	8/29/2012	11:58:54 PM	Chrome	Prague	Czech Republic
1/4/2011	8/29/2012	11:58:54 PM	Chrome	Prague	Czech Republic
1/4/2011	8/29/2012	11:58:54 PM	Chrome	Prague	Czech Republic

Joining Facts and Restrictions

1. Data in the joined data set will be the intersection of all joins.
2. Data in joined data sets are updated automatically when data are changed or imported to the source data sets. You cannot import data directly to the joined data sets.

1. Please note, that the permissions setting based on data filter is not available joined data sets!
2. You cannot join a data set with already joined data set.
3. Data join is also available on data source level (database). Please consider this option when you plan to analyze millions records of data. Joining on database level may provide better performance.

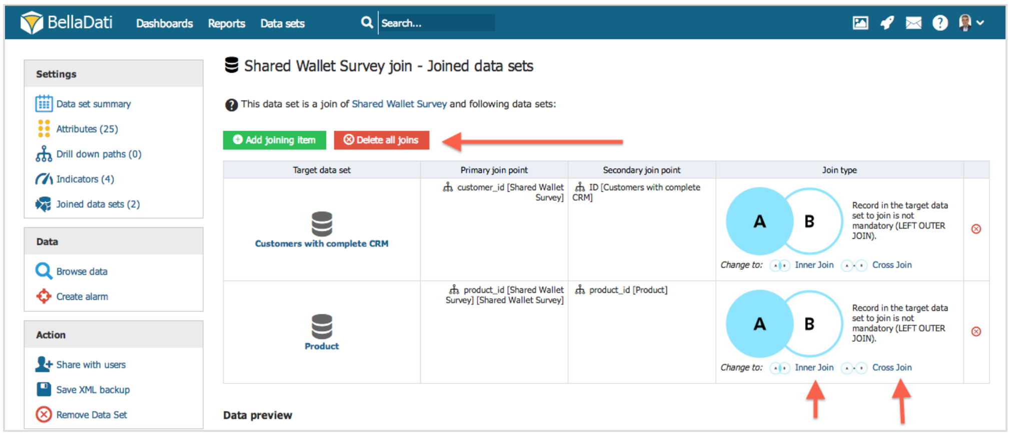
Joined data set supports these functions the same way like in ordinary data set:

- Data browsing and export
- Data changes watching
- Structure backup

Changing join point

You are allowed to perform following actions on existing joined data set:

- Changing of join type
- Changing of date/time matching condition
- Deleting the join point (or deleting all join points)
- Adding new join point



Shared Wallet Survey join - Joined data sets

This data set is a join of Shared Wallet Survey and following data sets:

Target data set	Primary join point	Secondary join point	Join type	
Customers with complete CRM	customer_id [Shared Wallet Survey]	ID [Customers with complete CRM]	A B Record in the target data set to join is not mandatory (LEFT OUTER JOIN). *Change to:* Inner Join Cross Join	⊗
Product	product_id [Shared Wallet Survey] [Shared Wallet Survey]	product_id [Product]	A B Record in the target data set to join is not mandatory (LEFT OUTER JOIN). *Change to:* Inner Join Cross Join	⊗

All changes will be propagated to joined data and related reports or dashboards immediately.

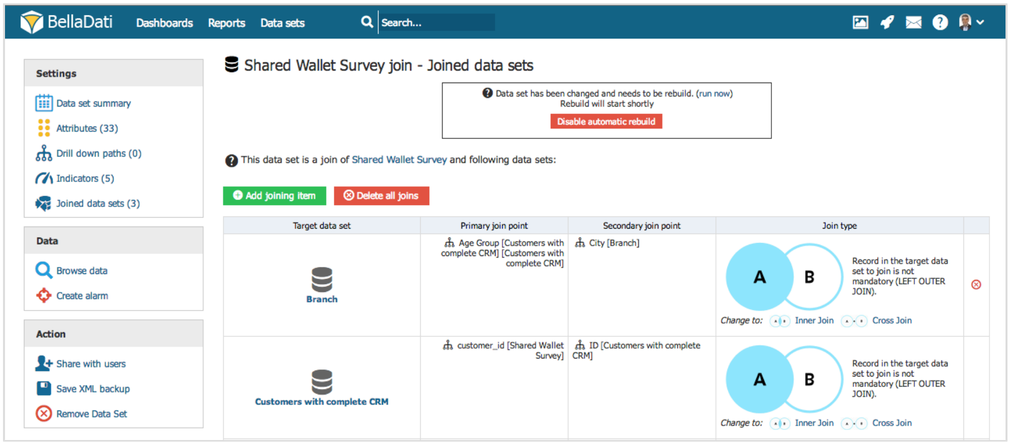
Building joined data set

Every joined data set needs to be build before users can access his data. The building process is triggered by the data or structure change in the underlying data sets. During the building process, all referenced data sets are locked for performing changes.

Disabling the building process

Disable process for particular data set

There are situations, when we doesn't want to start the building process automatically, especially in the "big" data sets. After the building process has been triggered, you can disable it in the information box on the top of the data set overview page:



Shared Wallet Survey join - Joined data sets

Data set has been changed and needs to be rebuild. (run now)
Rebuild will start shortly

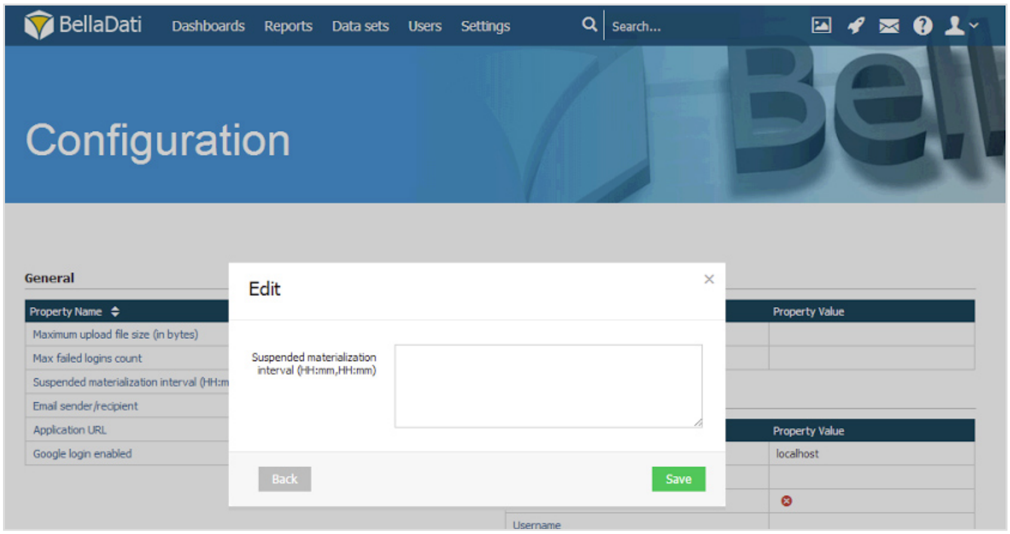
This data set is a join of Shared Wallet Survey and following data sets:

Target data set	Primary join point	Secondary join point	Join type
Branch	Age Group [Customers with complete CRM] [Customers with complete CRM]	City [Branch]	Record in the target data set to join is not mandatory (LEFT OUTER JOIN). Change to: Inner Join Cross Join
Customers with complete CRM	customer_id [Shared Wallet Survey]	ID [Customers with complete CRM]	Record in the target data set to join is not mandatory (LEFT OUTER JOIN). Change to: Inner Join Cross Join

Disable process for all data sets in specific time interval

This feature is available in On-Premise version only

In specific cases, for example if there are many joined data sets build on several daily updated data sets, each change of the underlying data set triggers the building process. It may cause "locking" errors when the system will try to import data into another referenced data set which is part of the join. For this situations, you can disable the building process for the specific time interval:



Property Name	Property Value
Maximum upload file size (in bytes)	
Max failed logins count	
Suspended materialization interval (HH:m	
Email sender/recipient	
Application URL	localhost
Google login enabled	

Edit

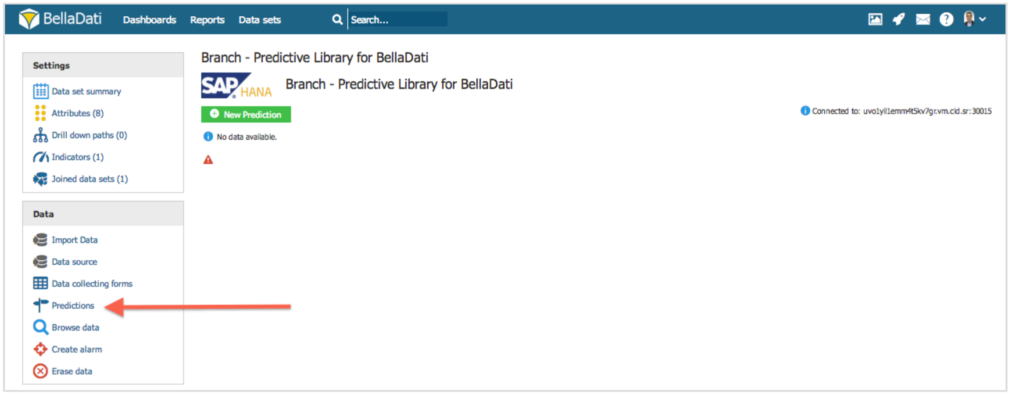
Suspended materialization interval (HH:mm,HH:mm)

Username

Working with SAP HANA Predictions Manager

BellaDati allows you to create predictions leveraging SAP HANA PAL library.

Predictions are created and managed in **SAP HANA Predictions Manager**. To enter **Manager** navigate to appropriate Data Set ale select **Predi ctions.**



Branch - Predictive Library for BellaDati

Branch - Predictive Library for BellaDati

Connected to: uvo1yll1emm4t5kv7gr.vm.cld.sr:30015

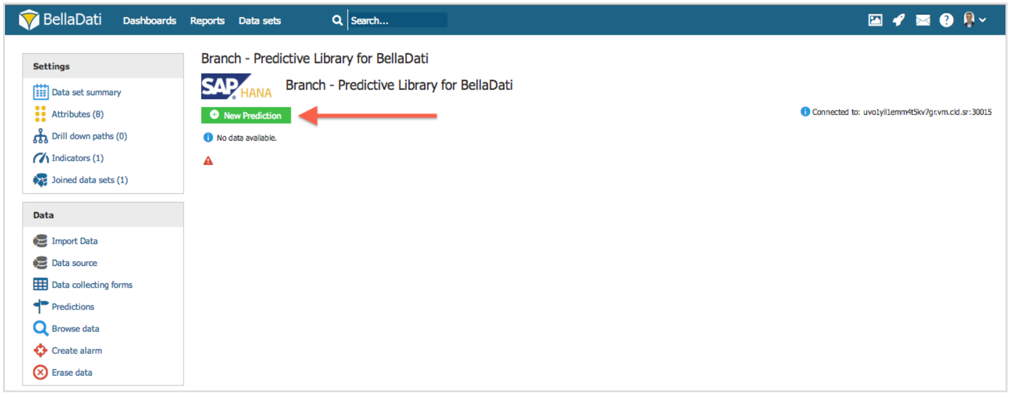
No data available.

Creating Predictions

Click New Prediction to open dialog window. It allows you to define prediction's:

- Name
- Function
- Parameters (depends on selected Function)
- Execution

Please refer to SAP HANA PAL documentation for explanation of particular parameters and allowed values.



Branch - Predictive Library for BellaDati

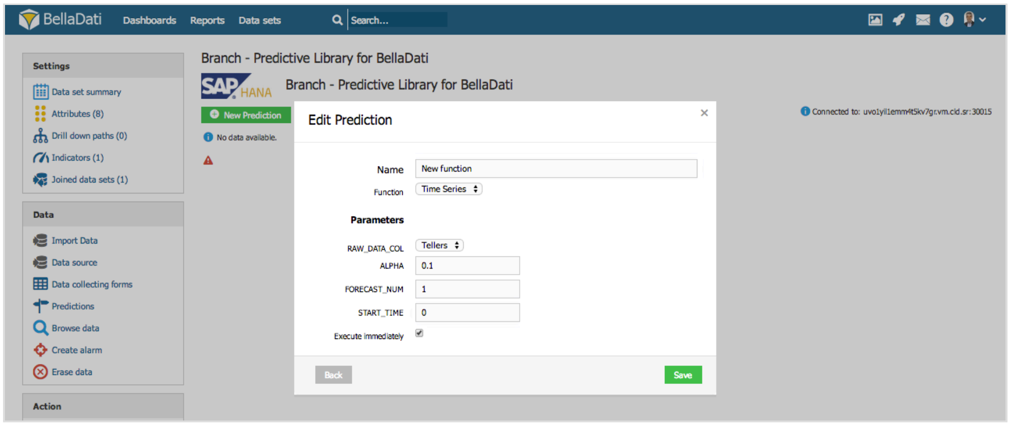
Branch - Predictive Library for BellaDati

Connected to: uvo1yll1emm4t5kv7gr.vm.cld.sr:30015

No data available.

Executing Prediction

Yu can execute prediction immediately by checking **Execute immediately** or manually from **Predictions Manger** by hitting **Run** button.



Branch - Predictive Library for BellaDati

Branch - Predictive Library for BellaDati

Connected to: uvo1yil1emm4t5kv7g.vm.cld.sr:30015

Edit Prediction

Name: New function

Function: Time Series

Parameters

RAW_DATA_COL: Tellers

ALPHA: 0.1

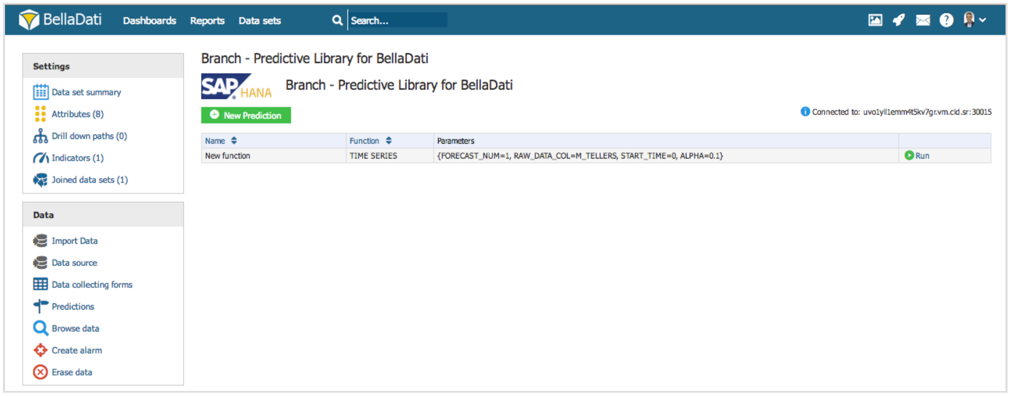
FORECAST_NUM: 1

START_TIME: 0

Execute immediately: ✓

Editing Prediction

To edit existing prediction, hover over its name and click **Edit** button. It opens prediction dialog with defined parameters.



Branch - Predictive Library for BellaDati

Branch - Predictive Library for BellaDati

Connected to: uvo1yil1emm4t5kv7g.vm.cld.sr:30015

Name	Function	Parameters	
New function	TIME SERIES	{FORECAST_NUM=1, RAW_DATA_COL=M_TELLERS, START_TIME=0, ALPHA=0.1}	Run

Structure Backup

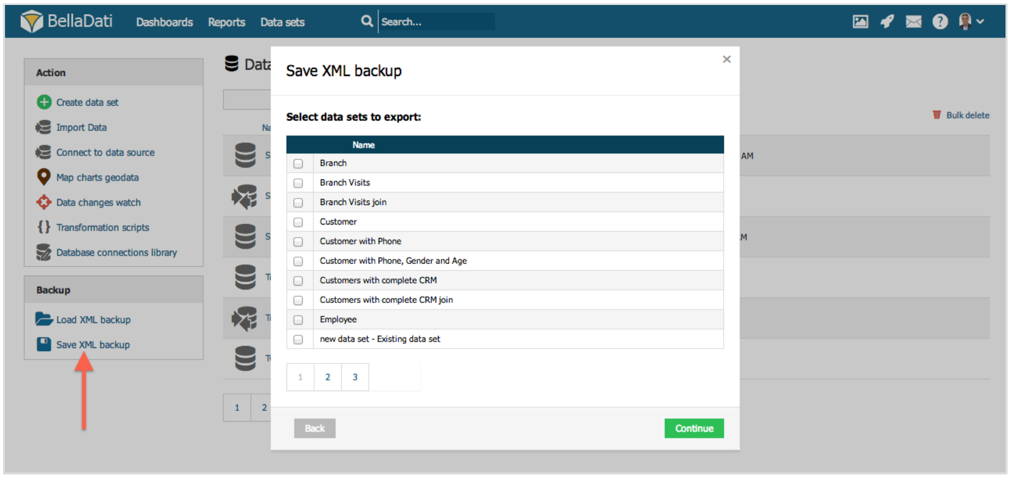
This function allows you to backup existing structures in BellaDati and migrate them to another instance (eg. from Cloud to On-Premise).

There are two types of BellaDati structures backup:

- Backup of the whole domain structure
- Data set and report structure backup - described below

The following structures are included in this backup:

- **Data sets**: attributes, indicators, indicator groups and their settings (appearance, format, formulas), data set owners, sharing settings
- Data source settings
- Alarms
- Joins
- **Reports**: Views (tables structure, chart types and their structure), report indicators, report owners, sharing settings.



Save XML backup

Select data sets to export:

Name
Branch
Branch Visits
Branch Visits join
Customer
Customer with Phone
Customer with Phone, Gender and Age
Customers with complete CRM
Customers with complete CRM join
Employee
new data set - Existing data set

1 2 3

There are two ways of this structure backup:

- Selected data set and reports based on its data backup.
- Bulk backup of more selected data sets, their settings and related reports.

When exporting data sets created by joins, all basic data sets will also be automatically exported.

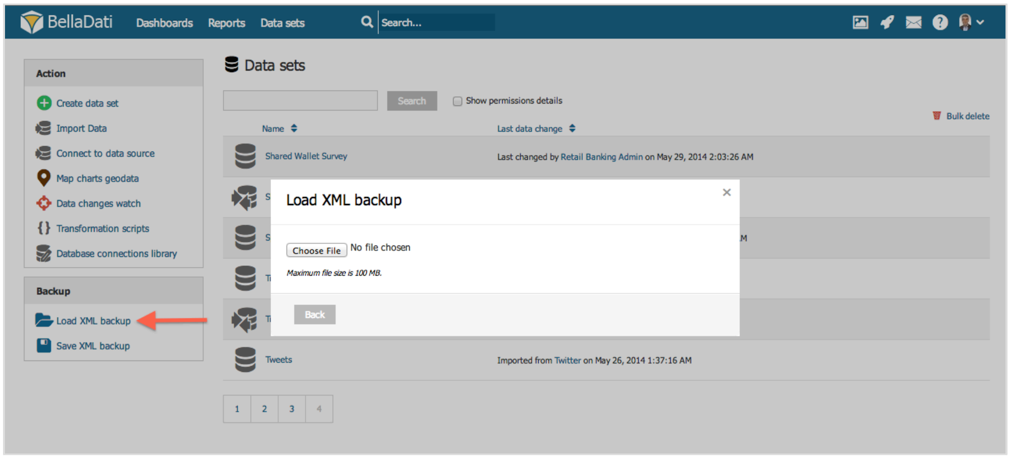
Exporting XML Structure

Data are not exported. Use separate exporting data function to backup data!

Import settings (templates), dashboards, users and user groups are not included in XML structure backup. We recommend to create users, user groups and assigning roles to them before importing XML backup. See also user import feature.

Importing XML Structure

A wizard is available during XML structure import. The preview of imported data sets and report parameters is displayed.



Several checks are performed during XML structure import:

- User and user groups: You can select another users or user groups from the existing accounts in the domain. *Note: All data sets and reports must have owners!*
- Indicator and attribute assign.

You can manually exclude some data sets and reports from the imported XML structure.

Existing XML structure can be modified - see Setup Data Model using XML for details.

Sharing Data Sets

Data set sharing functions are only available for the owners of the particular data set.

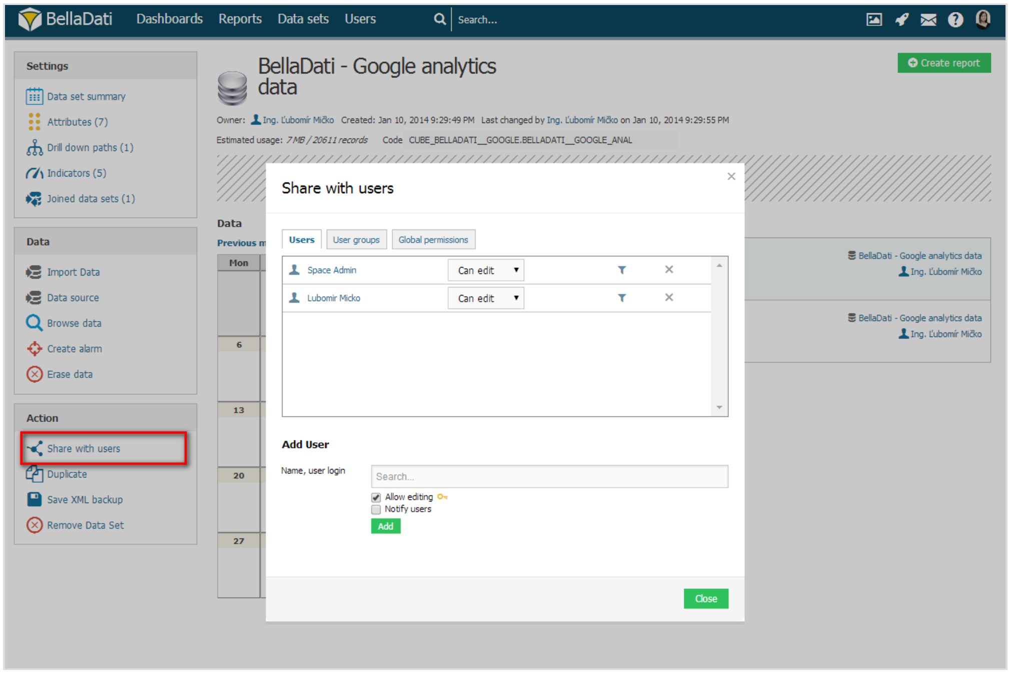
Data set sharing functions allows you to perform following actions:

- Grant access to data for selected users or user groups
- Allow access to data for all users in the domain globally
- Optionally notify users about granted access to data sets
- Restrict access to shared data at data level by defining the data filter for users and user groups

When you are setting up data set sharing for individual users or user groups, please distinguish following two access levels:

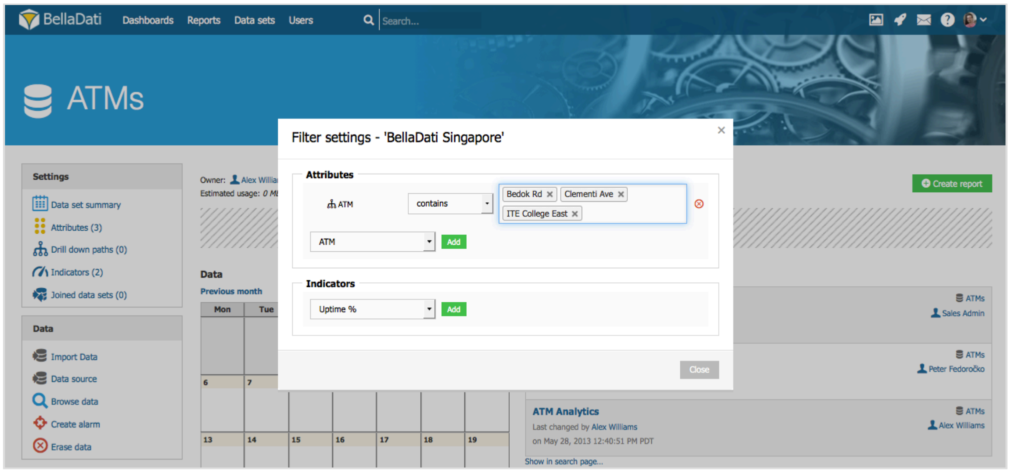
- **Read-only access**: Only reports or dashboards can be created.
- **Full access**: All functions except sharing and data set deleting are available.

As soon as the data set is shared with the user, he is able to create report and then dashboards based on shared data. In addition to that, users with full access can also manage the data set in the same way as it's owner except sharing settings or complete removal.



Data Set Filter

You can restrict access for selected users or user groups at data level. Eg. large companies can have more SBUs requiring the same data however each SBU management should have access only to the data concerned with their SBU. On the other side general management can still access aggregated data for all SBUs. Data set filter function allows you to restrict sharing only to records that contains selected members (eg. SBU or department name). All aggregations for these users is then available only on these data.



Filter settings - 'BellaDati Singapore'

Attributes

ATM contains Bedok Rd, Clementi Ave, ITE College East

ATM Add

Indicators

Uptime % Add

Close

Data set filter functions exactly the same as for report.

Data set member filter is not available for global data set sharing.
Always thoroughly plan member filter settings in connection with user roles and permissions! Otherwise data leakage may occur when sharing reports or dashboards based on this data set.

Watching Data Changes

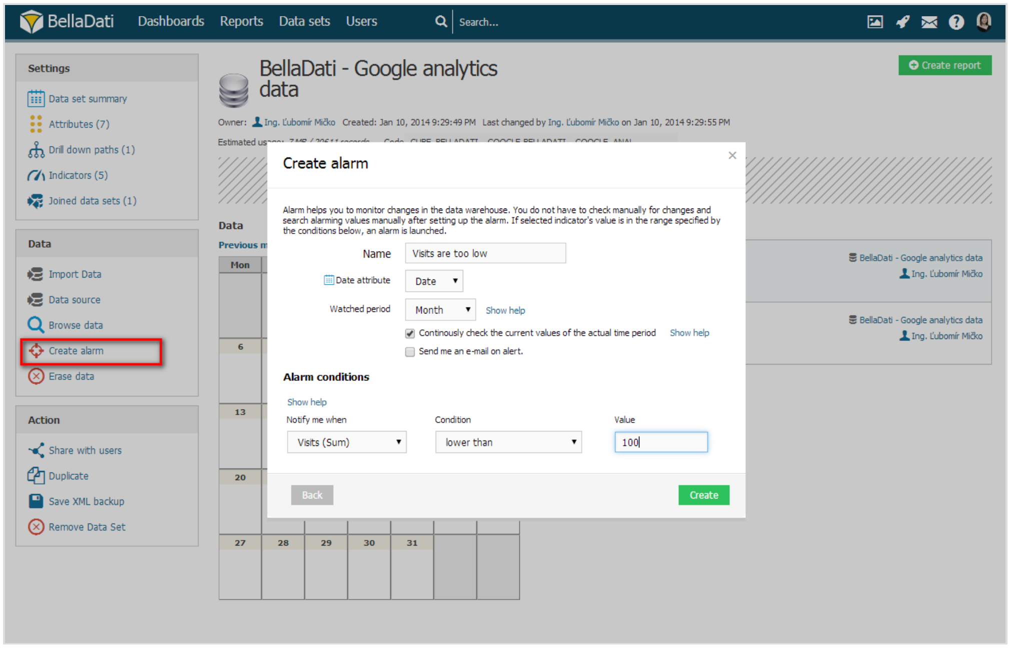
This function is also known as **alarms**. Data watching function allows to monitor actual data in the data set and launch alerts when the values fullfill predefined conditions.
One data set can contain more alarms.

Alarm parameters:

- Name
- **Watch period** (repeating interval): Data for this period are aggregated and checked against the condition repeatedly every first day after selected period (1st February for aggregated data of January, then 1st March for aggregated data of February etc.).
- **Continous check**: Condition is checked every day. Data are aggregated for time period above, however this period is sliding - eg. on 10th February for aggregated data of 9th January to 9th February.
- **Send e-mail**: When alert is launched, the user will be also notified by e-mail. By standard, user is notified in alert actions list or via recent changes dashlet on dashboard.
- **Condition**: Alarm condition. (See also "conditional formatting".)
    - Indicator nad it's aggregation.
    - Condition: equal, lower, greater, decrease , increase.
    - Value: Comparison to that absolute value.
    - Compared to: previous value (previous watch period or previous year).

Following actions are available in alarms list:

- **Delete**: Completely removes alarm from data set.
- **Disable (deactivate) alarm**: Condition checking and alerts will be disabled when the alarm is suspended.
- **Activate alarm**: Changes suspended alarm to active state - condition checking will be restored.
- **Launch now** (on demand condition checking): Allows user to execute condition checking for the particular alarm manually (see also "Continuous check above"). This is mainly for testing purposes.



BellaDati - Google analytics data

Owner: Ing. Ľubomír Mičko Created: Jan 10, 2014 9:29:49 PM Last changed by Ing. Ľubomír Mičko on Jan 10, 2014 9:29:55 PM

Create alarm

Alarm helps you to monitor changes in the data warehouse. You do not have to check manually for changes and search alarming values manually after setting up the alarm. If selected indicator's value is in the range specified by the conditions below, an alarm is launched.

Name: Visits are too low
Date attribute: Date
Watched period: Month
[✓] Continously check the current values of the actual time period
[ ] Send me an e-mail on alert.

Alarm conditions

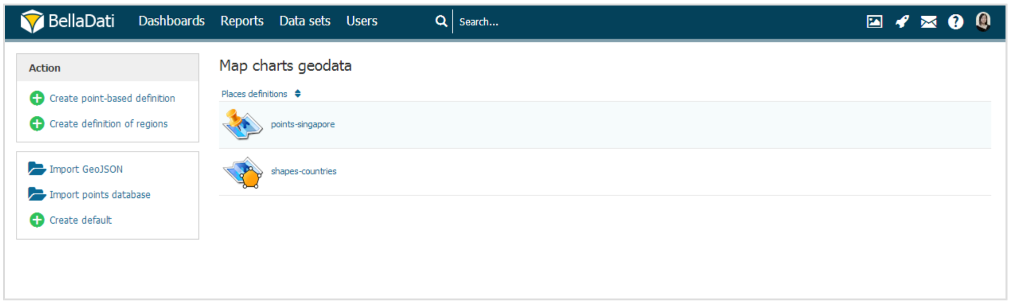
Notify me when	Condition	Value
Visits (Sum)	lower than	100

Managing GEO Data

BellaDati supports visualizing data in geo maps using two possibilities:

- GEO Points
- GEO Shapes

Click "Map charts geodata" in Data set menu to manage GEO points and regions.



Only users with data manager role can manage GEO points and regions. See BellaDati permissions and roles for details.

Available actions:

- **Create point-based definition**
- **Create definition of regions**
- **Import GeoJSON**: Allow to import predefined geo regions from file using GeoJSON format.
- **Import points database**: Allow to import predefined geo points from CSV file in structure: point name, longitude, latitude, additional names
- **Create default**: Will create default set of regions and points (countries, world capital cities, US states).

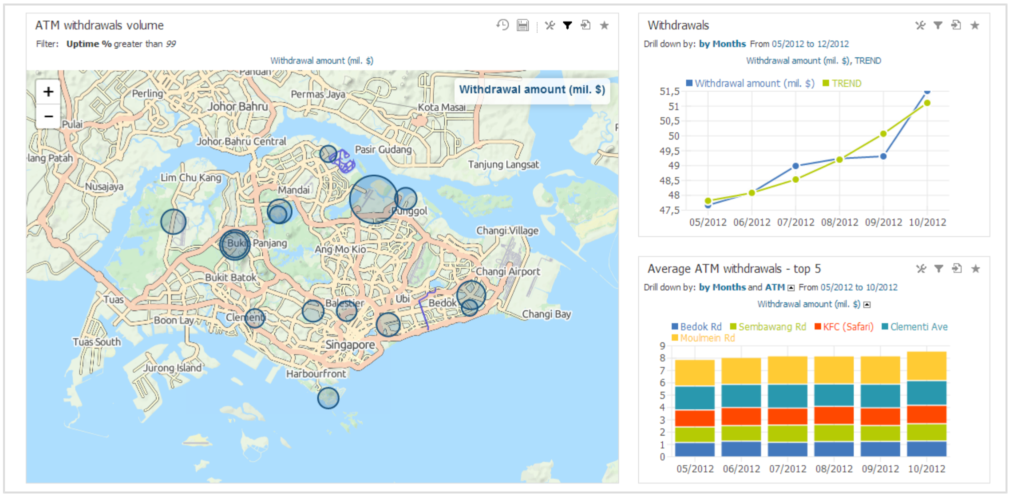
GEO Points

Include the GEO point definition in the regular data import mapping the longitude/latitude to the GEO Point attribute type.

Each GEO point is defined by its latitude and longitude coordinantes. **You have to define associated drill-down values to match drill-down members in the report view.** You can associate more drill-down values to single GEO point definition. Upper and lower case are distinguished (eg. New York, new york, NY are different values).

Following parameters are manageable for GEO points:

- Definition name
- Point parameters: Name, Latitude, Longitude, Associated drill-down values

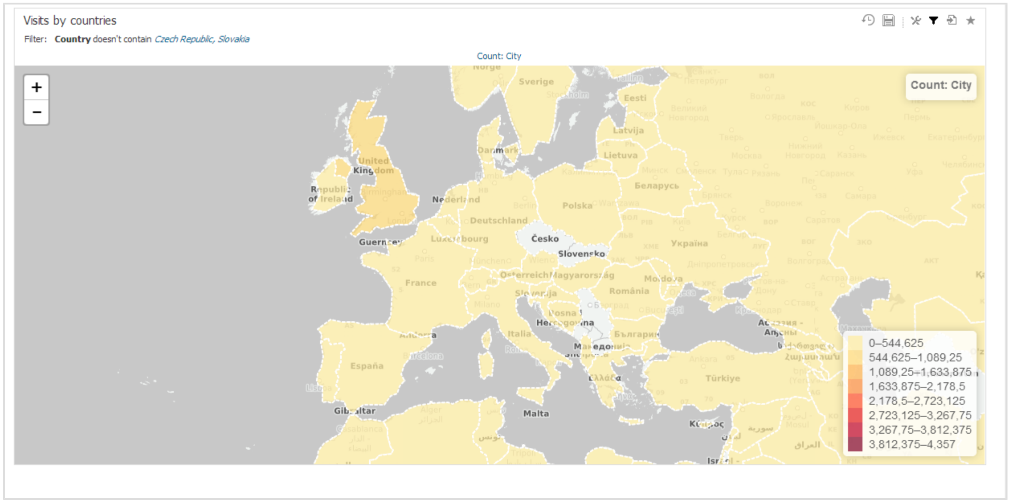

ATM withdrawals volume
Filter: Uptime % greater than 99
Withdrawal amount (mil. $)
Withdrawal amount (mil. $)
Johor Bahru
Singapore
Changi Airport
Withdrawals
Drill down by: by Months From 05/2012 to 12/2012
Withdrawal amount (mil. $), TREND
Withdrawal amount (mil. $)
TREND
05/2012
06/2012
07/2012
08/2012
09/2012
10/2012
Average ATM withdrawals - top 5
Drill down by: by Months and ATM From 05/2012 to 10/2012
Withdrawal amount (mil. $)
Bedok Rd
Sembawang Rd
KFC (Safari)
Clementi Ave
Moulmein Rd

GEO Regions

Each GEO region is defined by three or usually more points specified by latitude and longitude coordinantes. Standardized GeoJSON format is supported to simplify importing these definitions. **You have to define associated drill-down values to match drill-down members in the report view.** You can associate more drill-down values to single GEO region definition. Upper and lower case are distinguished (eg. Canada, canada, CAN are different values).

Following parameters are manageable for GEO regions:

- Definition name
- Region parameters: Name, GeoJSON coordinantes, Associated drill-down values

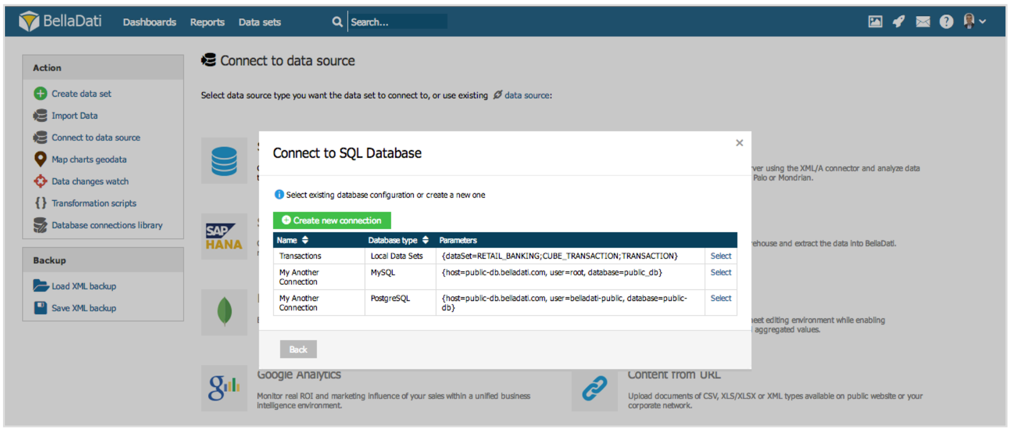


Database Connections Library

BellaDati enables you to **invoke existing connection** when connecting to SQL Data Sources.

After selecting SQL Dat Source, you can either:

- create new connection by clicking on **Create new connection**
- use existing connection by clicking **Select** link



Connect to data source

Select data source type you want the data set to connect to, or use existing data source:

Connect to SQL Database

Select existing database configuration or create a new one

Name	Database type	Parameters	
Transactions	Local Data Sets	{dataSet=RETAIL_BANKING;CUBE_TRANSACTION;TRANSACTION}	Select
My Another Connection	MySQL	{host=public-db.belladati.com, user=root, database=public_db}	Select
My Another Connection	PostgreSQL	{host=public-db.belladati.com, user=belladati-public, database=public-db}	Select

Monitor real ROI and marketing influence of your sales within a unified business intelligence environment.

Upload documents of CSV, XLS/XLSX or XML types available on public website or your corporate network.

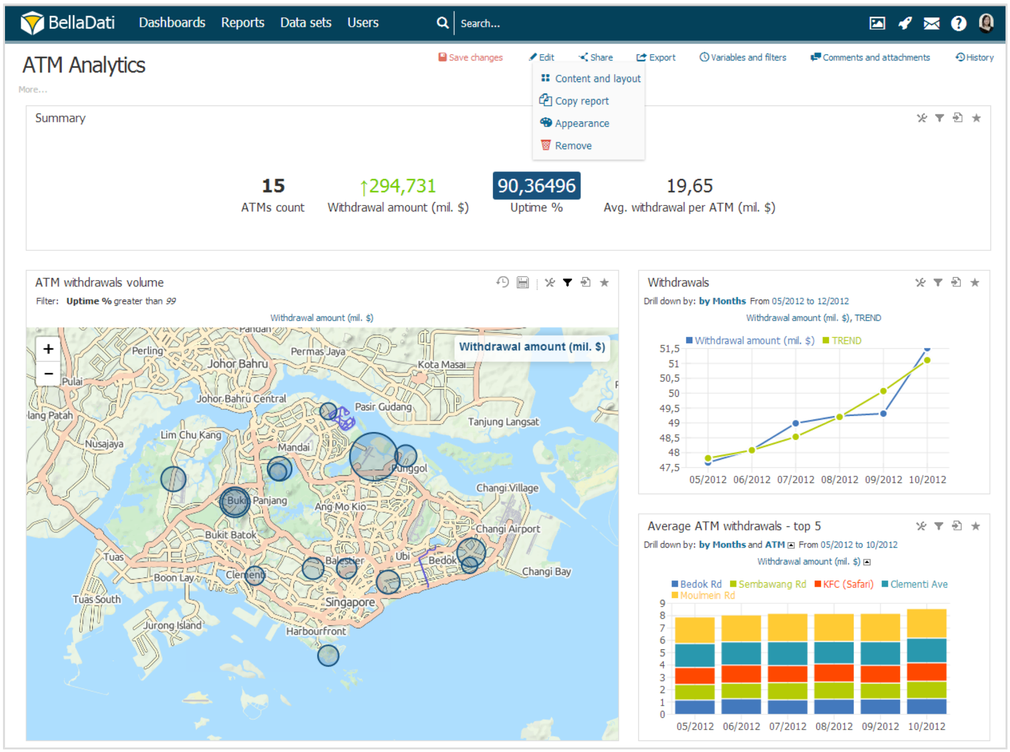
Reports

Reports in BellaDati serve for thorough data and trend analysis. Each report is composed of tables, charts, maps and KPI labels displaying data stored in data sets using various aggregations. Each report can also contain custom content, comments, attachments and can be easily shared with other BellaDati users, published to corporate intranet or public places. It is also possible to export each reports to PDF, Excel, PNG or Power Point. Additionally, regular exports sent via e-mail can also be scheduled.

The main purpose to work with reports is mainly for **analysts** who intend to drill-down accross large amounts of data in detail and then prepare selected figures for company managers.

Consider dashboards for the brief and fast continuous overview of trends by **managers**. Moreover dashboards allow to visually compare data from more reports and data set on a single page.

Only users with report editor role are allowed to manage the reports. If you don't have this role, please contact your BellaDati administrator.



In reports the following objects are defined and managed:

- Report
- Report Layout
- View
  - Table
  - Chart
  - Geo map
  - KPI label
  - Custom content
  - Formulas

Following actions can be performed within reports:

- Setting Date Interval
- Displaying Indicators
  - Adding Indicators
  - Editing Indicators
  - Indicators Appearance
  - Conditional Formating
- Using Filters
  - Filtering by Attribute
  - Filtering by Indicator
  - Modifying Indicators
- Exporting View

Creating Report

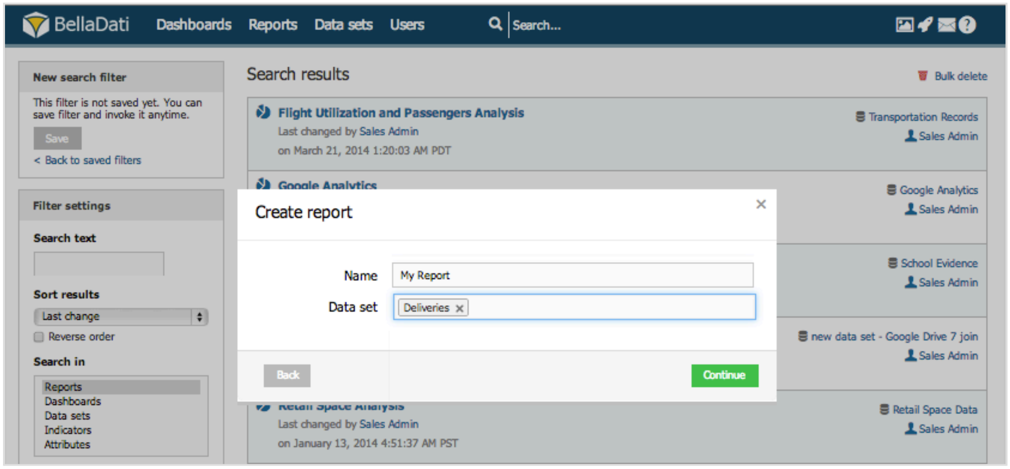
Only users with report editor role are allowed to create and manage the reports.

Point to the **Reports** in main menu on the top of the screen and click "Create report" item which will appear.

1. Enter name of the new report.
2. Select the data set you are going to analyze data from.

New report can be created also directly from data set summary.

New report has no contents - continue by Creating View.



This filter is not saved yet. You can save filter and invoke it anytime.

Flight Utilization and Passengers Analysis
Last changed by Sales Admin
on March 21, 2014 1:20:03 AM PDT
Transportation Records
Sales Admin

Google Analytics
Google Analytics
Sales Admin

School Evidence
Sales Admin

new data set - Google Drive 7 join
Sales Admin

Retail Space Analysis
Last changed by Sales Admin
on January 13, 2014 4:51:37 AM PST
Retail Space Data
Sales Admin

Create report

Name: My Report

Data set: Deliveries

Views

Each report can consist of the following elements (generally called views):

- Creating Table
- Creating Chart
- Creating Geo Maps
- Creating KPI labels
- Adding Custom Content

You can select up to three basic dimensions in each view:

- Date, Time
- Attributes (drill-down path)
- Indicators

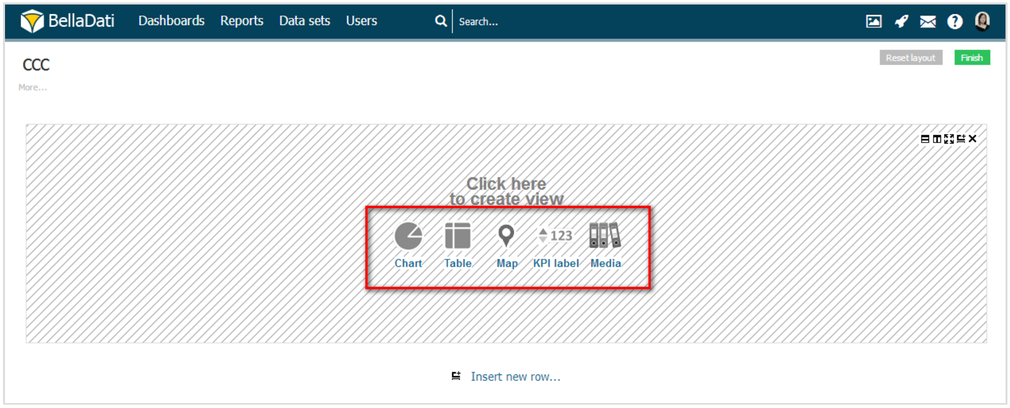
See Import Settings or Detailed Glossary for more detailed description.

There is a soft limit of about 8 views per one report. We do not recommend to exceed this limit to preserve good BellaDati performance running in your web browser.

Creating View

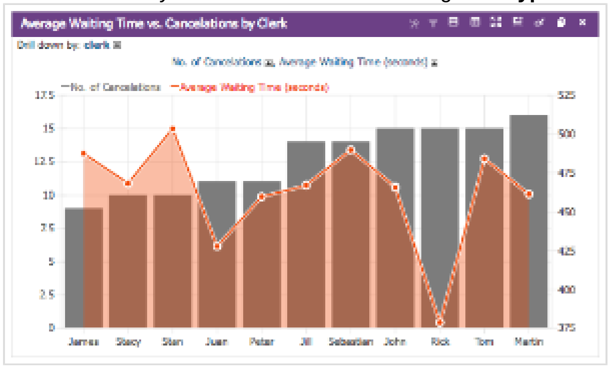
You need to be in **edit mode** in order to create new view. Click on "Edit" in top report menu to activate edit mode.

To add a new **View** hover over free place and click on desired **View type**. The *Add new view* dialog box will appear.



View types

BellaDati allows you to select from the following **view types**:

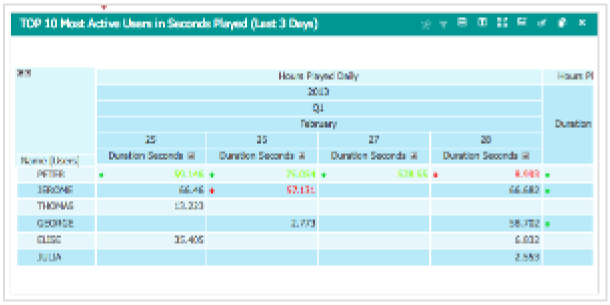


Chart

Chart view offers various data visualization types. You can specify:

- **Indicators** displayed in the chart.
- **Drill down path** used to cathegorize data in more detail.
- **Date interval** restricting time period of displayed data
- **Chart appearance**

To learn more about **Charts** continue by Creating Chart.


TOP 10 Most Active Users in Seconds Played (Last 3 Days)

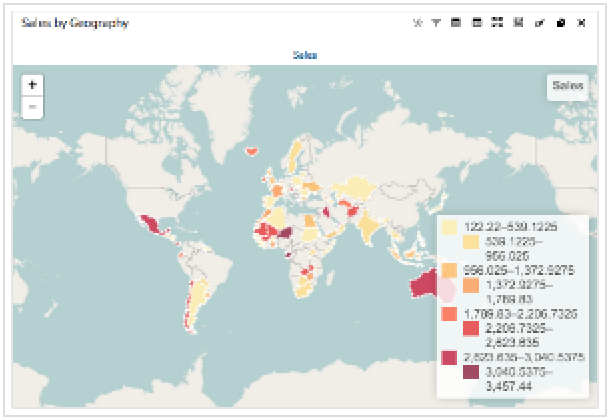
	Hours Played Daily				Hours Pl
	2013				Duration
	Q1				
	February				
	25	26	27	28	
Name (Users)	Duration Seconds	Duration Seconds	Duration Seconds	Duration Seconds	
PETER	90.146	75.054	539.55	8.983	
JEROME	66.46	57.131		66.682	
THOMAS	13.223				
GEORGE		2.773		58.782	
ELISE	35.405			6.832	
JULIA				2.553	

Table

Table view allows displaying data in the crosstab grid.
You can specify:

- **Indicators** displayed in the table.
- **Drill down paths** used to cathegorize data in more detail.
- **Date interval** restricting time period of displayed data
- **Table appearance**

To learn more about **Tables** continue by Creating Table.

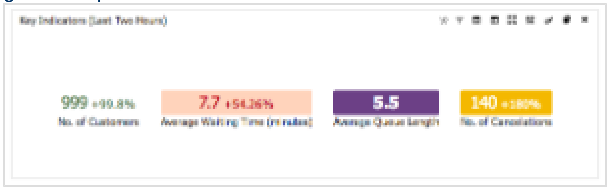


Geo map

Geo map view offers data visualization on the interactive map.
You can specify:

- **Indicators** displayed in the map.
- **Drill down path** used to cathegorize data in more detail.
- **Time interval** restricting time period of displayed data

To learn more about **Geo maps** continue by Creatin g Geo Maps.



KPI label

KPI label view allows clear monitoring of the important indicator value.

You can specify:

- **Indicator** displayed in the label.
- **Time interval** restricting time period of displayed data
- **Label appearance**

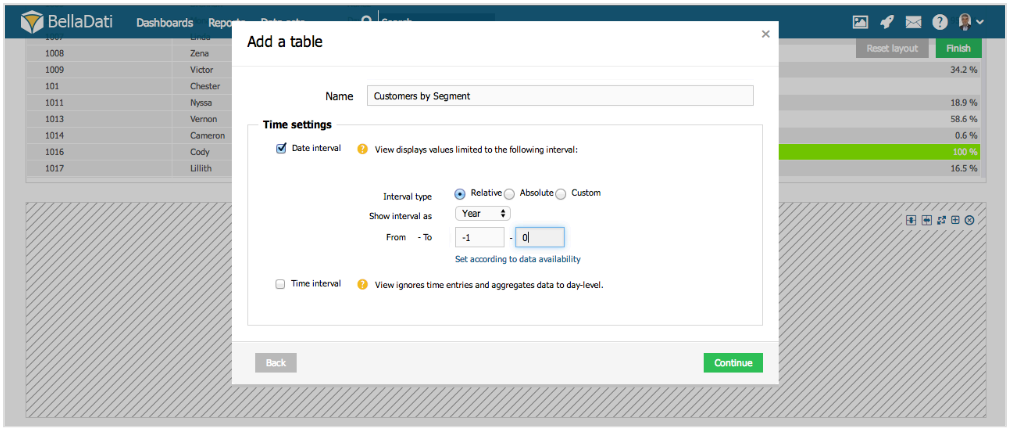
To learn more about **KPI labels** continue by Creating KPI labels.

Creating Table

⚠ You need to be in **edit mode** in order to create new table. Click on "Edit" in top report menu to activate edit mode.

To add a new **Table**, hover over free place and click on **Table** view type. The *Add a table* dialog box will appear.

1. Enter name of the new table.
2. Check **Date interval** if you need to restrict time period of displayed data - continue by Setting Date Interval.


Add a table

Name: Customers by Segment

Time settings

[✓] Date interval — View displays values limited to the following interval:

Interval type: [✓ Relative] Absolute Custom

Show interval as: Year

From - To: -1 - 0

Set according to data availability

[ ] Time interval — View ignores time entries and aggregates data to day-level.

Confirm new **Table** view by clicking on a green **Add** button. BellaDati will guide you through additional setup.

- **Indicators:** select and edit displayed indicators in the table - continue by Displaying Indicators.

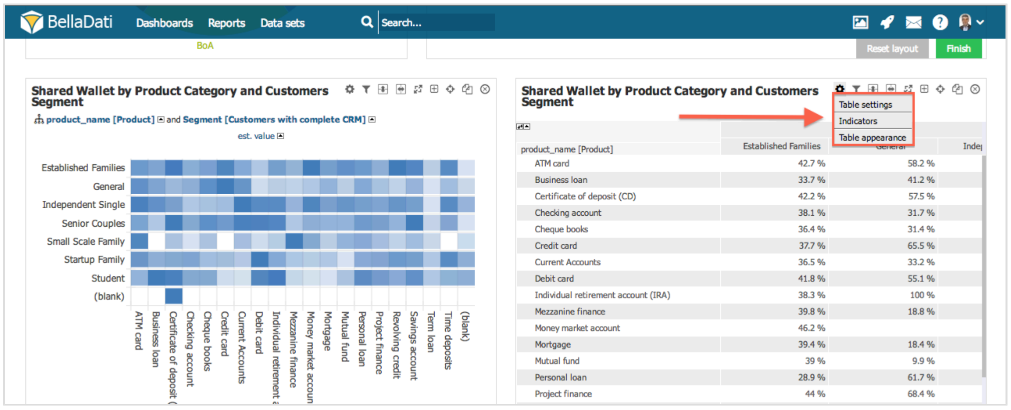
✓ You can create also table without any indicators. This is useful for "static" items lists reports (especially in conjuction with more drill-downs and hiding drill-down "+" signs).

Table management

You can perform additional operations in the upper right corner of the inserted **Table** view:

- Table settings
- Indicators
- Table appearance
- Filter setting - continue by Using Filters
- Export view - continue by Exporting View
- Add to dashboard
- Move table
- Duplicate table
- Delete table

✓ Hover over **Indicators** in a toolbox list to quickly add or remove indicators.



Shared Wallet by Product Category and Customers Segment

product_name [Product]	Established Families	General
ATM card	42.7 %	58.2 %
Business loan	33.7 %	41.2 %
Certificate of deposit (CD)	42.2 %	57.5 %
Checking account	38.1 %	31.7 %
Cheque books	36.4 %	31.4 %
Credit card	37.7 %	65.5 %
Current Accounts	36.5 %	33.2 %
Debit card	41.8 %	55.1 %
Individual retirement account (IRA)	38.3 %	100 %
Mezzanine finance	39.8 %	18.8 %
Money market account	46.2 %	
Mortgage	39.4 %	18.4 %
Mutual fund	39 %	9.9 %
Personal loan	28.9 %	61.7 %
Project finance	44 %	68.4 %

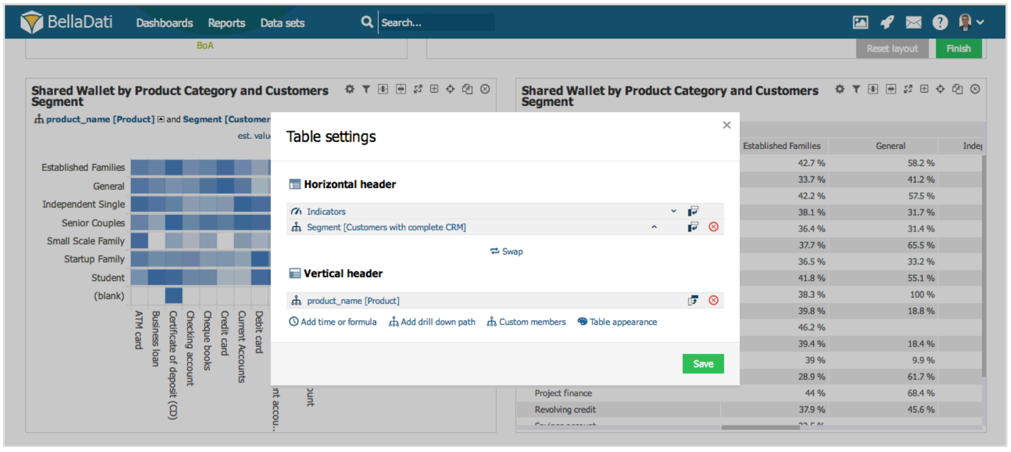
Table settings

Click on **toolbox** icon or select **Table settings** from the toolbox list to enter *Table settings* dialog.

Table settings dialog shows **Time**, **Indicators** and **Drill down paths** currently positioned at X and Y axes. BellaDati allows you to:

- **Swap** X and Y axes
- **Switch** between horizontal and vertical position.
- **Change** order within axis.
- **Remove** drill down path.
- **Enter** indicators or drill down path dialogs.

- Editing Table Axes Content
- **Add** custom members
- **Edit** table appearance.



Custom member

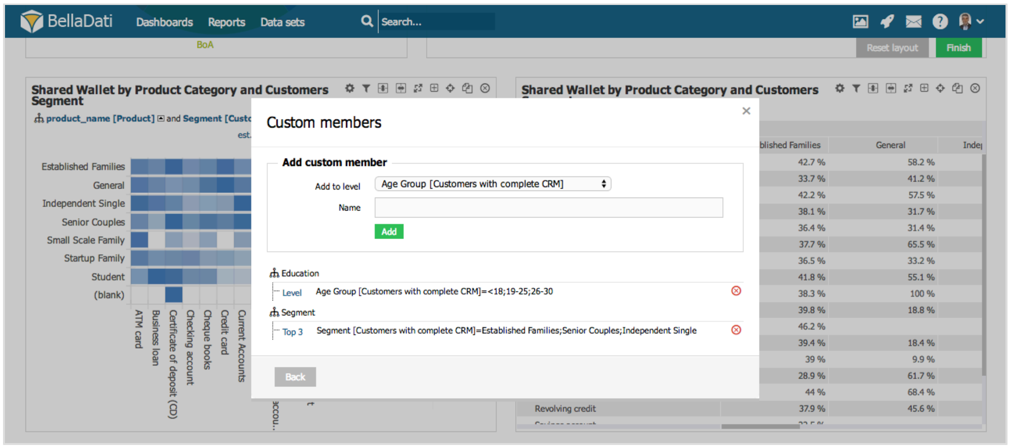
Custom member allows you adding your own nodes into drill down paths. You can add Custom member from *Table settings* dialog after selecting **Add custom member**.

Custom member dialog allows you to:

- Select **Level** for a custom member.
- Specify **Name** of the custom member.

Every new node requires additional definition. *Custom member definition* dialog allows you to determine attribute values from particular levels which will be aggregated into custom member.

You can delete created nodes in *Custom member* dialog.


Custom members

Add custom member

Add to level: Age Group [Customers with complete CRM]

Name:

Add

Education
- Level — Age Group [Customers with complete CRM]=<18;19-25;26-30

Segment
- Top 3 — Segment [Customers with complete CRM]=Established Families;Senior Couples;Independent Single

Back

Table Appearance

You can access **Table Appearance** from the *Table Settings* dialog or the from toolbox drop down list.

Table Appearance dialog allows:

- Applying predefined **Content color themes**.
- Setting **Title Color**.
- Checking **Even and odd rows** differentiation.
- **Hide drilldown cell controlls**: Drill-down "+" signs will be disabled for all drill-downs in the table (useful for "static" item lists etc.).
- Selecting **Drill down depth shading**.
- Force **column width**.
- Force **left header** width.

Hover over **Table Appearance** in toolbox list to quickly apply **Title Color**.

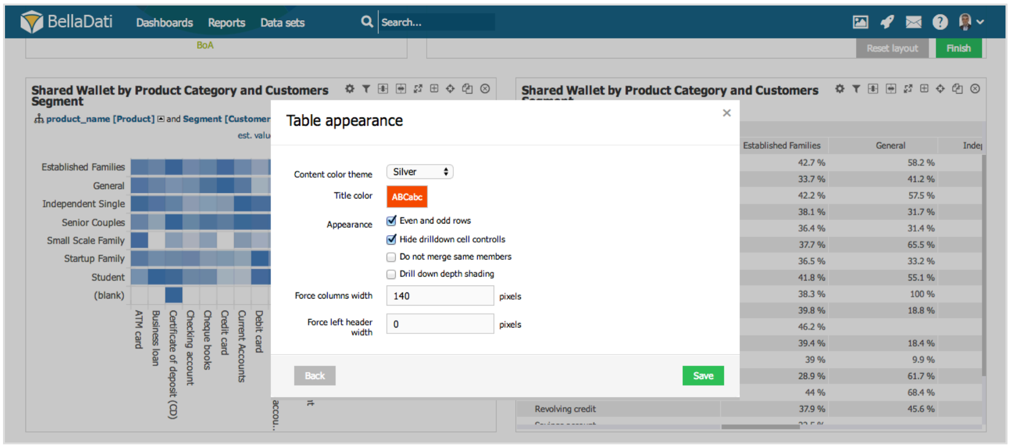


Table appearance

Content color theme: Silver

Title color: ABCabc

Appearance:
- [✓] Even and odd rows
- [✓] Hide drilldown cell controlls
- [ ] Do not merge same members
- [ ] Drill down depth shading

Force columns width: 140 pixels

Force left header width: 0 pixels

Back | Save

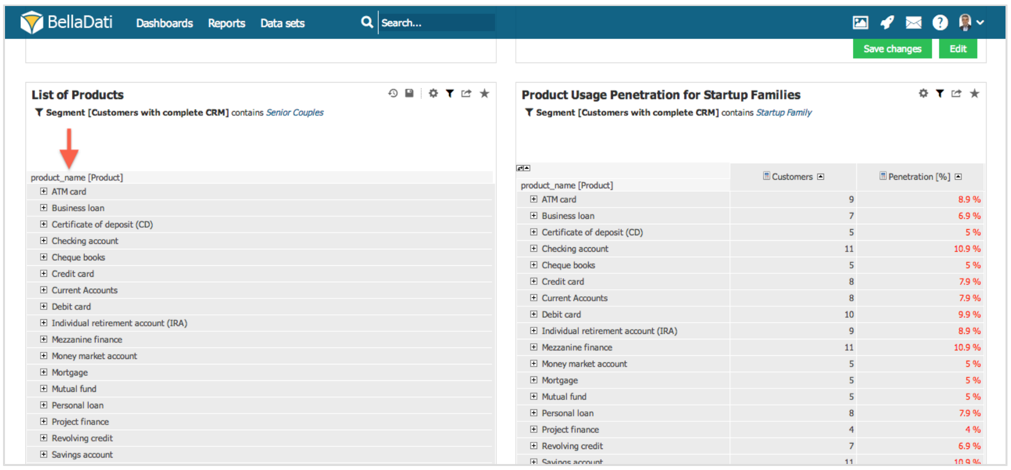
Displaying Source Data

See how it works.

Static Lists

BellaDati allows you to list attribute members without any indicators in form of a **static lists**. In order to create static lists:

1. Create new **Table**
2. Select arbitrary **Indicator**.
3. Choose desired **Attributes**.
4. Remove **Indicator** from the table.
5. Optionally hide drill-down controlls in **Table Appearance**.
6. Optionally prevent BellaDati from merging same members in **Table Appearance**.



List of Products

Segment [Customers with complete CRM] contains *Senior Couples*

product_name [Product]
ATM card
Business loan
Certificate of deposit (CD)
Checking account
Cheque books
Credit card
Current Accounts
Debit card
Individual retirement account (IRA)
Mezzanine finance
Money market account
Mortgage
Mutual fund
Personal loan
Project finance
Revolving credit
Savings account

Product Usage Penetration for Startup Families

Segment [Customers with complete CRM] contains *Startup Family*

product_name [Product]	Customers	Penetration [%]
ATM card	9	8.9 %
Business loan	7	6.9 %
Certificate of deposit (CD)	5	5 %
Checking account	11	10.9 %
Cheque books	5	5 %
Credit card	8	7.9 %
Current Accounts	8	7.9 %
Debit card	10	9.9 %
Individual retirement account (IRA)	9	8.9 %
Mezzanine finance	11	10.9 %
Money market account	5	5 %
Mortgage	5	5 %
Mutual fund	5	5 %
Personal loan	8	7.9 %
Project finance	4	4 %
Revolving credit	7	6.9 %
Savings account	11	10.9 %

Adding Date Intervals

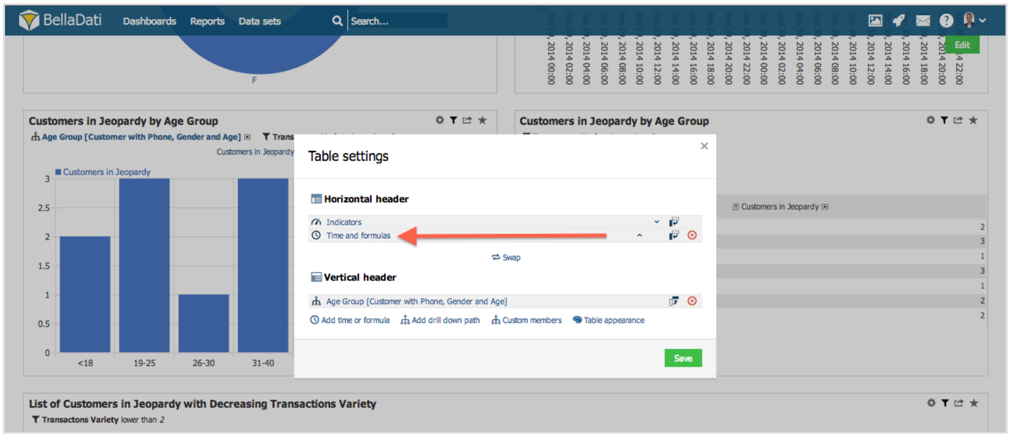
Please, make sure to get familiar with Setting Date Interval before proceeding with this section. Note, that adding multiple intervals is allowed only for **Table** views.

When creating Table view, you can define multiple **Time intervals** or write special **Table formulas**.

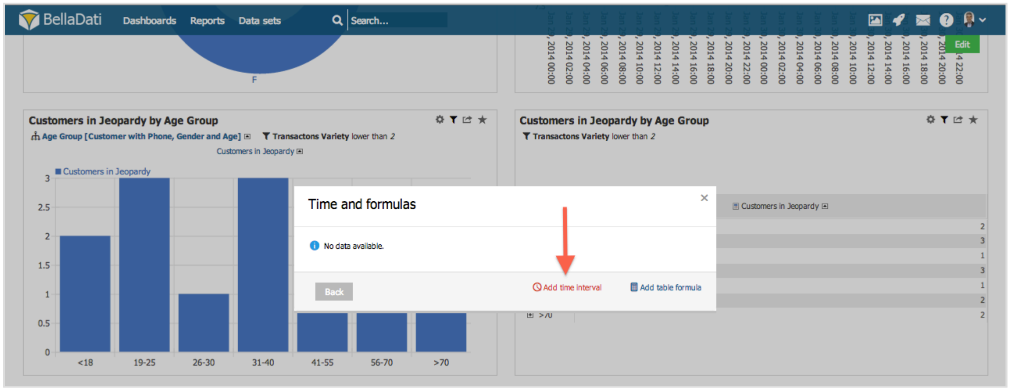
Adding time interval

To add new time interval go to **Table settings** and:

- Click **Add time definition**, if you have not applied any interval yet.
- Click **Time and formulas**, if you have already applied time interval(s).


BellaDati
Dashboards
Reports
Data sets
Search...
Customers in Jeopardy by Age Group
Age Group [Customer with Phone, Gender and Age]
Customers in Jeopardy
Table settings
Horizontal header
Indicators
Time and formulas
Swap
Vertical header
Age Group [Customer with Phone, Gender and Age]
Add time or formula
Add drill down path
Custom members
Table appearance
Save
List of Customers in Jeopardy with Decreasing Transactions Variety
Transactons Variety lower than 2

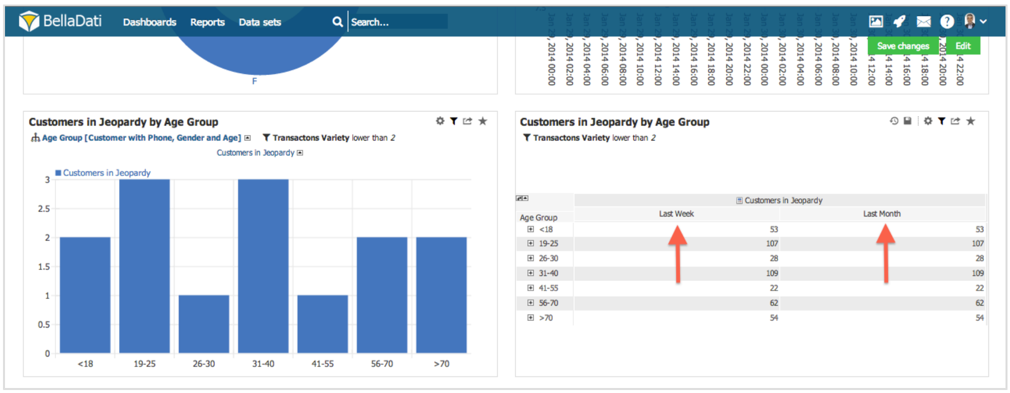
You will see list of current time intervals. To add new time definition, click **Add time interval**. You will be prompted with popup window similar to one in Setting Date Interval.



After settings confirmation, table will be extended with defined intervals.

Use time intervals to display data with various date/time granularities. For example: Display data broke-down by months and total year.

You can see table with **Current Month** and **Last Year in Months** definition bellow.



Customers in Jeopardy by Age Group

Transactons Variety lower than 2

	Customers in Jeopardy	
Age Group	Last Week	Last Month
<18	53	53
19-25	107	107
26-30	28	28
31-40	109	109
41-55	22	22
56-70	62	62
>70	54	54

Date Interval Appearance

Click on **Appearance Settings** button next to **Date Interval** definition. It allows you to set up:

- Color
- Bold values
- Avoid conditional formatting
- Emphasise only

Working with Data Intervals

This user case will introduce you how to work with data intervals

1. **Adding time interval with absolute date values**
2. **Adding time interval with relative date values**
3. **Adding table formula with absolute date values**
4. **Adding table formula with date variables**

Editing Table Axes Content

BellaDati allows you to add to each axis multiple:

- **Date Aggregation**
- **Drill-down path**

Click on **Add time or formula** or **Add drill down path** links to place them onto the axis.

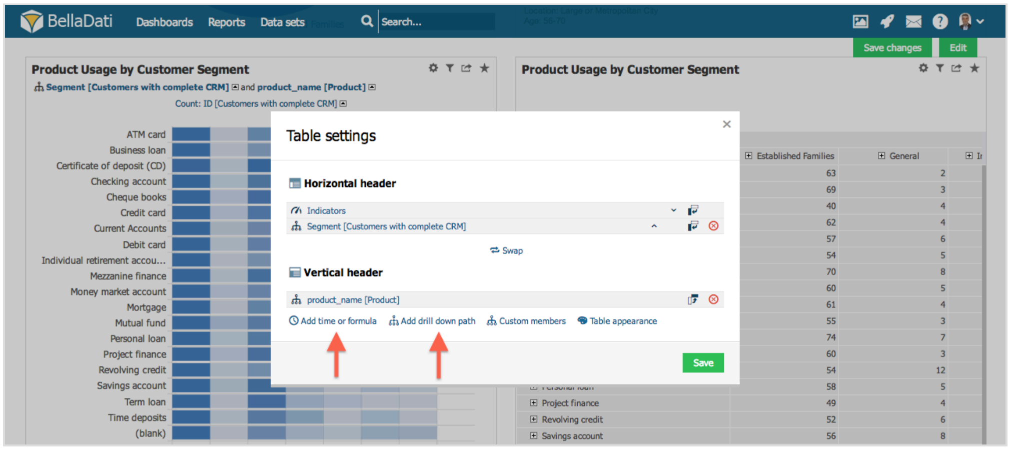


Table settings

Horizontal header

Indicators

Segment [Customers with complete CRM]

Swap

Vertical header

product_name [Product]

Add time or formula · Add drill down path · Custom members · Table appearance

Save

Adding Date Aggregation to the Axis

To add date aggregation:

1. click on **Add time or formula** link
2. click on newly added **Times and formulas**
3. select **Add time interval**

You can place following date aggregations on the axis:

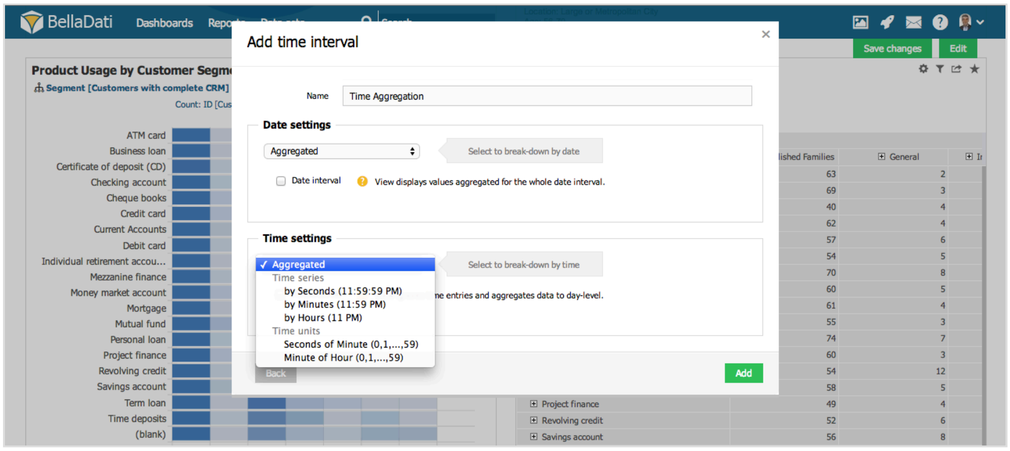
- **Time Series**
  - **by Days** - displays axis with all days from the data set or days from the date filter **(1/1/2013 - 1/3/2014)**
  - **by Weeks** - displays axis with all weeks from the data set or weeks from the date filter **(1/2013 - 48/2014)**
  - **by Months** - displays axis with all months from the data set or months from the date filter **(1/2013 - 8/2014)**
  - **by Quarters** - displays axis with all quarters from the data set or quarters from the date filter **(I/2013 - III/2014)**
  - **by Years** - displays axis with all years from the data set or years from the date filter **(2013 - 2014)**

- **Date Units**
  - **Day of Week** - displays axis with days of week **(Su - Sa)**
  - **Day of Month** - displays axis with days of month **(1 - 31)**
  - **Day of Year** - displays axis with days of year **(1 - 366)**
  - **Week of Year** - displays axis with weeks of year **(1 - 53)**
  - **Month of Year** - displays axis with months of year **(1 - 12)**
  - **Quarter of Year** - displays axis with quarters of year **(I - IV)**
  - **Year by Weeks** - displays axis with years taking in consideration to weeks **(2013 - 2014)**

Additionally, you can place following time aggregations (if available):

- **Time Series**
  - **by Seconds** - displays axis with all seconds from the data set or seconds from the time filter
  - **by Minutes** - displays axis with all minutes from the data set or minutes from the time filter
  - **by Hours** - displays axis with all hours from the data set or hours from the time filter

- **Time Units**
  - **Seconds of Minute** - displays axis with seconds of minute **(1 - 59)**
  - **Minutes of Hour** - displays axis with minutes of hour **(1 - 59)**



Add time interval

Name: Time Aggregation

Date settings

Aggregated — Select to break-down by date

Date interval — View displays values aggregated for the whole date interval.

Time settings

✓ Aggregated
Time series
by Seconds (11:59:59 PM)
by Minutes (11:59 PM)
by Hours (11 PM)
Time units
Seconds of Minute (0,1,...,59)
Minute of Hour (0,1,...,59)

Select to break-down by time

ne entries and aggregates data to day-level.

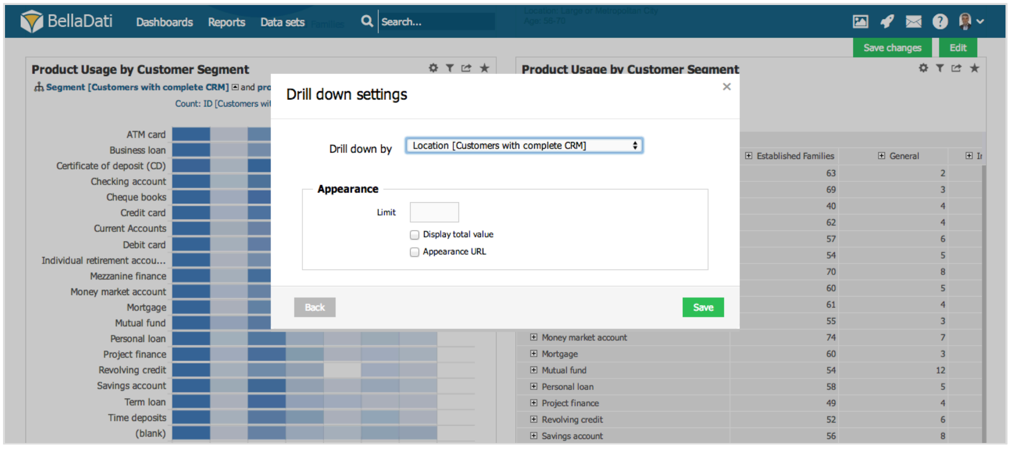
Back — Add

Drill Down Path

You can add Drill down path from *Table settings* dialog after selecting **Add drill down path**.

From *Drill down path* dialog you can perform following operations:

- Add new **Drill down path** to the view.
- Mask members with custom **URLs**
- Setup **Limit** for members in the drill down path. Displayed memebers depend on current sorting setup.
- Display **Total** value. New consolidated element will be added to the drill down path.
- **Format** total value's font color, style and background.



Drill down settings

Drill down by: Location [Customers with complete CRM]

Appearance

Limit

Display total value

Appearance URL

Back — Save

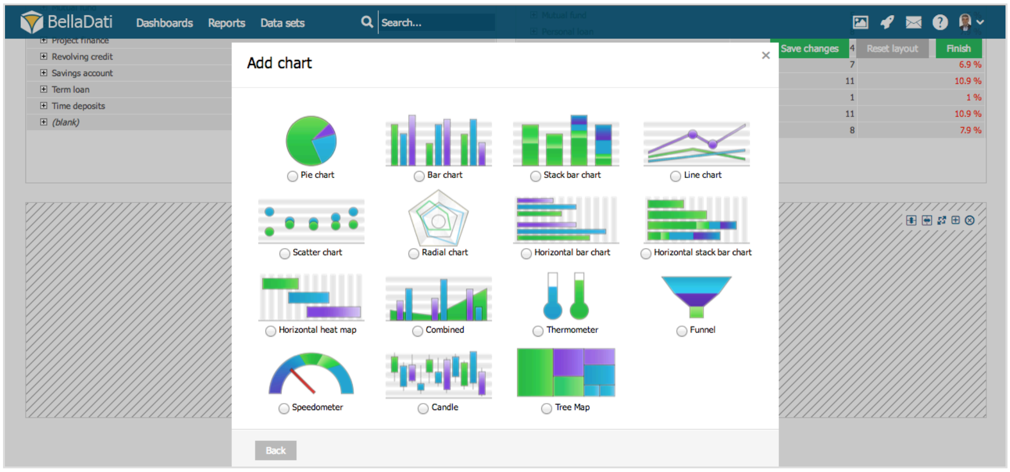
Creating Chart

⚠ You need to be in **edit mode** in order to create new chart. Click on "Edit" in top report menu to activate edit mode.

To add a new **Chart** hover over free place and click on **Chart** view type. The *Add chart* dialog box will appear.

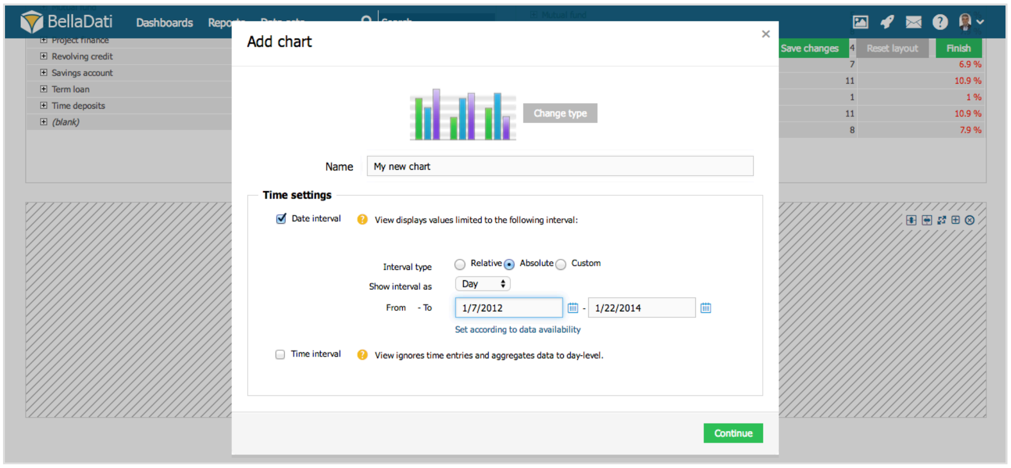
BellaDati supports various chart types:

- Pie chart
- Bar chart
- Stack bar chart
- Line chart
- Scatter chart
- Radial chart
- Horizontal bar chart
- Horizontal heat map
- Candle chart
- Thermometer
- Funnel
- Speedometer
- Combined (each indicator can be displayed differently): bar chart, stack bar chart, line chart, scatter chart



Select desired chart type. BellaDati will guide you through additional setup.

1. Enter name of the new chart.
2. Check **Date interval** if you need to restrict time period of displayed data - continue by Setting Date Interval.
3. Select and edit **Indicators** displayed in the chart - continue by Displaying Indicators.



Add chart

Name: My new chart

Time settings

[✓] Date interval — View displays values limited to the following interval:

Interval type: Relative [✓ Absolute] Custom
Show interval as: Day
From - To: 1/7/2012 - 1/22/2014
Set according to data availability

[ ] Time interval — View ignores time entries and aggregates data to day-level.

Chart management

You can perform additional operations in the upper right corner of the inserted **Chart** view:

- Chart settings
- Drill down paths
- Indicators
- Chart appearance
- Filter setting - continue by Using Filters
- Export view - continue by Exporting View
- Add to dashboard
- Move chart
- Duplicate chart
- Delete chart

Hover over **Indicators** in the toolbox list to quickly add or remove indicators. Hover over **Drill down path** in the toolbox list to quickly add or remove attributes.

Chart Settings

Click on **toolbox** icon or select **Chart settings** from the toolbox list to enter *Chart settings* dialog.

Each chart usually contains at least one indicator. *Chart settings* dialog allows you to:

- Edit **Indicators**
- **Change type** of the chart
- Add **Time axis** - continue by Setting Date Interval
- Editing Chart Axes Content
- Change **Chart appearance**
- Edit **Conditional formatting**
- Force indicators to **Display in the single chart**

When more **Indicators** are added to the chart, they are displayed in separate charts within the view by default. **Display in the single chart** option forces them to be grouped into single chart.

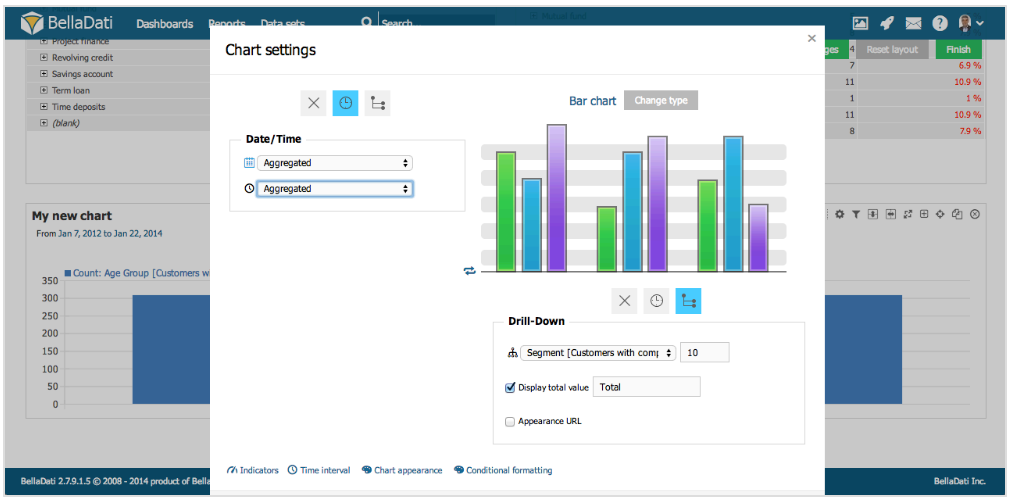


Chart settings

Bar chart

Date/Time

Aggregated

Aggregated

Drill-Down

Segment [Customers with comp | 10

☑ Display total value: Total

☐ Appearance URL

Displaying Source Data

See how it works.

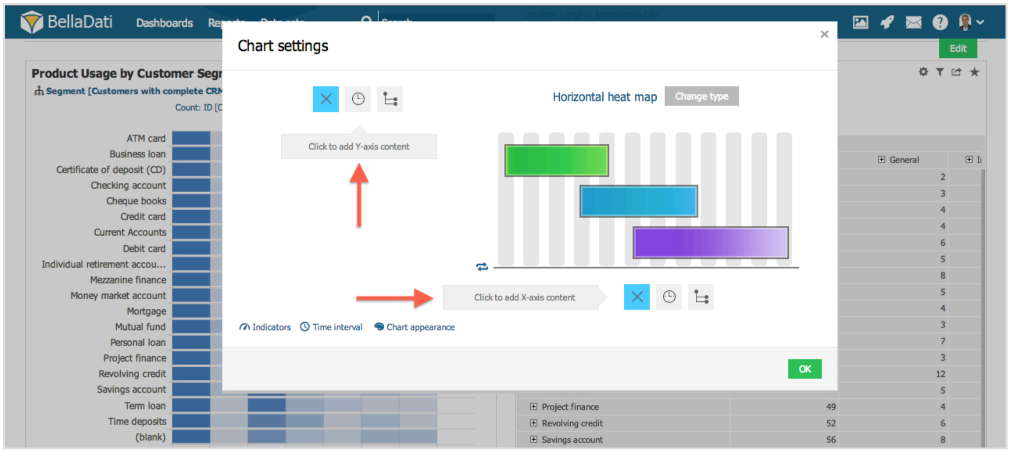
Editing Chart Axes Content

Different chart types may have various number of axes.

BellaDati allows you to set each axis to:

- **Date Aggregation**
- **Drill-down path**
- **Empty content**

Click on **axis type** button to set the content.



Setting Axis to Date Aggregation

You can place following date aggregations on the axis:

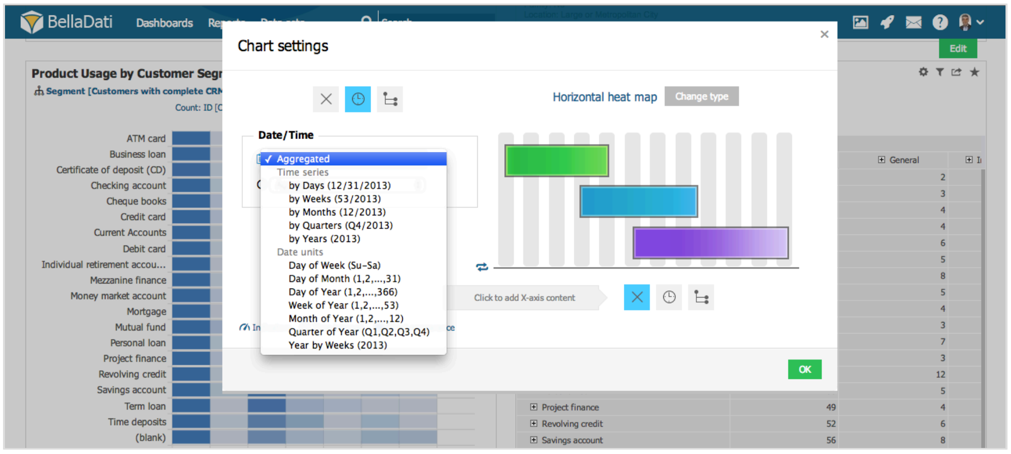
- **Time Series**
  - **by Days** - displays axis with all days from the data set or days from the date filter **(1/1/2013 - 1/3/2014)**
  - **by Weeks** - displays axis with all weeks from the data set or weeks from the date filter **(1/2013 - 48/2014)**
  - **by Months** - displays axis with all months from the data set or months from the date filter **(1/2013 - 8/2014)**
  - **by Quarters** - displays axis with all quarters from the data set or quarters from the date filter **(I/2013 - III/2014)**
  - **by Years** - displays axis with all years from the data set or years from the date filter **(2013 - 2014)**

- **Date Units**
  - **Day of Week** - displays axis with days of week **(Su - Sa)**
  - **Day of Month** - displays axis with days of month **(1 - 31)**
  - **Day of Year** - displays axis with days of year **(1 - 366)**
  - **Week of Year** - displays axis with weeks of year **(1 - 53)**
  - **Month of Year** - displays axis with months of year **(1 - 12)**
  - **Quarter of Year** - displays axis with quarters of year **(I - IV)**
  - **Year by Weeks** - displays axis with years taking in consideration to weeks **(2013 - 2014)**

Additionally, you can place following time aggregations (if available):

- **Time Series**
  - **by Seconds** - displays axis with all seconds from the data set or seconds from the time filter
  - **by Minutes** - displays axis with all minutes from the data set or minutes from the time filter

- **Time Units**
  - **Seconds of Minute** - displays axis with seconds of minute **(1 - 59)**
  - **Minutes of Hour** - displays axis with minutes of hour **(1 - 59)**

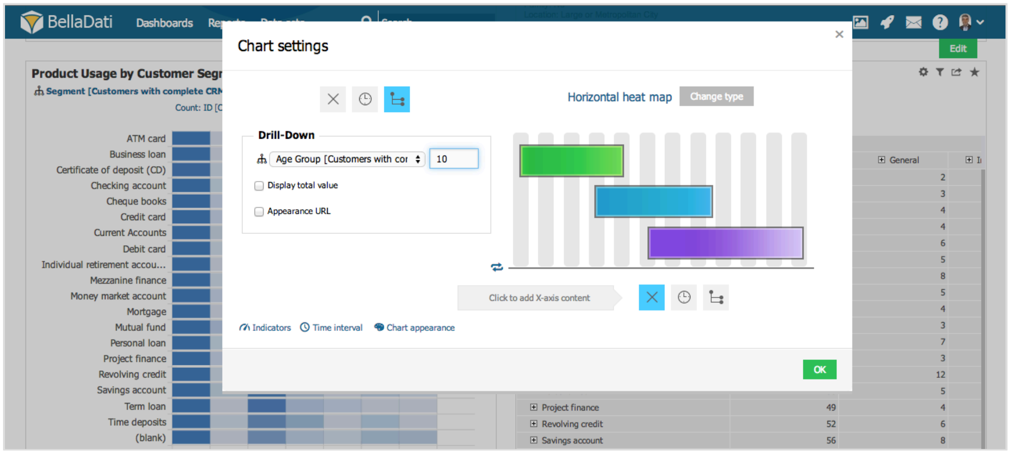


Setting Axis to Drill down path

You can place drill-down path on the axis. Click on the drill-down path axis button and select desired attribute. Additionally, you can edit:

- **Limit** for members in the drill down path. Displayed members depend on current sorting setup.
- **Total** value. Adds new member to the chart. Aggregation method depends on indicator settings - continue by Displaying Indicators

Display Total Value option does not apply to **Pie** and **Stack bar** charts.



Managing chart appearance

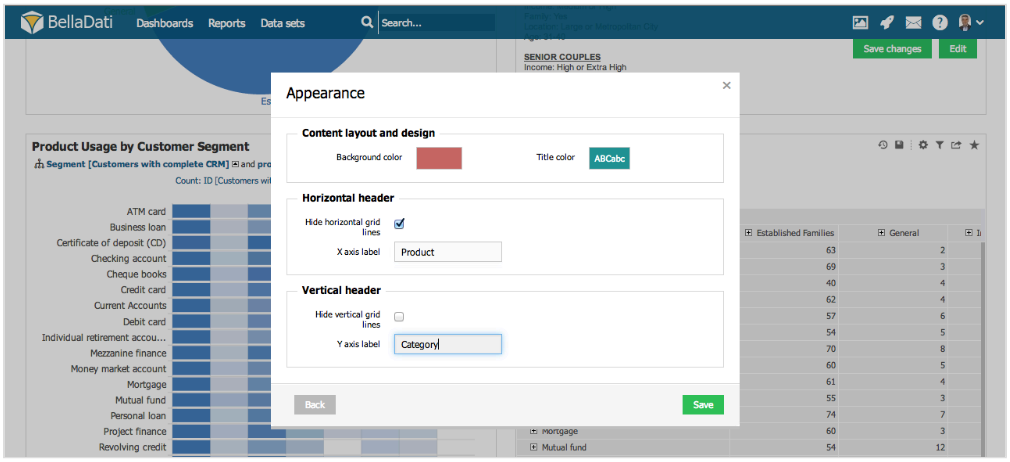
Chart appearance

You can edit Chart appearance from *Table settings* dialog after selecting **Chart appearance** or directly from the toolbox list.

Each chart type includes relevant subset of appearance options.

Appearance dialog allows you to:

- Specify **Color theme** and **Title color**
- **Separate to columns**. You can specify to how many columns will be the charts displayed within the view, if there are more columns (default is one chart per row).*Applicable for two or more indicators within one view.*
- **Value range**: You can override default lower and upper limits for displaying data on Y axis. *Note: Both limits must be set at the same time.*
- **Chart axis**: Hide X axis, Hide Y axis
- **Members on horizontal axis**: Applicable if drill-down and time dimension are set together. Date/time information are displayed on X axis by standard. Use this feature to display drill-down members on X axis instead (date/time information will be distinguished by legend).
- **Group** values
- **Show** values



Appearance

Content layout and design

Background color: 🟥 Title color: ABCabc

Horizontal header

Hide horizontal grid lines: ✓

X axis label: Product

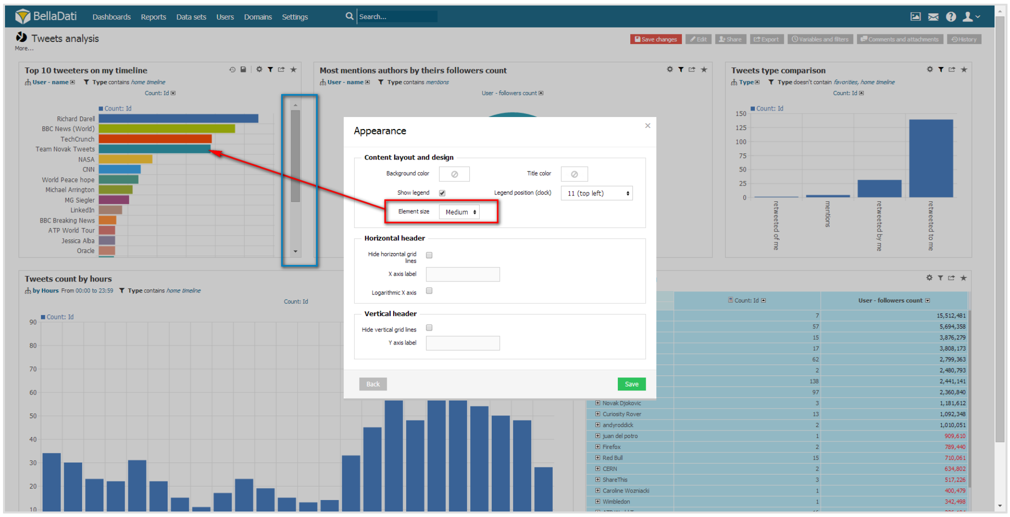
Vertical header

Hide vertical grid lines: ☐

Y axis label: Category

Displaying chart in "Scroll bar" mode

In case, your chart contains many elements (e.g. bars), and you won't let the system calculate the chart dimensions according to the view size, you can set the **Element size** parameter to specify the minimal element size. If the resulting size of chart is larger than current view size, scroll bars will appear. See the following example:



Appearance

Content layout and design

Background color · Title color

Show legend: ✓ Legend position (dock): 11 (top left)

Element size: Medium

Horizontal header

Hide horizontal grid lines · X axis label · Logarithmic X axis

Vertical header

Hide vertical grid lines · Y axis label

BellaDati
Tweets analysis
Top 10 tweeters on my timeline
Most mentions authors by theirs followers count
Tweets type comparison
Tweets count by hours
Back
Save

Attribute values appearance

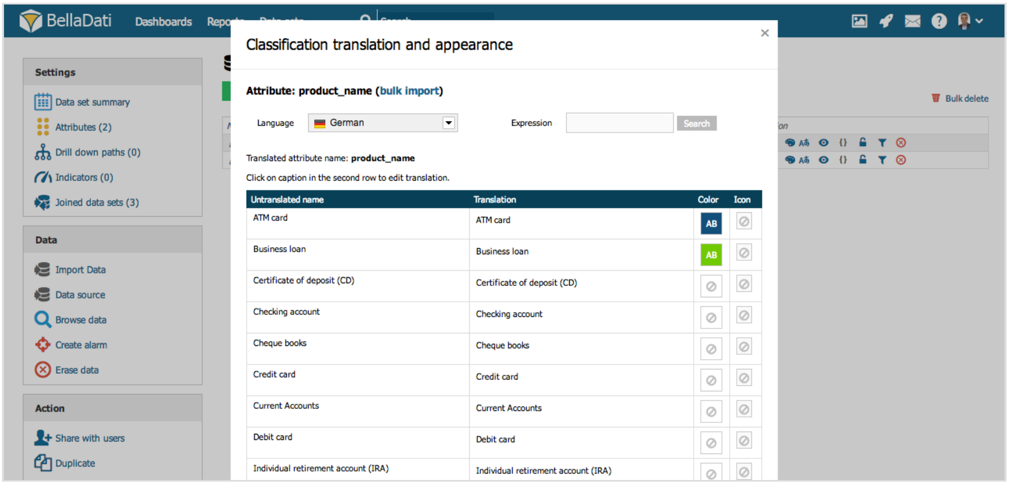
Member appearance allows you to adjust and modify color, icon and translation of drill down members.

You can access **Member appearance** from *Attribute selection* dialog. Displayed members will refer to the attribute currently selected in the **Add drill down path** option.

Classification translation and appearance dialog enables:

- modifying node's font color and background
- assigning icon
- adjusting translations

⚠ These changes will affect all views and reports based on this data set. You must have editiong permissions to perform such changes.



Classification translation and appearance

Attribute: product_name (bulk import)

Language: German

Translated attribute name: **product_name**

Click on caption in the second row to edit translation.

Untranslated name	Translation	Color	Icon
ATM card	ATM card	AB	⊘
Business loan	Business loan	AB	⊘
Certificate of deposit (CD)	Certificate of deposit (CD)	⊘	⊘
Checking account	Checking account	⊘	⊘
Cheque books	Cheque books	⊘	⊘
Credit card	Credit card	⊘	⊘
Current Accounts	Current Accounts	⊘	⊘
Debit card	Debit card	⊘	⊘
Individual retirement account (IRA)	Individual retirement account (IRA)	⊘	⊘

See Members appearance and Attributes and members translation for more details.

Creating Geo Maps

You need to be in **edit mode** in order to create new Geo map. Click on "Edit" in top report menu to activate edit mode.

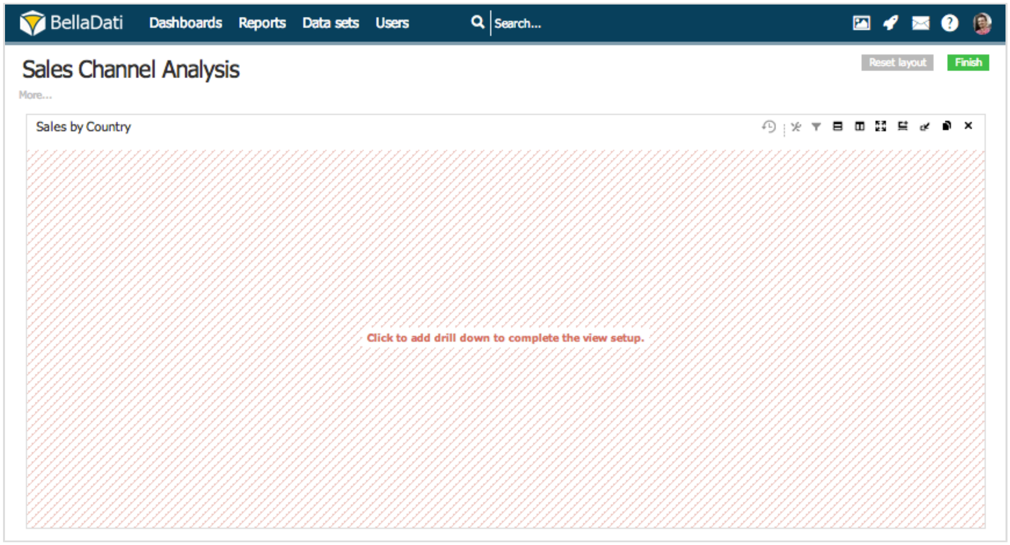
Geo data needs to be defined prior to the map view development or the Data Set has to include **GEO Point attribute.**

Geo maps allow you to visualize **Indicators** on the interactive maps.

To add a new **Geo map**, hover over free place and click on **Map** view type. The *Create map chart* dialog box will appear.

1. Enter name of the new map.
2. Select and edit Indicators displayed in the map - continue by Displaying Indicators.

When a new map is created, it does not display any data. You have to add drill down path to complete the view setup. Drill down path defines which attribute will be used to cetegorize and position data on the map.



Example: *The most common drill downs associated with Geo maps include Country, Region or City. When Country attribute is selected:*

- *Indicators are grouped according particular country.*
- *Values are placed to proper position corresponding with country location.*

Drill Down Path

You can specify drill down path from *Chart settings*. To access dialog:

1. click on **add drill down to complete the view setup** link in the created view.
2. enter *Map chart settings* dialog from the toolbox and click **Add drill down path**.

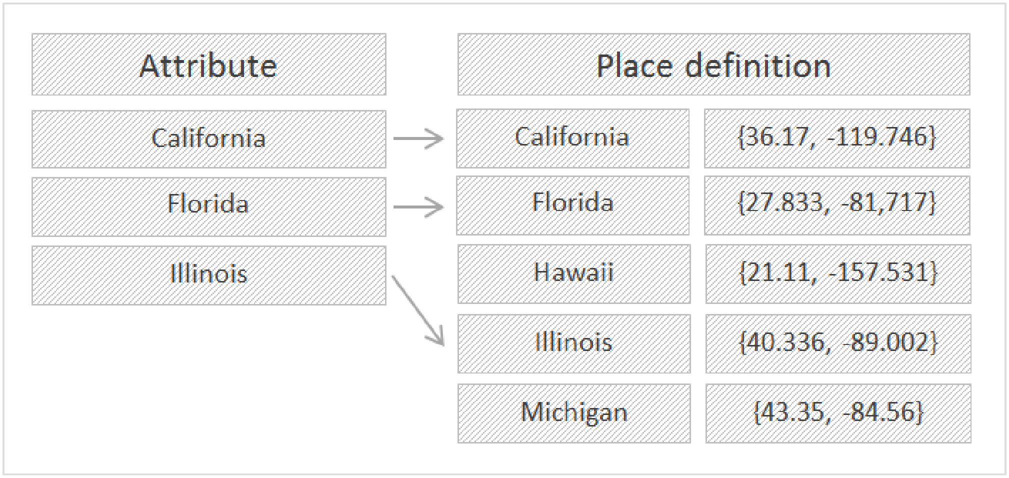
Chart settings dialog allows you to:

- Specify **Attribute or GEO Point** to be used for aggregating and categorizing indicator's values.
- Select **Place definition** for proper positioning and visualization of data.
- **Manage places definitions** - continue by Managing GEO Data.
- Select desired **map provider.**
- Setup **Limit** for members in the drill down path. Displayed memebers depend on current sorting setup.

Associating Attribute with Place definition

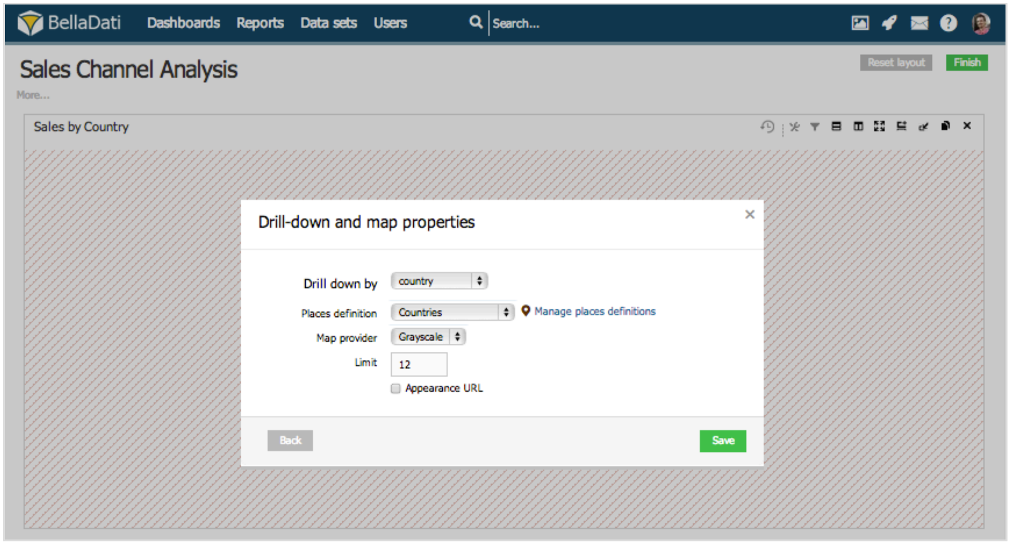
There is a very thin connection between **drill down** and **place definition**. While **drill down** maintains indicator's values and their categorization, **place definition** keeps pairs of location identification and its coordinates. BellaDati automatically connects attribute's members with places and therefore enables their proper positioning.

You should always select only attributes which can be associated with an existing **Place definition**. In case of attribute with no related **Geo data**, indicators will not be properly displayed.



Drill down option allows you to define:

1. how displayed indicators will be grouped and categorized.
2. what granularity will visualized data have.
3. which mapping background will be user (Standard, Black & White, Gray Scale, Outdoors, Cyclo, etc.)



Sales Channel Analysis

Sales by Country

Drill-down and map properties

Drill down by: country

Places definition: Countries — Manage places definitions

Map provider: Grayscale

Limit: 12

Appearance URL

Place definition option is used to associate selected attribute with **Geo data**.

Select **Place definition** according to:

1. **Drill down** path you selected.
2. **Style** of visualization you want to apply (point vs. region).

Each **Place definition** includes pair on place *identification* and its *coordinates*.

Coordinates can be represented as:

- **Points**. In point definition, location is identified by pair of values representig exact longitude and latitute.
- **Regions**. In region definition, area is restricted with polygon, composed of set of longitude and latitude values.

For more information about **Place definition** continue by Managing GEO Data.

Using GEO Points

GEO point is a special attribute type holding latitude and longitude coordinates of a special location. GEO points are most convenient to use when location information are stored directly in imported Data Set. It automatically generated its own place definition and can be directly used in reports.

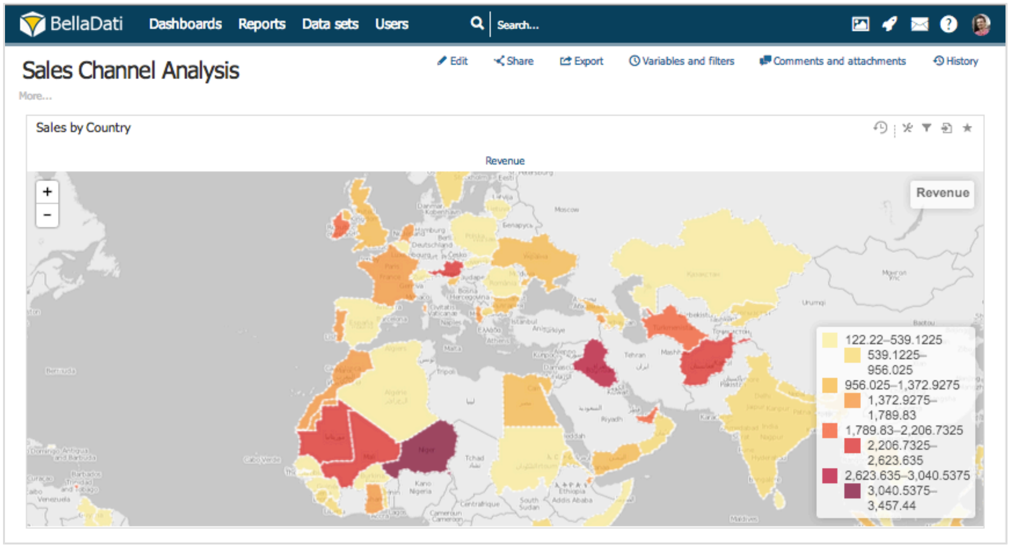
To use geo points:

1. Select **GEO point** attribute in Drill-down settings
2. Find relevant **Point definition**
3. Choose desired **map provider**

Map management

You can perform additional operations in upper right corner of the inserted **Map** view:

- Table settings
- Filter setting - continue by Using Filters
- Export view - continue by Exporting View
- Add to dashboard
- Move map
- Duplicate map
- Delete map

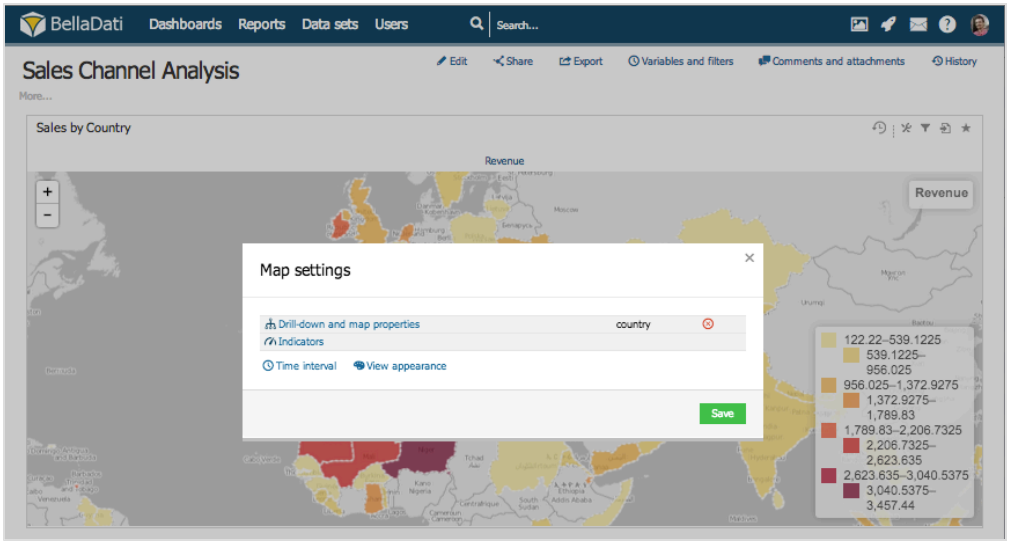


Map settings

Click on **toolbox** icon to enter *Map settings* dialog.

Map settings dialog shows **Indicators** and **Drill down path** currently applied to the map. BellaDati allows you to:

- **Enter** indicators or drill down path dialogs.
- **Remove** drill down path.
- **Add** time axis - continue by Setting Date Interval.



Map settings

Drill-down and map properties	country
Indicators	

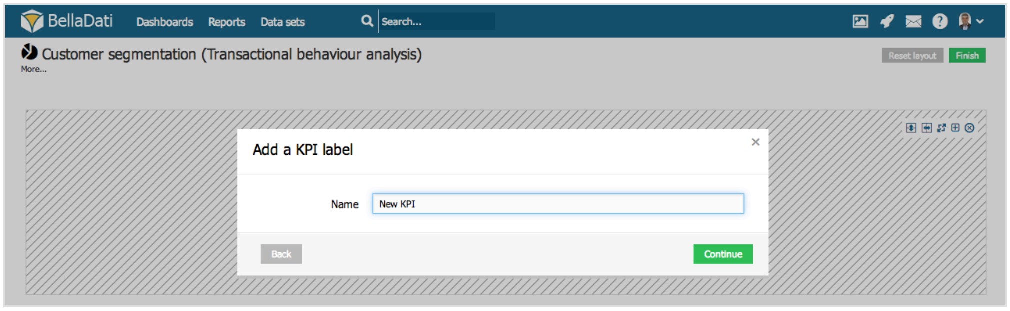
Creating KPI labels

KPI labels allow you to clearly monitor important indicator values.

⚠ You need to be in **edit mode** in order to create new tables. Click on "Edit" in top report menu to activate edit mode.

To add a new **KPI label**, hover over free place and click on **KPI label** view type. The *Add a KPI label* dialog box will appear.

1. Enter name of the new KPI label.

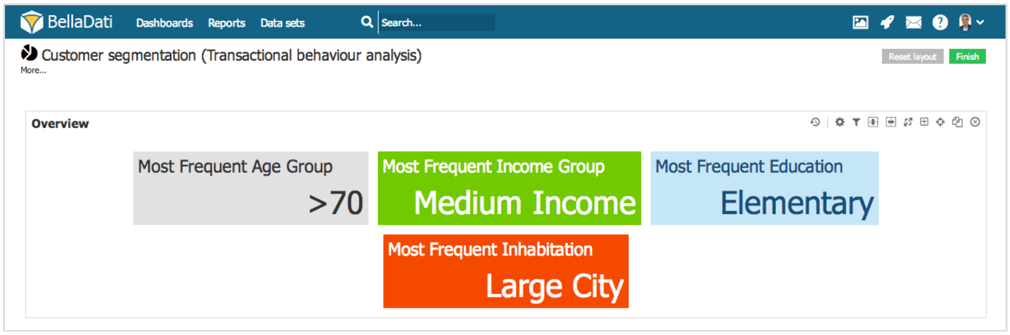


Confirm new **KPI label** view by clicking on green **Add** button. BellaDati will guide you through additional setup.

- **Indicators:** select and edit displayed indicators in the KPI label - continue by Displaying Indicators.

Text-based KPI labels

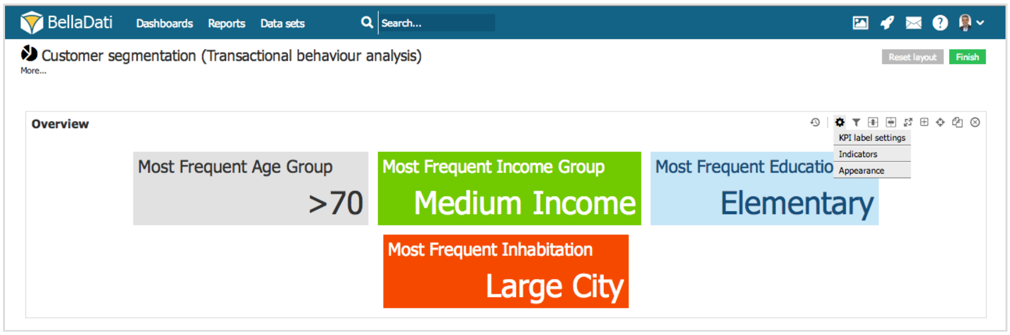
KPI label also allows displaying text values. Refer to formulas use case to learn more about text-based KPIs.



KPI label management

You can perform additional operations in upper right corner of the inserted **KPI label** view:

- KPI label chart settings
- Filter setting - continue by Using Filters
- Export view - continue by Exporting View
- Add to dashboard
- Move KPI label
- Duplicate KPI label
- Delete KPI label



KPI label chart settings

Click on the toolbox icon to enter *KPI label chart settings* dialog.

KPI label chart settings dialog allows you to:

- Edit **Time interval** if you need to restrict time period of displayed data - continue by Setting Date Interval.
- Edit **Indicators** by entering *Indicators* dialog - continue by Displaying Indicators

Adding Custom Content

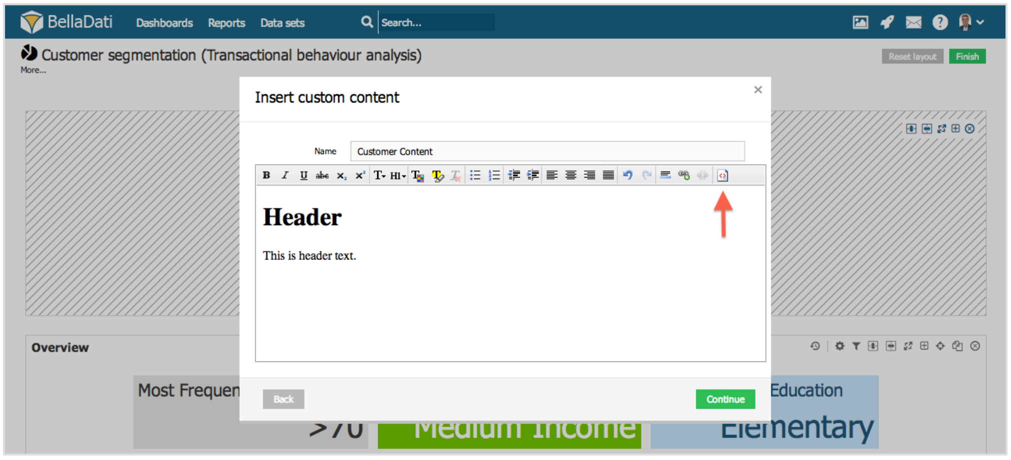
Custom content view allows you to enrich your report with arbitrary content.

You need to be in **edit mode** in order to create new custom content. Click on "Edit" in top report menu to activate edit mode.

To add a new **Custom content**, hover over free place and click on **Custom content** view type. The *Insert custom content* dialog box will appear.

1. Enter name of the new content.
2. Leverage **Rich text editor** to properly format your content.

You can switch to native HTML by selecting **HTML** icon in the right corner of the toolbox.



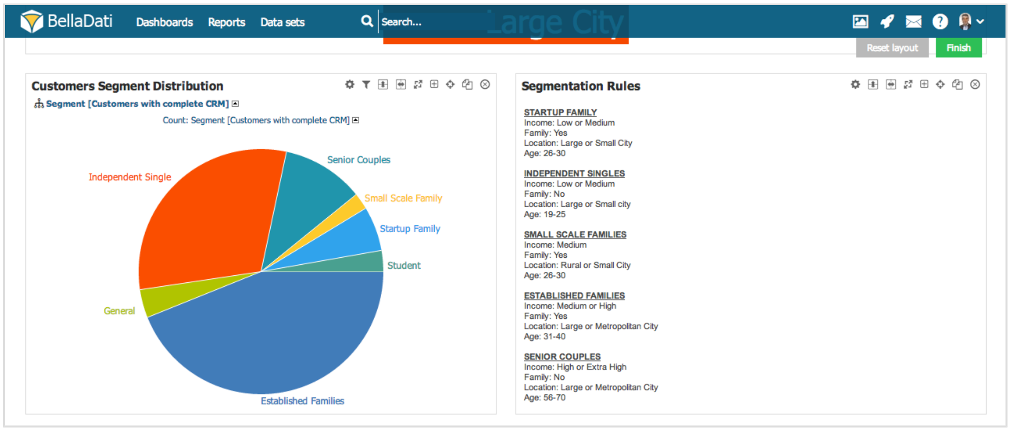
BellaDati also allows you to set up:

- Content color theme
- Title color

Through **Custom content** you can add objects such as:

- Hyperlinks
- Images
- Videos
- Email feed
- RSS feed
- Social media feeds

Refer to particular service for detail guide how to embed content into web page.



Segmentation Rules

STARTUP FAMILY
Income: Low or Medium
Family: Yes
Location: Large or Small City
Age: 26-30

INDEPENDENT SINGLES
Income: Low or Medium
Family: No
Location: Large or Small city
Age: 19-25

SMALL SCALE FAMILIES
Income: Medium
Family: Yes
Location: Rural or Small City
Age: 26-30

ESTABLISHED FAMILIES
Income: Medium or High
Family: Yes
Location: Large or Metropolitan City
Age: 31-40

SENIOR COUPLES
Income: High or Extra High
Family: No
Location: Large or Metropolitan City
Age: 56-70

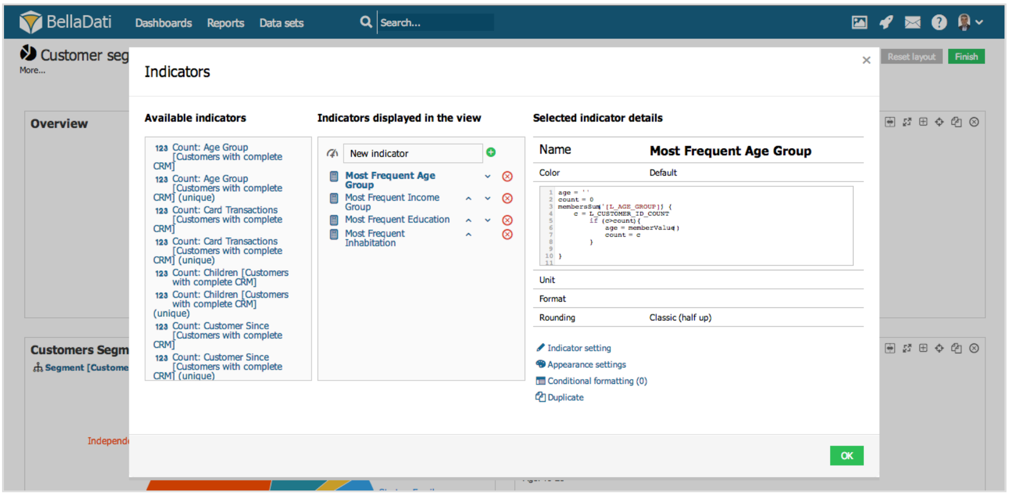
Displaying Indicators

⚠ This option is related to views. Always refer to views or particulat view types (table, chart, Geo map or KPI label) before proceeding with this section.

Indicators represent values displayed in the created view.

You can add indicators into view from **Indicators** dialog box. *Indicators* dialog box is separated into three columns:

- List of **Available indicators**
- List of **Indicators displayed in the view**
- Additional **Indicator details**



BellaDati
Dashboards
Reports
Data sets
Search...
Customer seg
More...
Reset layout
Finish
Overview
Customers Segm
Segment [Custome
Independ
Indicators
Available indicators
Count: Age Group [Customers with complete CRM]
Count: Age Group [Customers with complete CRM] (unique)
Count: Card Transactions [Customers with complete CRM]
Count: Card Transactions [Customers with complete CRM] (unique)
Count: Children [Customers with complete CRM]
Count: Children [Customers with complete CRM] (unique)
Count: Customer Since [Customers with complete CRM]
Count: Customer Since [Customers with complete CRM] (unique)
Indicators displayed in the view
New indicator
Most Frequent Age Group
Most Frequent Income Group
Most Frequent Education
Most Frequent Inhabitation
Selected indicator details
Indicator setting
Appearance settings
Conditional formatting (0)
Duplicate
OK

Name	Most Frequent Age Group
Color	Default
Unit	
Format	
Rounding	Classic (half up)

```
age = ''
count = 0
membersSum('[L_AGE_GROUP]') {
    c = L_CUSTOMER_ID_COUNT
        if (c>count){
            age = memberValue()
            count = c
        }
}
```

Adding indicators

There are two options for adding indicators to the view:

1. **Add from existing:** Click on the desired indicator from the list of **Available indicators**. Indicator will be moved to the **Displayed indicators** section.
2. **Create new:**. Type the name of new indicator into *New indicator* input form of **Displayed indicators** section and click green **plus** sign. To learn more about creating new Indicators, please follow with Using Formulas.

ⓘ You can remove displayed indicators by clicking on the red cross sign.

Indicator details

Indicator details are accessible in the right column after selecting displayed indicator from **Displayed indicators** section.

Indicator details include:

- Name
- Color
- Unit
- Format
- Rounding
- Members aggregation

You can perform following tasks to edit displayed indicator:

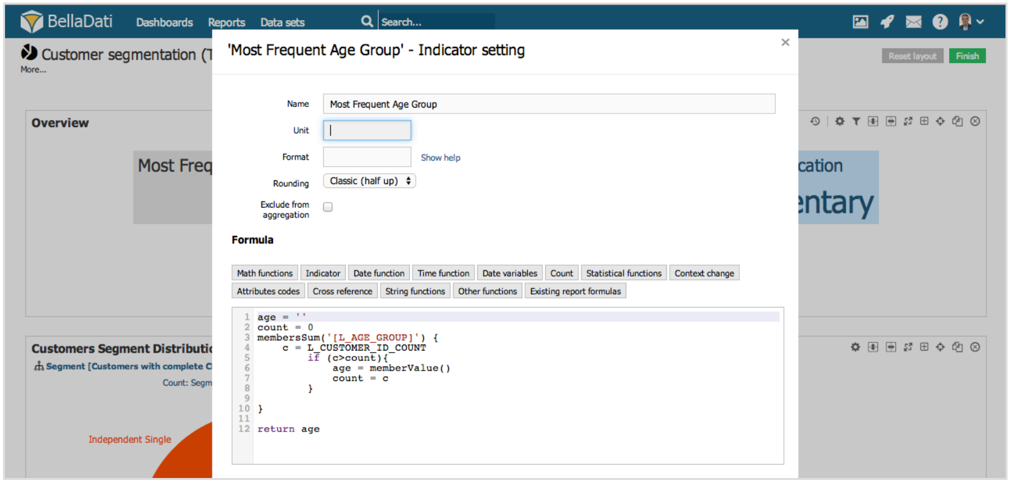
- Edit **Indicator setting**
- Edit **Appearance settings**
- Create **Conditional formatting**
- **Duplicate** indicator

Edit indicator setting

Click **Indicator setting** to enter edit dialog. From the **Indicator setting** dialog you can edit:

- **Name** of the indicator.
- **Unit** to be displayed with the indicator.
- **Format** of the indicator data. Click **show help** to expand format syntax hints.
- **Rounding** of decimal values.
  - Select **Classic (half-up)** option to apply traditional rounding function.
  - Select **Always up** to automatically round data to the higher values.
  - Select **Always down** to automatically round data to the lower values.
- **Members aggregation** to define how aggregated values should be processed. Click **show help** to expand members aggregation hints.
  - Select **Sum** to display total value of indicator records.
  - Select **Average** to display average value of indicator records.
  - Select **Number of records** to display count of indicator records.
  - Select **Minimum** to display minimal value from indicator records.
  - Select **Maximum** to display maximal value from indicator records.
- **Empty values** processing. Select checkbox to edit custom value for emtpy values replacement.

You can also use **statistical functions** except basic members and time aggregations. Proceed with Using Core Statistical Functions to learn more.



'Most Frequent Age Group' - Indicator setting

Name: Most Frequent Age Group
Unit:
Format: Show help
Rounding: Classic (half up)
Exclude from aggregation: ☐

Formula

Math functions | Indicator | Date function | Time function | Date variables | Count | Statistical functions | Context change
Attributes codes | Cross reference | String functions | Other functions | Existing report formulas

```
age = ''
count = 0
membersSum('[L_AGE_GROUP]') {
    c = L_CUSTOMER_ID_COUNT
        if (c>count){
            age = memberValue()
            count = c
        }

}

return age
```

Edit appereance settings

Click **Appereance settings** to enter edit dialog. From the **Appereance settings** dialog you can edit:

- **Font color**. Click **basic color** icon to expand the pallet of predefined font and background colors.
- **Font style**. Select **Bold** checkbox to make the indicator values appear in bold.

Select **Default** from **basic color** pallet to reset the font color.

Edit conditional formatting

Click **Conditional formatting** to enter edit dialog. There are two options for creating conditional formatting.

Apply **preset conditional formatting** styles.

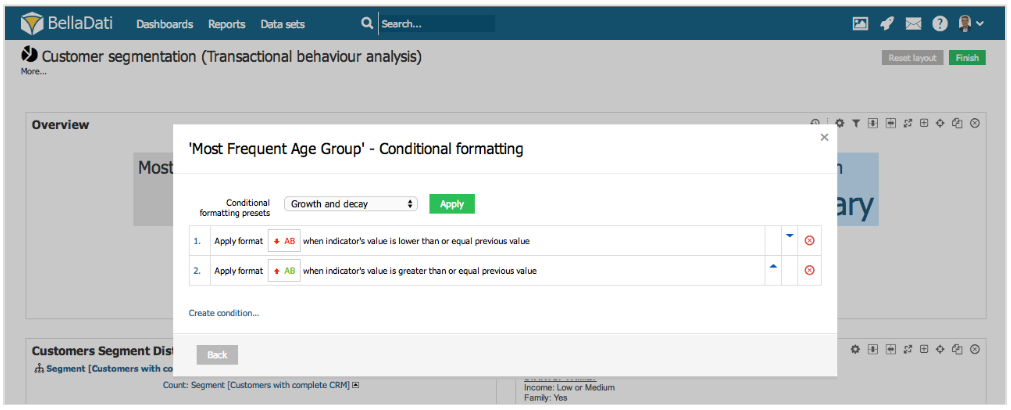
- Select **Black and red numbers** to apply discrete formatting based on provided **Treshold** values.
- Select **Growth and decay** to apply continuous formatting based on indicator values.
- Select **No conditional formatting** to reset any defined styles.

Create own conditions and define styles. Click **Create condition** link to expand condition options.

- Select **font color and background** to be applied to conforming indicator values from predefined palett.
- Select **symbol** to be append to conforming indicator values.
- Select **condition** to evaluate indicator values. BellaDati offers following conditions:
  - greater than
  - lower than

    - greater by
    - lower by
    - greater by (%)
    - lower by (%)
- Insert **value** related to condtion or select **previous value** as source for evaluating the condition.
- Select **Show growth/decrease in %** checbox to enrich indicator values with relative changes.

Click **Add** button to confirm create conditional formatting. You can add multiple conditions by repeating the procedure.



Customer segmentation (Transactional behaviour analysis)

'Most Frequent Age Group' - Conditional formatting

Conditional formatting presets: Growth and decay

1.	Apply format	AB	when indicator's value is lower than or equal previous value
2.	Apply format	AB	when indicator's value is greater than or equal previous value

Create condition...

Count: Segment [Customers with complete CRM]
Income: Low or Medium
Family: Yes

You can remove conditional formatting by clicking on the red cross sign.

Using Core Statistical Functions

Make sure that you are familiar with Displaying Indicators before proceeding with this section.

BellaDati allows you to apply statistical functions on existing indicators.

Available Functions

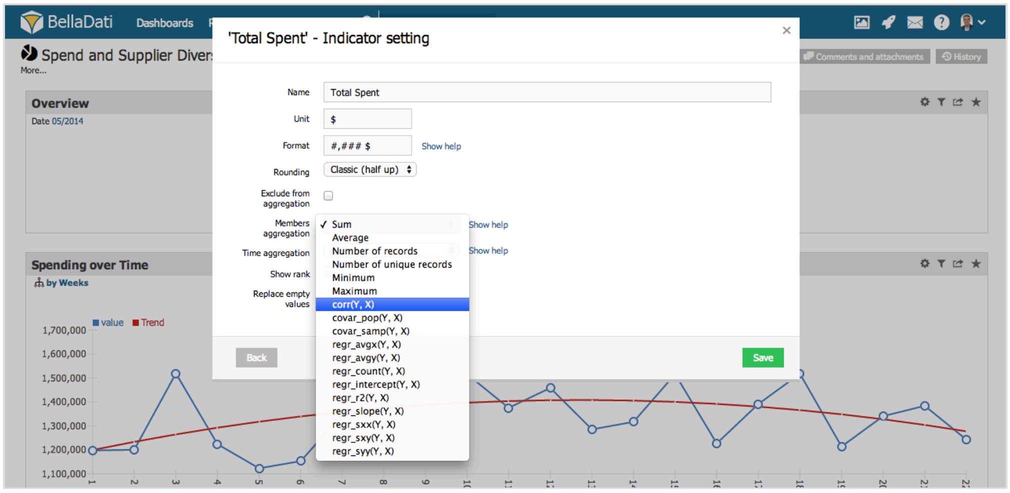
Following functions are currently available in BellaDati:

- **corr(Y, X)** Correlation Coefficient
- **covar_pop(Y, X)** Population Covariance
- **covar_sample(Y, X)** Sample Covariance
- **regr_avgx(Y, X)** Average of the independent variable (sum(X)/N)
- **regr_avgy(Y, X)** Average of the dependent variable (sum(Y)/N)
- **regr_count(Y, X)** Number of input rows in which both expressions are nonnull
- **regr_intercept(Y, X)** y-intercept of the least-squares-fit linear equation determined by the (X, Y) pairs
- **regr_r2(Y, X)** Square of the correlation coefficient
- **regr_slope(Y, X)** slope of the least-squares-fit linear equation determined by the (X, Y) pairs
- **regr_sxx(Y, X)** sum(X^2) - sum(X)^2/N ("sum of squares" of the independent variable)
- **regr_sxy(Y, X)** sum(X*Y) - sum(X) * sum(Y)/N ("sum of products" of independent times dependent variable)
- **regr_syy(Y, X)** sum(Y^2) - sum(Y)^2/N ("sum of squares" of the dependent variable)

Applying Functions

To use statistical functions:

1. go to **Indicators**
2. select **first Indicator** (Y) you want to use
3. go to **Indicators settings**
4. in **Members aggregation** select desired statistical functions
5. from the available drop-down select **second Indicator** (X)



'Total Spent' - Indicator setting

Name: Total Spent
Unit: $
Format: #,### $ Show help
Rounding: Classic (half up)
Exclude from aggregation: ☐
Members aggregation: Show help
Time aggregation: Show help
Show rank
Replace empty values

✓ Sum
Average
Number of records
Number of unique records
Minimum
Maximum
corr(Y, X)
covar_pop(Y, X)
covar_samp(Y, X)
regr_avgx(Y, X)
regr_avgy(Y, X)
regr_count(Y, X)
regr_intercept(Y, X)
regr_r2(Y, X)
regr_slope(Y, X)
regr_sxx(Y, X)
regr_sxy(Y, X)
regr_syy(Y, X)

Exporting View

Export allows you to store reports or views permanently outside of BellaDati for your own presentation or specific analysis.

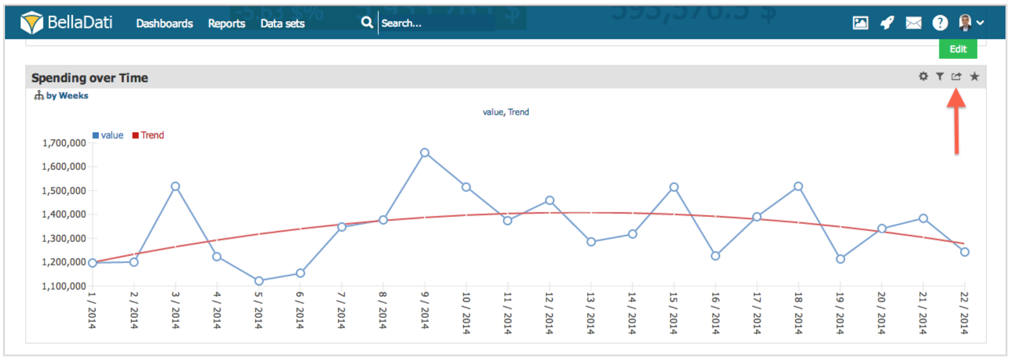
Export option is available for Chart, Table and KPI label view.

You can access **Export** option from the toolbox in the upper right corner of the view.

Export dialog offers exporting view to following file formats:

- **PDF**
- **PNG**
- **Microsoft Excel**
- **Microsoft PowerPoint**
- **Embed to page** - continue by Sharing Report for more details.

Export to Microsoft Power Point is only available for the whole report.



Exporting to PDF

Set Export type to **PDF**.

Export view dialog allows you to set:

- **Size**: Available options include: **A1**, **A2**, **A3** and **A4**.
- **Orientation**: Available options include: **Portrait** and **Landscape**.

Exporting to PNG

Set Export type to **PNG**.

Export view dialog allows you to set:

- Image **Width**
- Image **Height**

Exporting to Microsoft Excel

Set Export type to **Microsoft Excel**.

Export to **Microsoft Excel** option is available only for **Table** view type.

Maximum table rows count in the export is currently limited to 1000 due to performance reasons. This limit can be raised for BellaDati Enterprise tariffs or licenses.

Publishing View

Publishing allows you to embedd existing views to your web based application, company extranet or publicly on the Internet without the need of being logged in.

Set Export type to **Embed to page**. You can select from the following window sizes:

- **Small**: (250x180)
- **Medium**: (500x300)
- **Large**: (fits window width)

BellaDati will generate **iFrame** object you can insert into your page or portal.

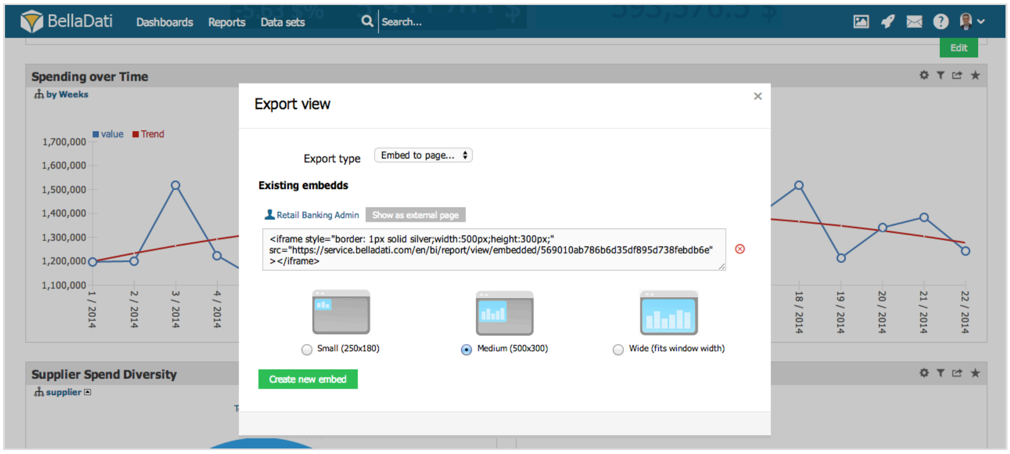
From *Export view* dialog you can also:

- Show generated **iFrame** object in the new tab or window.
- Change the size of generated object.

Domain option "Public sharing" must be enabled to allow public sharing. It is recommended to test iFrames on another computer, browser or after logout.

Customization parameters

`hideLink=true`	Disables displaying of the source report link in the iFrame
`hideHeader=true`	Disables displaying of report header in the iFrame



Export view

Export type: Embed to page...

Existing embedds

```
<iframe style="border: 1px solid silver;width:500px;height:300px;"
src="https://service.belladati.com/en/bi/report/view/embedded/569010ab786b6d35df895d738febdb6e"
></iframe>
```

Small (250x180) [✓ Medium (500x300)] Wide (fits window width)

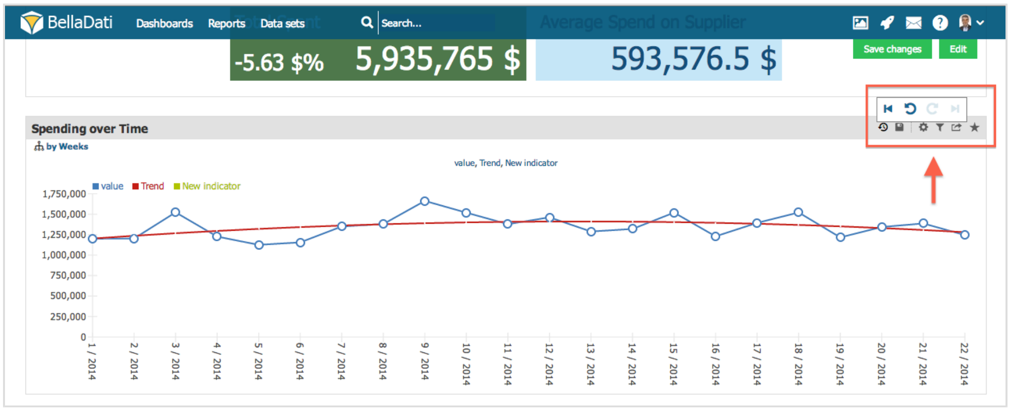
See also [complete REST API documentation] for detailed information about BellaDati platform embedding options.

Reversing Changes (Undo & Redo)

BellaDati allows you to move among changes you made to the view.

Once any changes occur, BellaDati displays **Clock** icon. Hover over icon to:

- Go to the **initial settings**
- Move **one change back**
- Move **one change forward**
- Move to the **last settings**



⚠ Changes are available only during the session.

Sharing Report

Data set sharing functions are only available for the owners of the particular report.

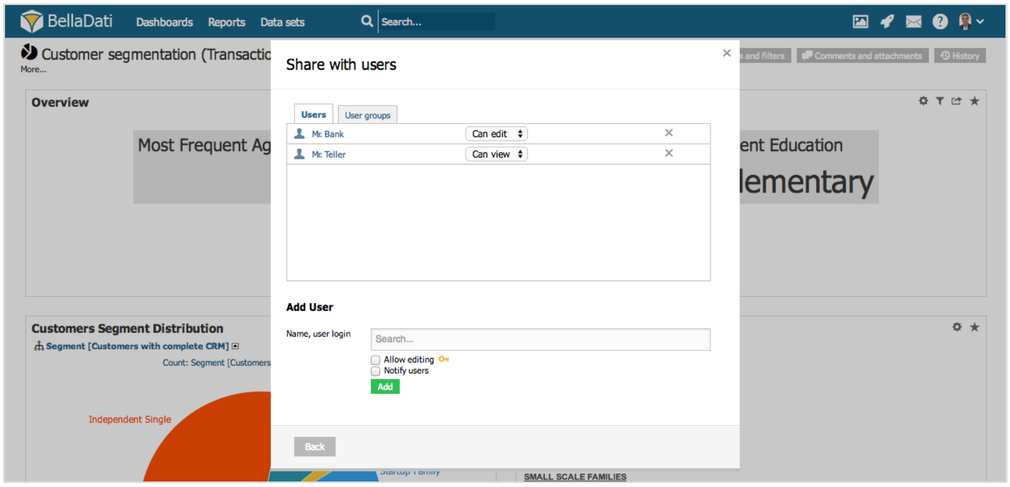
Report sharing functions allows you to perform following actions:

- Grant access to the report for selected users or user groups.
- Optionally notify users about granted access to reports.

When you are setting up report sharing for individual users or user groups, please distinguish following two access levels:

- **Read-only access**: Reports can be only viewed. Basic operations such as drill-down, exporting and report variable modifications are allowed within the user's session without affecting the original report.
- **Full access**: All functions except sharing and report deleting are available.

Users with full access can manage the report in the same way as it's owner except sharing settings or complete removal.



Share with users

Users | User groups

Mr. Bank	Can edit
Mr. Teller	Can view

Add User

Name, user login: Search...

Allow editing
Notify users

Add

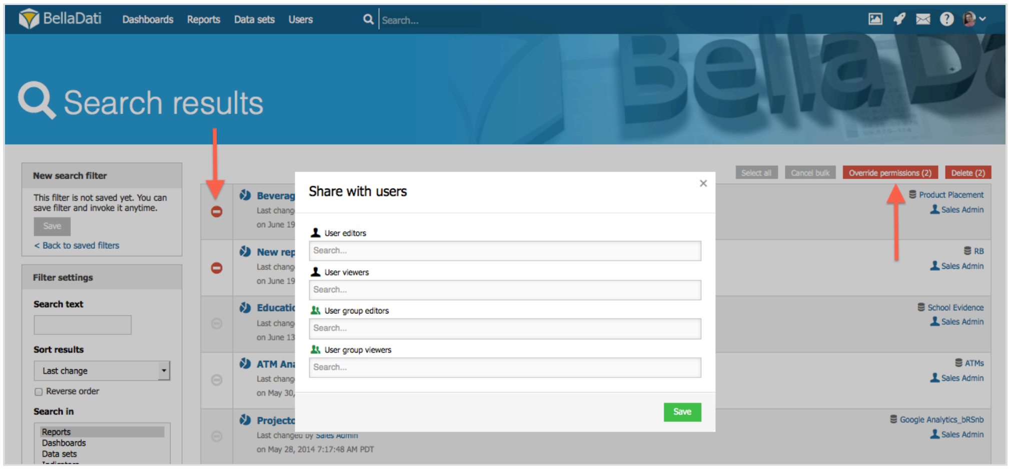
Back

Sharing Console

BellaDati also allows you to share multiple reports with users and user groups.

You can find **sharing console** under bulk operations in **Reports list.** To share multiple reports:

1. Click **Bulk change** in upper right corner
2. **Select** desired reports to share
3. Click **Override** permissions
4. Select **users** and **userg groups** who will have access to chosen reports

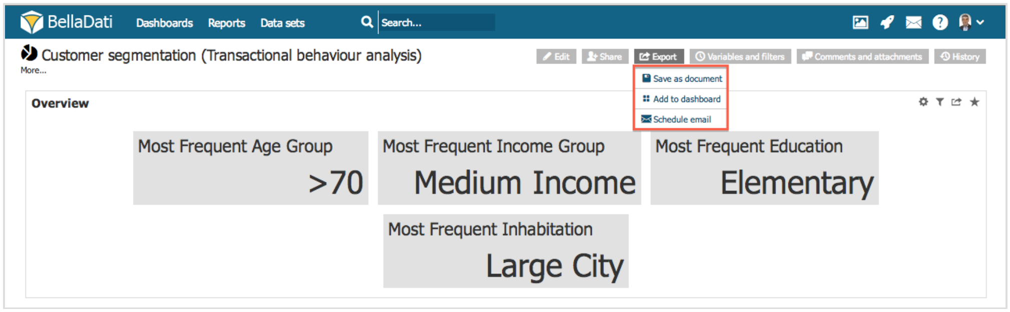

BellaDati
Dashboards
Reports
Data sets
Users
Search results
New search filter
This filter is not saved yet. You can save filter and invoke it anytime.
Save
< Back to saved filters
Filter settings
Search text
Sort results
Last change
Reverse order
Search in
Reports
Dashboards
Data sets
Select all
Cancel bulk
Override permissions (2)
Delete (2)
Share with users
User editors
User viewers
User group editors
User group viewers
Search...
Save
Product Placement
RB
School Evidence
ATMs
Google Analytics_bRSnb
Sales Admin
Last changed by Sales Admin
on May 28, 2014 7:17:48 AM PDT

Exporting Report

You need to be in view mode in order to export report.

Export allows you to **Save report**, **Publish** it to dashboard or schedule **Emailing**.

Click **Export** or select **Save as document** from report toolbox list in the upper right corner to open *Export report* dialog.

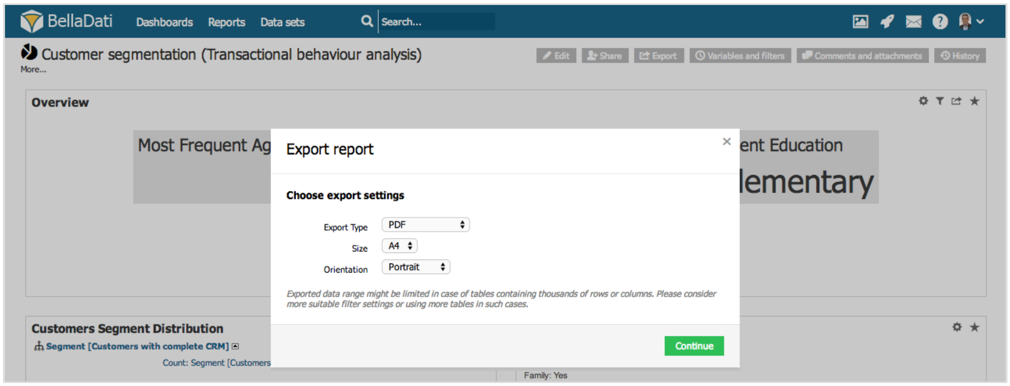


Export report dialog allows you to save report in following formats:

- **PDF**: You can specify **Orientation** and **Size** option.
- **Microsoft PowerPoint**
- **Microsoft Excel**

Geo map views will not be currently exported. Export to Microsoft Excel will include only **Table** views.

Maximum table rows count in the exports is currently limited to 1000 due to performance reasons. This limit can be raised for BellaDati Enterprise tariffs or licenses.


Export report

Choose export settings

Export Type: PDF
Size: A4
Orientation: Portrait

Exported data range might be limited in case of tables containing thousands of rows or columns. Please consider more suitable filter settings or using more tables in such cases.

Continue
Customers Segment Distribution
Segment [Customers with complete CRM]
Family: Yes

Publishing to Dashboard

For pinning report/view to dashboard - continue by Publishing to Dashboard.

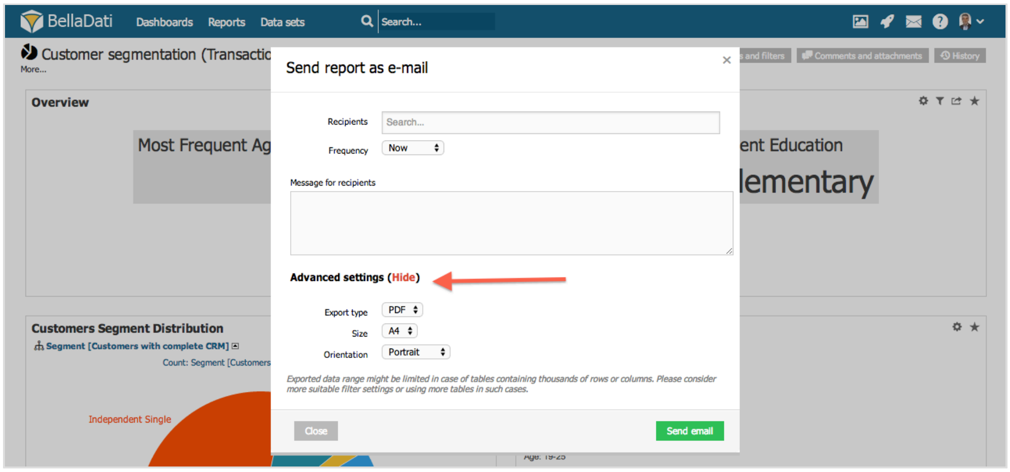
Emailing report

Select **Schedule email** from report toolbox list to open *Send report as e-mail* dialog.

Dialog allows you to:

- Add **Recipients**.
- Set up **Frequency** of delivery.
- Append **Message**.

✓ Click **Advanced settings** to attach report in PDF, PPT or XLS format.



Send report as e-mail

Recipients: Search...

Frequency: Now

Message for recipients

Advanced settings (Hide)

Export type: PDF

Size: A4

Orientation: Portrait

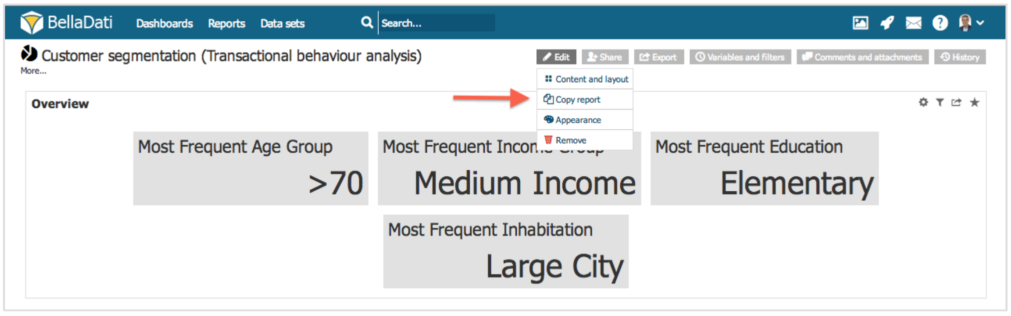
Exported data range might be limited in case of tables containing thousands of rows or columns. Please consider more suitable filter settings or using more tables in such cases.

Close | Send email

Copying Report

You need to be in **view mode** in order to copy report.

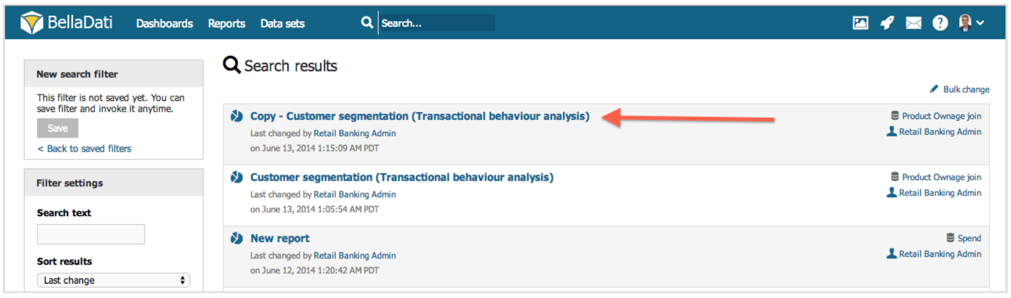
Select **Copy report** from report toolbox list in the upper right corner to open *Copy report* dialog.



Copy report dialog allows you to include in the copy of the report:

- **Comments**
- **Attachments**

Copied report can be found in **Reports** window and will be prefixed with *Copy* -.

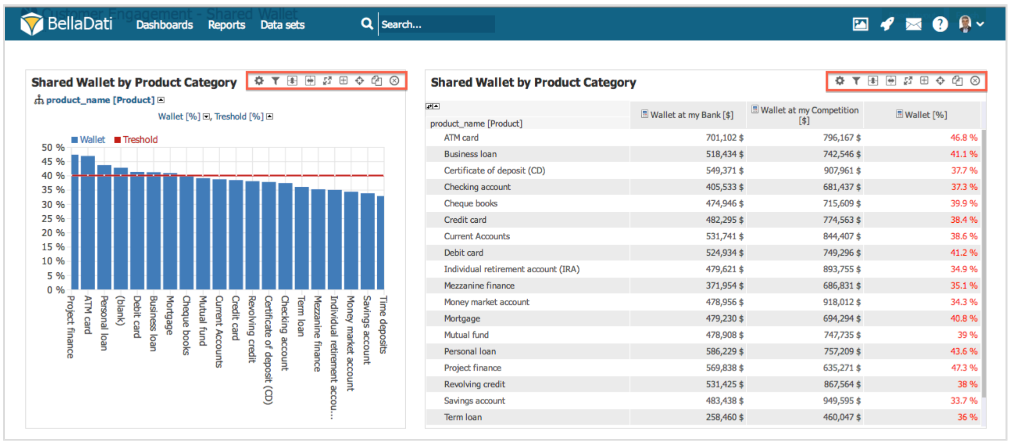

BellaDati
Dashboards
Reports
Data sets
Search...
New search filter
This filter is not saved yet. You can save filter and invoke it anytime.
Save
< Back to saved filters
Filter settings
Search text
Sort results
Last change
Search results
Bulk change
Copy - Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 1:15:09 AM PDT
Product Ownage join
Retail Banking Admin
Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 1:05:54 AM PDT
Product Ownage join
Retail Banking Admin
New report
Last changed by Retail Banking Admin
on June 12, 2014 1:20:42 AM PDT
Spend
Retail Banking Admin

Managing Layout

⚠ You need to be in **edit mode** in order to manage layout.

- Click on "Edit" in top report menu to activate edit mode.
- Click on the green "Finish" button on the top of right column with templates list to save changes and exit edit mode.

Use **buttons** in the upper right corner of the view to manipulate with it.



Shared Wallet by Product Category

product_name [Product]	Wallet at my Bank [$]	Wallet at my Competition [$]	Wallet [%]
ATM card	701,102 $	796,167 $	46.8 %
Business loan	518,434 $	742,546 $	41.1 %
Certificate of deposit (CD)	549,371 $	907,961 $	37.7 %
Checking account	405,533 $	681,437 $	37.3 %
Cheque books	474,946 $	715,609 $	39.9 %
Credit card	482,295 $	774,563 $	38.4 %
Current Accounts	531,741 $	844,407 $	38.6 %
Debit card	524,934 $	749,296 $	41.2 %
Individual retirement account (IRA)	479,621 $	893,755 $	34.9 %
Mezzanine finance	371,954 $	686,831 $	35.1 %
Money market account	478,956 $	918,012 $	34.3 %
Mortgage	479,230 $	694,294 $	40.8 %
Mutual fund	478,908 $	747,735 $	39 %
Personal loan	586,229 $	757,209 $	43.6 %
Project finance	569,838 $	635,271 $	47.3 %
Revolving credit	531,425 $	867,564 $	38 %
Savings account	483,438 $	949,595 $	33.7 %
Term loan	258,460 $	460,047 $	36 %

Edit mode

You can perform the following actions when being in edit mode:

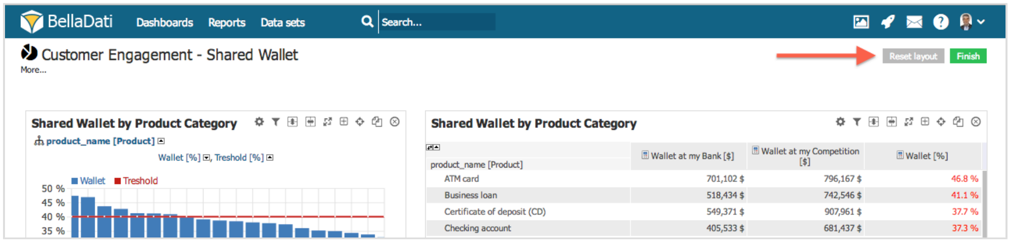
- **Split vertically**: Divides current view into two rows. Original view will be kept in the upper part.
- **Split horizontally**: Divides current view into two columns. Original view will be kept in the left part.
- **Enlarge to the whole view**: View will be extended across the whole report.
- **Insert new row**: New row will be added above the current view.
- **Move**: Click on the desired area to replace the view. Views will be switched.
- **Copy**: Click on the desired area to make the view copy.
- **Delete**: Report will be deleted.

⚠ The user needs report editor role or editing permission to manage report layout.

Reset layout

Click on **Reset layout** button in upper right corner to place views into their default positions.

⚠ Layout reset will remove all empty view.



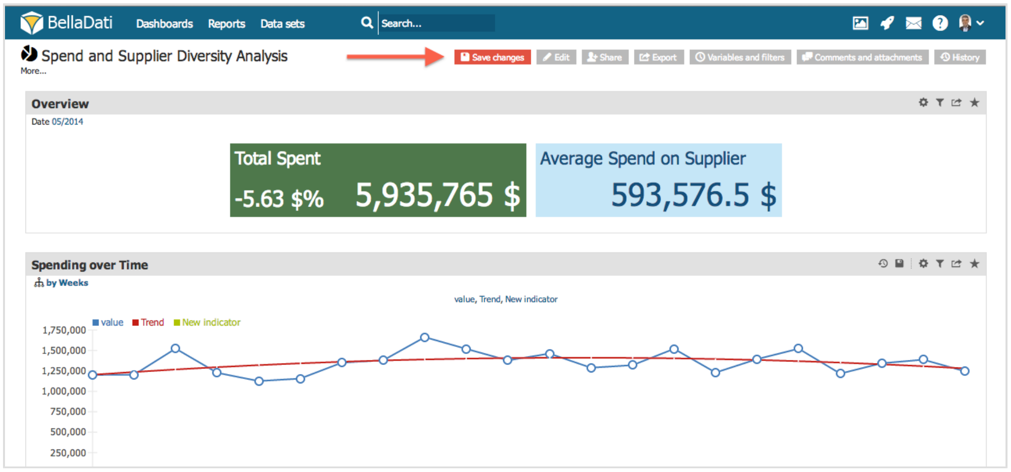
Shared Wallet by Product Category

product_name [Product]	Wallet at my Bank [$]	Wallet at my Competition [$]	Wallet [%]
ATM card	701,102 $	796,167 $	46.8 %
Business loan	518,434 $	742,546 $	41.1 %
Certificate of deposit (CD)	549,371 $	907,961 $	37.7 %
Checking account	405,533 $	681,437 $	37.3 %

Saving Reports

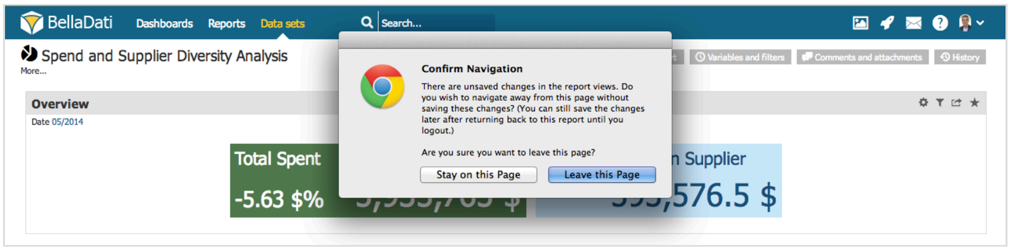
Saving Reports

You can save changes of all views in the report by going to **Edit** in upper report menu and selecting **Save Changes**.



Leaving Unsaved Report

BellaDati will notify you with popup window when leaving report with unsaved views.



Confirm Navigation

There are unsaved changes in the report views. Do you wish to navigate away from this page without saving these changes? (You can still save the changes later after returning back to this report until you logout.)

Are you sure you want to leave this page?

Using Formulas

Formulas are used to create **Calculated** (derived) **Indicators** from basic indicators in BellaDati.

There are four types of indicators defined by formula:

- Formula indicators defined on data set level. These are available in all reports based on this data set.
- Formula indicators defined ad hoc on view level in each report. These are available only for the particular view and belong to the two subcathegories:
  - Additional formula defined indicators
  - Formulas on date/time axis

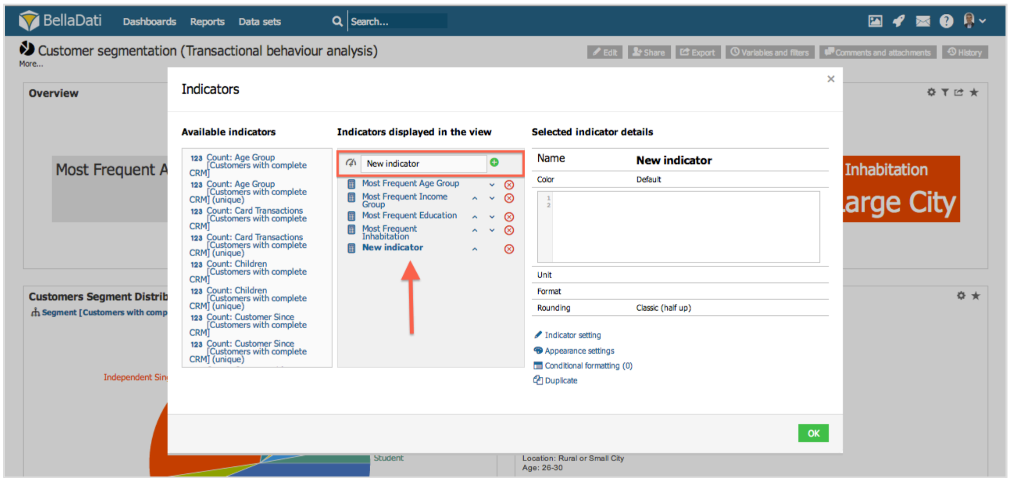
Creating Formulas

Make sure that you are familiar with Displaying Indicators section prior proceeding with **Formulas**.

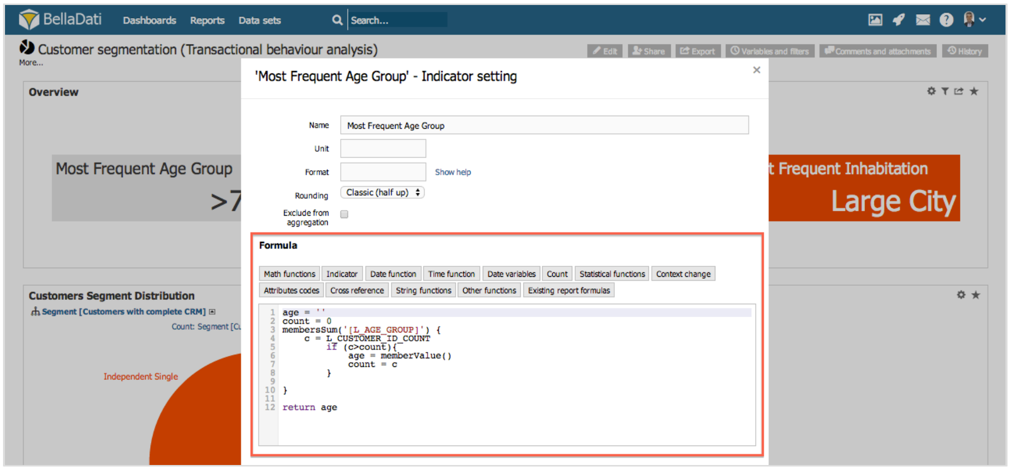
You can edit **Formulas** only of **Calculated Indicators**. To create **Calculated Indicator**:

1. Go to **Indicators Settings** dialog.
2. Provide name and click on green plus button next to **New Indicator** input.
3. Click on **Indicator Settings**.
4. Create/edit formula in **Formula** window.

Calculated indicators can be determined by **calculator** symbol next to indicator name.


BellaDati
Dashboards
Reports
Data sets
Search...
Customer segmentation (Transactional behaviour analysis)
Edit
Share
Export
Variables and filters
Comments and attachments
History
Indicators
Available indicators
Indicators displayed in the view
Selected indicator details
Count: Age Group [Customers with complete CRM]
Count: Age Group [Customers with complete CRM] (unique)
Count: Card Transactions [Customers with complete CRM]
Count: Card Transactions [Customers with complete CRM] (unique)
Count: Children [Customers with complete CRM]
Count: Children [Customers with complete CRM] (unique)
Count: Customer Since [Customers with complete CRM]
Count: Customer Since [Customers with complete CRM] (unique)
New indicator
Most Frequent Age Group
Most Frequent Income Group
Most Frequent Education
Most Frequent Inhabitation
New indicator
Name
New indicator
Color
Default
Unit
Format
Rounding
Classic (half up)
Indicator setting
Appearance settings
Conditional formatting (0)
Duplicate
OK

You can leverage **autocomplete** or **lists** of availabe functions for rapid formula development.


'Most Frequent Age Group' - Indicator setting

Name: Most Frequent Age Group

Rounding: Classic (half up)

Formula

```
age = ''
count = 0
membersSum('[L_AGE_GROUP]') {
    c = L_CUSTOMER_ID_COUNT
        if (c>count){
            age = memberValue()
            count = c
        }

}

return age
```

See Formula Reference Guide for complete specification of available formulas.

Editing Formulas

Click on Indicator name in the report to open *Indicator settings* window.

Aggregation in Calculated Indicators

Notice that *Indicators setting* dialog of **Calculated Indicator** lacks specification of **Members** and **Time aggregation**.

This is because you can define it programatically in combination with additional functions.

Member aggregation can be defined by suffixing **Indicator** with:

- @SUM for aggregation
- @AVG for average
- @MIN for minimum
- @MAX for maximum
- @DC for distinct count

Example: use M_SALES@SUM to obtain Total Sales or M_PRICE@MIN to find the lowest price.

Time aggregation can be defined by suffixing **Indicator** with:

- @SUMT for aggregation in time
- @AVGT for average in time
- @MINT for minimum in time
- @MAXT for maximum in time
- @DCT for distinct count in time

Example: use M_SALES@SUMT to obtain Total Sales in time or M_PRICE@MINT to find the lowest price in time.

Memeber and Time aggreagation can be combined togeter.

Visit Formula Reference Guide to learn more about member and time aggregation in formulas.

Formula Reference Guide

This summary provides overview of all formulas that can be used in reports or data sets (predefined indicators).
If you are searching for **transformation scripting** during data import, see Developer documentation.

Indicators and codes

Each dataset indicator is specified by its unique code starting with `M_` (M as Measure). Accessing the calculated indicator's value is possible by typing this code directly into the formula. For example:

Another way how to get the value of the indicator is to use the `value()` function:

Strings must be always enclosed by apostrophes: `'L_NAME'`.

Both examples have the same result.

Drill-down (members) aggregation

Members aggregation determines the way how to count values in the case that exists more records for one selected member in a single time unit. Aggregation type is specified by adding the appropriate suffix to the indicator's code. When not specified, the `SUM` aggregation is applied.

Suffix	Description	Example
`@SUM`	Calculates the sum of all values for the selected drill-down attribute	`M_NAME@SUM`
`@MIN`	Calculates the minimum of all values for the selected drill-down attribute	`M_NAME@MIN`
`@MAX`	Calculates the maximum of all values for the selected drill-down attribute	`M_NAME@MAX`
`@AVG`	Calculates the average of all values for the selected drill-down attribute	`M_NAME@AVG`
`@DC`	Calculates the distinct count of all values for the selected drill-down attribute	`M_NAME@DC`

Date-Time aggregation

The date-time aggregation specifies the way, how to count values in the case that you display indicator values in higher time units (lower granularity data) than the time units in which are data stored in the system (higher granularity data).

Suffix	Description	Example
`@SUMT`	Calculates the sum of all values for the selected time interval	`M_NAME@SUMT`
`@MINT`	Calculates the minimum of all values for the selected time interval	`M_NAME@MINT`
`@MAXT`	Calculates the maximum of all values for the selected time interval	`M_NAME@MAXT`
`@AVGT`	Calculates the average of all values for the selected time interval	`M_NAME@AVGT`

`@DCT`	Calculates the distinct count of all values for the selected time interval	`M_NAME@DCT`

Drill-down and date-time aggregation

Both drill-down and date-time aggregation can be specified simultaneously.

Both aggregation methods can be used in any other formulas when relevant.

Counting of level members

Each drill-down level is represented by particular members, for example the level `City` contains members like `Berlin`, `Paris`, `New York` etc. To get the count of these members, use the following syntax:

Datetime Functions

Datetime Functions

For the purpose of this reference guide: **Date** refers only to year, months, days (and quarters, weeks) and their combinations. **Time** refe rs to hours, minutes and seconds and their combinations. For combination of date and time we strictly use **datetime** term.

See the Date and time functions inherited from transformation scripting.

Date strings

The date string parameters are entered absolutely (dd.MM.yyyy or yyyy-MM-dd) or relatively (time variables) by operators:

```
date +|- n[d|w|m|q|y]
```

where

- `date` is date in `dd.MM.yyyy` or `yyyy-MM-dd` format, or one of `actualyear`, `actulamonth`, `actualquarter`, `actualweek`, `actual day`, `now`
- `n` represents the count of:
- `d` days, `w` weeks, `m` months, `q` quarters or `y` year.

Examples:

Another way how to create the date strings is following:

Changing datetime context

What is the datetime context? Consider following example:

	01/2011	02/2011	03/2011
formula indicator	1000	1200	1300

Formula is evaluated for each column - in this example, in columns are values evaluated for particular months. During the evaluation of value `1000`, the datetime context was `01/2011`, then during the processing of value `1200`, the context was `02/2011` etc.

Function	Description
`dateAt(String dateString, { expression })`	Changes the context of the evaluated expression to `dateString` date. Example:
`dateInterval(String from, String to, { expression })`	Changes the date context of the expression and evaluates it aggregated in the specified interval `from` - `to`. Example Values for the indicators `M_NAME_1` and `M_NAME_2` are aggregated for the whole period.
`timeAt(String timeString, { expression })`	Changes the context of the evaluated expression to `timeString` date. Example:

`timeInterval(String from, String to, { expression })`	Changes the time context of the expression and evaluates it aggregated in the specified interval `from` - `to`. Example Values for the indicators `M_NAME_1` and `M_NAME_2` are aggregated for the whole period.
`dateAt (String date, String period) { expression })`	Changes the context of the evaluated expression to `dateString` date - aggregated by the defined period {DAY, D, \
`dateInterval (String from, String to, String period ) { expression })`	Changes the date context of the expression and evaluates it aggregated in the specified interval `from` - `to`. Aggrega WEEK, W, MONTH, M, YEAR, Y} is also performed.
`timeAt (String time, String period) { expression })`	Changes the context of the evaluated expression to `timeString` time - aggregated by the defined period {HOUR, H
`timeInterval (String from, String to, period) { expression })`	Changes the time context of the expression and evaluates it aggregated in the specified interval `from` - `to`. Aggregat MINUTE, SECOND} is also performed.
`withoutDateTime() { expression })`	Evaluates the expression without date time interval.

Obsolete functions

These functions may be removed in further releases

Function	Description
`value(String dateString, String indicator)`	Loads the indicator's value at specified date.
`value(String dateString, int drill_down_level)`	Loads the indicator's value at specified date aggregated for N previous levels.
`value(String dateFrom, String dateTo, String indicator)`	Loads cumulative indicator's value for specified date interval.
`value(String dateFrom, String dateTo, String indicator, int dril_down_level)`	Loads cumulative indicator's value for specified date interval aggregated for N previous levels.

Advanced functions

Function	Description

`cumulateFromDate(String startDate, String indicator)`	This function gradually adds the current value to the cumulated value. Example:
	
	`M_NAME_1`
	`cumulateFromDate('2011-01-01', 'M_NAME_1')`

`cumulateFromTime(String startTime, String indicator)`	This function gradually adds the current value to the cumulated value. Example:

`M_NAME_1`
`cumulateFromTime('00:01', 'M_NAME_1')`

`prev(String indicatorCode)`	Value of the passed indicator calculated for previous date or time value (e.g. previo

	01/2011
`M_NAME_1`	1000
`prev('M_NAME_1')`	

`prev(String indicatorCode, int prevLevelAgg)`	Value of the passed indicator calculated for previous date or time value (e.g. previo ts number of previous levels which should be aggregated.
`next(String indicatorCode)`	Value of the passed indicator calculated for next date or time value (e.g. previous m

	01/2011
`M_NAME_1`	1000
`next('M_NAME_1')`	1200

`next(String indicatorCode, int prevLevelAgg)`	Value of the passed indicator calculated for next date or time value (e.g. previous m number of previous levels which should be aggregated.
`daysBetween(String dateFrom, String dateTo)`	Function calculates number of days between provided dates.
`daysBetween(Date dateFrom, Date dateTo)`	Function calculates number of days between provided dates.
`monthsBetween(String dateFrom, String dateTo)`	Function calculates number of months between provided dates.
`monthsBetween(Date dateFrom, Date dateTo)`	Function calculates number of months between provided dates.
`yearsBetween(String dateFrom, String dateTo)`	Function calculates number of years between provided dates.
`yearsBetween(Date dateFrom, Date dateTo)`	Function calculates number of years between provided dates.

For changing the whole context of the evaluated expression, you can use following functions:

`prev(String period, { expression })`	Changes the context of the expression to desired previous date period. The value of the `perio` ER, YEAR. Example:

	01/2011
`M_NAME_1`	1000
`prev(MONTH) { M_NAME_1 }`	

`next(String period, { expression })`	Changes the context of the expression to desired next date period. The value of the `period` pa YEAR

The following example works with values, which are loaded for one year before the actual table/chart datetime entry:

You may simply enter only the first letter of time unit (in case of time context changing formulas) instead of their full names (Y,Q,M,W,D), for example prev(Y){}

Nested expressions

Date and time functions can be combined (if applicable), eg.: Value of M_INDICATOR at 8th December 2010, 9:04:02AM:

Datetime Constants

Datetime Constants

Accessing context datetime

Function	Description
`String contextDay()`	Returns the formula's context day in `dd.MM.yyyy` format.
`String contextWeek()`	Returns the beginning of the context's week in `dd.MM.yyyy` format. Example:
`String contextMonth()`	Returns the beginning of the context's month in `dd.MM.yyyy` format.
`String contextQuarter()`	Returns the beginning of the context's year in `dd.MM.yyyy` format.
`String contextYear()`	Returns the formula's context week start in `dd.MM.yyyy` format.
`int dateDayOfYear()`	Returns the day of year from the context date
`int dateDayOfMonth()`	Returns the day of month from the context date
`int dateDayOfWeek()`	Returns the day of week from the context date
`int dateMonth()`	Returns the number of month from the context date
`int dateYear()`	Returns the number of month from the context date
`int timeHour()`	Returns the number of hour from the context time
`int timeMinute()`	Returns the number of minute from the context time
`int timeSecond()`	Returns the number of second from the context time
`int daysInMonth()`	Returns the number of days in the context date

Examples:

	31.1.2011 00:01:00	1.2.2011 00:01:00	2.2.2011 00:01:00
contextDay()	31.1.2011	1.2.2011	2.2.2011
contextWeek()	31.1.2011	31.1.2011	31.1.2011
contextMonth()	1.1.2011	1.2.2011	1.2.2011
contextQuarter()	1.1.2011	1.1.2011	1.1.2011
contextYear()	1.1.2011	1.1.2011	1.1.2011
dateDayOfYear()	31	32	33
dateDayOfMonth()	31	1	2
dateDayOfWeek()	1	2	3
dateMonth()	1	2	2
dateYear()	2011	2011	2011
timeHour()	0	0	0
timeMinute()	1	1	1
timeSecond()	0	0	0

Accessing actual date

Function	Description
`String actualDay()`	Returns the actual day in `dd.MM.yyyy` format
`String actualDate()`	Returns the actual day in `dd.MM.yyyy` format
`String actualWeek()`	Returns the actual week in `dd.MM.yyyy` format
`String actualMonth()`	Returns the actual month in `dd.MM.yyyy` format
`String actualQuarter()`	Returns the actual quarter in `dd.MM.yyyy` format
`String actualYear()`	Returns the actual year in `dd.MM.yyyy` format

Math Functions

Math Functions

Function	Description
`double abs(double a)`	Returns the absolute value of a double value.
`float abs(float a)`	Returns the absolute value of a float value.
`int abs(int a)`	Returns the absolute value of an int value.
`long abs(long a)`	Returns the absolute value of a long value.
`double acos(double a)`	Returns the arc cosine of a value; the returned angle is in the range 0.0 through pi.
`double asin(double a)`	Returns the arc sine of a value; the returned angle is in the range -pi/2 through pi/2.
`double atan(double a)`	Returns the arc tangent of a value; the returned angle is in the range -pi/2 through pi/2.
`double atan2(double y, double x)`	Returns the angle theta from the conversion of rectangular coordinates (x, y) to polar coordinates (r, theta).
`double cbrt(double a)`	Returns the cube root of a double value.
`double ceil(double a)`	Returns the smallest (closest to negative infinity) double value that is greater than or equal to the argument and is equal to a mathematical integer.
`double copySign(double magnitude, double sign)`	Returns the first floating-point argument with the sign of the second floating-point argument.
`float copySign(float magnitude, float sign)`	Returns the first floating-point argument with the sign of the second floating-point argument.
`double cos(double a)`	Returns the trigonometric cosine of an angle.
`double cosh(double x)`	Returns the hyperbolic cosine of a double value.
`double exp(double a)`	Returns Euler's number e raised to the power of a double value.
`double expm1(double x)`	Returns ex -1.
`double floor(double a)`	Returns the largest (closest to positive infinity) double value that is less than or equal to the argument and is equal to a mathematical integer.
`int getExponent(double d)`	Returns the unbiased exponent used in the representation of a double.
`int getExponent(float f)`	Returns the unbiased exponent used in the representation of a float.
`double hypot(double x, double y)`	Returns sqrt(x2 +y2) without intermediate overflow or underflow.
`double IEEEremainder(double f1, double f2)`	Computes the remainder operation on two arguments as prescribed by the IEEE 754 standard.
`double log(double a)`	Returns the natural logarithm (base e) of a double value.
`double log10(double a)`	Returns the base 10 logarithm of a double value.
`double log1p(double x)`	Returns the natural logarithm of the sum of the argument and 1.
`double max(double a, double b)`	Returns the greater of two double values.
`float max(float a, float b)`	Returns the greater of two float values.
`int max(int a, int b)`	Returns the greater of two int values.
`long max(long a, long b)`	Returns the greater of two long values.
`double min(double a, double b)`	Returns the smaller of two double values.

`float min(float a, float b)`	Returns the smaller of two float values.
`int min(int a, int b)`	Returns the smaller of two int values.
`long min(long a, long b)`	Returns the smaller of two long values.
`double nextAfter(double start, double dir)`	Returns the floating-point number adjacent to the first argument in the direction of the second argument.
`float nextAfter(float start, double dir)`	Returns the floating-point number adjacent to the first argument in the direction of the second argument.
`double nextUp(double d)`	Returns the floating-point value adjacent to d in the direction of positive infinity.
`float nextUp(float f)`	Returns the floating-point value adjacent to f in the direction of positive infinity.
`double pow(double a, double b)`	Returns the value of the first argument raised to the power of the second argument.
`double random()`	Returns a double value with a positive sign, greater than or equal to 0.0 and less than 1.0.
`double rint(double a)`	Returns the double value that is closest in value to the argument and is equal to a mathematical integer.
`long round(double a)`	Returns the closest long to the argument.
`int round(float a)`	Returns the closest int to the argument.
`double scalb(double d, int scaleFactor)`	Return d × 2scaleFactor rounded as if performed by a single correctly rounded floating-point multiply to a member of the double value set.
`float scalb(float f, int scaleFactor)`	Return f × 2scaleFactor rounded as if performed by a single correctly rounded floating-point multiply to a member of the float value set
`double signum(double d)`	Returns the signum function of the argument; zero if the argument is zero, 1.0 if the argument is greater than zero, -1.0 if the argument is less than zero.
`float signum(float f)`	Returns the signum function of the argument; zero if the argument is zero, 1.0f if the argument is greater than zero, -1.0f if the argument is less than zero.
`double sin(double a)`	Returns the trigonometric sine of an angle.
`double sinh(double x)`	Returns the hyperbolic sine of a double value.
`double sqrt(double a)`	Returns the correctly rounded positive square root of a double value.
`double tan(double a)`	Returns the trigonometric tangent of an angle.
`double tanh(double x)`	Returns the hyperbolic tangent of a double value.
`double toDegrees(double angrad)`	Converts an angle measured in radians to an approximately equivalent angle measured in degrees.
`double toRadians(double angdeg)`	Converts an angle measured in degrees to an approximately equivalent angle measured in radians.
`double ulp(double d)`	Returns the size of an ulp of the argument.
`float ulp(float f)`	Returns the size of an ulp of the argument.
`long factorial(int value)`	Returns the factorial of passed value.

Regression functions

Function	Description
`linereg(String indicatorCode)`	Linear regression
`polyreg(2, String indicatorCode)`	Quadratic regression
`polyreg(3, String indicatorCode)`	General polynomial regression

Special Functions

Special functions

Function	Description
`void filter(String filterExpression, { expression } )`	Evaluates the passed expression with the specified filter. For example:
`Double aggregatePrevLevel(int countOfPrevlevels, { expression } )`	Returns the aggregated value of the embedded expression. The aggreg
Double forEachRow('expression')	Computes the expression on data set row level and calculates the sum f multiplication within the `forEachRow()` method and outside:

		Ind1	Ind2	forEachR
Member		5	30	**80**
	DrillDownMember1	3	20	60
	DrillDownMember2	2	10	20

Function	Description
Double forEachRow('expression','aggregation')	Computes the expression on data set row level and calculates the aggre include SUM, MIN, MAX, AVG, COUNT, DCOUNT.
`Double members(String path, { expression } )`	Computes the expression for desired drill-down member values. Exampl This example returns the value of indicator `M_NAME_1` aggregated for sp
`Double membersSum({ expression } )`	Computes the expression for particular members and calculates the sum multiplication within the `membersSum()` method and outside:

		Ind1	Ind2	membersSu
Member		5	30	**80**
	DrillDownMember1	3	20	60
	DrillDownMember2	2	10	20

Function	Description
`Double membersSum(String levelCode, { expression } )`	Computes the expression for particular members of the defined `levelC`
`Double membersAvg({ expression } )`	Computes the expression for particular members and calculates the ave
`Double membersAvg(String levelCode, { expression } )`	Computes the expression for particular members of the defined `levelC`
`Double membersMin({ expression } )`	Computes the expression for particular members and calculates the min
`Double membersMin(String levelCode, { expression } )`	Computes the expression for particular members of the defined `levelC`
`Double membersMax({ expression } )`	Computes the expression for particular members and calculates the max

`Double membersMax(String levelCode, { expression } )`	Computes the expression for particular members of the defined `levelC`
`String attributeCode()`	Returns the attribute code of current member. Example:

	Population
Prague	1200000
Berlin	3000000
London	7825200

`String memberIdentifier()`	Returns the attribute code and value of current member in following form

	Population
Prague	1200000
Berlin	3000000
London	7825200

`String memberValue()`	Returns the value of current member. Example:

	Population
Prague	1200000
Berlin	3000000
London	7825200

rank() { expression }	Returns numerical order (rank) of the indicator applied in the expression

User	Score
Peter	90.3
John	92.7
Anna	89.7

`withoutDateTime() { expression }`	Opt-out from applied Date and Time intervals. Example:

Date	M_INDICATOR
1/12 - 12/12	1000
1/1/2013 - 1/31/2013	100

`withoutDrillDown() { expression }`	Opt-out from applied Drill-downs. Example:

Country	M_INDICATOR	with
+UK	3000	300
--London	1000	300
--Manchester	1000	300
--Oxford	1000	300

`withoutFilter() { expression }`	Opt-out from applied filters. Example: (Filter is set to SEGMENT=SMB)

City	M_INDICATOR	withou
Paris	1000	3000
London	900	3000
Berlin	1100	3000

Passing parameters to time formula

It is possible to define the time entry by formula. Following functions are applicable for these kind of formulas only.

Function	Description
`void set(String name, Object value)`	Sets the parameter value.
`Object get(String name)`	Loads the parameter value.
`Object indicator()`	Returns indicator from the context of the row of current table. This function returns also values of formula defined indicators (def

Consider following example - we have several indicators with codes `M_NAME_1`, `M_NAME_2` and `M_NAME_3`. These indicators are used in formulas 1 - 3. The time area is defined by time formulas 1 - 5.

	Time formula 1: `M_NAME_1`	Time formula 2: `M_NAME_2`	Time formula 3: `M_NAME_3`	Time formula 4: `s = get('suffix'); return value('M_NAME' + s);`	Time formula 5: `value(actualYear(), 'now-1m',indicator())`
Formula 1: `set('suffix', '_1'); return M_NAME_1;`	1000	2000	3000	**1000**	1000
Formula 2: `set('suffix', '_2'); return M_NAME_2;`	1000	2000	3000	**2000**	2000

Formula 3:
`set('suffix',`
`'_3');`
`return M_NAME_3;`
	1000	2000	3000	**3000**	3000

`M_NAME_1`	1000	2000	3000	N/A	1000
`M_NAME_2`	1000	2000	3000	N/A	2000
`M_NAME_3`	1000	2000	3000	N/A	3000

Getting User Information

It is possible to obtain information about logged in user for your reporting needs.

Function	Description
String getSignedUserName()	Returns name of currently signed in user.
String getSignedUserSurname()	Returns surname of currently signed in user.
String getSignedUserEmail()	Returns email of currently signed in user.
String getSignedUser()	Returns username of currently signed in user.

Accessing Report Variables

Report variables are accessible using the @ prefix. For example:

Variables can be used in formulas and in custom date/time interval definition.

Referencing Data From Another Data Set

`crossValue(String dataSetCode, String indicator)`	Loads the indicator value from the specified data set. Data time context changing functions are available.
`crossValue(String dataSetCode, String membersIdentifier String indicator)`	Loads the indicator value from the specified data set. Data time context changing functions are available.

Examples:

You can find more examples in Cross-referencing Values from Different Data Set use cases.

Formula Use Cases

Make sure that you are familiar with Formula Reference Guide prior to proceeding with **Formula Use Cases**.

Formulas are very powerful and complex scripting language. You can conduct wide variety of calculations and transformations by using and combining advanced functions.

In the following sections, you can find advanced **Use cases** and detailed description of the most common tasks conducted in BellaDati simply by using **Formulas**.

Current **Use cases** include:

- Filtering in Formulas
- Calculating Frequencies
- Calculating Percentual Share in Drill-Downs
- Calculating With Members On Defined Level
- Calculating Average Cumulated Values
- Calculating Percentiles and Quantils
- Getting Last Available Value
- Cross-referencing Values from Different Data Set
- Handling empty (NULL) values by formulas
- Representing numbers in accounting format
- Overriding Date Interval with Day Order
- Displaying text values in KPI labels
- Display Top or Bottom Member Value in KPIs
- Calculating average across different drill down levels
- Calculate revenue using unit price times quantity and revenue percentage

You can request help or additional use cases by contacting BellaDati analysts team at support@belladati.com

Filtering in Formulas

It is recommended to get familiar with **filter** function before proceeding with this tutorial.

You can set up filters for view in *Filter* dialog.

Sometimes it is more convenient to add **filter** directly to indicator formula. You can do this when:

- you are cross referencing data from other data sets.
- you do not want your users to change filters.

Filtering Attributes

The filter function supports most of the operators supported by PostgreSQL such as in/not in, ilike, like/not Like, similar to/not similar to etc. "ilike" is similar to "like" but case insensitive to the pattern matched.

- **Filter using operator: in/not In**

Following example filters data to include only **Paris**, **Berlin** and **London** in their **City** attribute. Result returns aggregation of visits in these three citites.

Note the correct usage of apostrophs in the example.

- **Regular Expressions**

Pattern	Description
_	Stands for any single character.
%	Stands for any sequence of zero or more characters.
*	Denotes repetition of the previous item zero or more times.
+	Denotes repetition of the previous item one or more times.
?	Denotes repetition of the previous item zero or one time.
|	Denotes alternation (either of two alternatives).

Filtering Indicators

Following example counts number of records which have Indicator's value of visits greater than 3.

Note that filter is applied on every record and not on its aggregated value displayed in the view.

Multiple Filters

Following example returns number of students who had **Exceptional** results from **Math** subject.

You can combine multiple filter conditions with **AND** or **OR** conjunction.

Calculating Frequencies

It is recommended to get familiar with memberSum function and its variations before proceeding with this tutorial.

The goal of this tutorial is to display the frequencies of visits based on visit counts in individual countries.

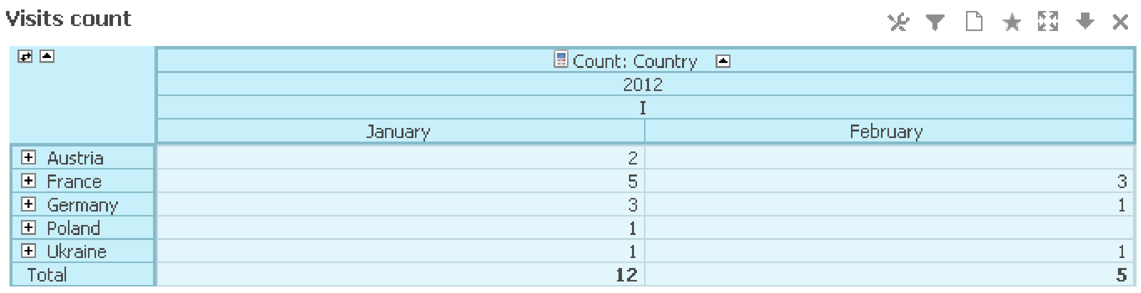
Visit frequencies are defined as formula indicators described below.

Download: Demo structure & data.

Simple Frequencies

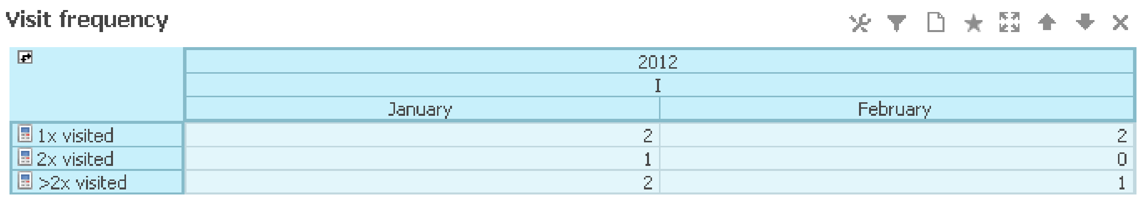
Use **memberSum** function to force BellaDati to aggregate data on specific level. Since frequencies for particular countries are calculated, apply **C ountry** attribute as **memberSum** parameter.

Formula of this indicator will count frequencies of exactly two visits. Create new calculated indicator and change condition to record other frequencies.



Visits count

	Count: Country	
	2012	
	I	
	January	February
Austria	2	
France	5	3
Germany	3	1
Poland	1	
Ukraine	1	1
Total	**12**	**5**



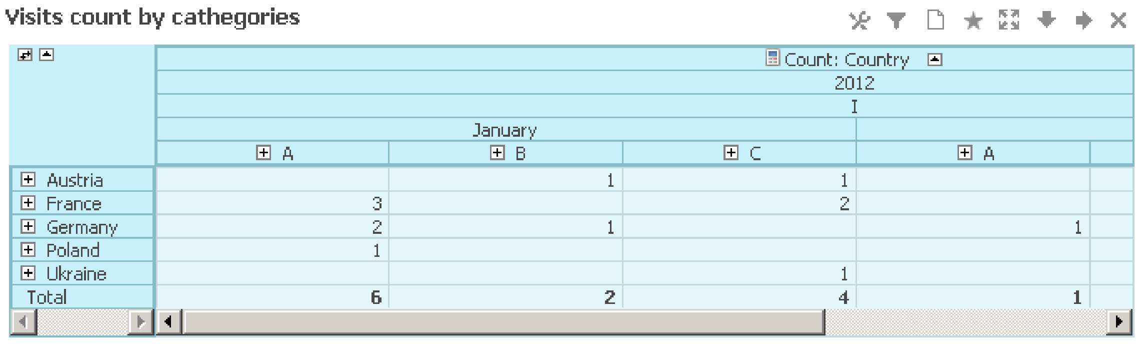
Visit frequency

	2012	
	I	
	January	February
1x visited	2	2
2x visited	1	0
>2x visited	2	1

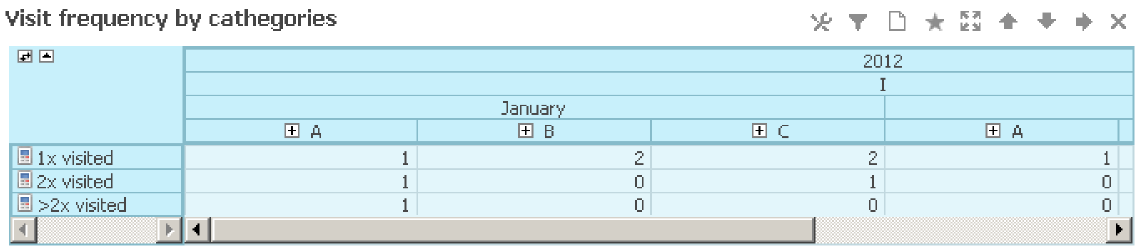
Frequencies by Categories

Extend **memberSum** function parameters by **Category** attribute to add another dimensionality to your frequency analysis.

Formula of this indicator will count frequencies of exactly two visits. Create new calculated indicator and change condition to record other frequencies.


Visits count by cathegories

	Count: Country			
	2012			
	I			
	January			
	A	B	C	A
Austria		1	1	
France	3		2	
Germany	2	1		1
Poland	1			
Ukraine			1	
Total	**6**	**2**	**4**	**1**

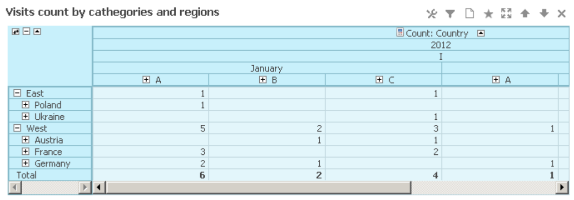

Visit frequency by cathegories

	2012			
	I			
	January			
	A	B	C	A
1x visited	1	2	2	1
2x visited	1	0	1	0
>2x visited	1	0	0	0

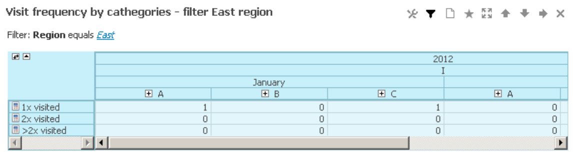
Frequencies by Categories and Regions

Add another parameter to **memberSum** function in order to further extend dimensionality.

Formula of this indicator will count frequencies of exactly two visits. Create new calculated indicator and change condition to record other frequencies.

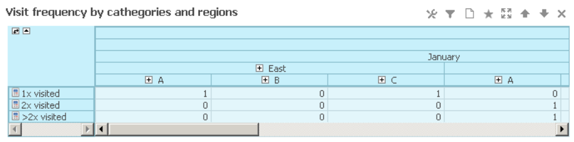

Visits count by cathegories and regions

	Count: Country			
	2012			
	I			
	January			
	A	B	C	A
East	1		1	
Poland	1			
Ukraine			1	
West	5	2	3	1
Austria		1	1	
France	3		2	
Germany	2	1		1
Total	**6**	**2**	**4**	**1**

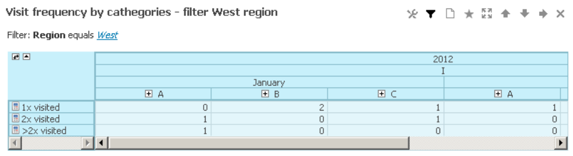

Visit frequency by cathegories - filter East region

Filter: **Region** equals *East*

	2012			
	I			
	January			
	A	B	C	A
1x visited	1	0	1	0
2x visited	0	0	0	0
>2x visited	0	0	0	0


Visit frequency by cathegories and regions

	January			
	East			
	A	B	C	A
1x visited	1	0	1	0
2x visited	0	0	0	1
>2x visited	0	0	0	1


Visit frequency by cathegories - filter West region

Filter: **Region** equals *West*

	2012			
	I			
	January			
	A	B	C	A
1x visited	0	2	1	1
2x visited	1	0	1	0
>2x visited	1	0	0	0

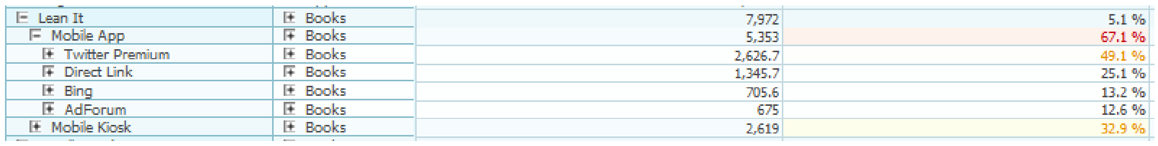
Note that frequencies will not be displayed correctly when adding another drill-down on the right side of the table in current version. Use filters instead. This can be also combined with report variables.

Calculating Percentual Share in Drill-Downs

It is recommended to get familiar with **aggregatePrevLevel** function and its variations before proceeding with this tutorial.

The goal of this tutorial is to display percentual share of children members composing parent node. Formula works across drill-down levels and is universal for any depth. Every member has assigned indicator with absolute value which will be used to calculate share within the level.

Final table looks as follows:



Lean It	Books	7,972	5.1 %
Mobile App	Books	5,353	67.1 %
Twitter Premium	Books	2,626.7	49.1 %
Direct Link	Books	1,345.7	25.1 %
Bing	Books	705.6	13.2 %
AdForum	Books	675	12.6 %
Mobile Kiosk	Books	2,619	32.9 %

- **Lean In** books represents 5.1 % of all Sales.
- 67.1 % of Lean In were sold via **Mobile App** and 32.9 % through **Mobile Kiosk**.
- 49.1 % of mobile users came from **Twitter Premium**, 25.1 % from **Direct Link**, 13.2 % from **Bing** search and 12.6 % from **AdForum**.

Use **aggregatePrevLevel** to obtain aggregated parent value of current member. Divide actual value by received amount to express share in percentage.

Calculating With Members On Defined Level

It is recommended to get familiar with **memberSum** function and its variations before proceeding with this tutorial.

When evaluating formulas, BellaDati proceeds in following fashion:

1. Apply **Member aggregation** function to particular **Indicators**. (SUM, MIN, MAX, AVG, COUNT)
2. Execute user defined **Operations** among **Indicators**. (+,-,*,/).

However, sometimes this behavior is not demanded.

Imagine following situation. You have **Price** and **Quanity** indicators and want to display **Total Sales**. In its standard behavior, BellaDati would sum all prices and quantities and eventually multiply it. Nevertheless, right procedure will be to multiply **Price** and **Quantity** on every row and subsequently consolidate result to display **Total Sales**.

Calculating Total Sales

You can leverage **memberSum** function to force BellaDati to execute defined operation on particular level. Since multiplication of **Price** and **Quantity** is needed on every row, use **unique key** attribute as **memberSum** parameter.

This example is sufficient for indicators without drill-down path applied. Proceed further to find out how to extend this code in case of desired dimensionality.

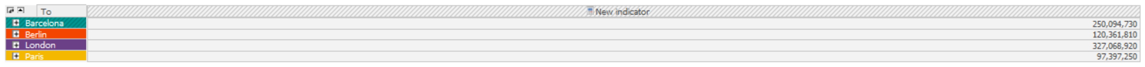
Calculating Total Sales For Particular Drill-Down

If you want drill-down path to be considered while applying **memberSum** function, you have to explicitelly define it in developed formula. Place desired attribute code before unique key definition as shown in the following example. This will ensure that your data are correctly multiplied and subsequently aggregated.

Note that order of parameters in **memberSum** function is important. Also, you still need to select particular attribute in drill-down path definition.

You can extend dimensionality by adding more parameters into the formula.

You can observe result of the applied formula in the following table. Same settings would apply for char data visualization.



To	New indicator
Barcelona	250,094,730
Berlin	120,361,810
London	327,068,920
Paris	97,397,250

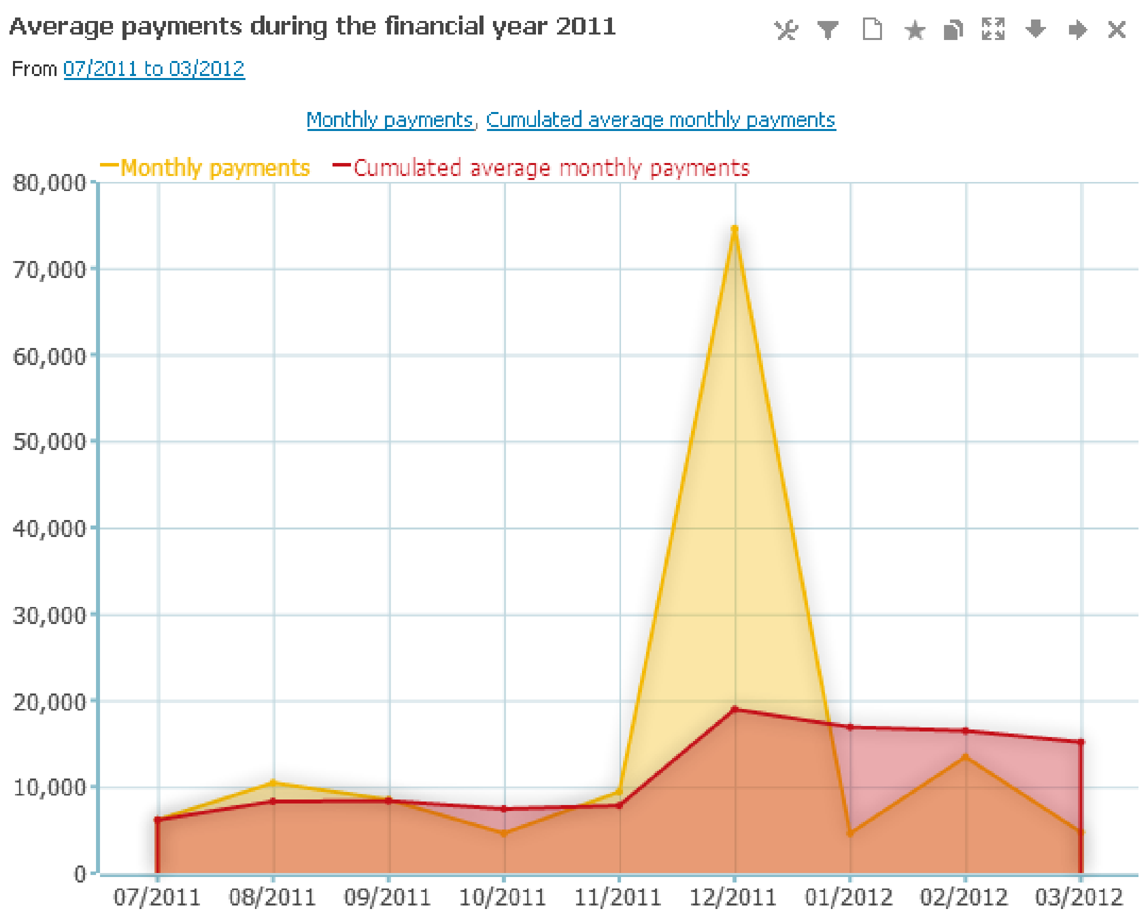
Calculating Average Cumulated Values

It is recommended to get familiar with cumulateFromDate function before proceeding with this tutorial.

The result of this tutorial will be the cumulated value of an indicator (eg. payments) divided by number of months from the beginning of the financial year. This can tell you how the total payments average trend changes during the year.

Changes might be necessary when adding drill-down.

You can observe result of the applied formula in the following chart.

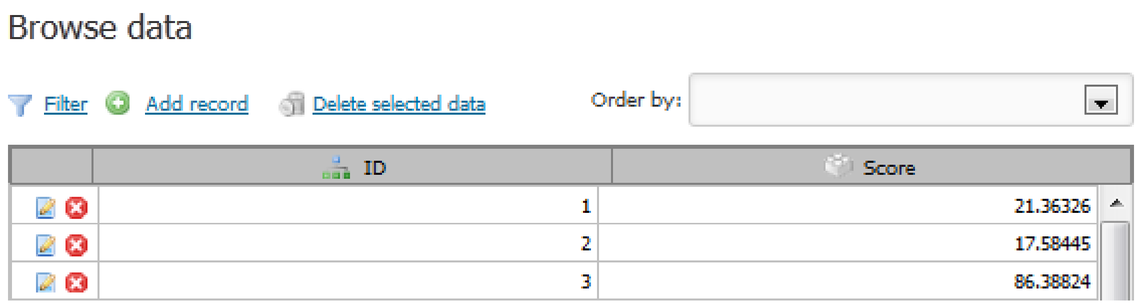


Calculating Percentiles and Quantils

It is recommended to get familiar with **rank()** function before proceeding with this tutorial.

For this tutorial, we will leverage **Data Set** loaded with exam scores.
Data set includes two columns:

- Student **ID**
- Student **Score**


Browse data

Filter | Add record | Delete selected data | Order by:

	ID	Score
	1	21.36326
	2	17.58445
	3	86.38824

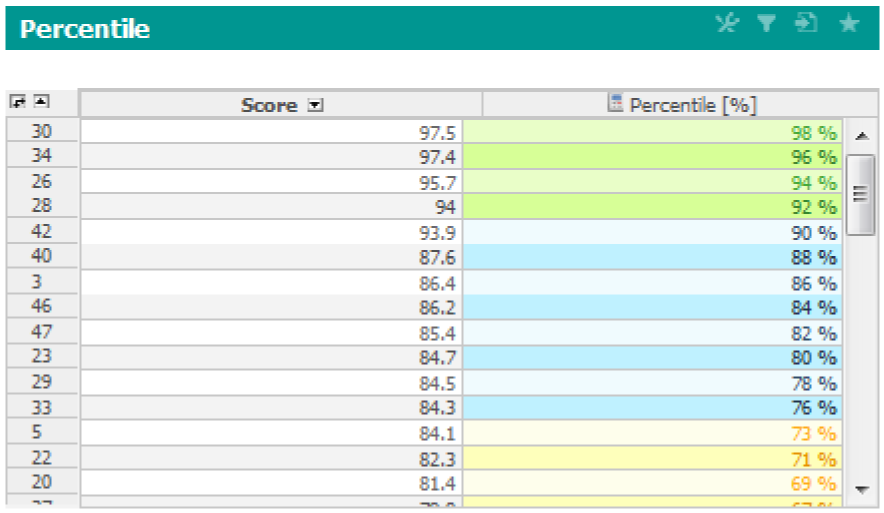
Percentiles

Percentile (or centile) is the value of a variable below which a certain percent of observations fall. For example, the 20th percentile is the value (or score) below which 20 percent of the observations may be found.

You desire to create table showing percentile next to score for each student.

- Create new table with student **ID** drill-down and **Score** indicator.
- Create new indicator - **Percentile**.
- Add following formula into *Indicators settings*.
- Setup percentage to **Unit** and associate it with appropriate **Format**.

1. line: Store the number of total **records** (students). Since, student drill-down is used, aggregation one level up is needed.
2. line: Obtain **rank** for each record.
3. line: Recalculate rank to **percentile**. *For example, if rank is 5 from 100 students, the percentile will be: 1-(5/100) = 95%.*


Percentile

	Score	Percentile [%]
30	97.5	98 %
34	97.4	96 %
26	95.7	94 %
28	94	92 %
42	93.9	90 %
40	87.6	88 %
3	86.4	86 %
46	86.2	84 %
47	85.4	82 %
23	84.7	80 %
29	84.5	78 %
33	84.3	76 %
5	84.1	73 %
22	82.3	71 %
20	81.4	69 %

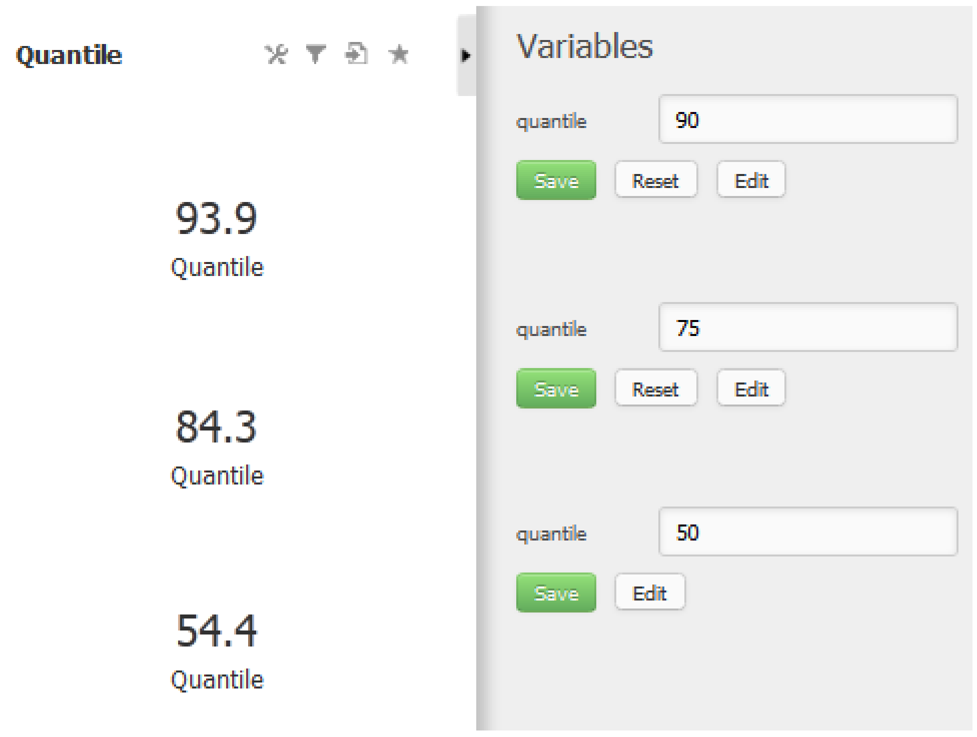
Quantiles

A value which divides a set of data into equal proportions. Examples are median, quartile and decile.

You desire to create KPI label showing the median of exam scores.

- Create new KPI label.
- Create new indicator - **Quantile**.
- Add following formula into *Indicators settings*.
- Create **quantile** variable, to be able to dynamically change observed quantile.

1. Use first three lines to convert provided **quantile** variable and find the corresponding **position** within the set of scores.
2. Obtain **rank** for each score, aggregated to the level of student's **ID**.
3. If the current **rank** equals the **position**, store **score** to the **median** variable.



Getting Last Available Value

⚠ The following expression is suitable for month date granularity

Cross-referencing Values from Different Data Set

It is recommended to get familiar with **crossValue**, **memberValue** and **filter** function before proceeding with this tutorial.

CrossValue function is used to access **Indicators** from other **Data Sets**.

It receives two parameters:

1. Cube name
2. Indicator name

Following example returns **Students** count from **Results** data set.

Access cross reference function from **Formulas help** to predefine **Cube name**.

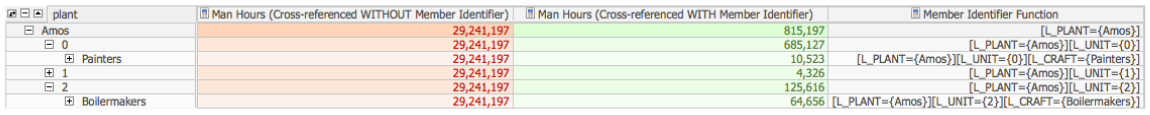
Cross Reference with Drill-down

When cross-referencing values, BellaDati does not take in consideration applied drill-downs. It is possible that it will display same value for each member. Therefore, you need to explicitelly tell BellaDati, which member is currently being processed.

You can achieve this by inserting **memberIdentifier** as second parameter of **crossValue** functions.

Observe bellow the differences between indicators without and with **memberIdentifier** inserted. Notice also return value of the function in third column.

This will also automatically handle drill-down paths.



plant	Man Hours (Cross-referenced WITHOUT Member Identifier)	Man Hours (Cross-referenced WITH Member Identifier)	Member Identifier Function
Amos	29,241,197	815,197	[L_PLANT={Amos}]
0	29,241,197	685,127	[L_PLANT={Amos}][L_UNIT={0}]
Painters	29,241,197	10,523	[L_PLANT={Amos}][L_UNIT={0}][L_CRAFT={Painters}]
1	29,241,197	4,326	[L_PLANT={Amos}][L_UNIT={1}]
2	29,241,197	125,616	[L_PLANT={Amos}][L_UNIT={2}]
Boilermakers	29,241,197	64,656	[L_PLANT={Amos}][L_UNIT={2}][L_CRAFT={Boilermakers}]

Cross Reference with Filter

BellaDati also does not take in consideration filters applied throught view settings. Therefore, you need to explicitelly tell BellaDati in formula definition which filters and how do you want to use them.

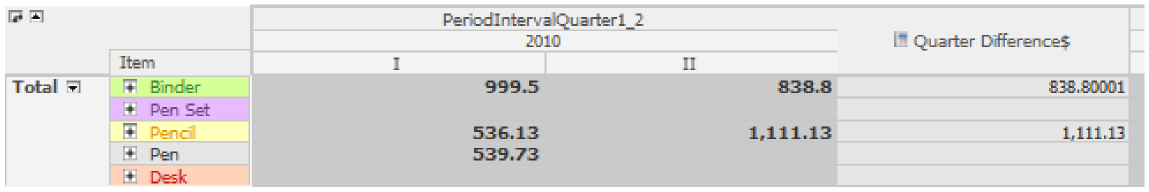
You can find more about **filters** and their combinations in Filtering in Formulas.

Handling empty (NULL) values by formulas

Sometimes it happens that some members of your table do not have any data to display. This can be caused by:

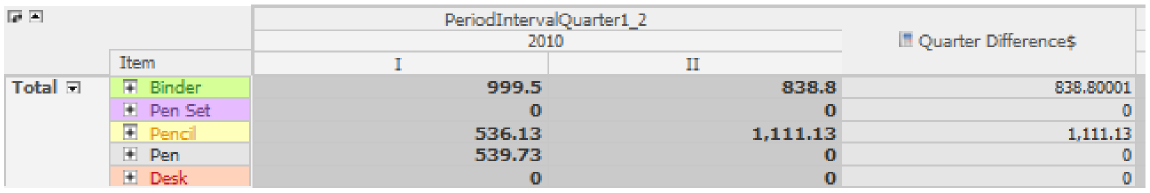
- Specific selection of date interval.
- Application of specific filters combination.
- Missing data in underlying data set.

By default, BellaDati will display empty cell.



		PeriodIntervalQuarter1_2		Quarter Difference$
		2010		
	Item	I	II	
Total	Binder	999.5	838.8	838.80001
	Pen Set			
	Pencil	536.13	1,111.13	1,111.13
	Pen	539.73		
	Desk			

Nevertheless, you can use **Replace empty value** option to define specific numeric value, which will be displayed in the cells.

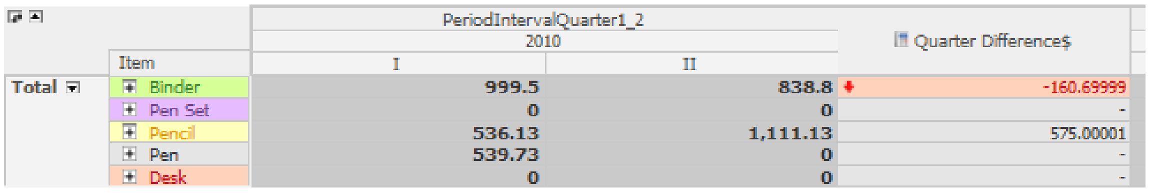


		PeriodIntervalQuarter1_2		Quarter Difference$
		2010		
	Item	I	II	
Total	Binder	999.5	838.8	838.80001
	Pen Set	0	0	0
	Pencil	536.13	1,111.13	1,111.13
	Pen	539.73	0	0
	Desk	0	0	0

Following code can be used to catch all empty cells:

Using accounting dash ('-')

Use following code to replace empty value will desired symbol (String):



		PeriodIntervalQuarter1_2		Quarter Difference$
		2010		
	Item	I	II	
Total	Binder	999.5	838.8	-160.69999
	Pen Set	0	0	-
	Pencil	536.13	1,111.13	575.00001
	Pen	539.73	0	-
	Desk	0	0	-

Representing numbers in accounting format

Sometimes, you may want to represent the numbers on the report in **accounting format**.

If the numbers are negative, it will be represented within a bracket with the positive number, e.g. - 500 is represented as (500) in accounting format.

If the numbers are 0, it will be shown as "-".

Here is the sample code for you to transform your number to accounting format. The code of the indicator using is "M_AMOUNT" and the aggregation is SUM.

Overriding Date Interval with Day Order

Make sure to get familiar with BellaDati formulas before proceeding with this section.

There are cases that you want your chart x-axis to display number of days for a particular event, rather than the calendar date.

For example, if you are running a marketing campaign from 2013-08-01 to 2013-10-01, you want to display:

- 2013-08-01 to be "Day 01"
- 2012-08-02 to be "Day 02"
- 2013-10-01 to be "Day 62" and so on.

This use case is going to show you how you could make it if you only have the date in your data set.

Preparing Data with Transformation script

Create a new attribute called **campaign_day** in the data set and apply transformation script as seen below:

This will return the number of days in terms of the campaign starting time in the format of 00 to 62.

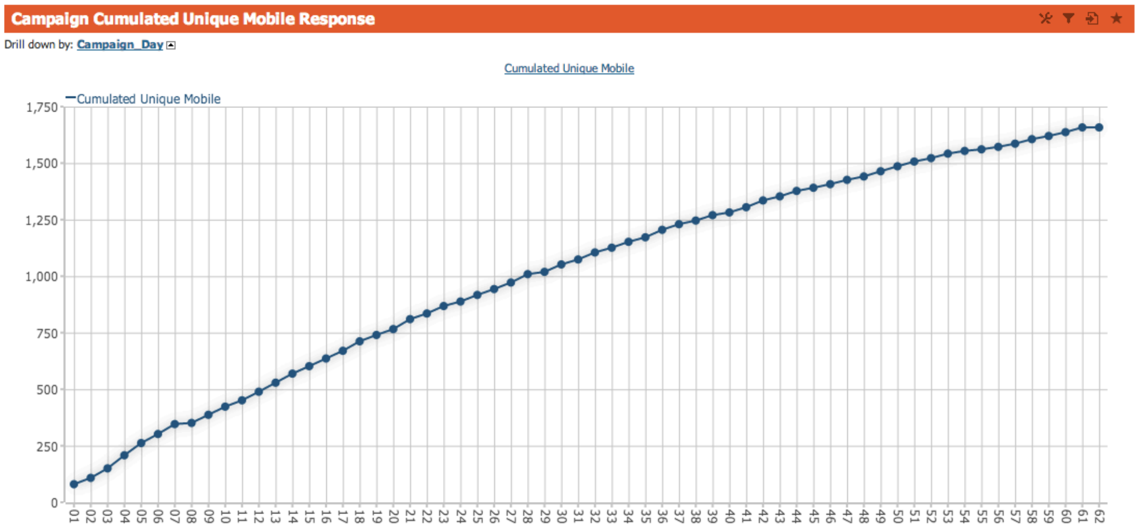
Creating formula

At the report level, set the **campaign_day** as the drill down and calculate the indicator as seen below:

It is recommended that you get familiar with Datetime Functions.

Remember that Cross Reference does not take drill down into consideration, so you are able to calculate the cumulated value. Here is how you use cross reference magically!

Here is how it looks like in the chart:



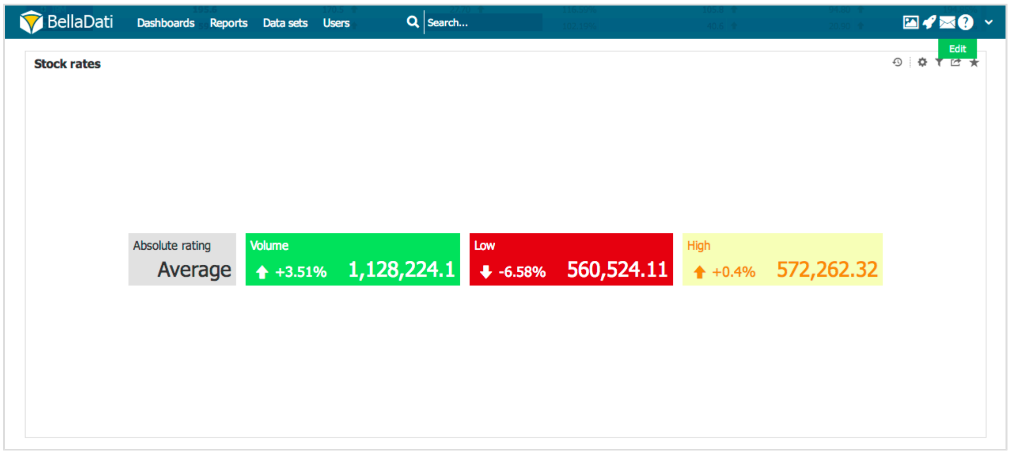
Displaying text values in KPI labels

BellaDati allows you to display **text-based KPI labels**. Use this feature to translate rates info easily readable tiers or as alternative to conditional formatting.

Example:

M_RATING@AVG indicator stores average rating of the institution. Instead of displaying numbers with conditional formatting, report requires to have text-based evaluation including *'At-Risk', 'Bellow Average', 'Average', 'Good'*, and *'Excellent'*. Use code bellow to obtain such result.

Result:



Display Top or Bottom Member Value in KPIs

You can display the top/bottom member value as KPIs by using BellaDati formulas.

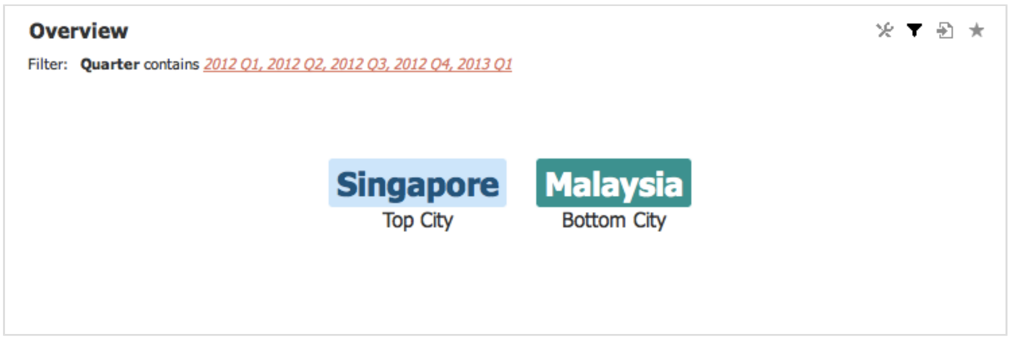
⚠ It is recommended to get familiar with membersSum and memberValue function before proceeding with this tutorial.

Example:
If you want to display the name of the top city according to number of units sold, here is code you could use. Here we use membersSum to loop through each city for the total units.

You can also write the formula in this way:

If you want to display the bottom city with least total units. Here it is:

Here is how the result will look like in the view:

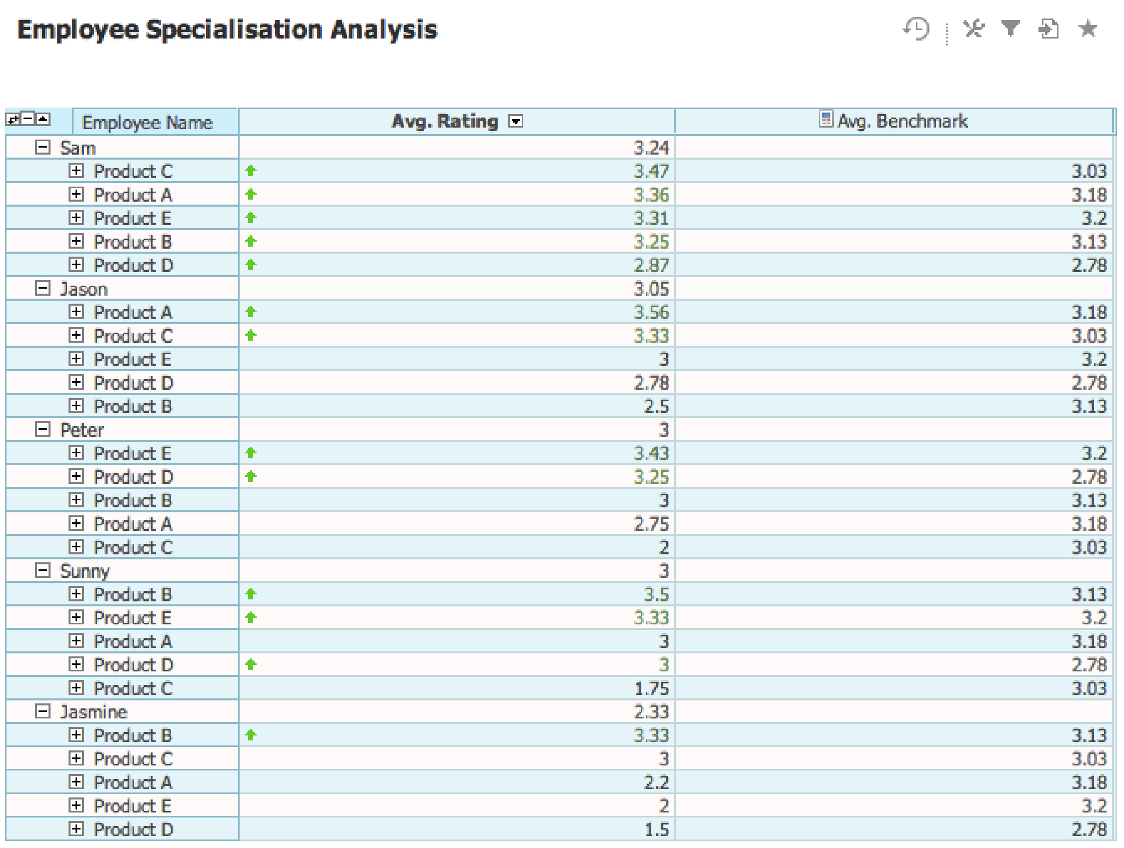

Overview
Filter: Quarter contains 2012 Q1, 2012 Q2, 2012 Q3, 2012 Q4, 2013 Q1
Singapore
Top City
Malaysia
Bottom City

Calculating average across different drill down levels

It happens very frequently that we use a few drill downs in our tables, and we want to calculate the average of indicators at different levels.

It is recommended to get familiar with memberValue and crossValue functions before proceeding with this tutorial.

In the table below, you can see two drill down levels (**Employee Name** and **Product**). **Avg. Rating** is calculating the average rating for that employee on that product.



Employee Specialisation Analysis

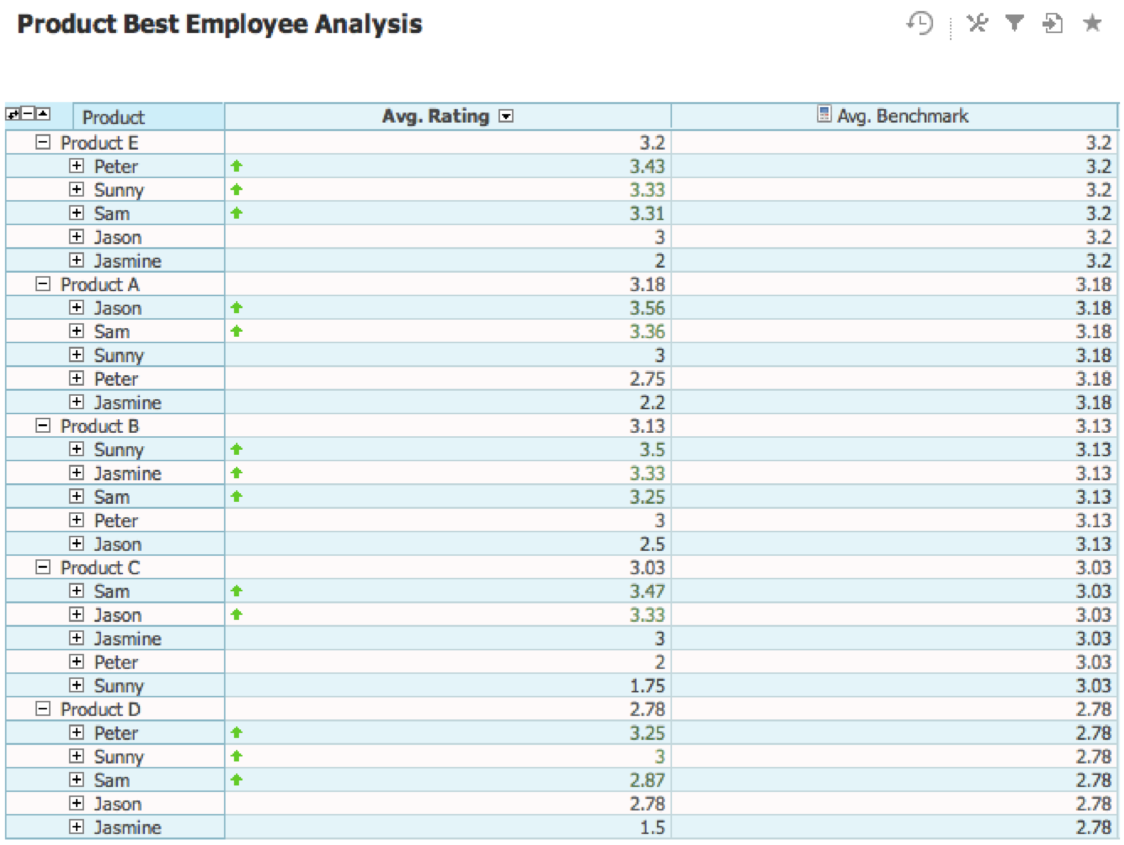
Employee Name	Avg. Rating	Avg. Benchmark
⊟ Sam	3.24	
⊞ Product C	↑ 3.47	3.03
⊞ Product A	↑ 3.36	3.18
⊞ Product E	↑ 3.31	3.2
⊞ Product B	↑ 3.25	3.13
⊞ Product D	↑ 2.87	2.78
⊟ Jason	3.05	
⊞ Product A	↑ 3.56	3.18
⊞ Product C	↑ 3.33	3.03
⊞ Product E	3	3.2
⊞ Product D	2.78	2.78
⊞ Product B	2.5	3.13
⊟ Peter	3	
⊞ Product E	↑ 3.43	3.2
⊞ Product D	↑ 3.25	2.78
⊞ Product B	3	3.13
⊞ Product A	2.75	3.18
⊞ Product C	2	3.03
⊟ Sunny	3	
⊞ Product B	↑ 3.5	3.13
⊞ Product E	↑ 3.33	3.2
⊞ Product A	3	3.18
⊞ Product D	↑ 3	2.78
⊞ Product C	1.75	3.03
⊟ Jasmine	2.33	
⊞ Product B	↑ 3.33	3.13
⊞ Product C	3	3.03
⊞ Product A	2.2	3.18
⊞ Product E	2	3.2
⊞ Product D	1.5	2.78

But you may want to compare the employee's average rating for a product with the overall employee rating for the same product as a benchmark, as it is shown in the **Avg. Benchmark** column. This could be added as a conditional formatting, so if the employee's avg. rating on a product is higher than overall employee's rating on this product, we can mark it as green and show an upper arrow there.

Here is how you could calculate this.

It is recommended to get familiar with crossValue formula before proceeding with this tutorial. As crossValue will not take drill downs applied in the context view.

In this table below, now **Product** is being placed as the first level of drill downs, and then **Employee Name** is the second level. **Avg. Benchmark** is still the overall employee average on the product. Changing the order of the drill downs will make calculating *Avg. Benchmark" a little bit different.



Product Best Employee Analysis

Product	Avg. Rating	Avg. Benchmark
Product E	3.2	3.2
Peter	3.43	3.2
Sunny	3.33	3.2
Sam	3.31	3.2
Jason	3	3.2
Jasmine	2	3.2
Product A	3.18	3.18
Jason	3.56	3.18
Sam	3.36	3.18
Sunny	3	3.18
Peter	2.75	3.18
Jasmine	2.2	3.18
Product B	3.13	3.13
Sunny	3.5	3.13
Jasmine	3.33	3.13
Sam	3.25	3.13
Peter	3	3.13
Jason	2.5	3.13
Product C	3.03	3.03
Sam	3.47	3.03
Jason	3.33	3.03
Jasmine	3	3.03
Peter	2	3.03
Sunny	1.75	3.03
Product D	2.78	2.78
Peter	3.25	2.78
Sunny	3	2.78
Sam	2.87	2.78
Jason	2.78	2.78
Jasmine	1.5	2.78

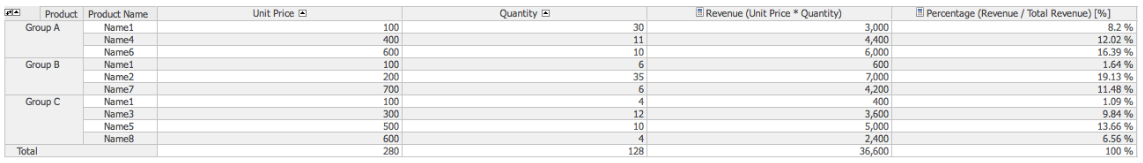
The code is as below:

Calculate revenue using unit price times quantity and revenue percentage

There are times that the data set only contains the unit price and sold quantity without the calculated revenue. This tutorial will show you how to calculate the revenue and revenue percentage towards total revenue.

It is recommended to get familiar with memberSum function before proceeding with this tutorial.

The table we are going to build will have two drill down levels, **Product Group** and **Product Name**. Here is how the table will look like.



Product	Product Name	Unit Price	Quantity	Revenue (Unit Price * Quantity)	Percentage (Revenue / Total Revenue) [%]
Group A	Name1	100	30	3,000	8.2 %
	Name4	400	11	4,400	12.02 %
	Name6	600	10	6,000	16.39 %
Group B	Name1	100	6	600	1.64 %
	Name2	200	35	7,000	19.13 %
	Name7	700	6	4,200	11.48 %
Group C	Name1	100	4	400	1.09 %
	Name3	300	12	3,600	9.84 %
	Name5	500	10	5,000	13.66 %
	Name8	600	4	2,400	6.56 %
Total		280	128	36,600	100 %

Make sure you are displaying the **Unit Price** correctly. The members aggregation should be **Average** rather than **Sum**.

The **Revenue**, which equals to **Unit Price** times **Quantity** is calculated using **membersSum**,

Make sure you place the order of the drill down levels in the parameters of membersSum correctly. It should follow the order of the drill downs in the table, so **Product Group** first and then **Product Name**. The last drill down level **Transaction ID** will make sure it aggregates total revenue for all transactions belongs to the same product group and same product.

In order to calculate the revenue percentage, we need to calculate the total revenue first.

So the code for calculating the revenue percentage is as below:

Setting Date Interval

This option is related to views. Always refer to views or particulat view types (table, chart, Geo map or KPI label) before proceeding with this section.

You can access **Date interval** options from the *Add view* dialog by selecting the "Date interval" checkbox.

If left blank, view displays values aggregated for the whole date interval.

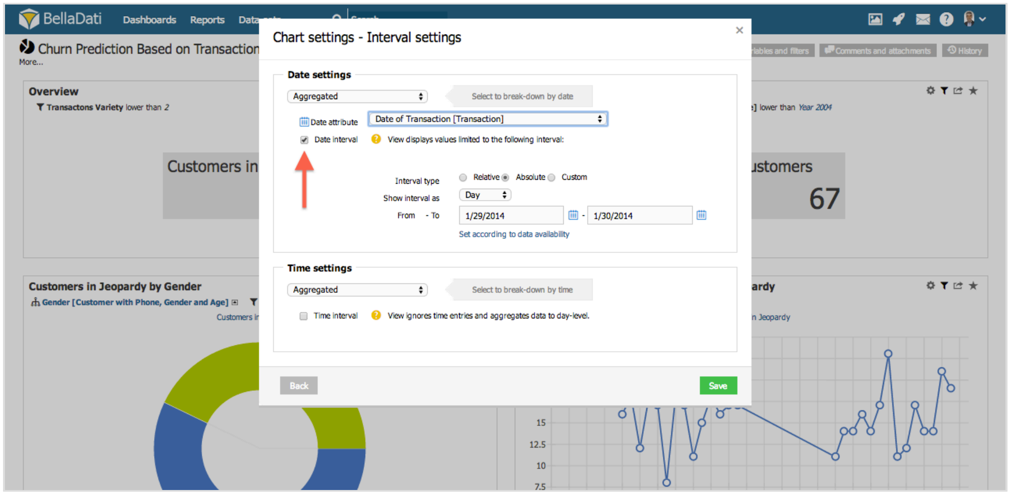


Chart settings - Interval settings

Date settings

Aggregated | Select to break-down by date

Date attribute: Date of Transaction [Transaction]

[✓] Date interval — View displays values limited to the following interval:

Interval type: Relative [✓ Absolute] Custom

Show interval as: Day

From - To: 1/29/2014 - 1/30/2014

Set according to data availability

Time settings

Aggregated | Select to break-down by time

[ ] Time interval — View ignores time entries and aggregates data to day-level.

Back | Save

When multiple date attributes are available, BellaDati will prompt you to choose the desired one.

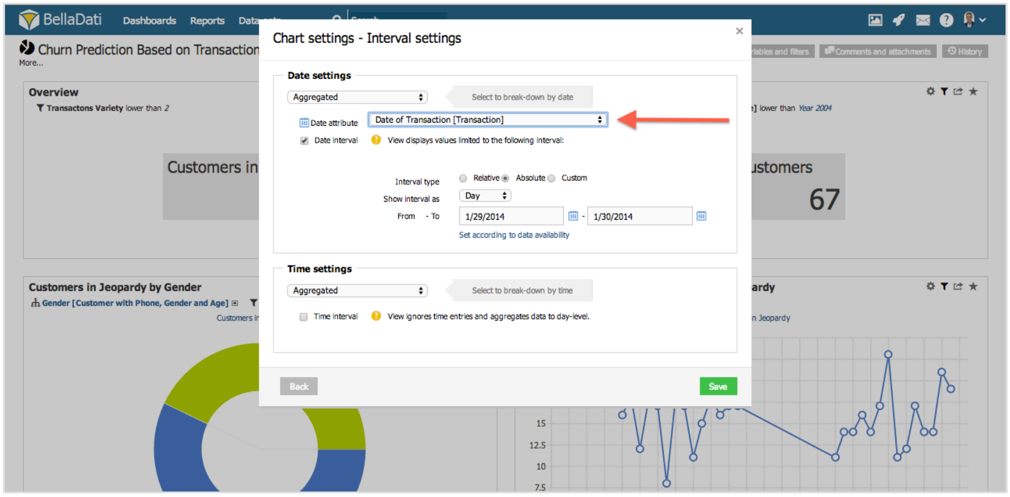


Chart settings - Interval settings

Date settings

Aggregated | Select to break-down by date

Date attribute: Date of Transaction [Transaction]

[✓] Date interval — View displays values limited to the following interval:

Interval type: Relative [✓ Absolute] Custom

Show interval as: Day

From - To: 1/29/2014 - 1/30/2014

Set according to data availability

Time settings

Aggregated | Select to break-down by time

[ ] Time interval — View ignores time entries and aggregates data to day-level.

Back | Save

There are three different types of intervals:

- **absolute** - (common setting) displays time from the first to the last day of the selected time unit (granularity)
- **relative** - indicates the range of the time interval from actual day according to selected time unit (granularity)
- **custom** - allows user to choose the interval on daily basis and keep arbitrary time granularity

You can set up following options:

- **Unit**: Granularity of time period. Available options include: **Day**, **Week**, **Month**, **Quarter** and **Year**.
- **Interval type**: Type of the interval used to restrict data. Available options inlude: **Absolute**, **Relative** and **Custom**.
- **From - To**: Starting and ending boundary of desired time period. Format depends on selected **Unit** and **Interval type**.
- **Aggregate**: aggregates the data according to the indicator's time aggregation type
- **Set according data availability**: Populates **From** and **To** inputs with frontal date values.

For Geo map and KPI label the **Time interval** option is available through view settings.

Entering custom date/time values

- you can enter time (date) **absolutely in two different formats: dd.MM.yyyy** (e.g. 1.12.2010), or **yyyy-MM-dd** (e.g. 2010-12-01)
- it's also possible to enter date **relatively:**
    - **now -** represents actual date
    - **availableFrom** - represents the date the data are available from
    - **availableTo** - represents the date the data are available to
    - **actualyear -** represents the first day of actual year (1.1.20XX). For example actualyear selected on 21.9.2010 represents date 1.1.2010
    - **actualquarter -** represents the first day of actual quarter (1.1.20XX, 1.4.20XX, 1.7.20XX, 1.10.20XX). For example actualquarter selected on 21.9.2010 represents date 1.7.2010
    - **actualmonth** - represents the first day of actual month (1.1.20XX, 1.2.20XX, ...). For example actaulmonth selected in 21.9.2010 represents date 1.9.2010
    - **actualweek** - represents first day of actual week (Monday). For example actualweek selected on 21.9.2010 represents date 20.9.2010 (Monday of this week in calendar)
    - relative and absolute enterig of date can be adjusted by operators using this syntax: **date +|- n[d|w|m|q|y],** where **n** is integer, **d** represents day, **w** represents week, **m** represents month **q** represents quartal and **y** represents year. We can for example define time in this way: *actualyear + 2m -4d.* Today is 21.9.2010, so this value represents 1.1.2010 + 2 months - 4 days, which means date 25.2.2010.
- similar to date, for specifying the time **relatively**, use the following syntax:
    - **now, actualTime** - represents the actual time
    - **availableFrom** - represents the time the data are available from
    - **availableTo** - represents the time the data are available to
    - **actualhour** - represents the actual hour, e.g. 11:00:00 AM
    - **actualminute** - represents the actual minute, e.g. 11:23:00 AM
    - **actualsecond** - represents the actual second, e.g. 11:23:45 AM

Using Filters

Filters serve for analysing subsets of your data. BellaDati support three types of filters:

1. **View Filters** - filter is applied on the current view only, doesn't affect other views in the report
2. **Report Filters** - filter is applied on all views within the report
3. **Indicator Filters** - filter is applied on the desired indicator

Using Filters in Views

Filter option is available for Chart, Table, Geo map and KPI label view.

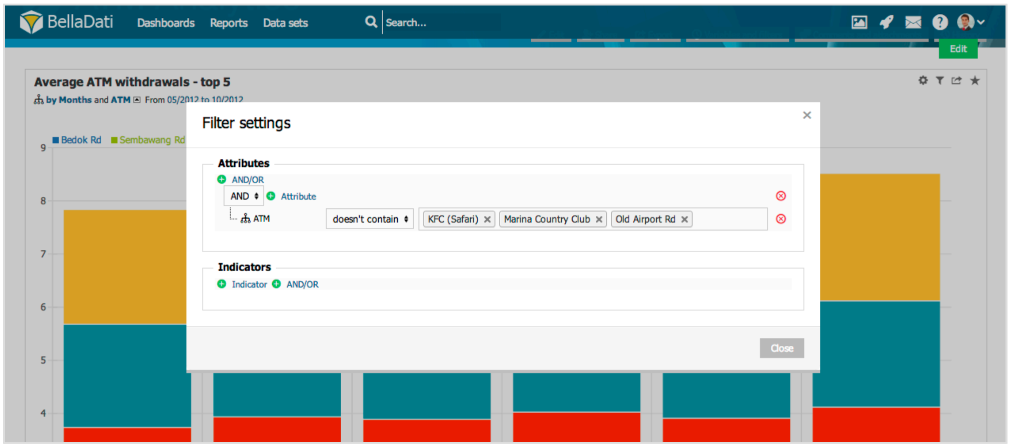
You can access **Filter** option from toolbox in the upper right corner of the view.

Filter dialog includes list of attributes and indicators used in the view. You can filter either by:

1. **Attribute** members
2. **Indicator** values

To apply a filter, you have to:

1. Select **Attribute** or **Indicator** for filtering.
2. Select **Condition**.
3. Provide **Values** for the condition.



Filtering by Attribute Members

There are four conditions available:

- **contains**: Allows to select single or more members, which will be displayed within the attribute.
- **doesn't contain**: Allows to select single or more members, which will not be displayed within the attribute.
- **count**: Allows filtering members by their count.
- **not empty**: Hides members with empty (blank) values.
- **empty**: Displays members with empty (blank) values.

You can combine different attributes or even more conditions for one attribute. More filters are combined with **AND** condition. Therefore all conditions must be fullfilled to display data.

Filtering by Indicator Values

There are the following conditions available:

- equals the value specified
- not equal to value specified
- lower than value specified
- lower than or equal to value specified
- greater than value specified

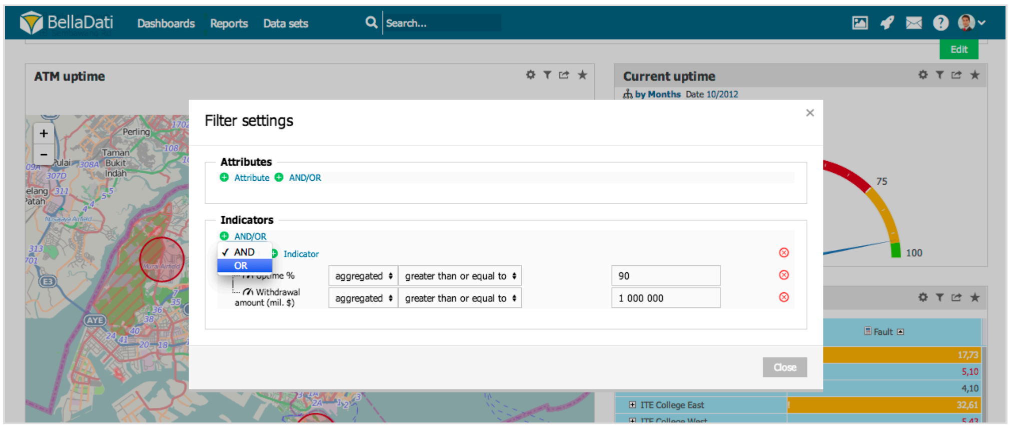
- greater than or equal to value specified
- not empty
- empty

Filtering by indicator values is defined only for basic cases. It can produce unpredictable result if you use complex drill-down paths or date/time dimension.

Hint: See **crossValue()** function to access all data in the view even if the filter is active. This allows you to calculate eg. ration of some value to total which is not affected by current view filter.

Multiple filters

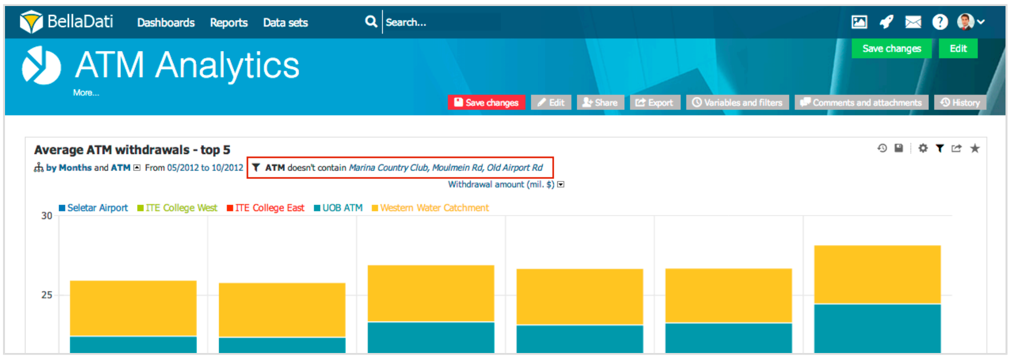
You can combine different attributes/indicators or even apply more conditions for one attribute/indicator. Multiple filters can be merged with **AND** o r **OR** condition.



Uptime % — aggregated — greater than or equal to — 90
Withdrawal amount (mil. $) — aggregated — greater than or equal to — 1 000 000

Modyfing filter

Applied **filters** are listed under the view title and labeled with **Filter** tag. In case of **attribute** filter, you can click on the condition to modify values.



by Months and ATM From 05/2012 to 10/2012 | ATM doesn't contain *Marina Country Club, Moulmein Rd, Old Airport Rd*
Withdrawal amount (mil. $)

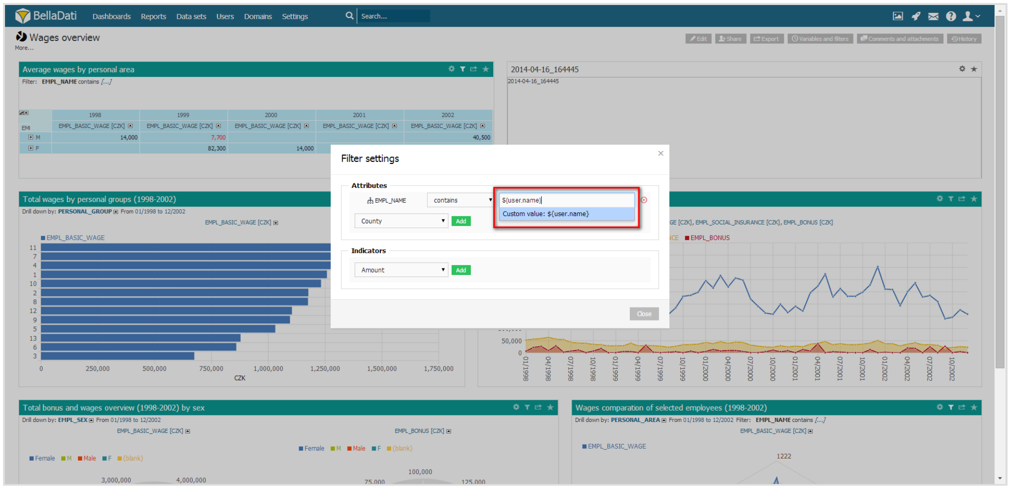
Referencing current user attributes in filter

You can access the current signed user attributes to build the filter. In order to do this, add a custom expression as a filter value:

Name	Description
${user}, ${user.username}	Returns the username of currently signed user
${user.email}	Returns the email of currently signed user
${user.name}	Returns the first name of currently signed user
${user.surname}	Returns the last name of currently signed user
${user.locale}	Returns the user's locale of currently signed user

${domain}, ${domain.name}	Returns the name of currently signed user's domain
${domain.locale}	Returns the locale of currently signed user's domain
${domain.timezone}	Returns the timezone of currently signed user's domain

See example here:



Using Report Filters

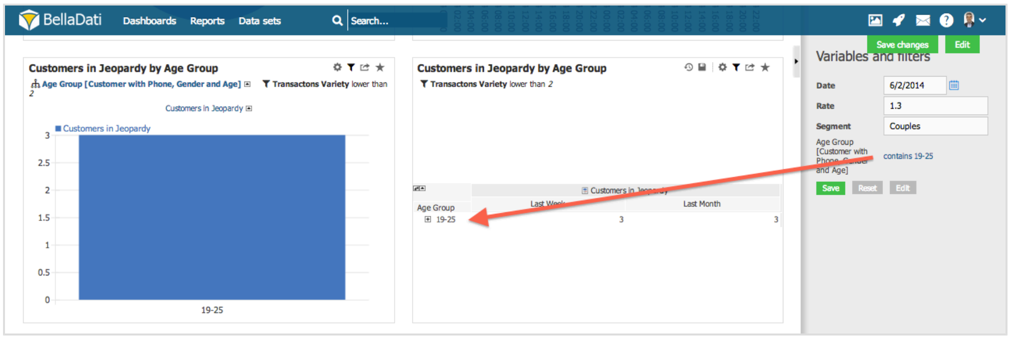
Report filters are leveraging the report variables.

When **Filter** variable is set up to drill-down path, all **Views** including this **Drill-down** will be filtered according the definition.

Click on **Filter** values in *Variables and Filters* panel to change them.

In such dynamic defintion, the **Views** including the filtered **Drill-down** will be refreshed after every modification done to variable in right *Variables* panel.

For more information about **Setting Filters** on views - continue by Using Filters.



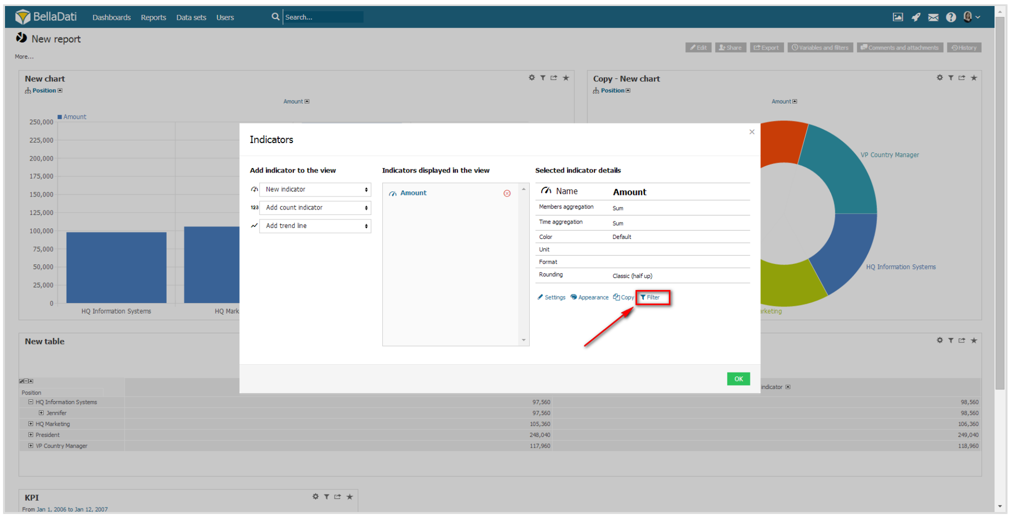
Variables and filters	
Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

Age Group	Last Week	Last Month
19-25	3	3

Using Indicator Filters

In addition to view filters and report filters, you can add specific filter for the desired indicator. There are two ways - using the formula, or more user-friendly, using the Indicator Filter UI.

To configure the indicator filter, open the Indicators list and select the desired indicator. Then just click on the "Filter" link and set the requested filter.

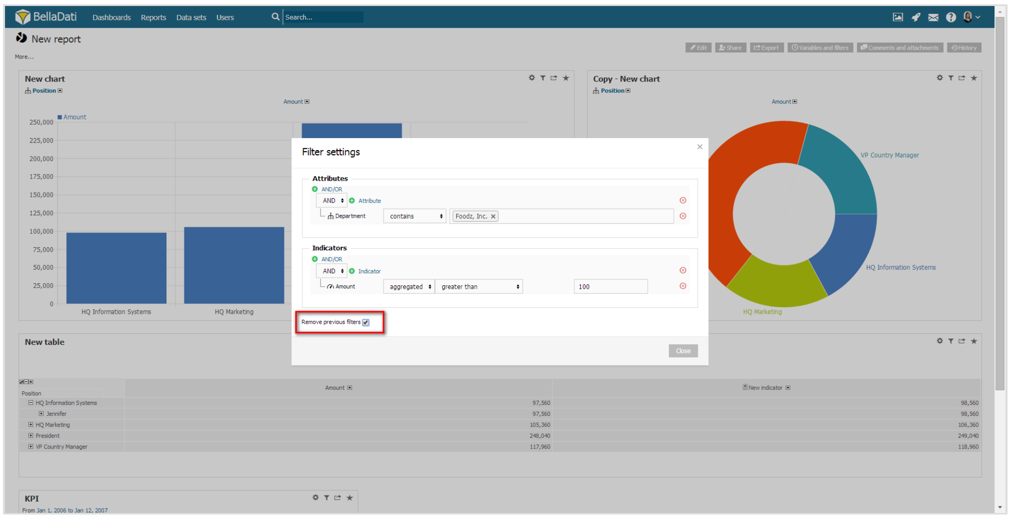


Selected indicator details

Name	Amount
Members aggregation	Sum
Time aggregation	Sum
Color	Default
Unit	
Format	
Rounding	Classic (half up)

Ignoring view and report filters

There can be a case, when you don't want to apply the view and report level filters. In this case, you can just select the "Remove previous filters" option and the filters will not be applied for the Indicator value calculation.



Attributes: AND — Department contains Foodz, Inc.

Indicators: AND — Amount aggregated greater than 100

Remove previous filters ✓

Report Variables

Variables allows you to dynamically **modify content** of the report.

⚠ You need to be in **view mode** in order to add variables.

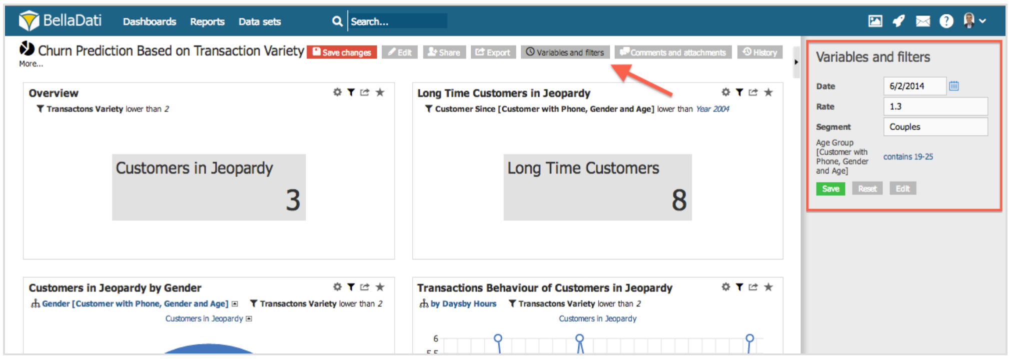
⚠ Only **report author** or **report editor** can create report variables and set their default values. Every other user that has access to the report, can only change report variable values.

Select **Variables** from the report toolbox list in the upper right corner to open *Variables* panel.

Variables dialog allows you to:

- **Change** variables values.
- **Reset** variables values.
- **Save** variables values.
- **Edit** variables definition.

ⓘ **Variables** are set up on report level and work only within this space.


BellaDati
Dashboards
Reports
Data sets
Search...
Churn Prediction Based on Transaction Variety
More...
Save changes
Edit
Share
Export
Variables and filters
Comments and attachments
History
Overview
Transactons Variety lower than 2
Customers in Jeopardy
3
Long Time Customers in Jeopardy
Customer Since [Customer with Phone, Gender and Age] lower than Year 2004
Long Time Customers
8
Customers in Jeopardy by Gender
Gender [Customer with Phone, Gender and Age]
Transactons Variety lower than 2
Customers in Jeopardy
Transactions Behaviour of Customers in Jeopardy
by Daysby Hours
Transactons Variety lower than 2
Customers in Jeopardy

Variables and filters

Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

Save Reset Edit

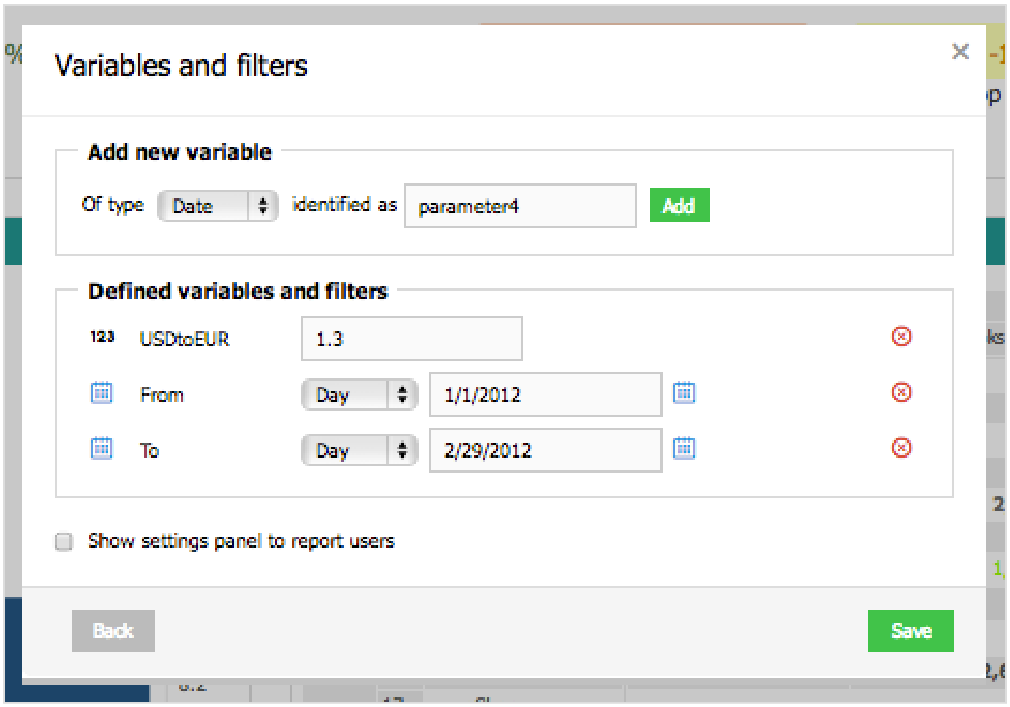
Editing Variables

Click on **Edit** button to enter *Variables* dialog.

BellaDati allows you to:

- Select variable **type** including:
  - **Number**
  - **Text**
  - **Date**
  - **Filter**
- Edit variable **name**
- Specify **description**
- Setup **default** value
- Edit variable **value**

✓ Select **Show variables settings panel to report users** if you want variables settings to be visible to report users.


Variables and filters

Add new variable

Of type: Date, identified as: parameter4 — Add

Defined variables and filters

USDtoEUR	1.3		
From	Day	1/1/2012	
To	Day	2/29/2012	

Show settings panel to report users

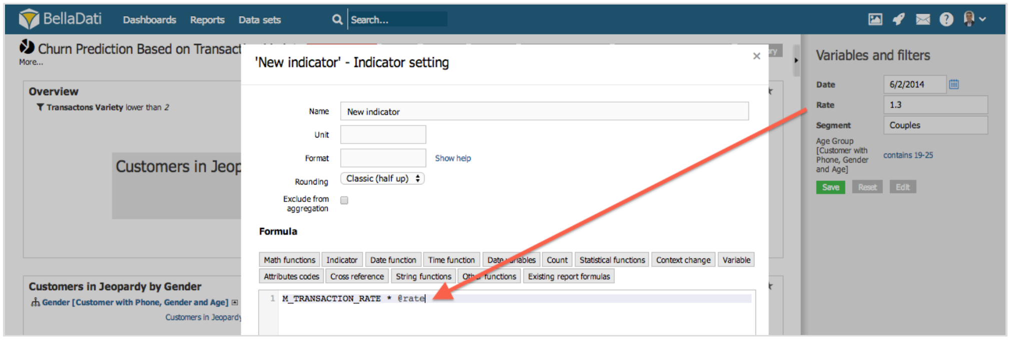
Applying variables in indicator settings

You can leverage variables in indicators **formulas**.

In such dynamic defintion, the **Views** including the **Indicator** will be reculated after every modification done to variable in right *Variables* panel.

For more information about **Displaying Indicators** - continue by Displaying Indicators.

Prefix variable with '@' in order to refer to variable value.


Churn Prediction Based on Transact

Overview

Transactons Variety lower than 2

Customers in Jeop

Customers in Jeopardy by Gender

Gender [Customer with Phone, Gender and Age]

'New indicator' - Indicator setting

Name: New indicator

Unit:

Format:

Rounding: Classic (half up)

Exclude from aggregation: ☐

Formula

```
M_TRANSACTION_RATE * @rate
```

Variables and filters

Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

Report **Variables** could also serve as a basic **planning and forecasting tool**. Analyst can setup **formulas** for various **versions** or **time intervals** and then change variables values in order to observe impact of such changes.

Applying variables in time interval settings

You can leverage variables in time interval settings. Variable has to have proper date format in order to be able to be used as date interval.

Select **Custom interval** to apply variables.

In such dynamic defintion, the **Views** including the **Time interval** will be reculated after every modification done to variable in right *Variables* pane l.

For more information about **Setting Date Interval** - continue by Setting Date Interval.

Prefix variable with '@' in order to refer to variable value.

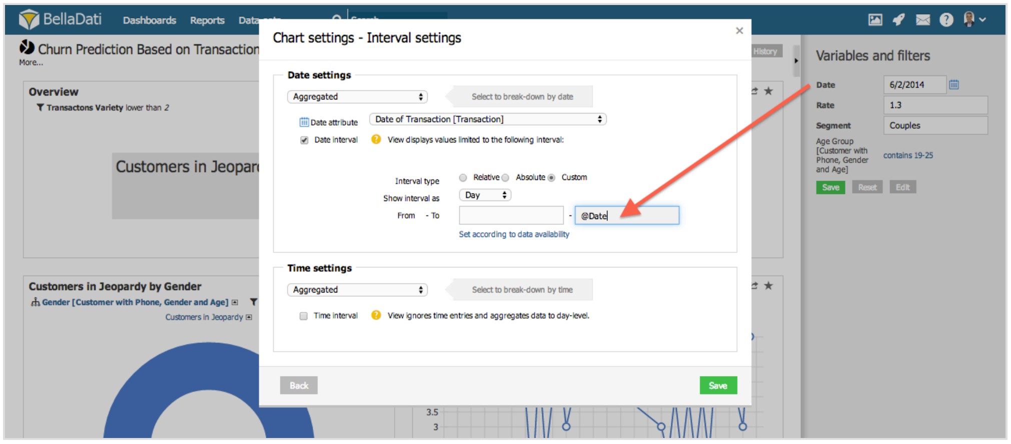


Chart settings - Interval settings

Date settings: Aggregated; Select to break-down by date
Date attribute: Date of Transaction [Transaction]
Date interval ✓ View displays values limited to the following interval:
Interval type: Relative, Absolute, [✓ Custom]
Show interval as: Day
From - To: @Date
Set according to data availability

Time settings: Aggregated; Select to break-down by time
Time interval: View ignores time entries and aggregates data to day-level.

Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

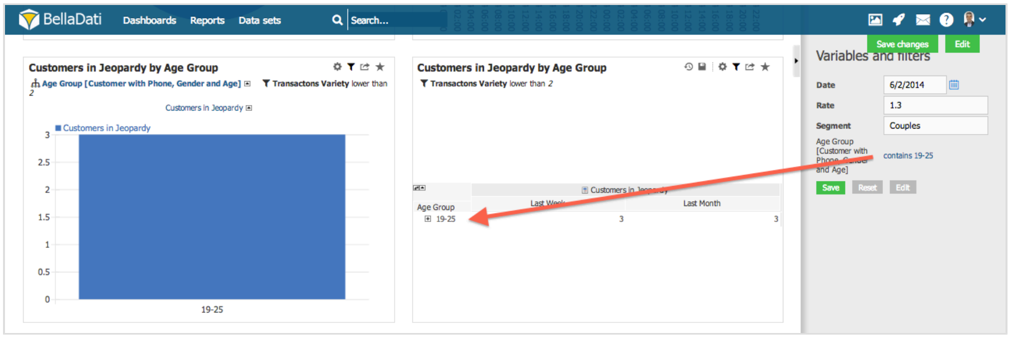
Applying variables as global report filters

You can leverage variables also as global filters. When **Filter** variable is set up to drill-down path, all **Views** including this **Drill-down** will be filtered according the definition.

Click on **Filter** values in *Variable* panel to change them.

In such dynamic defintion, the **Views** including the filtered **Drill-down** will be refreshed after every modification done to variable in right *Variables* panel.

For more information about **Setting Filters** on views - continue by Using Filters.



Age Group	Last Week	Last Month
19-25	3	3

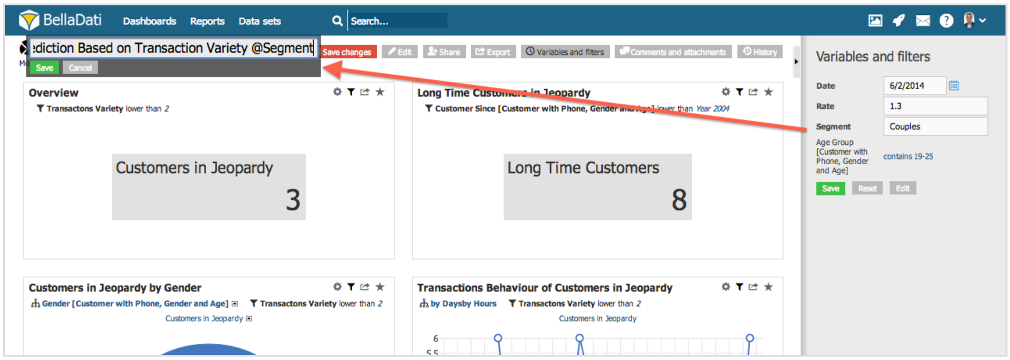
Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

Using Variables in Report and View Titles

You can use **variable values** in reports' and views' titles. To do so:

1. Click on **Title** you would like to modify
2. Type @ followed by **Variable Name**. For example: 'Patient Details: @patient_name'.
3. Click **Save** or hit **Enter**

This feature is handy especially when creating **Global Filters** or **drill-throughts** with **URL Appearance**.



ediction Based on Transaction Variety @Segment

Overview
Transactons Variety lower than 2
Customers in Jeopardy 3

Long Time Customers in Jeopardy
Customer Since [Customer with Phone, Gender and Age] lower than Year 2004
Long Time Customers 8

Customers in Jeopardy by Gender
Gender [Customer with Phone, Gender and Age] Transactons Variety lower than 2
Customers in Jeopardy

Transactions Behaviour of Customers in Jeopardy
by Daysby Hours Transactons Variety lower than 2
Customers in Jeopardy

Variables and filters

Date	6/2/2014
Rate	1.3
Segment	Couples
Age Group [Customer with Phone, Gender and Age]	contains 19-25

Defining Drill-through URL

Make sure to get familiar with Creating Table and applying **Drill-downs** before proceeding with this section.

This feature is currently available only in **Table** views.

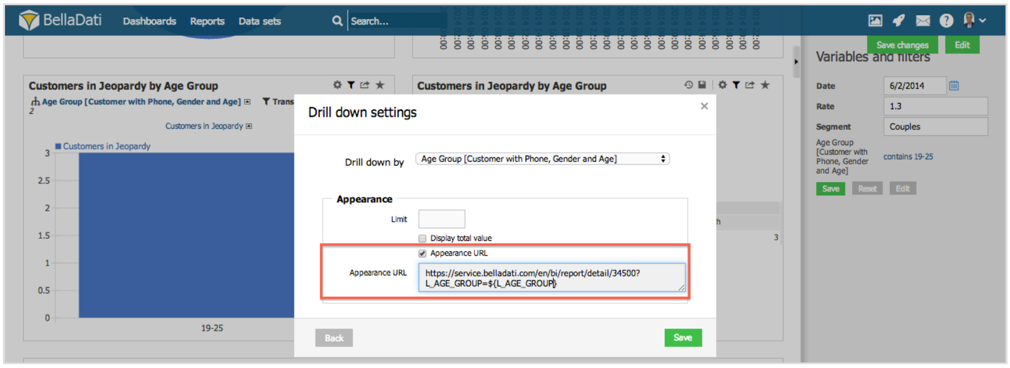
BellaDati allows you to mask attribute's member with custom URLs. This feature is useful to:

- create **Drill-throughs** - redirection from master report to detailed one based on clicked member.
- redirect to other report or resources.

Masking members

1. Go to **Table settings** and click on existing attribute or select **Add drill-down path**.
2. Check **Show as link**
3. Define custom **URL**

You can refer in URL to member values with **${L_ATTRIBUTE_NAME}** and create report links using **${reportLink(report_id)}**



Drill down settings

Drill down by: Age Group [Customer with Phone, Gender and Age]

Appearance

Limit:

☐ Display total value

☑ Appearance URL

Appearance URL: https://service.belladati.com/en/bi/report/detail/34500?L_AGE_GROUP=${L_AGE_GROUP}

Adding Comments and Attachments

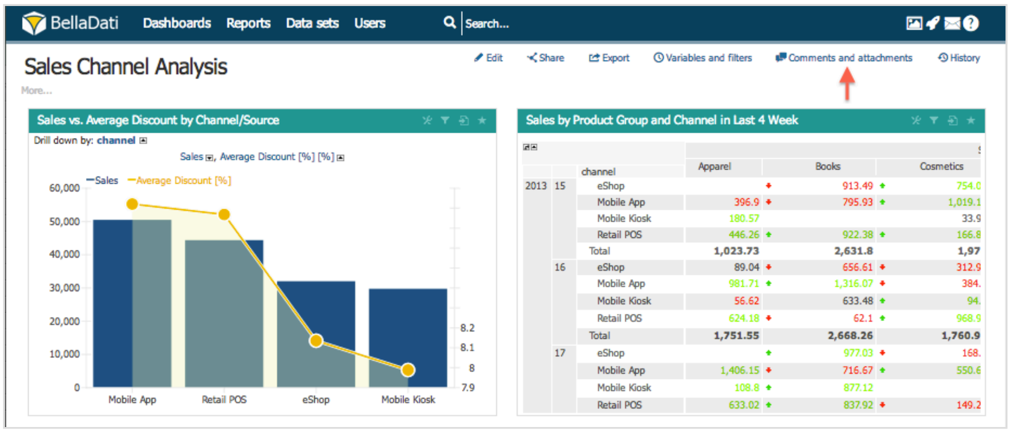
You need to be in **view mode** in order to add comments and attachments.

Select **Comments and Attachments** from the report toolbox list in the upper right corner to open *Attachments* panel.

Attachments dialog allows you to add:

- **Attachments**: Click on **Add attachment** and browse for desired file.
- **Comments**: Type your **Comment** into text area and submit it.

Maximam attachment size is 20MB.



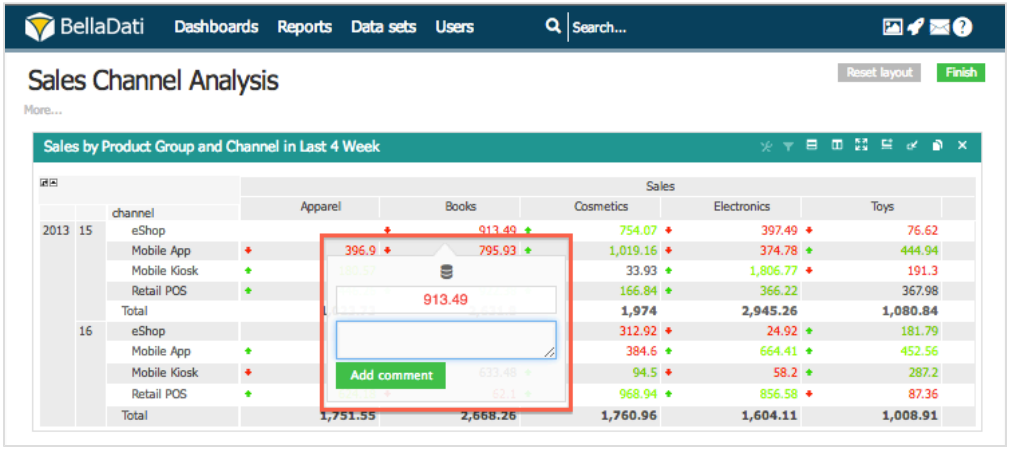
Sales by Product Group and Channel in Last 4 Week

		channel	Apparel	Books	Cosmetics
2013	15	eShop		913.49	754.0
		Mobile App	396.9	795.93	1,019.1
		Mobile Kiosk	180.57		33.9
		Retail POS	446.26	922.38	166.8
		Total	1,023.73	2,631.8	1,97
	16	eShop	89.04	656.61	312.9
		Mobile App	981.71	1,316.07	384.
		Mobile Kiosk	56.62	633.48	94.
		Retail POS	624.18	62.1	968.9
		Total	1,751.55	2,668.26	1,760.9
	17	eShop		977.03	168.
		Mobile App	1,406.15	716.67	550.6
		Mobile Kiosk	108.8	877.12	
		Retail POS	633.02	837.92	149.2

Adding Comments in Table Cells

Hover over desired table cell and select **comment** to attach comment to the data.

Red triangle marks cells with attached comments. Hover over the cell to see the **bubble** with the comment.



Sales by Product Group and Channel in Last 4 Week

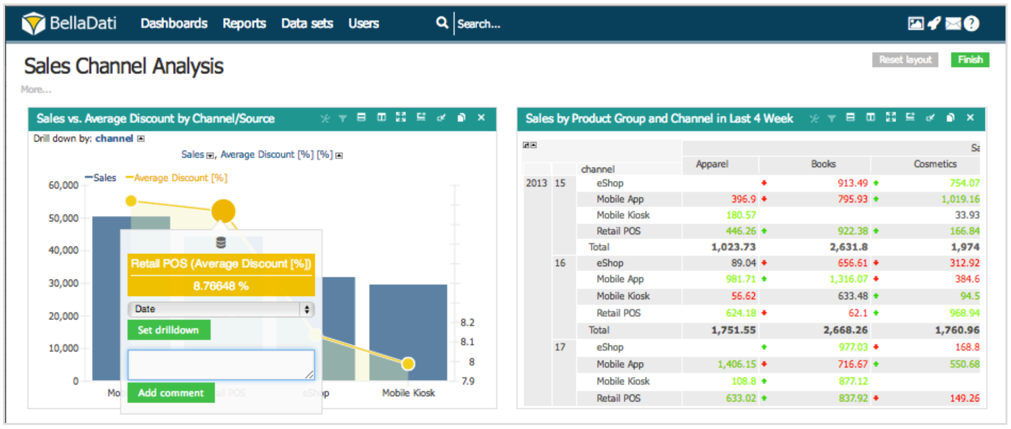
			Sales				
		channel	Apparel	Books	Cosmetics	Electronics	Toys
2013	15	eShop		913.49	754.07	397.49	76.62
		Mobile App	396.9	795.93	1,019.16	374.78	444.94
		Mobile Kiosk	[illegible]	[illegible]	33.93	1,806.77	191.3
		Retail POS	[illegible]	[illegible]	166.84	366.22	367.98
		Total	[illegible]	[illegible]	1,974	2,945.26	1,080.84
	16	eShop	[illegible]	[illegible]	312.92	24.92	181.79
		Mobile App	[illegible]	[illegible]	384.6	664.41	452.56
		Mobile Kiosk	[illegible]	633.48	94.5	58.2	287.2
		Retail POS	[illegible]	62.1	968.94	856.58	87.36
		Total	1,751.55	2,668.26	1,760.96	1,604.11	1,008.91

Adding Comments in Charts

Hover and click on desired values in the chart. The *value settings popup* will be opened. Type comments and hit **Add**.

Comments will be recorded:

1. on the **right chat sidebar**
2. on the **particular value**. Hover over it to see all related comments.



		channel	Apparel	Books	Cosmetics
2013	15	eShop		913.49	754.07
		Mobile App	396.9	795.93	1,019.16
		Mobile Kiosk	180.57		33.93
		Retail POS	446.26	922.38	166.84
		Total	**1,023.73**	**2,631.8**	**1,974**
	16	eShop	89.04	656.61	312.92
		Mobile App	981.71	1,316.07	384.6
		Mobile Kiosk	56.62	633.48	94.5
		Retail POS	624.18	62.1	968.94
		Total	**1,751.55**	**2,668.26**	**1,760.96**
	17	eShop		977.03	168.8
		Mobile App	1,406.15	716.67	550.68
		Mobile Kiosk	108.8	877.12	
		Retail POS	633.02	837.92	149.26

Publishing to Dashboard

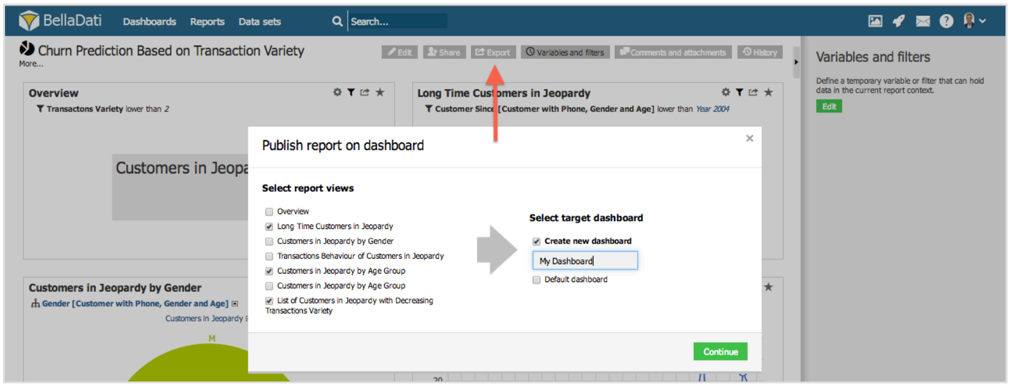
Publish allows you to pin the **Report/View** to selected **Dashboard**.

You can access **Publish** option from the toolbox in the upper right corner of the view or by selecting **Add to dashboard** from **Export** report option.

From *Publish report to dashboard* dialog you can:

- Select more **Views** to be saved to dashboard.
- Specify destination from list of all available **Dasboards**.
- Enter **Name** of the new dasboard.

BellaDati will preselect desired object when publishing from view.



BellaDati
Dashboards
Reports
Data sets
Search...
Churn Prediction Based on Transaction Variety
Edit
Share
Export
Variables and filters
Comments and attachments
History
Variables and filters
Define a temporary variable or filter that can hold data in the current report context.
Edit
Overview
Long Time Customers in Jeopardy
Customers in Jeopardy by Gender
Continue

Publish report on dashboard

Select report views

- [ ] Overview
- [✓] Long Time Customers in Jeopardy
- [ ] Customers in Jeopardy by Gender
- [ ] Transactions Behaviour of Customers in Jeopardy
- [✓] Customers in Jeopardy by Age Group
- [ ] Customers in Jeopardy by Age Group
- [✓] List of Customers in Jeopardy with Decreasing Transactions Variety

Select target dashboard

- [✓] **Create new dashboard**: My Dashboard
- [ ] Default dashboard

Navigate to destination **Dashboard** in order to observe published views.

Searching and Filtering Reports

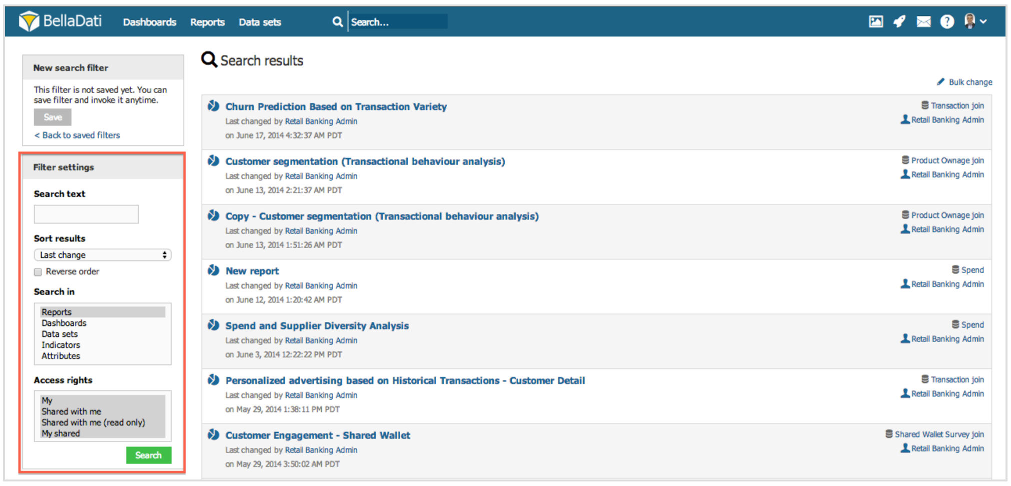
BellaDati allows you to **search** for specific report or **filter** reports keeping the unique information.

Click on **Reports** in the top toolbar to enter the *Search reports* window. By default, BellaDati will list all available reports.

Left panel of the *Search* window includes **Filter settings** panel. Panel allows you to:

- Insert **search text**.
- Define **sort order** of the results.
- Request **reverse sorting**.
- Restrict search by **object type**.
- Restrict search by **access rights**.

Hold **Shift** key to select multiple **object types** or **access rights**.



BellaDati Dashboards Reports Data sets Search...

New search filter

This filter is not saved yet. You can save filter and invoke it anytime.

Save

< Back to saved filters

Filter settings

Search text

Sort results

Last change

Reverse order

Search in

Reports
Dashboards
Data sets
Indicators
Attributes

Access rights

My
Shared with me
Shared with me (read only)
My shared

Search

Search results

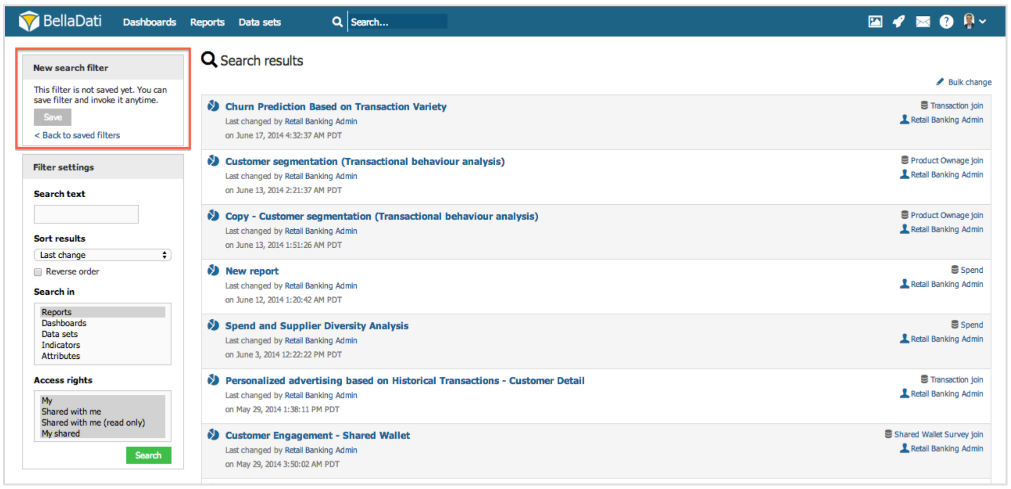
Bulk change

Churn Prediction Based on Transaction Variety Last changed by Retail Banking Admin on June 17, 2014 4:32:37 AM PDT	Transaction join Retail Banking Admin
Customer segmentation (Transactional behaviour analysis) Last changed by Retail Banking Admin on June 13, 2014 2:21:37 AM PDT	Product Ownage join Retail Banking Admin
Copy - Customer segmentation (Transactional behaviour analysis) Last changed by Retail Banking Admin on June 13, 2014 1:51:26 AM PDT	Product Ownage join Retail Banking Admin
New report Last changed by Retail Banking Admin on June 12, 2014 1:20:42 AM PDT	Spend Retail Banking Admin
Spend and Supplier Diversity Analysis Last changed by Retail Banking Admin on June 3, 2014 12:22:22 PM PDT	Spend Retail Banking Admin
Personalized advertising based on Historical Transactions - Customer Detail Last changed by Retail Banking Admin on May 29, 2014 1:38:11 PM PDT	Transaction join Retail Banking Admin
Customer Engagement - Shared Wallet Last changed by Retail Banking Admin on May 29, 2014 3:50:02 AM PDT	Shared Wallet Survey join Retail Banking Admin

Saving Filter

You can save defined **filter** for future usage or for its displaying in **filter dashlet**.

Click on **Save** button in the upper part of the **Filter settings** panel to save current settings.



BellaDati Dashboards Reports Data sets Search...

New search filter

This filter is not saved yet. You can save filter and invoke it anytime.

Save

< Back to saved filters

Filter settings

Search text

Sort results

Last change

Reverse order

Search in

Reports
Dashboards
Data sets
Indicators
Attributes

Access rights

My
Shared with me
Shared with me (read only)
My shared

Search

Search results

Bulk change

Churn Prediction Based on Transaction Variety
Last changed by Retail Banking Admin
on June 17, 2014 4:32:37 AM PDT
Transaction join
Retail Banking Admin

Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 2:21:37 AM PDT
Product Ownage join
Retail Banking Admin

Copy - Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 1:51:26 AM PDT
Product Ownage join
Retail Banking Admin

New report
Last changed by Retail Banking Admin
on June 12, 2014 1:20:42 AM PDT
Spend
Retail Banking Admin

Spend and Supplier Diversity Analysis
Last changed by Retail Banking Admin
on June 3, 2014 12:22:22 PM PDT
Spend
Retail Banking Admin

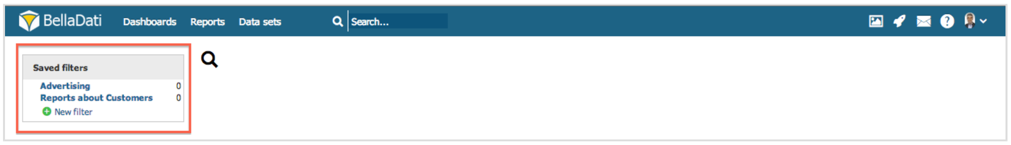
Personalized advertising based on Historical Transactions - Customer Detail
Last changed by Retail Banking Admin
on May 29, 2014 1:38:11 PM PDT
Transaction join
Retail Banking Admin

Customer Engagement - Shared Wallet
Last changed by Retail Banking Admin
on May 29, 2014 3:50:02 AM PDT
Shared Wallet Survey join
Retail Banking Admin

Click on **Back to saved filters** link to view all stored filters. *Saved filters* windows allows you to:

- Observe **filters**.
- Create **new filter**.

Number next to the filter name shows how many objects meet the entered condition.



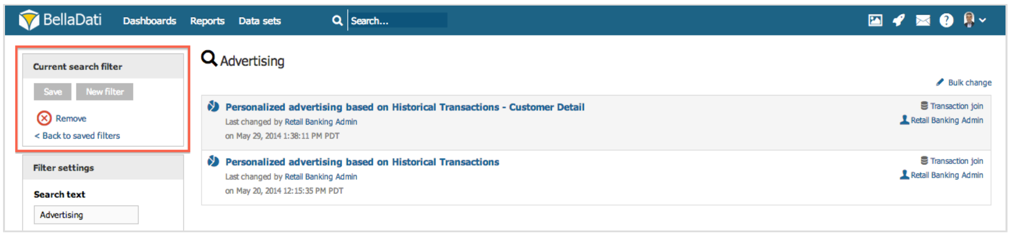
Saved filters

Advertising	0
Reports about Customers	0

New filter

Removing Filter

From *Saved filters* windows click on the filter name you want to remove. BellaDati will redicted you to filter detai. Click on the **Remove** icon to erase the filter.



Search text: Advertising

Advertising

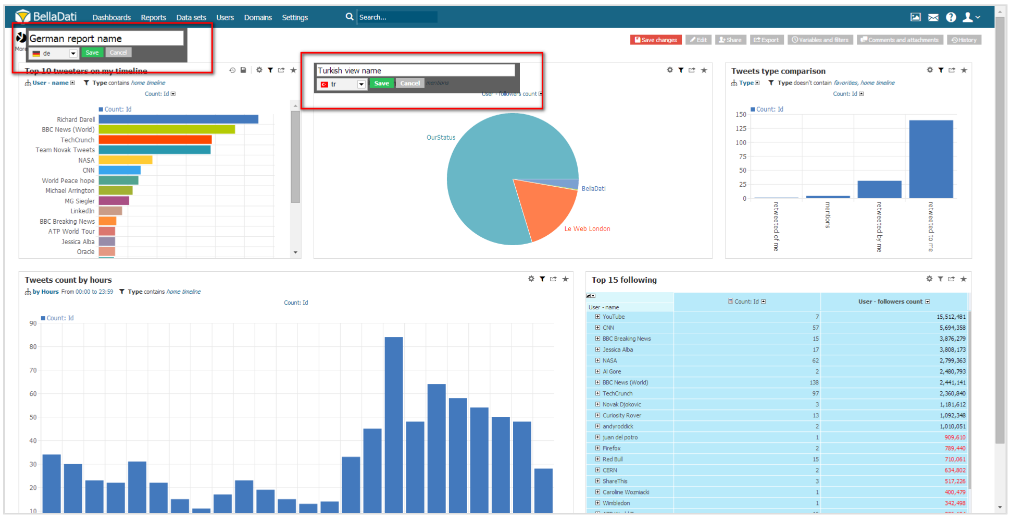
Personalized advertising based on Historical Transactions - Customer Detail
Last changed by Retail Banking Admin
on May 29, 2014 1:38:11 PM PDT
Transaction join
Retail Banking Admin

Personalized advertising based on Historical Transactions
Last changed by Retail Banking Admin
on May 20, 2014 12:15:35 PM PDT
Transaction join
Retail Banking Admin

Translating Reports

With multilingual names support you can make your reports and views available in various languages.

You can just **click** on the desired report or view **name** and choose the language you want to translate the name to.



Names will be displayed in the signed user's language. Language can be set in user profile, eventually in the domain detail.

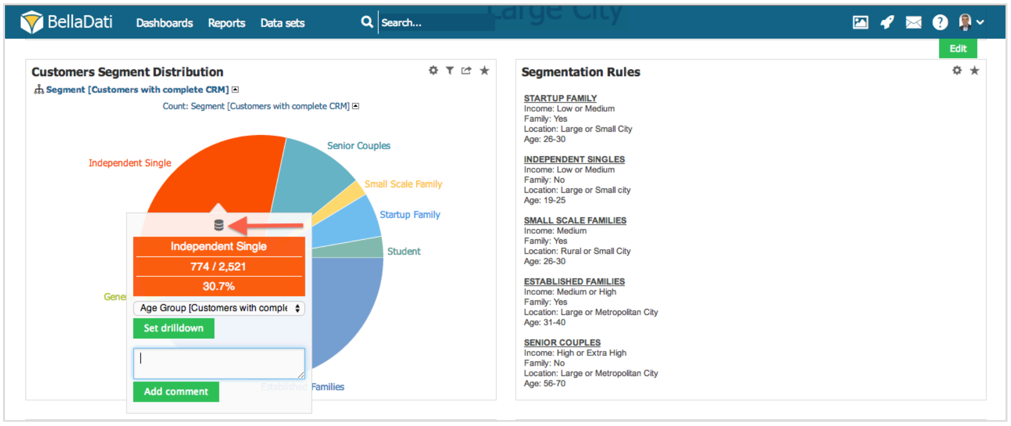
See also

- Translating Reports
- Translating Indicators
- Translating Attributes and Members

Displaying Source Data

Displaying of source data is available in **charts**, **tables** and **maps**.

You can display all data which composes specific chart item in *Source data* dialog. Click on the desired section and select **Source data icon** to open the dialog.



Segmentation Rules

STARTUP FAMILY
Income: Low or Medium
Family: Yes
Location: Large or Small City
Age: 26-30

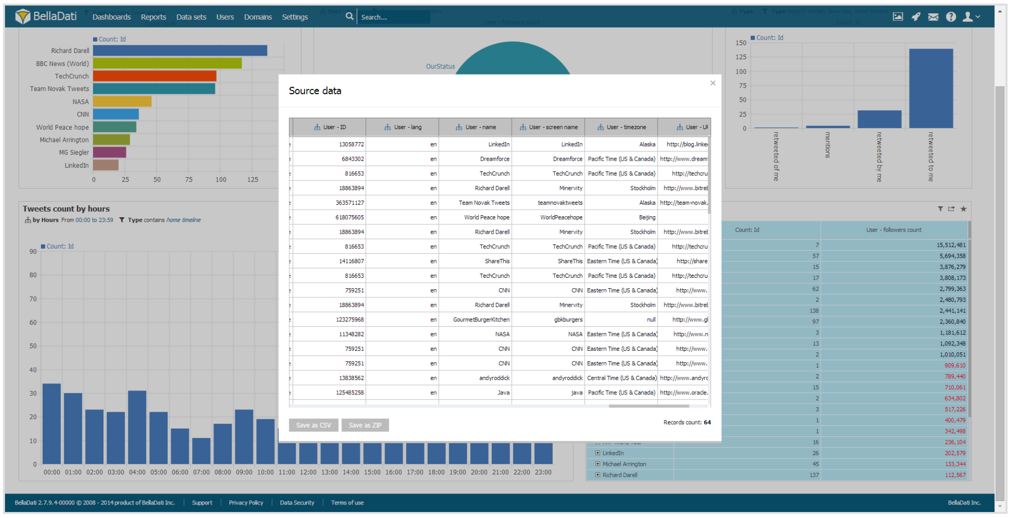
INDEPENDENT SINGLES
Income: Low or Medium
Family: No
Location: Large or Small city
Age: 19-25

SMALL SCALE FAMILIES
Income: Medium
Family: Yes
Location: Rural or Small City
Age: 26-30

ESTABLISHED FAMILIES
Income: Medium or High
Family: Yes
Location: Large or Metropolitan City
Age: 31-40

SENIOR COUPLES
Income: High or Extra High
Family: No
Location: Large or Metropolitan City
Age: 56-70

And the source data which is the value composed of are displayed in the popup window.



User - ID	User - lang	User - name	User - screen name	User - timezone	User - UR
13058772	en	LinkedIn	LinkedIn	Alaska	http://blog.linke
6843302	en	Dreamforce	Dreamforce	Pacific Time (US & Canada)	http://www.dream
816653	en	TechCrunch	TechCrunch	Pacific Time (US & Canada)	http://techcru
18863894	en	Richard Darell	Minervity	Stockholm	http://www.bitrel
363571127	en	Team Novak Tweets	teamnovaktweets	Alaska	http://team-novak.
618075605	en	World Peace hope	WorldPeacehope	Beijing	
18863894	en	Richard Darell	Minervity	Stockholm	http://www.bitrel
816653	en	TechCrunch	TechCrunch	Pacific Time (US & Canada)	http://techcru
14116807	en	ShareThis	ShareThis	Eastern Time (US & Canada)	http://share
816653	en	TechCrunch	TechCrunch	Pacific Time (US & Canada)	http://techcru
759251	en	CNN	CNN	Eastern Time (US & Canada)	http://www.
18863894	en	Richard Darell	Minervity	Stockholm	http://www.bitrel
123275968	en	GourmetBurgerKitchen	gbkburgers	null	http://www.gl
11348282	en	NASA	NASA	Eastern Time (US & Canada)	http://www.n
759251	en	CNN	CNN	Eastern Time (US & Canada)	http://www.
759251	en	CNN	CNN	Eastern Time (US & Canada)	http://www.
13838562	en	andyroddick	andyroddick	Central Time (US & Canada)	http://www.andyr
125485258	en	Java	java	Pacific Time (US & Canada)	http://www.oracle.

Records count: **64**

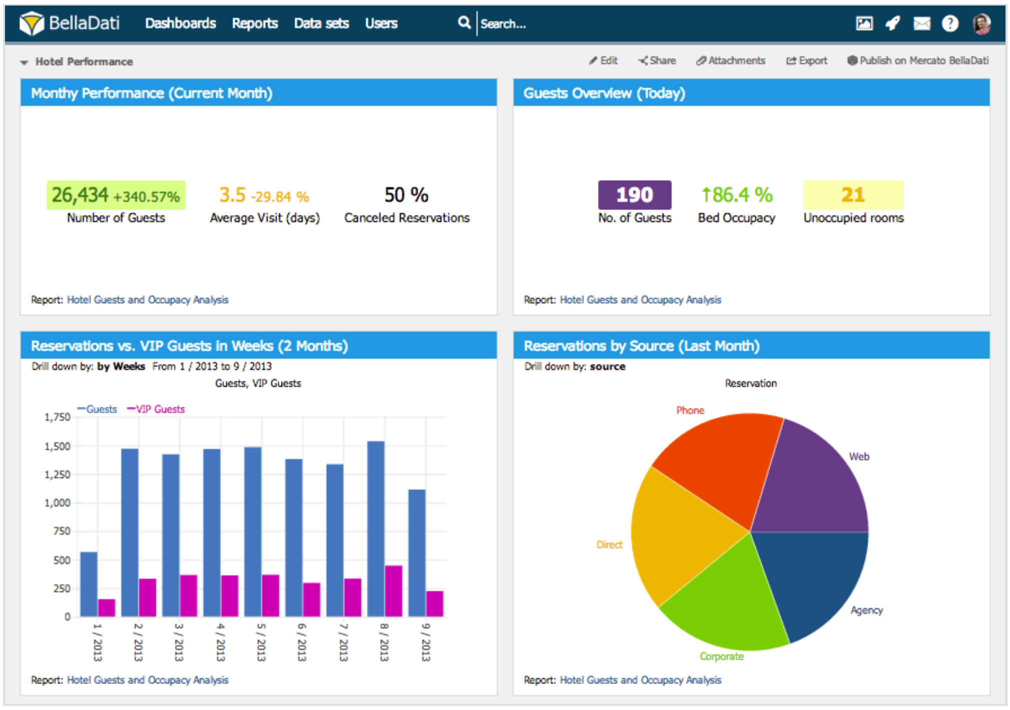
Exporting source data

You can export the displayed source data into a CSV or ZIP file.

Dashboards

Overview

Dashboards are the entry point of BellaDati Business Intelligence solution. They typically comprise of the most important charts and tables pulled out from the more detailed **reports**. Therefore, they are primary designed for **managers**, who need brief overview of company's actual performance.



Dashlets

Every **dashboard** is composed of several **dashlets**. **Dashlet** is a piece of content, including either report's views or navigation items. **Dashboard** can be customized by adding **dashlets** and adjusting their visualization.

Dashboards can be enriched with arbitrary attachments as well as shared for public via web.

Use cases

Dashboards allow to visually compare data from different reports and therefore data sources. Consider useing Reports if you are an analyst and need to perform detailed data analyses.

Dashboards

Reports

Dashboards are determined for uses who prefer consuming prepared insights. They usually combine existing **views** and **navigation items** to create their own customized workspaces. **Dashboards** are not designed for direct work or analyses of data. Consumed content is prepared in **reports** by **analysts**.
Typical user includes:

- Executives
- Managers

To learn more about **Dashboards** proceed in this chapter.
Reports are determined for users who work with data, prepare reports and execute analyses. Users usually select **Indicators**, define **Drill downs** and visualize them in appropriate **View types**. Work with **reports** requires deeper knowledge of data. Created content can be consumed in **dashboards** by **managers**.

Typical user includes:

- Analysts
- Specialized employees

To learn more about **Reports** - continue by Reports.

Following actions are supported on dashboards:

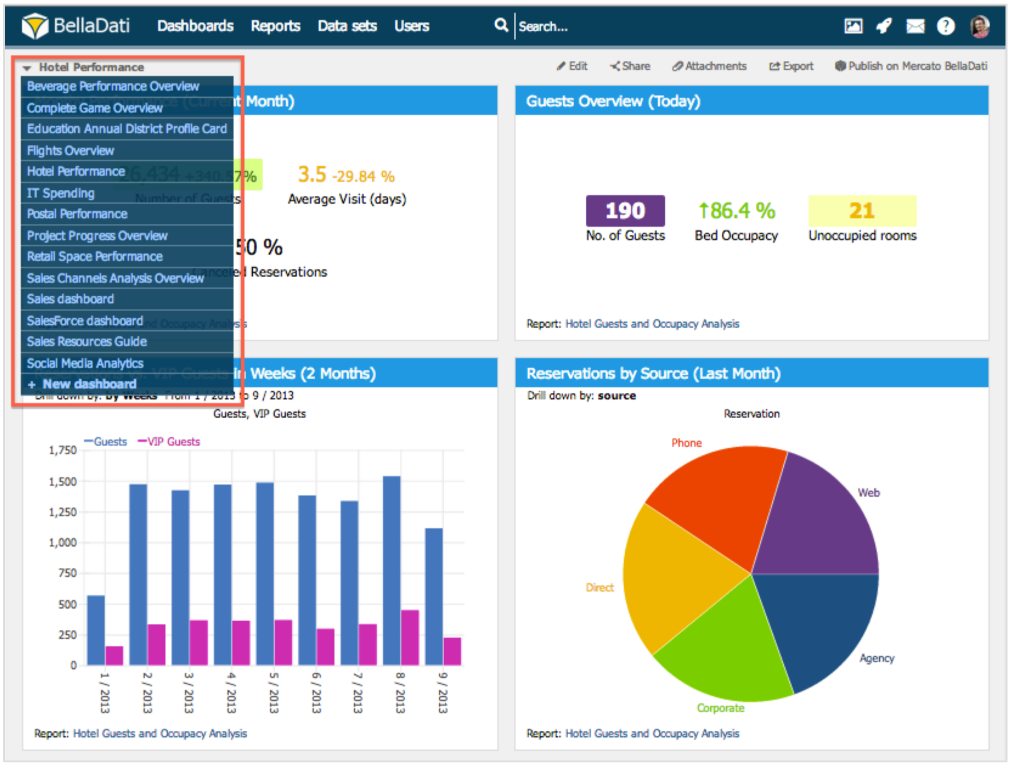
- Creating Dashboard
- Managing Dashboard Layout
- Creating Dashlet
  - Adding View
  - Adding Navigation
  - Adding Filter
  - Adding Other Content
- Sharing Dashboard
- Adding Attachment

Creating Dashboard

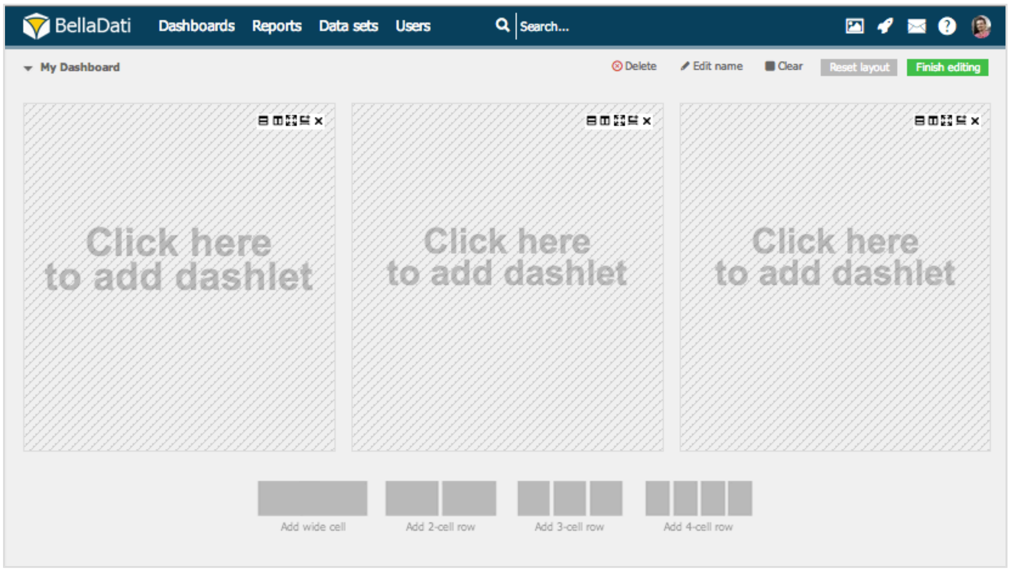
Point to the **Dashboard** name in upper left corner of **Dashboard** window and select **New Dashboard** from the list.

1. Enter name of the new dashboard.

New **Dashboard** will be created.



Dashboard will be automatically turned into **edit** mode.



Continue by **Managing Dashboard Layout** and **Creating Dashlet** to poplulate the **Dashboard**.

Edit mode

✓ You can switch to **Edit** mode by clicking on "Edit" in top dashboard menu.

Edit mode allows you to:

- **Manage Dashboard Layout**
- **Adding Dashlets**
- **Exit edit mode**: Click on **Finish Editing** to enter dashboard **View** mode.
- **Edit Dashboard Name**: Click on **Edit name** to change the name of current dashboard.
- **Clear Dashboard**: Click on **Clear** to remove all dashlets from the dashboard.
- **Remove Dashboard**: click on **Remove** to erase current dashboard.

Managing Dashboard Layout

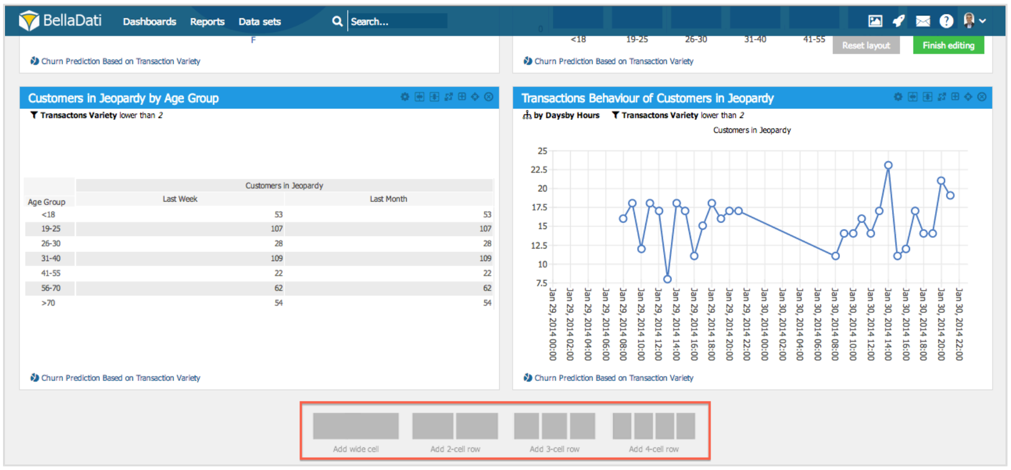
You need to be in edit mode in order to manage dashboard layout. Click on "Edit" in top dashboard menu to activate edit mode.

You can modify **Dashboard** layout to your needs by:

- adding new **rows**.
- changing **size** of existing dashlets.
- **manipulating** dashlet.

Adding rows

Scroll to the bottom of the **Dashboard** and select number of columns you require in the new row.

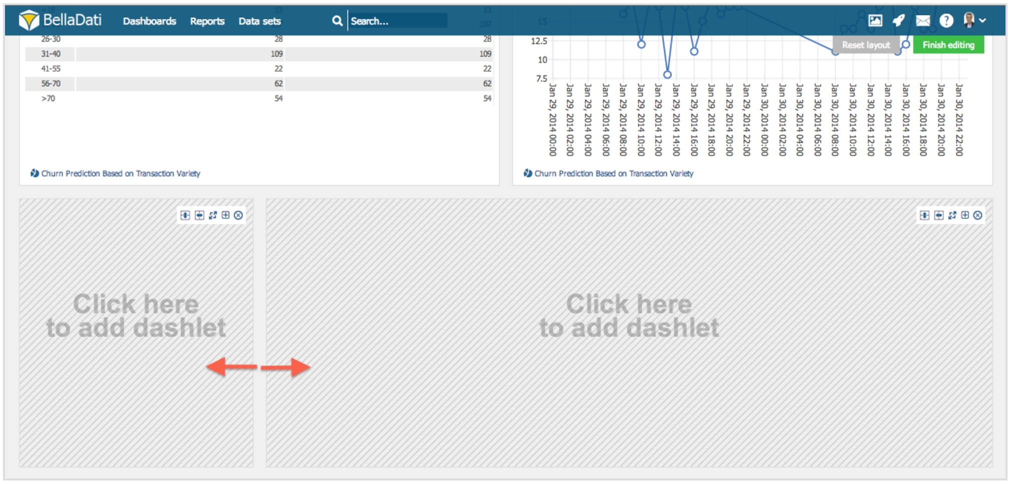


	Customers in Jeopardy	
Age Group	Last Week	Last Month
<18	53	53
19-25	107	107
26-30	28	28
31-40	109	109
41-55	22	22
56-70	62	62
>70	54	54

Changing size

Point your mouse among two dashlets and move with bar to change their size. You can change:

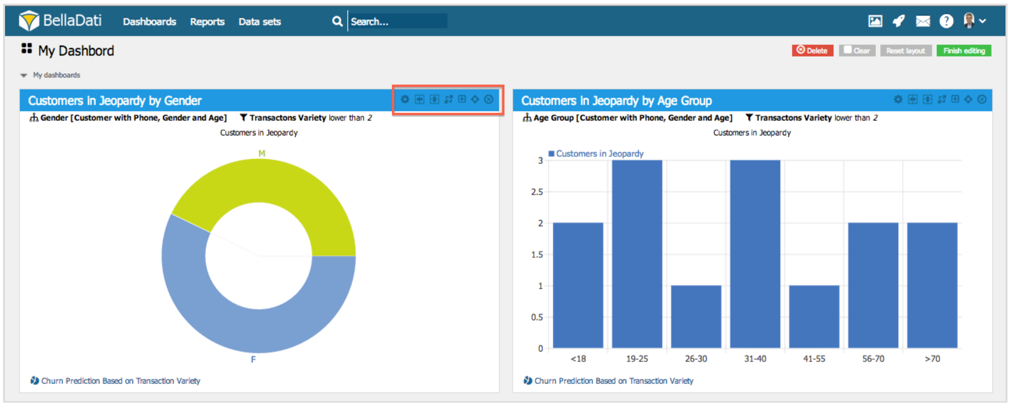
- dashlet **width**
- dashlet **height**


BellaDati
Dashboards
Reports
Data sets
Search...
Reset layout
Finish editing
Churn Prediction Based on Transaction Variety
Click here to add dashlet
Click here to add dashlet

Manipulating dashlet

Point your mouse to manipulation buttons in upper right corner of the **dashlet**. They allow you to:

- **move** dashlet
- **split** dashlet **horizontally**
- **split** dashlet **vertically**
- **insert new row**
- **enlarge** dashlet
- **remove** dashlet

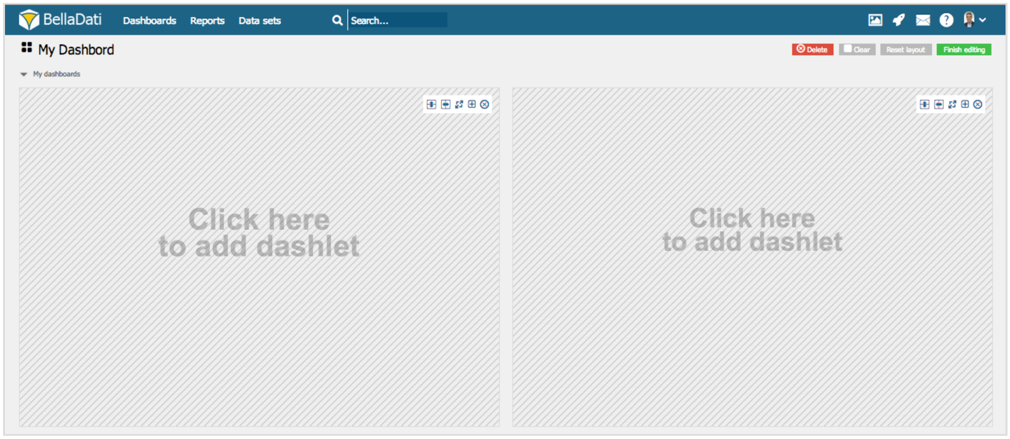

BellaDati
Dashboards
Reports
Data sets
Search...
My Dashbord
Delete
Clear
Reset layout
Finish editing
My dashboards
Customers in Jeopardy by Gender
Gender [Customer with Phone, Gender and Age]
Transactons Variety lower than 2
Customers in Jeopardy
M
F
Churn Prediction Based on Transaction Variety
Customers in Jeopardy by Age Group
Age Group [Customer with Phone, Gender and Age]
Transactons Variety lower than 2
Customers in Jeopardy
Customers in Jeopardy
3
2.5
2
1.5
1
0.5
0
<18
19-25
26-30
31-40
41-55
56-70
>70
Churn Prediction Based on Transaction Variety

Creating Dashlet

You need to be in **edit mode** in order to create new dashlet. Click on "Edit" in top dashboard menu to activate edit mode.

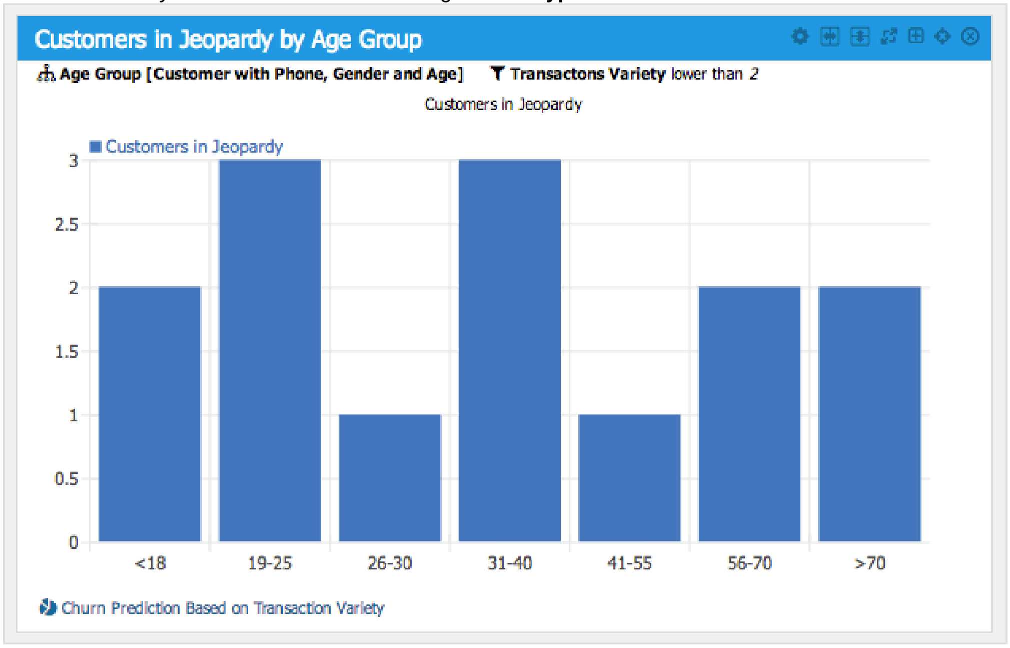
Dashlet is a peice of specific content positioned on the **Dashboard**.

To add a new **Dashlet** hover over free place and click on **Add Dashlet**. The *Insert dashlet* dialog box will appear.



Dashlet types

BellaDati allows you to select from the following **dashlet types**:

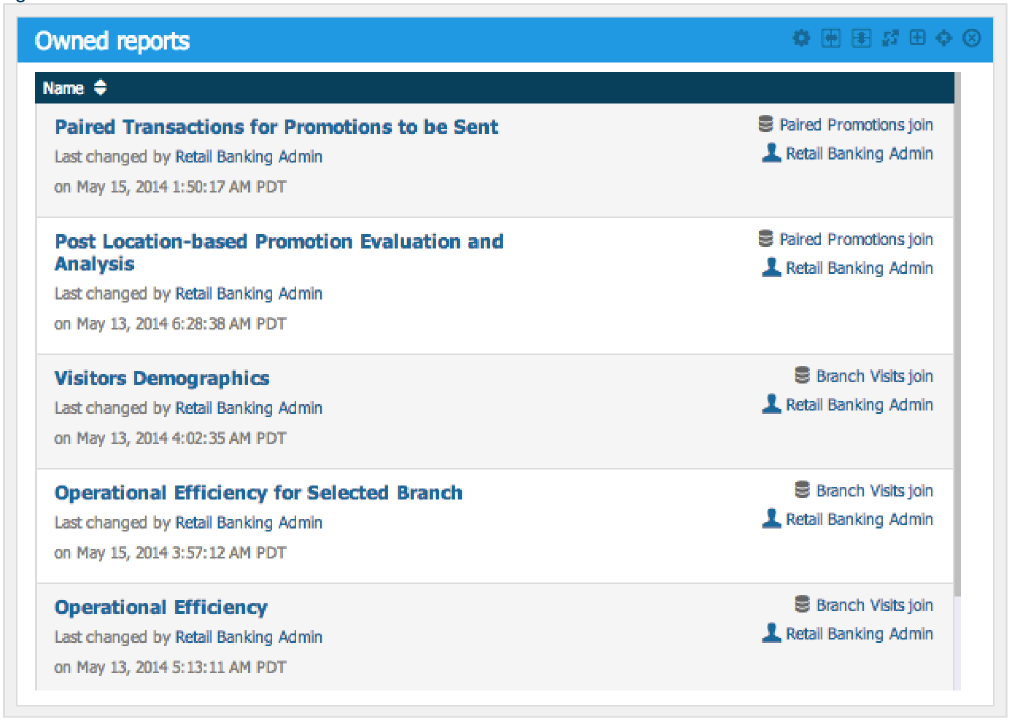


View

View dashlet allows you to display view from available **reports**.
To find a desired view you can:

- **Search** by name.
- **Filter** by report.
- **Browse** views.

To learn more about **View** dashlets continue by Addi ng View.


Owned reports

Name

Paired Transactions for Promotions to be Sent
Last changed by Retail Banking Admin
on May 15, 2014 1:50:17 AM PDT
Paired Promotions join
Retail Banking Admin

Post Location-based Promotion Evaluation and Analysis
Last changed by Retail Banking Admin
on May 13, 2014 6:28:38 AM PDT
Paired Promotions join
Retail Banking Admin

Visitors Demographics
Last changed by Retail Banking Admin
on May 13, 2014 4:02:35 AM PDT
Branch Visits join
Retail Banking Admin

Operational Efficiency for Selected Branch
Last changed by Retail Banking Admin
on May 15, 2014 3:57:12 AM PDT
Branch Visits join
Retail Banking Admin

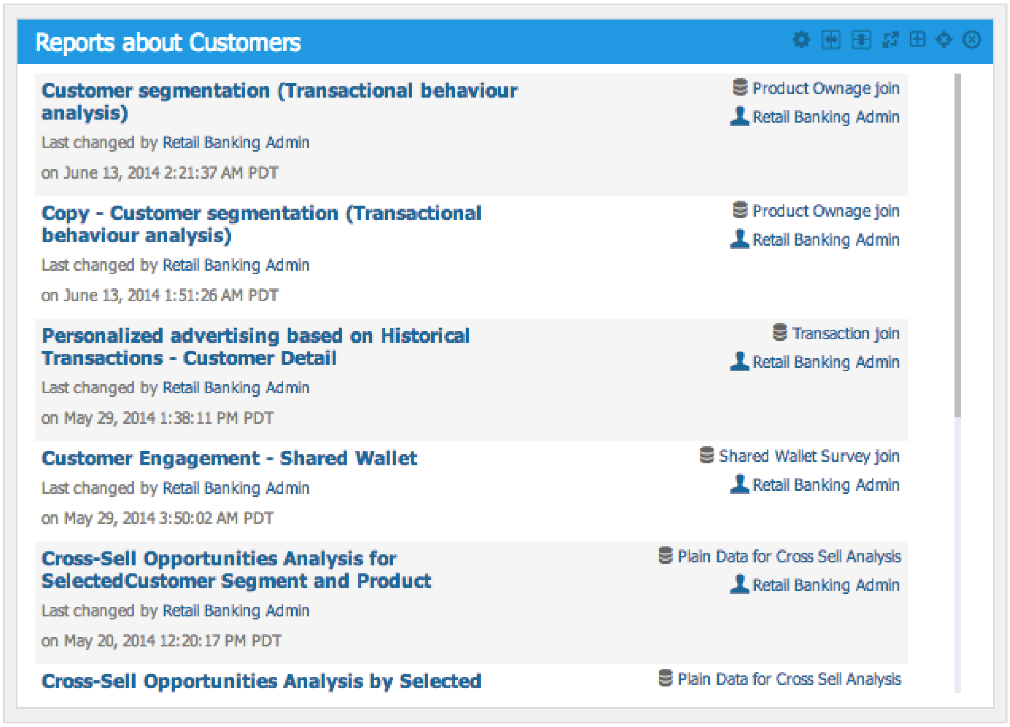
Operational Efficiency
Last changed by Retail Banking Admin
on May 13, 2014 5:13:11 AM PDT
Branch Visits join
Retail Banking Admin

Navigation

Navigation dashlet allows you to display dashboard navigation.
BellaDati offers following navigation types:

- **Most visited**
- **Owner reports**
- **Shared reports**

To learn more about **Navigation** dashlet continue by Adding Navigation.


Reports about Customers

Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 2:21:37 AM PDT
Product Ownage join
Retail Banking Admin

Copy - Customer segmentation (Transactional behaviour analysis)
Last changed by Retail Banking Admin
on June 13, 2014 1:51:26 AM PDT
Product Ownage join
Retail Banking Admin

Personalized advertising based on Historical Transactions - Customer Detail
Last changed by Retail Banking Admin
on May 29, 2014 1:38:11 PM PDT
Transaction join
Retail Banking Admin

Customer Engagement - Shared Wallet
Last changed by Retail Banking Admin
on May 29, 2014 3:50:02 AM PDT
Shared Wallet Survey join
Retail Banking Admin

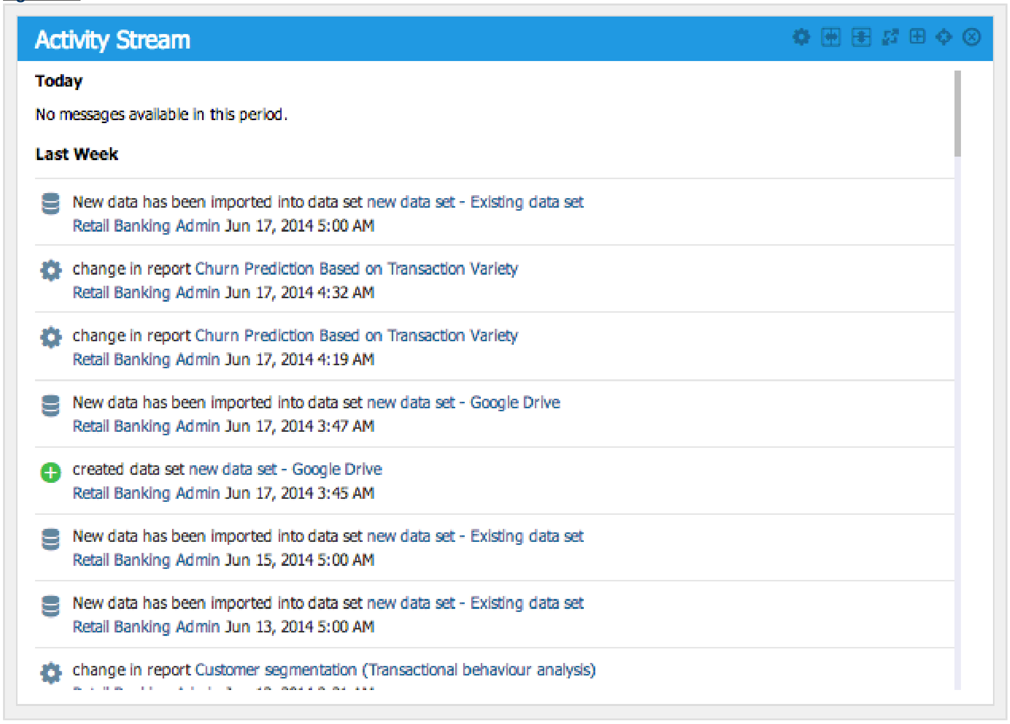
Cross-Sell Opportunities Analysis for SelectedCustomer Segment and Product
Last changed by Retail Banking Admin
on May 20, 2014 12:20:17 PM PDT
Plain Data for Cross Sell Analysis
Retail Banking Admin

Cross-Sell Opportunities Analysis by Selected
Plain Data for Cross Sell Analysis

Filter

Filter dashlet allows you to display filter window. Filter window shows reports meeting predefined search conditions.

To learn more about **Filter** dashlet continue by Adding Filter.


Activity Stream

Today

No messages available in this period.

Last Week

New data has been imported into data set new data set - Existing data set
Retail Banking Admin Jun 17, 2014 5:00 AM

change in report Churn Prediction Based on Transaction Variety
Retail Banking Admin Jun 17, 2014 4:32 AM

change in report Churn Prediction Based on Transaction Variety
Retail Banking Admin Jun 17, 2014 4:19 AM

New data has been imported into data set new data set - Google Drive
Retail Banking Admin Jun 17, 2014 3:47 AM

created data set new data set - Google Drive
Retail Banking Admin Jun 17, 2014 3:45 AM

New data has been imported into data set new data set - Existing data set
Retail Banking Admin Jun 15, 2014 5:00 AM

New data has been imported into data set new data set - Existing data set
Retail Banking Admin Jun 13, 2014 5:00 AM

change in report Customer segmentation (Transactional behaviour analysis)

Other content

Other content dashlet allows you to display arbitrary content.

You can add:

- **News**
- **Custom content**
- **RSS**
- **Help and tutorials**
- **Begin with BellaDati**

To learn more about **Other content** dashlet continue by Adding Other Content.

Adding View

You need to be in **edit mode** in order to add new view. Click on "Edit" in top dashboard menu to activate edit mode.

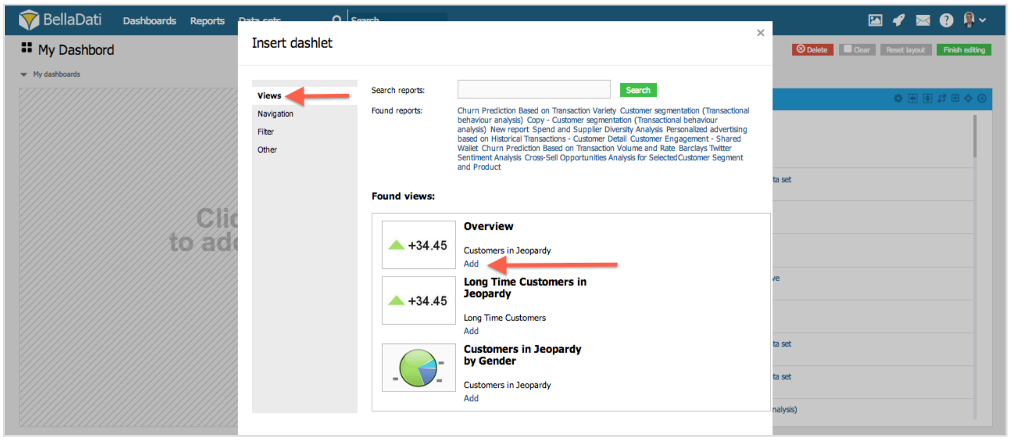
To add a new **View**, hover over free place and click on **Add dashlet**. The *Insert dashlet* dialog box will appear.

1. Select **View** from the left navigation panel.
2. **Browse** for the desired view.
3. Click **Add** to append the view to the dashboard.

In case of many view, BellaDati allows you to:

1. **Search** for target report.
2. **Filter** target report.

List of views displays **view type**, its **name** and employed **indicators**.



Churn Prediction Based on Transaction Variety Customer segmentation (Transactional behaviour analysis) Copy - Customer segmentation (Transactional behaviour analysis) New report Spend and Supplier Diversity Analysis Personalized advertising based on Historical Transactions - Customer Detail Customer Engagement - Shared Wallet Churn Prediction Based on Transaction Volume and Rate Barclays Twitter Sentiment Analysis Cross-Sell Opportunities Analysis for SelectedCustomer Segment and Product

Overview
Customers in Jeopardy
Add

Long Time Customers in Jeopardy
Long Time Customers
Add

Customers in Jeopardy by Gender
Customers in Jeopardy
Add

Desired **View** will be appended to the **Dashboard**.

Adding Navigation

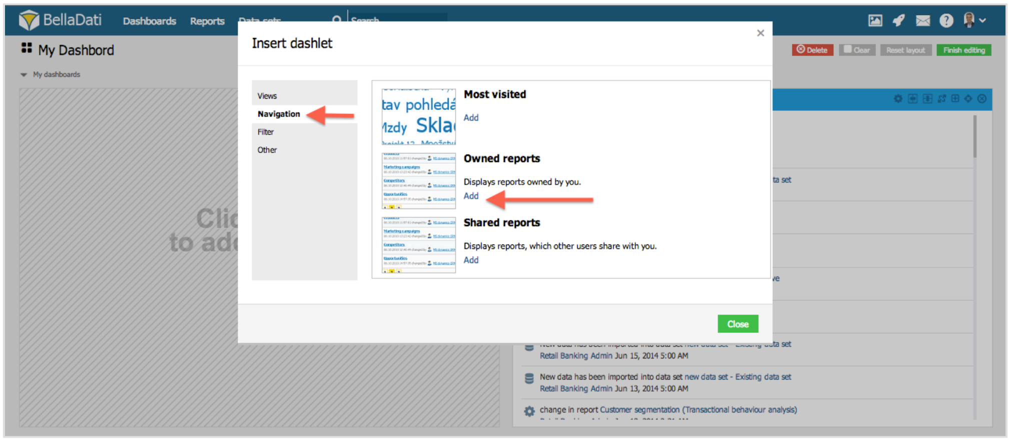
⚠ You need to be in **edit mode** in order to add navigation. Click on "Edit" in top dashboard menu to activate edit mode.

To add a new **Navigation**, hover over free place and click on **Add dashlet**. The *Insert dashlet* dialog box will appear.

1. Select **Navigation** from the left navigation panel.
2. Click **Add** to append desired navigation type to the dashboard.

BellaDati offers following navigation types:

1. **Most visited**
2. **Owned reports**
3. **Shared reports**



Navigation will be appended to the **Dashboard**.

Adding Filter

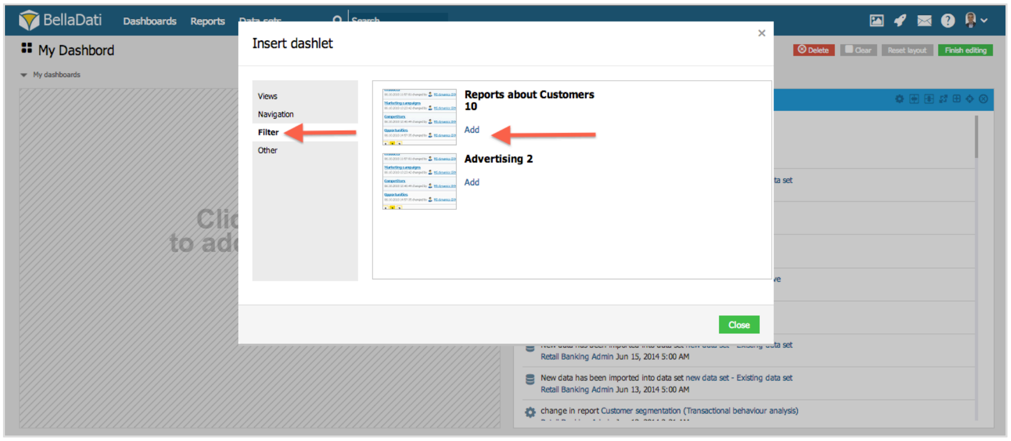
You need to be in **edit mode** in order to add filter. Click on "Edit" in top dashboard menu to activate edit mode.

To add a new **Filter**, hover over free place and click on **Add dashlet**. The *Insert dashlet* dialog box will appear.

1. Select **Filter** from the left navigation panel.
2. Click **Add** to append desired filer to the dashboard.

For more information about creating **Report filters** continue by - Searching and Filtering Reports

Number at the end of the filter name dispays **total items** meeting the filter condition.



Filter will be appended to the **Dashboard**.

Adding Other Content

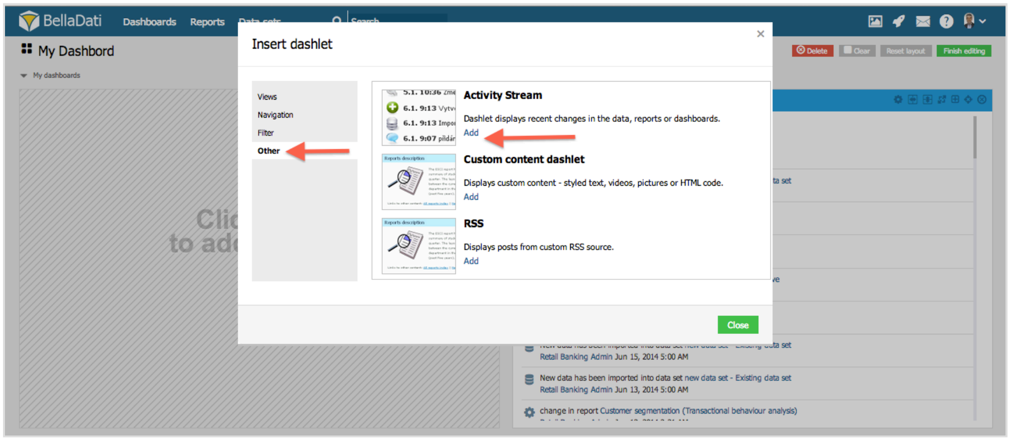
You need to be in **edit mode** in order to add content. Click on "Edit" in top dashboard menu to activate edit mode.

To add a new **Content**, hover over free place and click on **Add dashlet**. The *Insert dashlet* dialog box will appear.

1. Select **Other** from the left navigation panel.
2. Click **Add** to append desired content to the dashboard.

BellaDati offers following types of content:

- **Activity Stream**: Dashlet displays recent changes in the data.
- **Custom content**: Displays custom content - styled text, videos, pictures or HTML code.
- **RSS**: Displays posts from custom RSS source.
- **Help and tutorials**.
- **Begin with BellaDati**.



Activity Stream

Dashlet displays recent changes in the data, reports or dashboards.

Custom content dashlet

Displays custom content - styled text, videos, pictures or HTML code.

RSS

Displays posts from custom RSS source.

New data has been imported into data set new data set - Existing data set
Retail Banking Admin Jun 15, 2014 5:00 AM

New data has been imported into data set new data set - Existing data set
Retail Banking Admin Jun 13, 2014 5:00 AM

change in report Customer segmentation (Transactional behaviour analysis)

Content will be appended to the **Dashboard**.

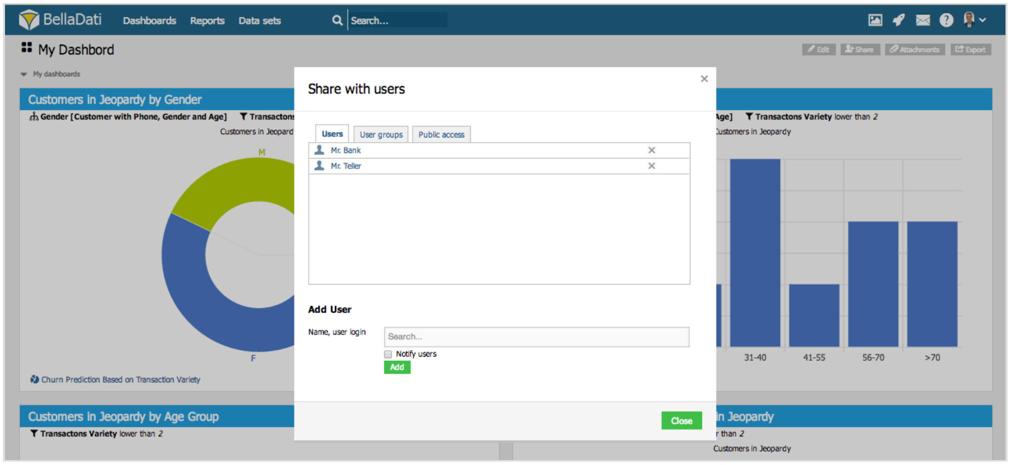
Sharing Dashboard

⚠ Data set sharing functions are only available for the owners of the particular dashboard.

Click on **Share** in the upper right corner of the **Dashboard** window to enter *Share with users* dialog.

Dashboard sharing functions allows you to perform following actions:

- **Grant access** to the dashboard for selected users or user groups.
- Optionally **notify** users about granted access to dashboard.



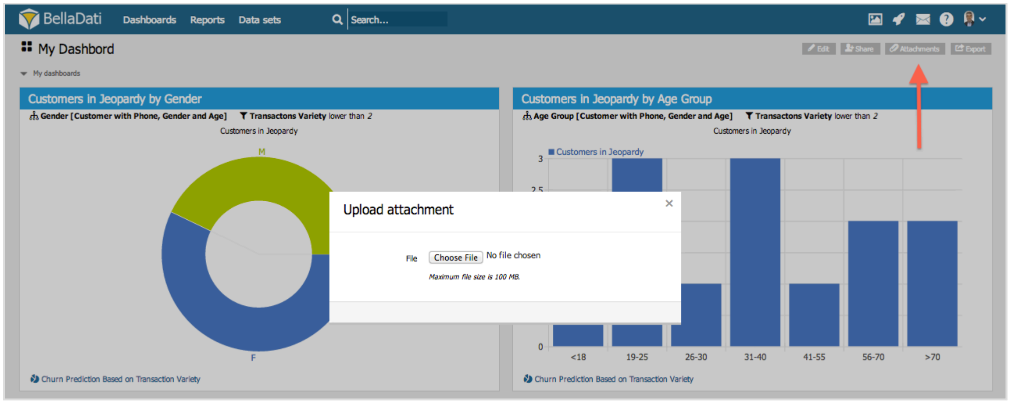
Adding Attachment

Hover over **Attachment** in the upper right corner of the **dashboard** and select **Upload attachment** to enter *Upload attachment* dialog.

In the dialog you can:

- **Browse** for the desired attachment.
- Click **Create** to upload the attachment.

Maximal **size** of the attachment is **20MB**.



You can simultaneously upload **numerous** attachments.

Attachments can be accessed from the attachment list. Hover over **Attachment** in the upper right corner to view all attachments.

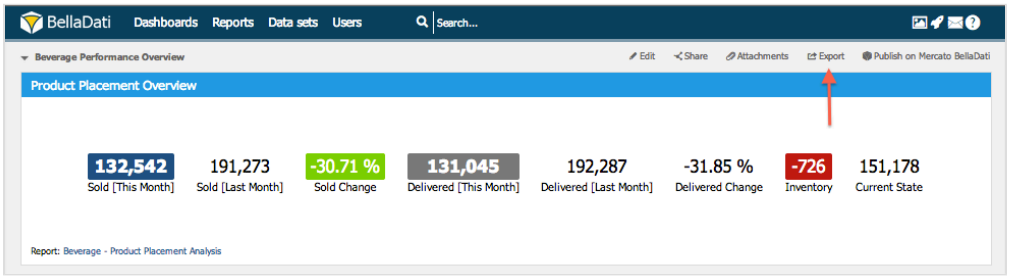
Exporting Dashboard

BellaDati allows you to export **Dashboards** into:

- PDF
- PPT
- Excel

To export:

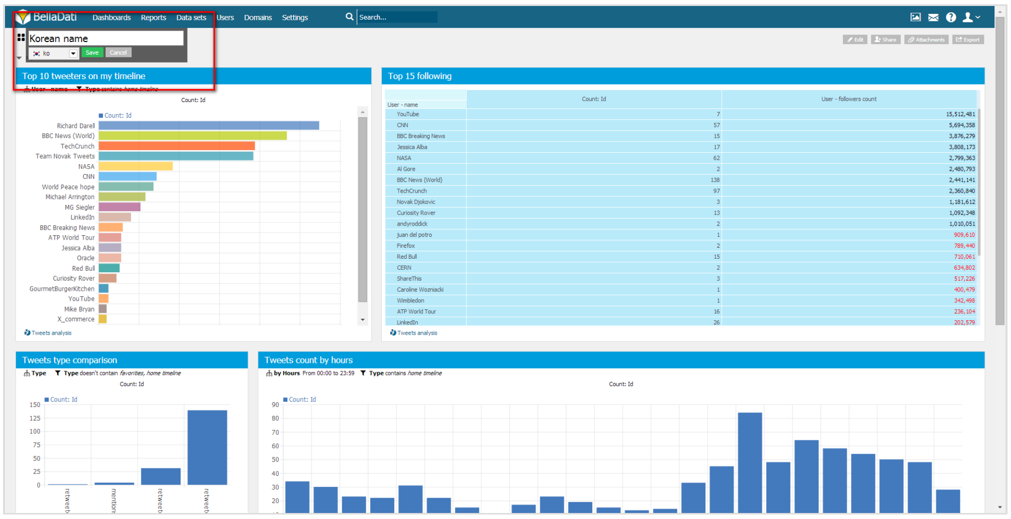
1. Make sure that you are in Dashboard **viewing mode** (if not hit **Finish editing** green button in upper right corner of your screen)
2. Click **Export** from **action menu** in upper right corner



Translating dashboards

With multilingual names support you can make your dashboard names available in various languages.

You can just **click** on the desired report or view **name** and choose the language you want to translate the name to.



Korean name

ko

Top 15 following

User - name	Count: Id	User - followers count
YouTube	7	15,512,481
CNN	57	5,694,358
BBC Breaking News	15	3,876,279
Jessica Alba	17	3,808,173
NASA	62	2,799,363
Al Gore	2	2,480,793
BBC News (World)	138	2,441,141
TechCrunch	97	2,360,840
Novak Djokovic	3	1,181,612
Curiosity Rover	13	1,092,348
andyroddick	2	1,010,051
juan del potro	1	909,610
Firefox	2	789,440
Red Bull	15	710,061
CERN	2	634,802
ShareThis	3	517,226
Caroline Wozniacki	1	400,479
Wimbledon	1	342,498
ATP World Tour	16	236,104
LinkedIn	26	202,579

Names will be displayed in the signed user's language. Language can be set in user profile, eventually in the domain detail.

See also

- Translating Reports
- Translating Indicators
- Translating Attributes and Members

BellaApps

BellaDati Apps are available since 2.7.4.2 version.

BellaDati App is a package of selected dashboards and reports with related data in single **.bdt** file created from existing domain.

BellaDati App can be created by:

- **BellaDati Data Analysts team**. BellaDati official Apps are industry related and available at BellaDati
- **BellaDati Administrator**. BellaDati App can be exported for back-up or sharing purposes.
- **3rd party developer**. Developers can create and publish their own analyses developed in BellaDati.

BellaDati Official Apps

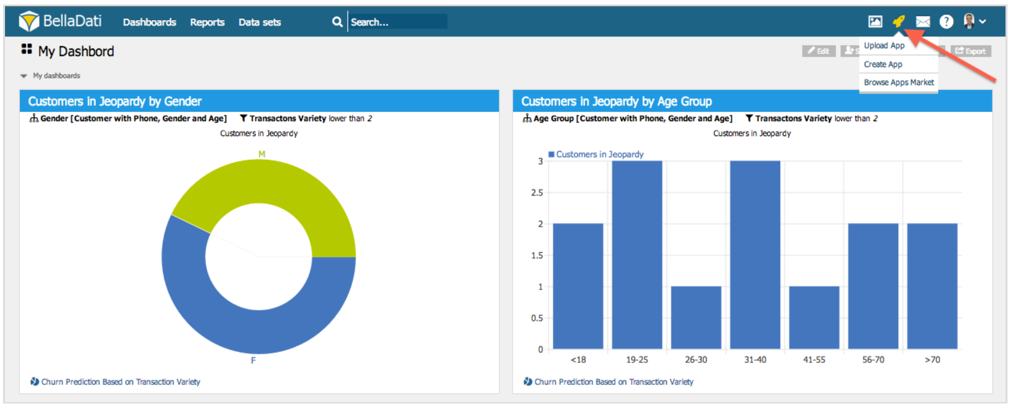
Official BellaDati Apps has following advantages for BellaDati users:

- **Include Best Practices** in **KPI** design.
- **Suggest** common **analysis** and **views**.
- **Contains scripts** and **formulas** related to KPIs and analyses.
- **Include** general **data model**.
- **Suggest Best Practices** for report **design**.
- **Speed up deployment** of new solution.

Working with Apps

BellaDati allows following operations related to **Apps**:

- **Creating** App
- **Importing** App


BellaDati
Dashboards
Reports
Data sets
Search...
My Dashbord
My dashboards
Edit
Export
Upload App
Create App
Browse Apps Market
Customers in Jeopardy by Gender
Gender [Customer with Phone, Gender and Age]
Transactons Variety lower than 2
Customers in Jeopardy
M
F
Churn Prediction Based on Transaction Variety
Customers in Jeopardy by Age Group
Age Group [Customer with Phone, Gender and Age]
Transactons Variety lower than 2
Customers in Jeopardy
Customers in Jeopardy
3
2.5
2
1.5
1
0.5
0
<18
19-25
26-30
31-40
41-55
56-70
>70
Churn Prediction Based on Transaction Variety

App operations can be accessed from the **Main Menu** after hovering over icon with **green down arrow**.

Continue with Creating App for detail guide how to export BellaDati App.
Continue with Uploading App for detial guide how to import BellaDati App.

Creating App

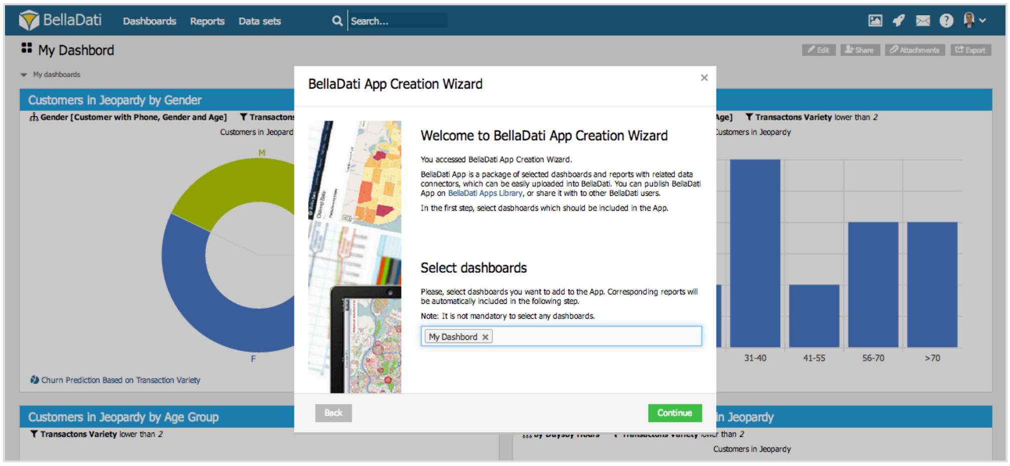
Make sure to get familiar with **App** concept before proceeding with this section.

Click on **Create App** in BellaDati Main Menu to open *Create Template Wizard*.

Select Dashboards

Search for **Dashboards** you want to include in your App.

Reports with views in selected **Dashboards** will be automatically included in the **App**.


BellaDati App Creation Wizard

Welcome to BellaDati App Creation Wizard

You accessed BellaDati App Creation Wizard.

BellaDati App is a package of selected dashboards and reports with related data connectors, which can be easily uploaded into BellaDati. You can publish BellaDati App on BellaDati Apps Library, or share it with to other BellaDati users.

In the first step, select dasbhoards which should be included in the App.

Select dashboards

Please, select dashboards you want to add to the App. Corresponding reports will be automatically included in the following step.

Note: It is not mandatory to select any dashboards.

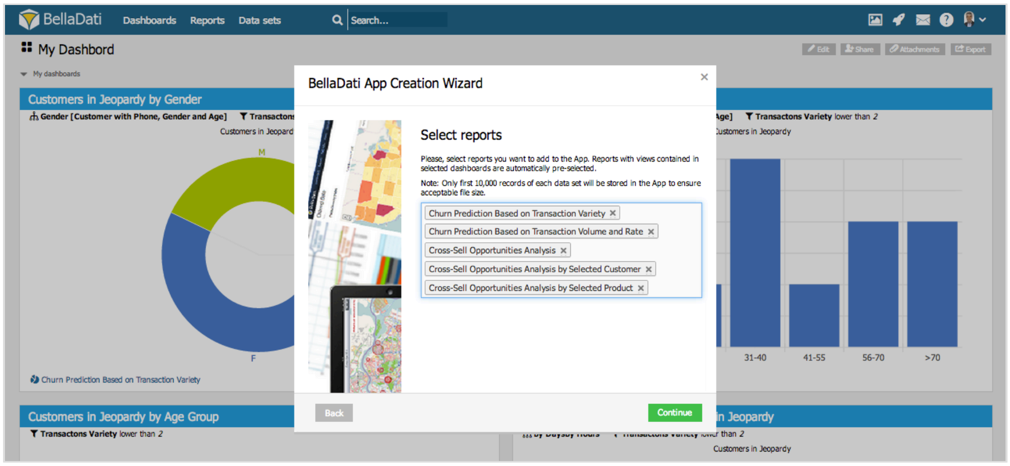
My Dashbord ×

You don't need to include any **Dashboards**.

Select Reports

Search for **Reports** you want to include in your App.

Reports with views contained in selected **Dashboards** are automatically pre-selected.


BellaDati App Creation Wizard

Select reports

Please, select reports you want to add to the App. Reports with views contained in selected dashboards are automatically pre-selected.

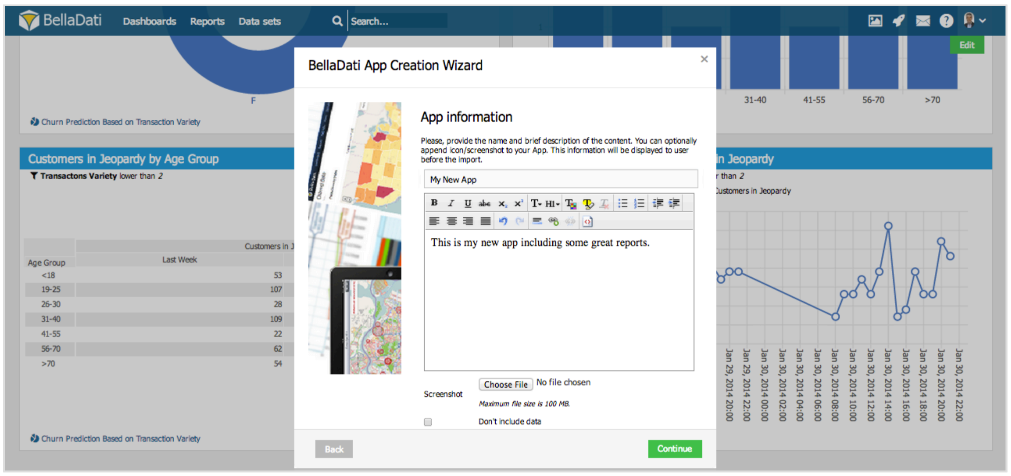
Note: Only first 10,000 records of each data set will be stored in the App to ensure acceptable file size.

Churn Prediction Based on Transaction Variety ×
Churn Prediction Based on Transaction Volume and Rate ×
Cross-Sell Opportunities Analysis ×
Cross-Sell Opportunities Analysis by Selected Customer ×
Cross-Sell Opportunities Analysis by Selected Product ×

Edit App Information

For each App, you can provide following information:

- **Name**
- **Description** in rich HTML editor
- **Screenshot** or **Icon**


BellaDati
Dashboards
Reports
Data sets
Search...
Edit
Customers in Jeopardy by Age Group
Churn Prediction Based on Transaction Variety
BellaDati App Creation Wizard
Back
Continue

App information

Please, provide the name and brief description of the content. You can optionally append icon/screenshot to your App. This information will be displayed to user before the import.

My New App

This is my new app including some great reports.

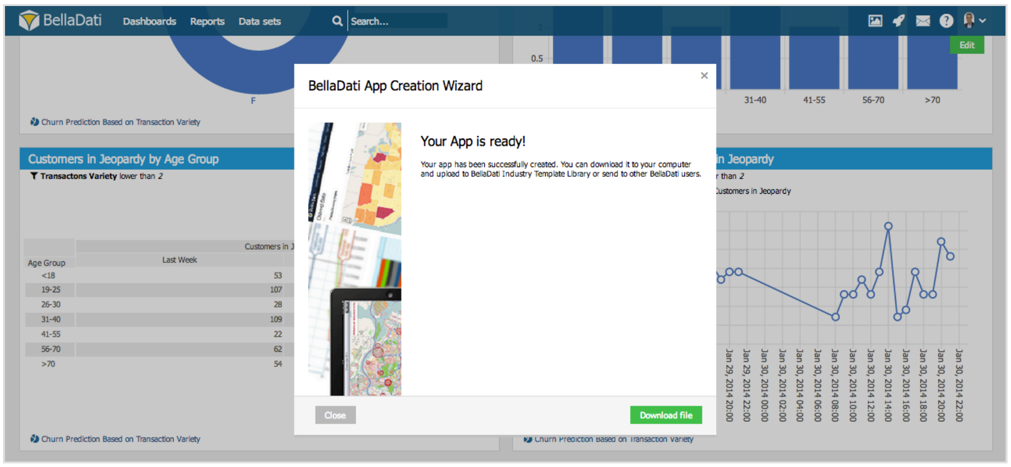
Screenshot: Choose File No file chosen

Maximum file size is 100 MB.

Don't include data

Download App

Click **Download** button to save App to your computer.


BellaDati
Dashboards
Reports
Data sets
Search...
Edit
Customers in Jeopardy by Age Group
Churn Prediction Based on Transaction Variety
BellaDati App Creation Wizard
Close
Download file

Your App is ready!

Your app has been successfully created. You can download it to your computer and upload to BellaDati Industry Template Library or send to other BellaDati users.

[Uploading App](#)
[Administration](#)

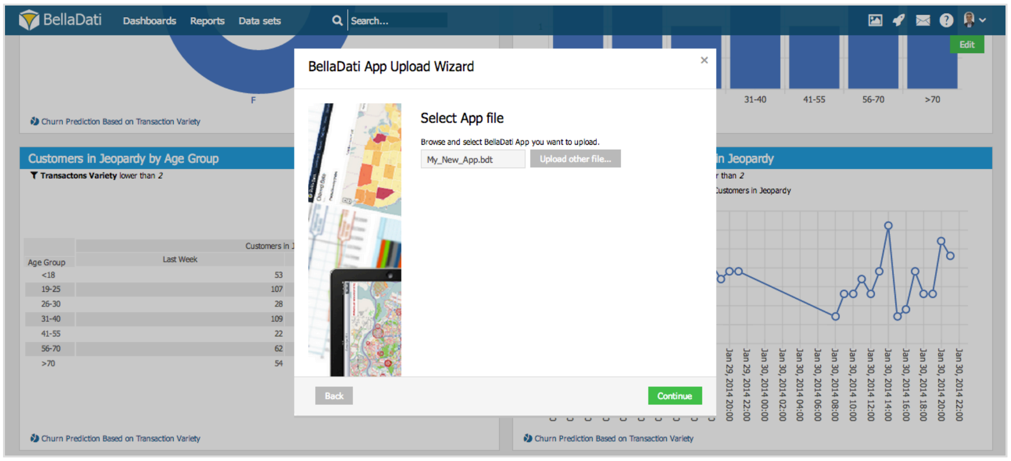
Uploading App

Make sure to get familiar with **BellaDati Apps** concept before proceeding with this section.

Click on **Upload App** in Template button from BellaDati Main Menu to open *Import Template Wizard*.

Select App

Browse for **BellaDati App** file in your computer.


BellaDati App Upload Wizard

Select App file

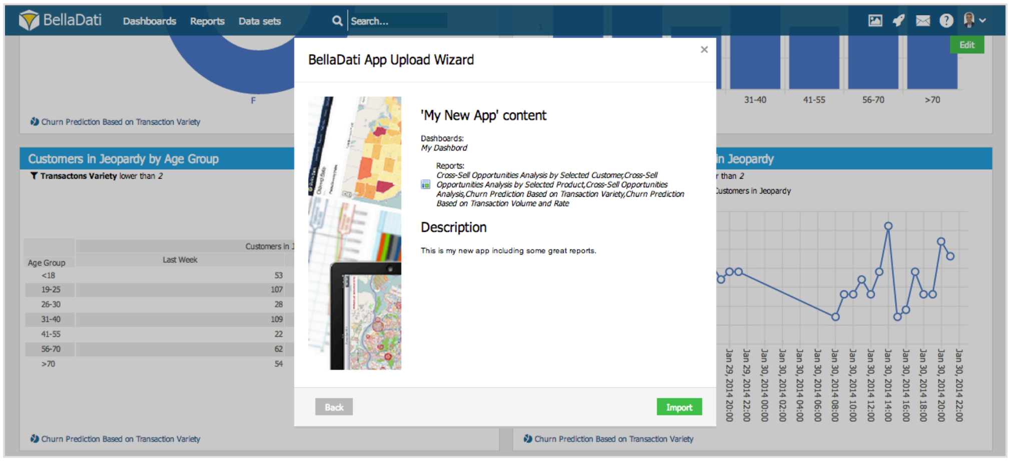
Browse and select BellaDati App you want to upload.

My_New_App.bdt

App Information

In the **App** information, you can find out:

- Included **Dashboards**
- Selected **Reports**
- App **Description**
- Attached **Screenshot** or **Icon**


BellaDati App Upload Wizard

'My New App' content

Dashboards:
My Dashbord

Reports:
Cross-Sell Opportunities Analysis by Selected Customer,Cross-Sell Opportunities Analysis by Selected Product,Cross-Sell Opportunities Analysis,Churn Prediction Based on Transaction Variety,Churn Prediction Based on Transaction Volume and Rate

Description

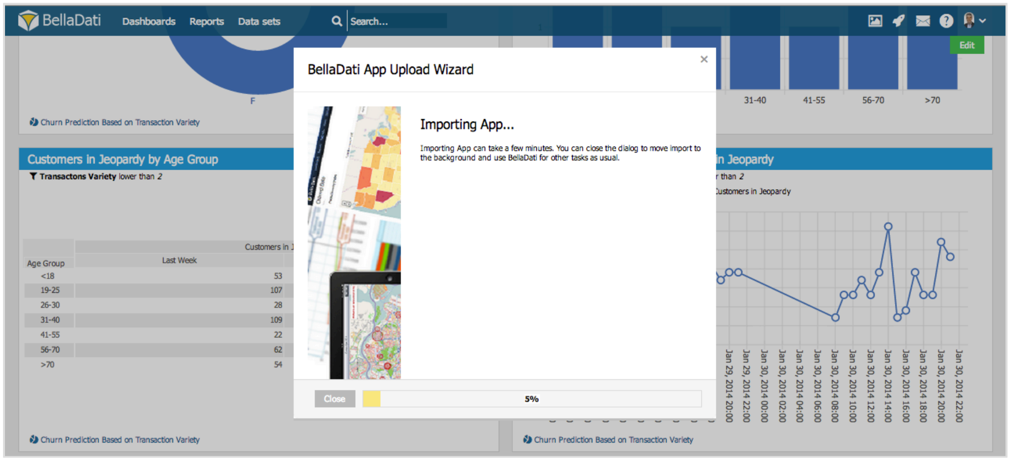
This is my new app including some great reports.

Click **Import** to proceed with App upload.

Import App

App is being imported into BellaDati.

You can close wizard and work with BellaDati. Import will be porcessed in the background.


BellaDati
Dashboards
Reports
Data sets
Search...
Edit
Churn Prediction Based on Transaction Variety
Customers in Jeopardy by Age Group
Transactons Variety lower than 2
in Jeopardy
Customers in Jeopardy

BellaDati App Upload Wizard

Importing App...

Importing App can take a few minutes. You can close the dialog to move import to the background and use BellaDati for other tasks as usual.

Close 5%

Age Group	Last Week
<18	53
19-25	107
26-30	28
31-40	109
41-55	22
56-70	62
>70	54

After successful import, you can find uploaded **Reports** and **Dashboards** in your domain.

Creating App
Administration

Media Gallery

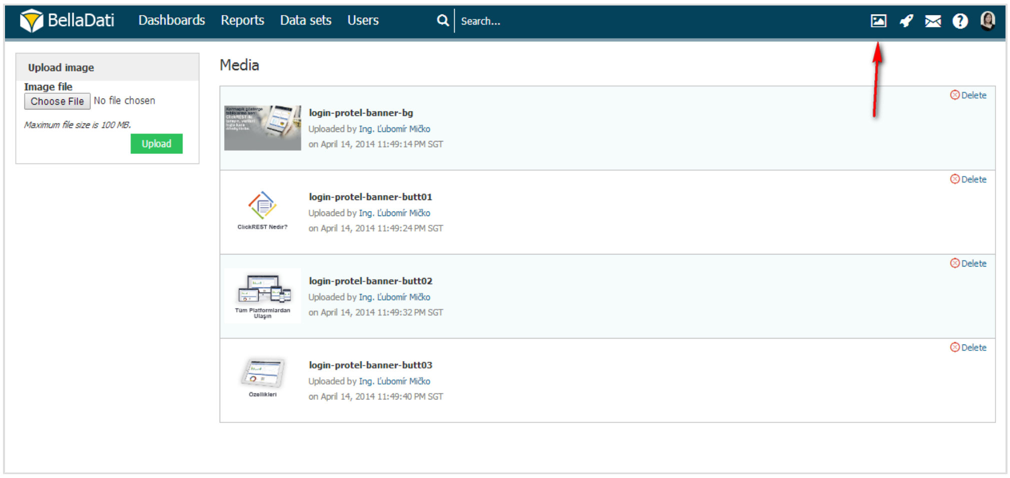
BellaDati allows you to create infographics and extend your reports with visualizations thanks to its extensive **Media Gallery**.

Managing Media

Click on the **folders** icon in the upper right corner to enter **Media Gallery**.

Media Gallery allows you to:

- **Browse** images
- **Upload** new images
- **Delete** existing images



No file chosen

Maximum file size is 100 MB.

login-protel-banner-bg
Uploaded by Ing. Ľubomír Mičko
on April 14, 2014 11:49:14 PM SGT

login-protel-banner-butt01
Uploaded by Ing. Ľubomír Mičko
on April 14, 2014 11:49:24 PM SGT

login-protel-banner-butt02
Uploaded by Ing. Ľubomír Mičko
on April 14, 2014 11:49:32 PM SGT

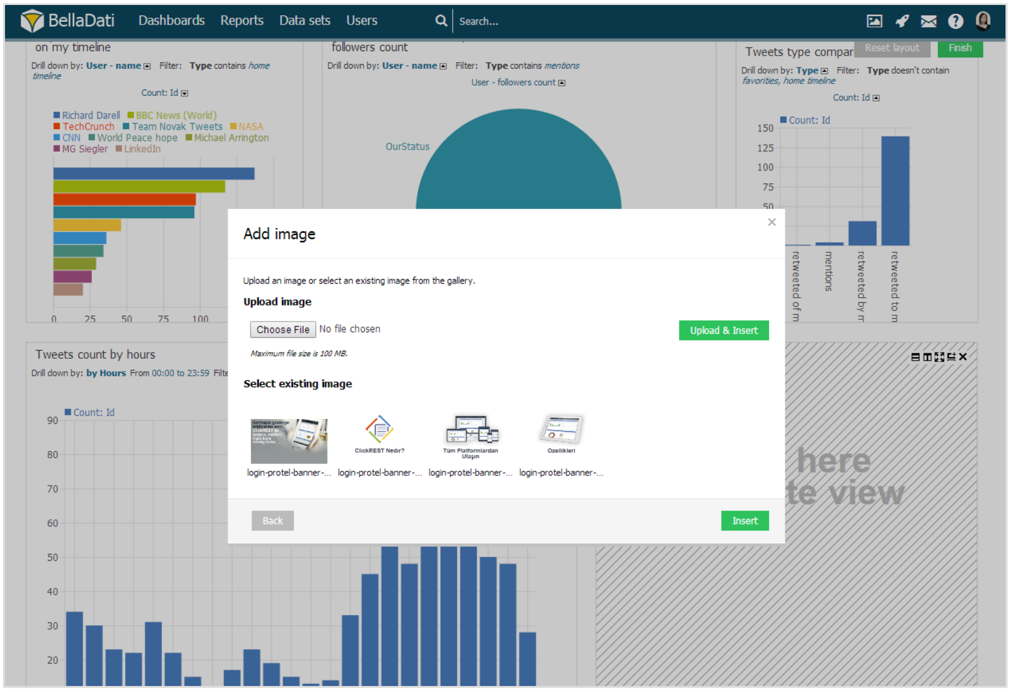
login-protel-banner-butt03
Uploaded by Ing. Ľubomír Mičko
on April 14, 2014 11:49:40 PM SGT

Using Media

To insert images into the report from the **Media Gallery**, hover over empty view ale select Media / Images.

Media browser allows you to:

- **Upload** new images
- **Select** and **Insert** existing images.



Upload an image or select an existing image from the gallery.

No file chosen

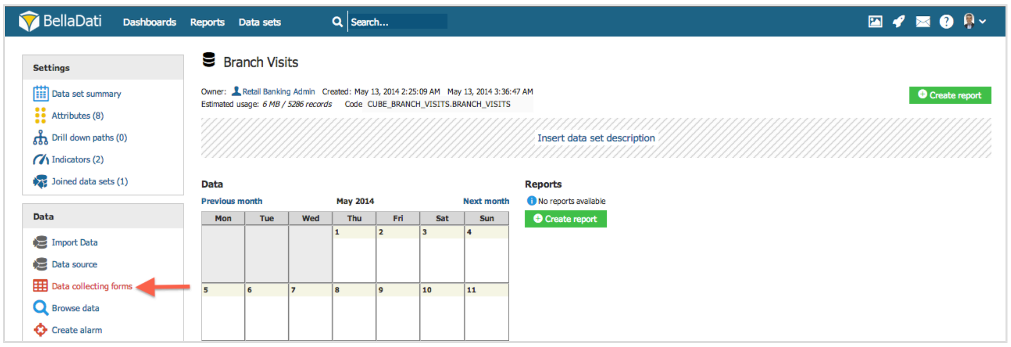
Maximum file size is 100 MB.

login-protel-banner-... login-protel-banner-... login-protel-banner-... login-protel-banner-...

Data Collection Module

You have to have **Data Collection** enabled to be able to create and publish forms.

Data Collection module allows you to create and publish forms connected to BellaDati **Data Sets**.

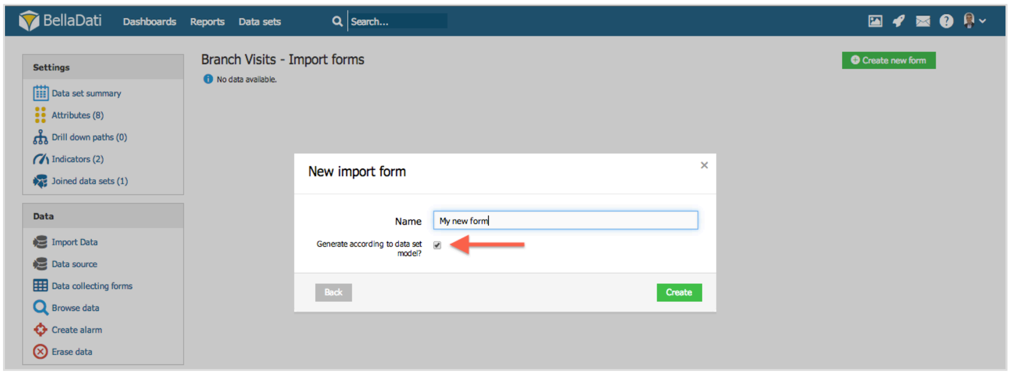


Creating Form

Navigate to **Data Set** for which you want to create the form. Click on **Data Collecting Forms** in left navigation.

BellaDati will list all existing forms. Click on the **Create new form** button.

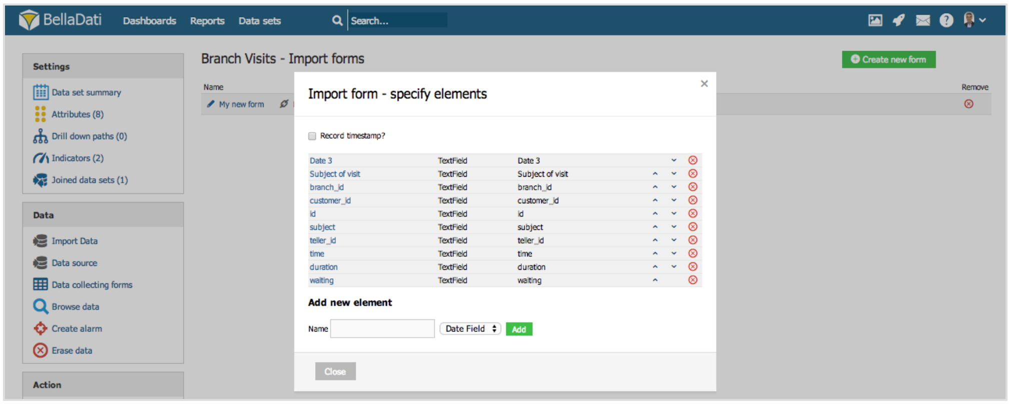
You can generate form based on existing table structure. Check **Generate according data set structure** to have form prepared for you.



Creating Form Elements

To create form element, provide its name, type and click **Add** button. BellaDati offers following input types:

- **Date field**
- **Text Field**
- **Checkbox**
- **Select**
- **Username**



Import form - specify elements

Record timestamp?

Date 3	TextField	Date 3
Subject of visit	TextField	Subject of visit
branch_id	TextField	branch_id
customer_id	TextField	customer_id
id	TextField	id
subject	TextField	subject
teller_id	TextField	teller_id
time	TextField	time
duration	TextField	duration
waiting	TextField	waiting

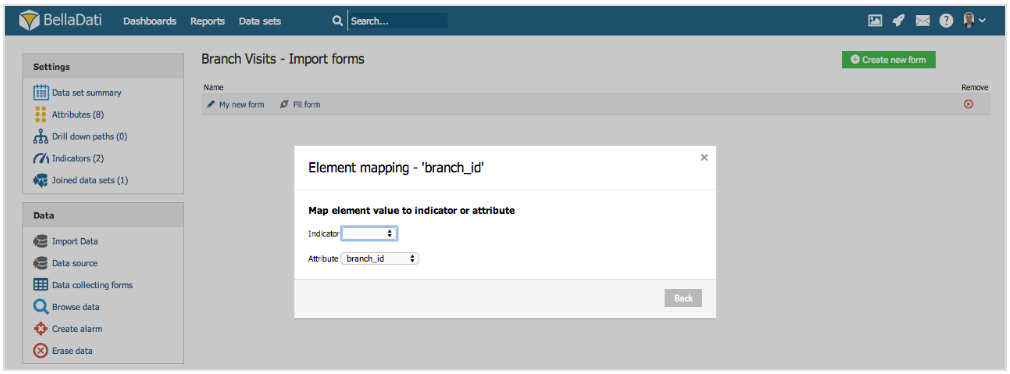
Add new element

Name [ ] Date Field Add

Close

Mapping Elements to Data Set Columns

In order to map form element to data set column, click on the element name and select one of the **Attributes** or **Indicators**.



Element mapping - 'branch_id'

Map element value to indicator or attribute

Indicator [ ]

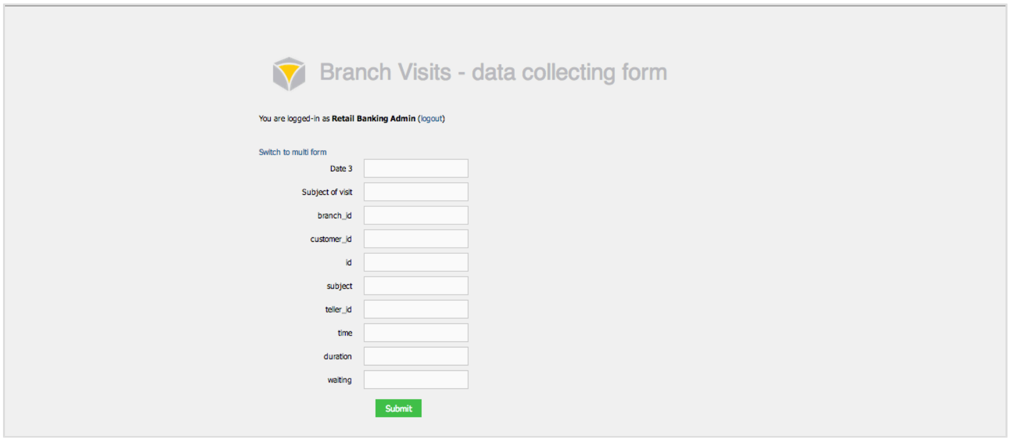
Attribute branch_id

Back

Publishing Form

Click on **Fill form** from **Data Collecting Forms** list. BellaDati will open new window.

Distribute URL of this form to all users responsible for collecting data.


Branch Visits - data collecting form

You are logged-in as **Retail Banking Admin** (logout)

Switch to multi form

Date 3	
Subject of visit	
branch_id	
customer_id	
id	
subject	
teller_id	
time	
duration	
waiting	

Submit

Field with type username is not visible. Username of logged in user will be recorded.

Managing Forms

You can create multiple forms. Click on **Create new form** to add new one.
You can modify form anytime by clicking on its name.

Administration

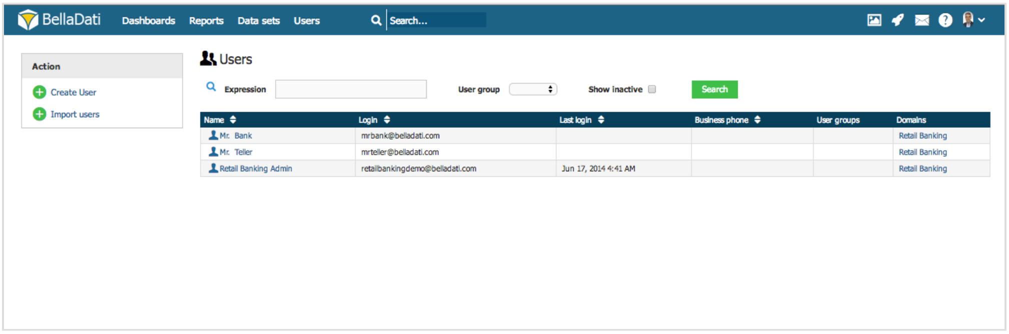
This section describes the basic BellaDati administration which can be performed via application GUI by an user with necessary permissions and roles.

If you are looking for detailed guide for system administration, visit the Developer network instead.

The following chapters are covered here:

- Administering Users
- Importing Users
- Administering User Groups
- Managing User Profile
- Managing Configuration
- Domain Overview and Administration
- Domain Backup
- Usage Monitoring

You must have the Domain Administrator role to administer your domain.



Name	Login	Last login	Business phone	User groups	Domains
Mr. Bank	mrbank@belladati.com				Retail Banking
Mr. Teller	mrteller@belladati.com				Retail Banking
Retail Banking Admin	retailbankingdemo@belladati.com	Jun 17, 2014 4:41 AM			Retail Banking

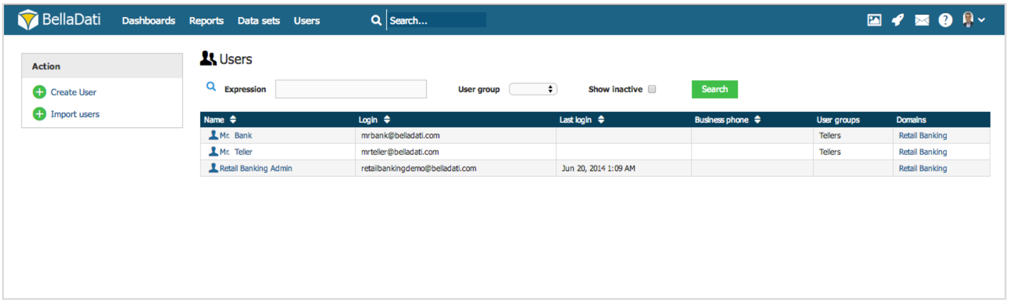
- Administering Users
- Importing Users
- Administering User Groups
- Managing User Profile
- Managing Configuration
- Domain Overview and Administration
- Domain Backup
- Usage Monitoring

Administering Users

Click **Users** in the main menu to display the list of users in the current domain.

This table shows:

- User name (surname, title)
- Login name (usually e-mail)
- Lat login date and time
- Phone
- User group each user belongs to
- Domain *(more domains are relevant for global BellaDati administrator only)*



Name	Login	Last login	Business phone	User groups	Domains
Mr. Bank	mrbank@belladati.com			Tellers	Retail Banking
Mr. Teller	mrteller@belladati.com			Tellers	Retail Banking
Retail Banking Admin	retailbankingdemo@belladati.com	Jun 20, 2014 1:09 AM			Retail Banking

Actions available:

- **Sort** existing users by name, login, last login date and phone.
- **Filter users** by: expression (match within name or login), user group, show deactivated users
- **Search user**
- **Create new user**
- **Bulk user import** using the CSV file

Creating user

1. Click **Create User** in the left submenu. The popup appears.
2. Enter the information and set the options below.
3. Click **Create**. New user has been created now in the actual domain.

Enter the following information in the popup (bold are mandatory):

- **Name**: *2 characters minimum*
- **Surname**: *2 characters minimum*
- **E-mail**
- Phone
- Mobile phone

You can immediately assign these basic roles to the user:

- Report editor
- Data manager

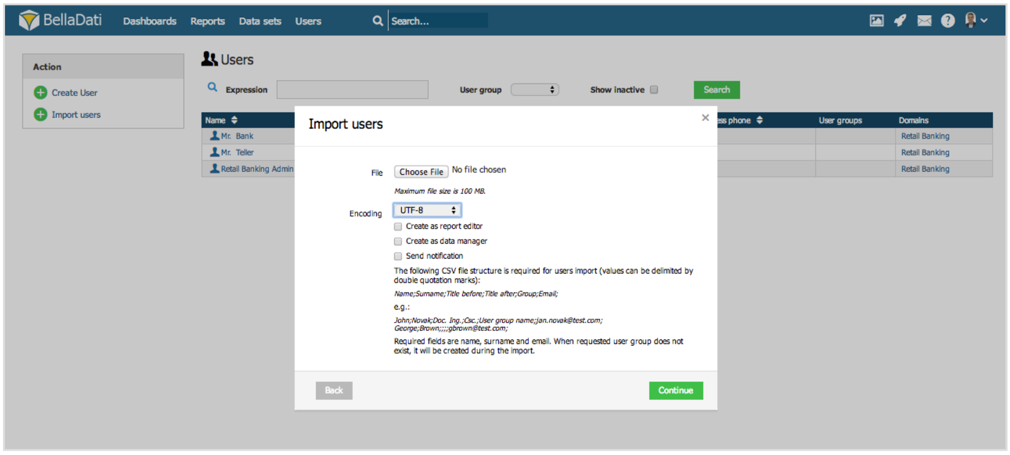
Check "Send notification" option to let the new user know about his new account in BellaDati via automatic e-mail.

To send email notifications, your administrator must have configured an email server.

Importing Users

BellaDati allows you to **import users** from external systems. To import users:

1. Go to **User Administration**
2. Click **Import Users**



Import users

File: Choose File No file chosen

Maximum file size is 100 MB.

Encoding: UTF-8

Create as report editor

Create as data manager

Send notification

The following CSV file structure is required for users import (values can be delimited by double quotation marks):

Name;Surname;Title before;Title after;Group;Email;

e.g.:

John;Novak;Doc. Ing.;Csc.;User group name;jan.novak@test.com;
George;Brown;;;;gbrown@test.com;

Required fields are name, surname and email. When requested user group does not exist, it will be created during the import.

BellaDati offers bulk import from text (CSV) file. This is a fast way to create new users when you are migrating from an old BellaDati domain or another application and you already have the list of users

1. Select the text file to upload.
2. Set encoding: UTF-8, Win-1250, Win-1252, ISO-8859-1 or Auto
3. Optionally set roles: Report editor, Data manager
4. Check the "Send notification" option will let the new users know about their new account in BellaDati via automatic e-mail.

The file structure:

1. **Name, surname and e-mail** are mandatory.
2. The e-mail will serve also as login name. The password will be generated randomly.
3. When requested user group does not exist, it will be created during the import.
4. The selected roles will be assigned to all users in the list. When no role has been selected, all users will have only the common BellaDati user role.

Administering User Groups

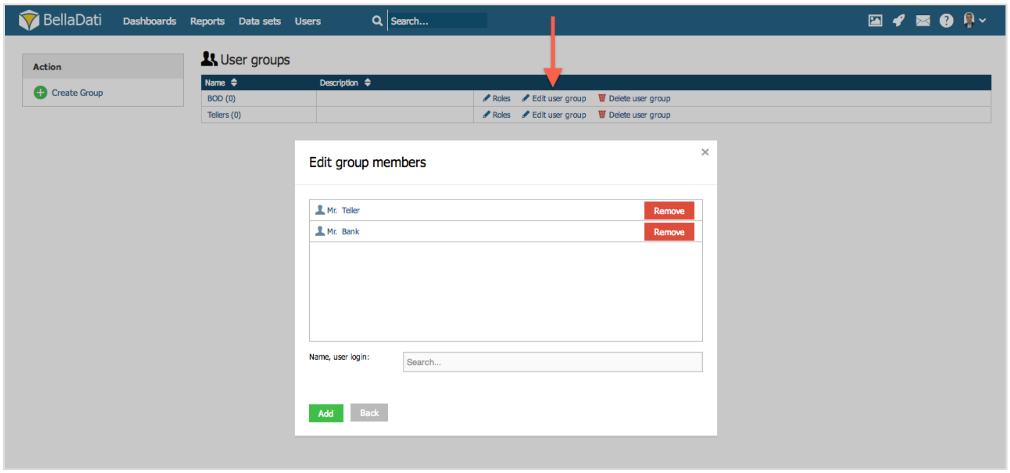
User groups serve for easier and more transparent sharing data sets, Reports, and Dashboards within domain.

The main advantage of using user groups is the simplification of controlling the user access to underlying BellaDati objects (reports, dashboards, data sets and data).

Click **User groups** in the main menu **Users**. The list of all groups in the current domain will be displayed.
You can sort the list by group name and description.

The following actions are available:

- **Add or remove group users** (members): Click on the group name. The popup appears. Use autocomplete for adding the new users.
- **Edit group name and description**
- **Create new group**: Enter the group name and optional description and click "Save".
- **Set roles**: report editor, data manager
- **Delete user group**: You must confirm the delete in the popup.



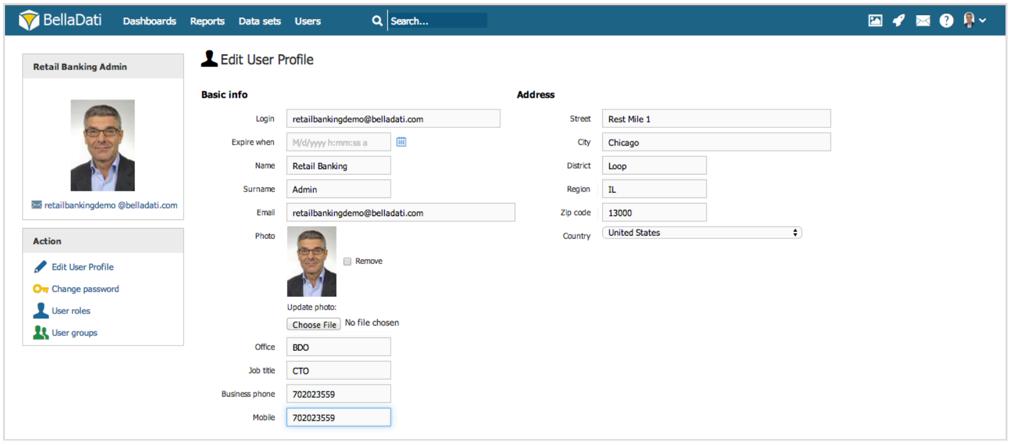
Managing User Profile

Click on your profile picture in the top right menu to display your **profile**.

Each BellaDati user has the following information associated (bold are mandatory):

- **Login email**
- **Name**: *2 characters minimum*
- **Surname**: *2 characters minimum*
- Degree before, degree (title)
- Photo
- Work details: office, position
- Job title
- Phone, mobile
- **E-mail**
- Address: street, number, city, district, region, zip code, state

Uploading the photo is recommended since you can easily identify who has created or modified an report, data set, dashlet or imported the new data via tooltips.



retailbankingdemo @belladati.com

Edit User Profile

Basic info

Login: retailbankingdemo@belladati.com
Expire when: M/d/yyyy h:mm:ss a
Name: Retail Banking
Surname: Admin
Email: retailbankingdemo@belladati.com
Photo
Update photo: No file chosen
Office: BDO
Job title: CTO
Business phone: 702023559
Mobile: 702023559

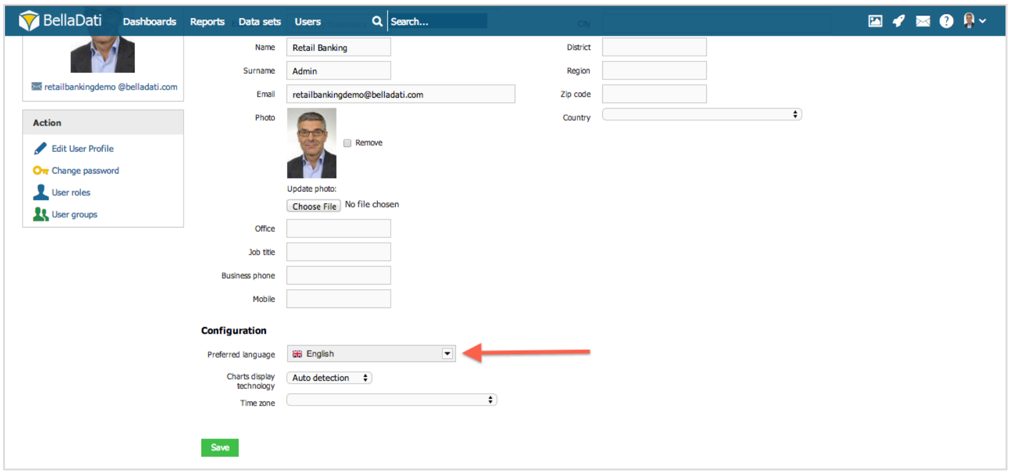
Address

Street: Rest Mile 1
City: Chicago
District: Loop
Region: IL
Zip code: 13000
Country: United States

Preferred language

You can select locale, which defines, how BellaDati is displaying labels.

- **Use browser default settings**: BellaDati selects the actual language automatically according your browser's locale. Since BellaDati does not support all locales (see below), English will be the default language in most cases.
- **Particular language** (represented by flag): BellaDati will be always displayed in the selected language regardless the domain or browser locale.



retailbankingdemo @belladati.com

Name: Retail Banking
Surname: Admin
Email: retailbankingdemo@belladati.com
Photo
Update photo: No file chosen
Office
Job title
Business phone
Mobile

District
Region
Zip code
Country

Configuration

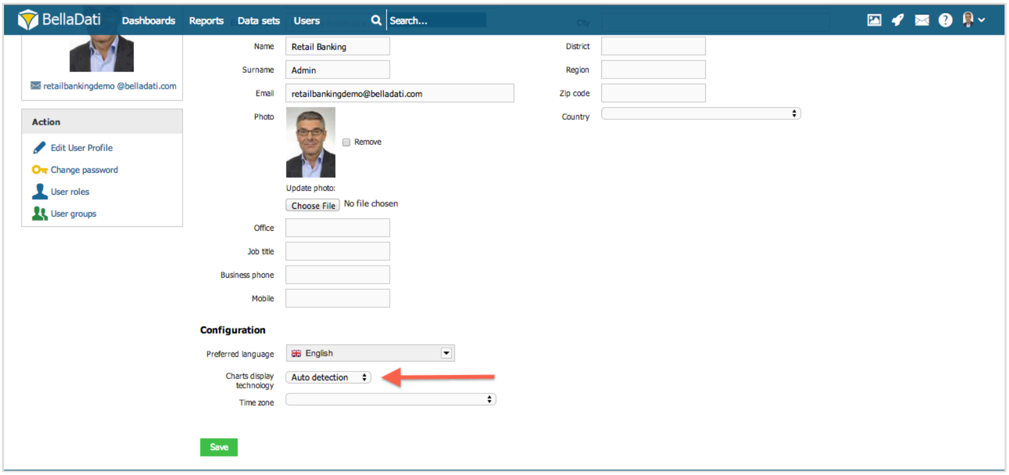
Preferred language: English
Charts display technology: Auto detection
Time zone

1. Currently supported languages in BellaDati are: **English, German and Czech**
   BellaDati platform is however very flexible to add new languages - please contact support to get actual status of language options.
2. *Language detection: German for Germany and Austria, Czech for Czech republic and Slovakia, English otherwise.*

Charts display technology

BellaDati supports two basic technologies to render charts:

- **HTML5**
- **Flash**
- Auto detection: HTML5 is preferred all time when supported browser is detected.



retailbankingdemo @belladati.com

Action
- Edit User Profile
- Change password
- User roles
- User groups

Name	Retail Banking
Surname	Admin
Email	retailbankingdemo@belladati.com
Photo	Remove
	Update photo: Choose File No file chosen
Office	
Job title	
Business phone	
Mobile	
District	
Region	
Zip code	
Country	

Configuration

Preferred language	English
Charts display technology	Auto detection
Time zone	

Save

1. **We strongly recommend to use HTML5 technology for charts rendering.** Flash technology is considered obsolete and has worse performance than HTML5 technology. *Therefore flash is usually necessary only for backward compatibility on those corporate PCs with only Internet Explorer 8 or older installed.*
   Required browsers with HTML5 support: Microsoft Internet Explorer 9, Mozilla Firefox 5+, Google Chrome
2. Browser's compatibility with chart rendering technologies is always checked during login. A warning message is displayed when a problem has been found.
3. Changing chart render technology may require logout and login to BellaDati again to take effect.

Actions

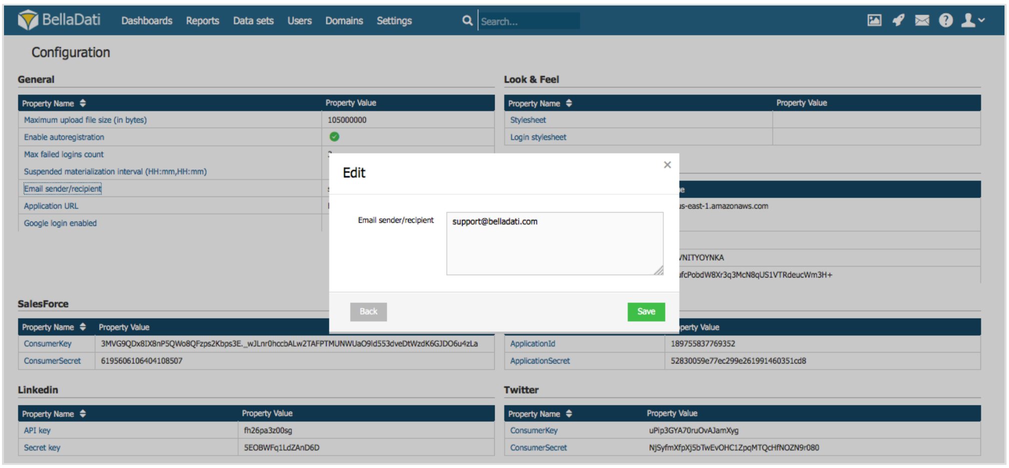
- **User group edit**: Add groups via auto-complete, remove user from groups.
- **Change password**: Change user's password to specified here.
- **User roles**: You can assign or remove the roles here.
- **User groups**: You can assign or remove the user from user groups.
- **Password reset**: Generate new password and send it to user here.
- **Deactivate** / **Activate**: Temporarily suspends or activates the user account. That user cannot login to BellaDati however all
- **Delete user**: Removes the user from the domain.

When an user is deleted, all his data sets will be assigned to domain administrator (he becomes its owner). All dashboards and reports owned by the deleted user will be deleted too!

Managing Configuration

This feature is available for on-premise installations only.

In **BellaDati version 2.7.5 and higher** you can set all relevant configuration parameters directly from the user interface. Configuration page is available for users with **domain administrator** role from the `Settings` top menu.



Configuration

General

Property Name	Property Value
Maximum upload file size (in bytes)	105000000
Enable autoregistration	✓
Max failed logins count	
Suspended materialization interval (HH:mm,HH:mm)	
Email sender/recipient	
Application URL	
Google login enabled	

Look & Feel

Property Name	Property Value
Stylesheet	
Login stylesheet	

Edit

Email sender/recipient: support@belladati.com

Back Save

SalesForce

Property Name	Property Value
ConsumerKey	3MVG9QDx8IX8nP5QWo8QFzps2Kbps3E._wJLnr0hccbALw2TAFPTMUNWUaO9ld553dveDtWzdK6GJDO6u4zLa
ConsumerSecret	6195606106404108507

	Property Value
ApplicationId	189755837769352
ApplicationSecret	52830059e77ec299e261991460351cd8

Linkedin

Property Name	Property Value
API key	fh26pa3z00sg
Secret key	5EOBWFq1LdZAnD6D

Twitter

Property Name	Property Value
ConsumerKey	uPip3GYA70ruOvAJamXyg
ConsumerSecret	NjSyfmXfpXj5bTwEvOHC1ZpqMTQcHfNOZN9r080

You can configure the following parameters:

General settings

Maximum upload file size (in bytes)	Maximum size of uploaded file. Default value: 2000000
Max failed logins count	Maximum failed logins count. Default value: unlimited
Suspended materialization interval (HH:mm,HH:mm)	Defines the interval, when the materialization of joined data set is suspended. Default value: undefined
Email sender/recipient	The email used as the email sender and recipient for contact form submissions. Default value: support@belladati.com

Email server

Address	SMTP server address
Port	SMTP server port. Default value: 25
Ssl	SSL enabled. Default value: false
Username	Username if need
Password	Password

SalesForce

ConsumerKey	Consumer key
ConsumerSecret	Consumer secret

Facebook

ApplicationId	Application ID
ApplicationSecret	Application secret

Twitter

ConsumerKey	Consumer key
ConsumerSecret	Consumer secret

Intuit

ConsumerKey	Consumer key
ConsumerSecret	Consumer secret
AppToken	Application token

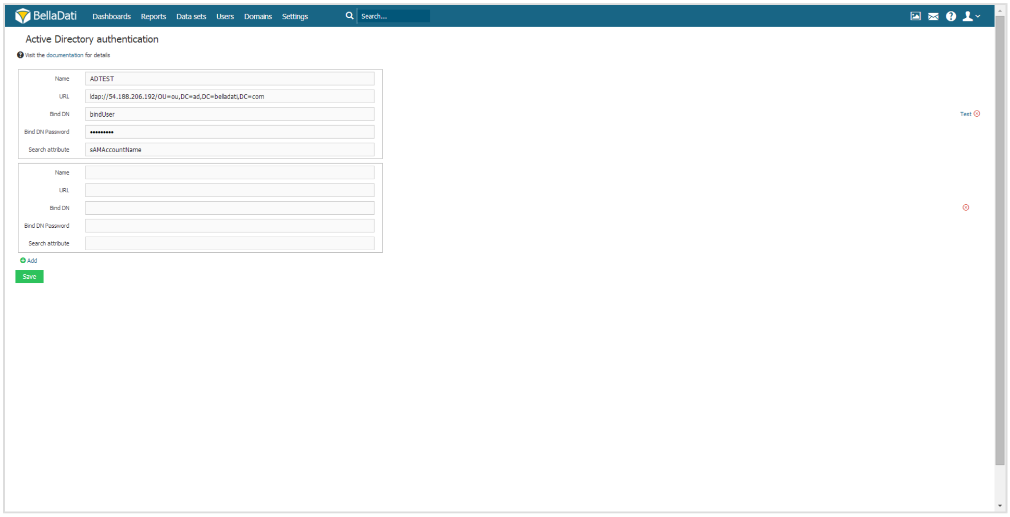
Setup Active Directory Authentication

You have to be the **domain admin** in order to configure the Active Directory authentication.

To setup the Active Directory authentication, login as domain admin and open Settings -> Active Directory.

To build the Active Directory connection, BellaDati needs following parameters:

Name	Description
Name	The name of the authentication domain. This name will appear on the login page.
URL	The URL of the LDAP service. Search tree should be included. E.g. ldap://hostname:389/OU=ou,DC=ad,DC=belladati,DC=com
BindDN	DN of the user able to search the organization tree.
BindDN password	Password of the BindDN user.
Search attribute	The attribute to be searched. This value is corresponding to the username the user enters on the login screen. E.g. sAMaccountName.



Active Directory authentication

Visit the documentation for details

Name	ADTEST
URL	ldap://54.188.206.192/OU=ou,DC=ad,DC=belladati,DC=com
Bind DN	bindUser
Bind DN Password	••••••••••
Search attribute	sAMAccountName

Name	
URL	
Bind DN	
Bind DN Password	
Search attribute	

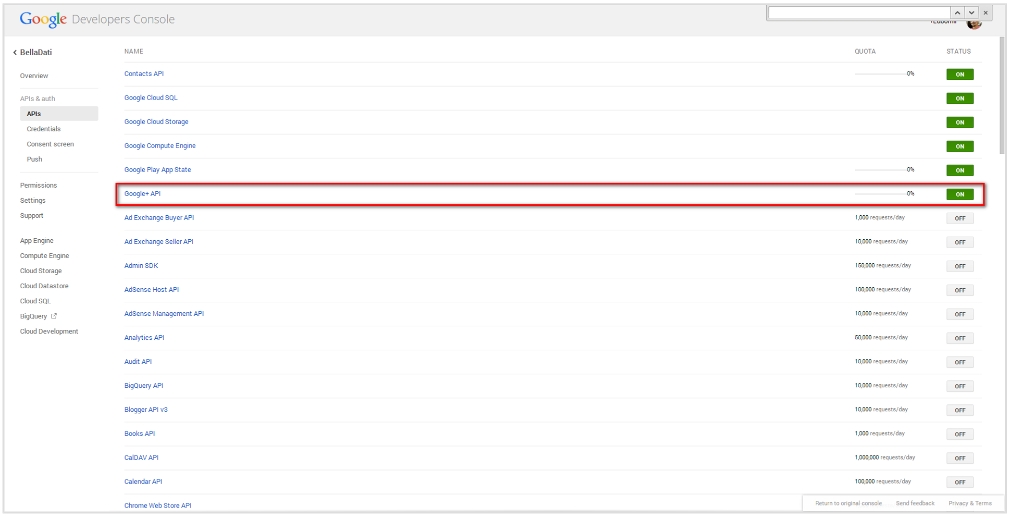
Setup Google login

BellaDati can be configured to support Google oAuth2 users log-in.

This procedure is applicable in on-premise installations only.

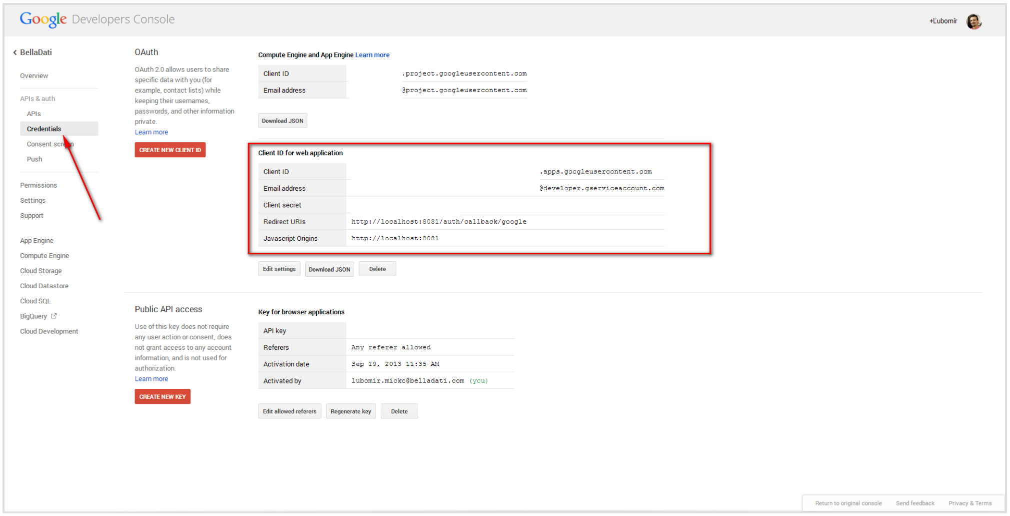
Prerequisites

1. Existing **Google Developers account** in https://console.developers.google.com/project and project created.
2. Enabled access to **Google+ API**



NAME	QUOTA	STATUS
Contacts API	0%	ON
Google Cloud SQL		ON
Google Cloud Storage		ON
Google Compute Engine		ON
Google Play App State	0%	ON
Google+ API	0%	ON
Ad Exchange Buyer API	1,000 requests/day	OFF
Ad Exchange Seller API	10,000 requests/day	OFF
Admin SDK	150,000 requests/day	OFF
AdSense Host API	100,000 requests/day	OFF
AdSense Management API	10,000 requests/day	OFF
Analytics API	50,000 requests/day	OFF
Audit API	10,000 requests/day	OFF
BigQuery API	10,000 requests/day	OFF
Blogger API v3	10,000 requests/day	OFF
Books API	1,000 requests/day	OFF
CalDAV API	1,000,000 requests/day	OFF
Calendar API	100,000 requests/day	OFF
Chrome Web Store API		

3. Existing client application credentials (**web application**). Context for callback url is **/auth/callback/google.**



OAuth

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private.
Learn more

Compute Engine and App Engine Learn more

Client ID	.project.googleusercontent.com
Email address	@project.googleusercontent.com

Client ID for web application

Client ID	.apps.googleusercontent.com
Email address	@developer.gserviceaccount.com
Client secret	
Redirect URIs	http://localhost:8081/auth/callback/google
Javascript Origins	http://localhost:8081

Public API access

Use of this key does not require any user action or consent, does not grant access to any account information, and is not used for authorization.
Learn more

Key for browser applications

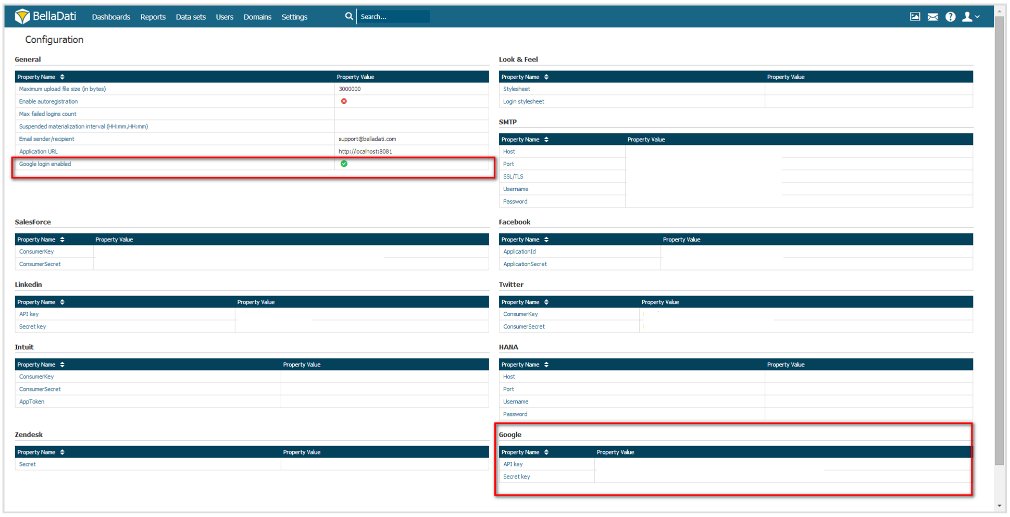
API key	
Referers	Any referer allowed
Activation date	Sep 19, 2013 11:35 AM
Activated by	lubomir.micko@belladati.com (you)

4. If your BellaDati instance is running behind the **proxy**, you have to setup the JVM parameters -Dhttp.proxyHost, -Dhttp.proxyPort, eventually -Dhttp.proxyUsername and -Dhttp.proxyPassword. BellaDati server must have the access to the following domains: **www.googleapis.com** and **accounts.google.com**.

Enabling Google log-in

In order to enable the Google log-in on BellaDati log-in page, enter the application as **Domain administrator**, open the Application settings page, and do the following:

1. Provide Google **Client ID** and **Client Secret** parameters
2. Enable Google log-in



Configuration

General

Property Name	Property Value
Maximum upload file size (in bytes)	3000000
Enable autoregistration	✗
Max failed logins count	
Suspended materialization interval (HH:mm,HH:mm)	
Email sender/recipient	support@belladati.com
Application URL	http://localhost:8081
Google login enabled	✓

Look & Feel

Property Name	Property Value
Stylesheet	
Login stylesheet	

SMTP

Property Name	Property Value
Host	
Port	
SSL/TLS	
Username	
Password	

SalesForce

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Facebook

Property Name	Property Value
ApplicationId	
ApplicationSecret	

Linkedin

Property Name	Property Value
API key	
Secret key	

Twitter

Property Name	Property Value
ConsumerKey	
ConsumerSecret	

Intuit

Property Name	Property Value
ConsumerKey	
ConsumerSecret	
AppToken	

HANA

Property Name	Property Value
Host	
Port	
Username	
Password	

Zendesk

Property Name	Property Value
Secret	

Google

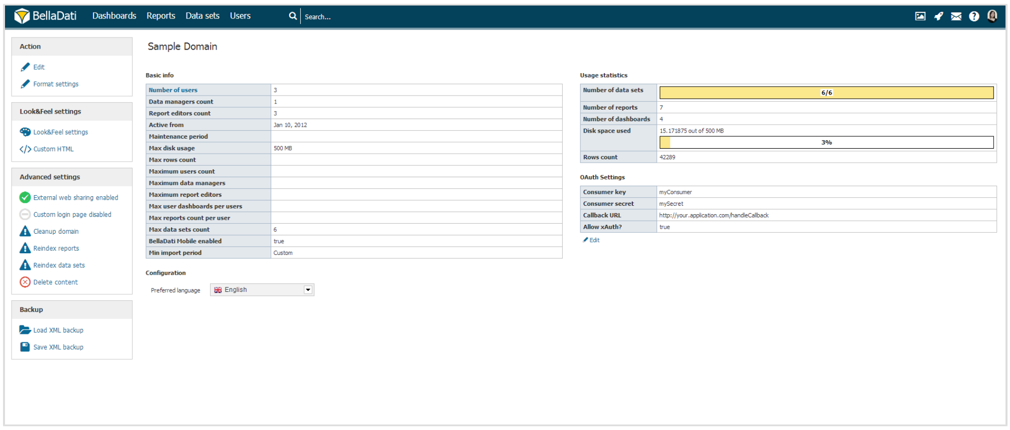
Property Name	Property Value
API key	
Secret key	

Make sure, that the **Application URL parameter** matches the URL you have entered in Google Developers Console.

Internet Explorer users must disable the pop-up blocking feature.

Domain Overview and Administration

Click on the domain name at top right corner of the main menu.



Sample Domain

Basic info

Number of users	3
Data managers count	1
Report editors count	3
Active from	Jan 10, 2012
Maintenance period	
Max disk usage	500 MB
Max rows count	
Maximum users count	
Maximum data managers	
Maximum report editors	
Max user dashboards per users	
Max reports count per user	
Max data sets count	6
BellaDati Mobile enabled	true
Min import period	Custom

Configuration

Preferred language: English

Usage statistics

Number of data sets	6/6
Number of reports	7
Number of dashboards	4
Disk space used	15.171875 out of 500 MB 3%
Rows count	42289

OAuth Settings

Consumer key	myConsumer
Consumer secret	mySecret
Callback URL	http://your.application.com/handleCallback
Allow xAuth?	true

Available actions:

- **Edit**: Timezone change - affects the date and time displayed in BellaDati, however **data itself are not affected!**
- **Delete content**: All data sets, reports and dashboards will be deleted after confirming this action in the popup.
- **Disable web sharing**: Reports and dashboards will not be shareable via public links.
- **Re-index data sets and reports**: Performs the content re-indexing for full-text search
- **Cleanup domain**: Performs database level cleanup (deletes unused tables, performs vendor-specific cleanup procedure, e.g. vacuuming in PostgreSQL) and empties the caches.
- **Preferred language**:
  - **Use browser default settings**: BellaDati selects the actual language automatically according your browser's locale. Since BellaDati does not support all locales (see below), English will be the default language in most cases.
  - **Particular language** (represented by flag): BellaDati will be always displayed in the selected language regardless the domain or browser locale.

1. Currently supported languages in BellaDati are: **English, German, French, Chinese, Korean, Czech**
   BellaDati platform is however very flexible to add new languages - please contact support to get actual status of language options.
2. *Language detection: German for Germany and Austria, Czech for Czech republic and Slovakia, English otherwise.*
3. Language selected in the user's profile has priority over this setting.

Please note, the screenshot above is only illustrative. Domain admin and data manager has access only to fewer information about the domain.

Information about occupied space may not be exact and actual. These information are updated asynchronously. Run cleanup domain to get most recent information.

Domain limits are set automatically according registered tariff or On-Premise license.

Application Settings and Configuration

These settings are available in BellaDati On-Premise only.

Go to menu "Settings" - "Configuration". You have following parameters:

- **Maximum upload file size (in bytes)**: default 20MB (21000000)
- **Max failed logins count**: default 3

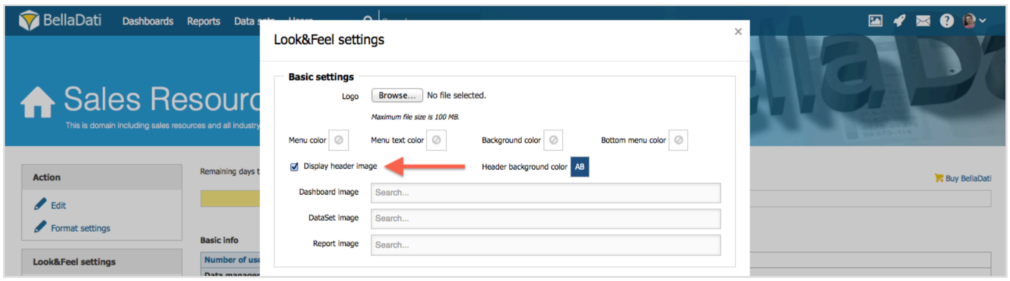
Domain Banners (Cover Pictures)

BellaDati enables you to enrich its interface with large **banner pictures.**

Banner pictures are turned off by default. You need to have domain administrator role assigned to be able to modify cover pictures.

To set up banner picture,

- Go to **Domain Settings**
- Navigate to **Look & Feel**
- Check **Display header image**
- Choose **Header background color**
- Specify **images** for Dashboard, Data Set and Report pages



Look&Feel settings

Basic settings

Logo [Browse...] No file selected.

Maximum file size is 100 MB.

Menu color ⊘ Menu text color ⊘ Background color ⊘ Bottom menu color ⊘

☑ Display header image Header background color AB

Dashboard image Search...

DataSet image Search...

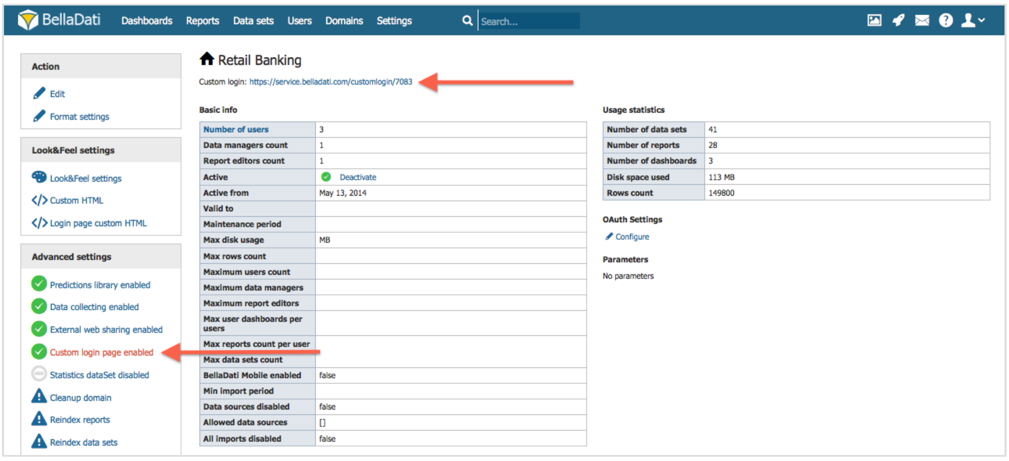
Report image Search...

External Custom Login Page

You have to be domain administrator to create and edit custom login page.

BellaDati allows you to create, edit and leverage **custom login page** for your domain. To enable **custom login page**, click on **Enable custom login** in the **Domain settings**.

BellaDati will generate **unique URL** for your custom login page.



Action
- Edit
- Format settings

Look&Feel settings
- Look&Feel settings
- Custom HTML
- Login page custom HTML

Advanced settings
- Predictions library enabled
- Data collecting enabled
- External web sharing enabled
- Custom login page enabled
- Statistics dataSet disabled
- Cleanup domain
- Reindex reports
- Reindex data sets

Retail Banking

Custom login: https://service.belladati.com/customlogin/7083

Basic info

Number of users	3
Data managers count	1
Report editors count	1
Active	✓ Deactivate
Active from	May 13, 2014
Valid to	
Maintenance period	
Max disk usage	MB
Max rows count	
Maximum users count	
Maximum data managers	
Maximum report editors	
Max user dashboards per users	
Max reports count per user	
Max data sets count	
BellaDati Mobile enabled	false
Min import period	
Data sources disabled	false
Allowed data sources	[]
All imports disabled	false

Usage statistics

Number of data sets	41
Number of reports	28
Number of dashboards	3
Disk space used	113 MB
Rows count	149800

OAuth Settings

Configure

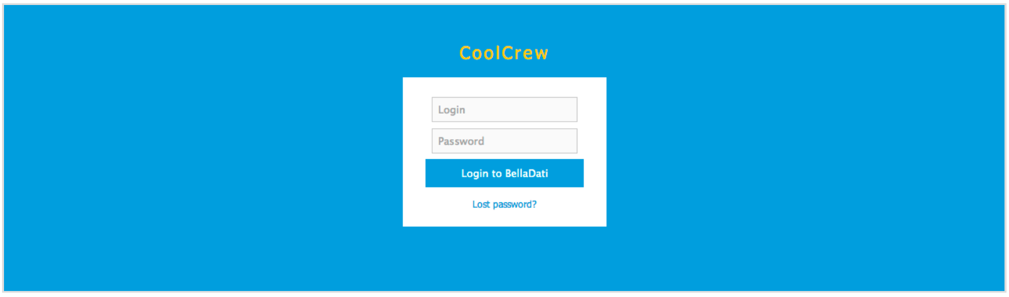
Parameters

No parameters

Editing HTML

You can edit and add your own HTML & CSS style sheets in *Custom HTML* dialog after clicking on **Login page custom HTML**.

Custom Login Example



Domain Backup

You need to have **Domain Admin** role assigned to perform the backup.

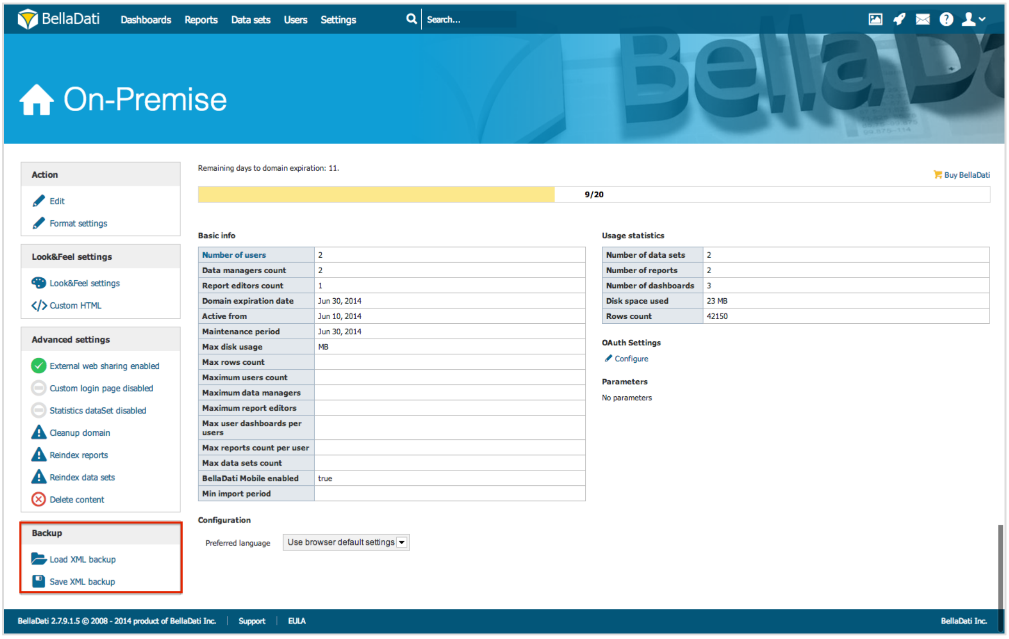
Domain backup allows you to store all domain information in XML format.

Backup doesn't store data. You can export them manually from the Data Set or use one of the procedures described in BellaDati Backup and Restore.

Saving XML Backup

To perform **Domain Backup**:

1. Navigate to **Domain** link in upper right corner of BellaDati window
2. Click **Save XML Backup** in left menu bar
3. **XML Backup** of your domain will be downloaded



Remaining days to domain expiration: 11.

9/20

Basic info

Number of users	2
Data managers count	2
Report editors count	1
Domain expiration date	Jun 30, 2014
Active from	Jun 10, 2014
Maintenance period	Jun 30, 2014
Max disk usage	MB
Max rows count	
Maximum users count	
Maximum data managers	
Maximum report editors	
Max user dashboards per users	
Max reports count per user	
Max data sets count	
BellaDati Mobile enabled	true
Min import period	

Usage statistics

Number of data sets	2
Number of reports	2
Number of dashboards	3
Disk space used	23 MB
Rows count	42150

OAuth Settings

Parameters

No parameters

Configuration

Preferred language: Use browser default settings

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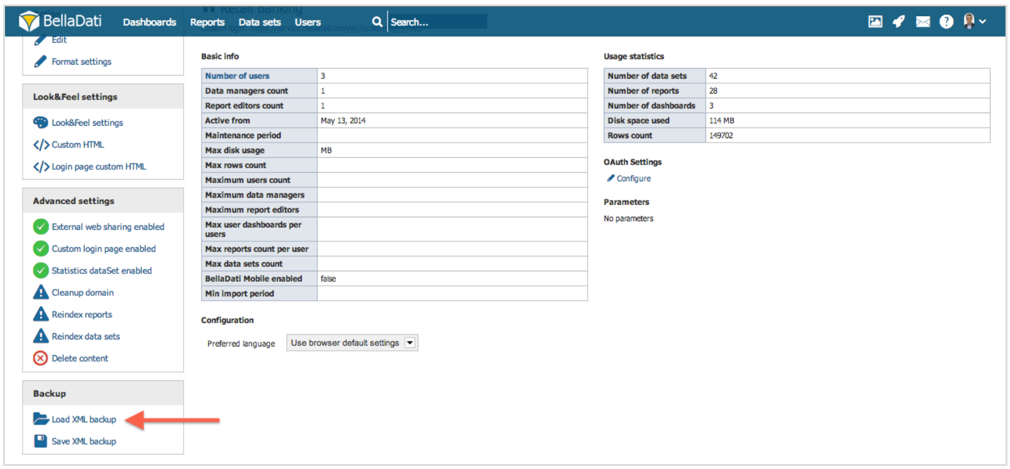
BellaDati Inc.

Loading XML Backup

To load **Domain Backup**

1. Navigate to **Domain** link in upper right corner of BellaDati window
2. Click **Load XML Backup** in left menu bar
3. Navigate to your **XML Backup**
4. Follow the wizard to restore your backup



Basic info

Number of users	3
Data managers count	1
Report editors count	1
Active from	May 13, 2014
Maintenance period	
Max disk usage	MB
Max rows count	
Maximum users count	
Maximum data managers	
Maximum report editors	
Max user dashboards per users	
Max reports count per user	
Max data sets count	
BellaDati Mobile enabled	false
Min import period	

Configuration

Preferred language: Use browser default settings

Usage statistics

Number of data sets	42
Number of reports	28
Number of dashboards	3
Disk space used	114 MB
Rows count	149702

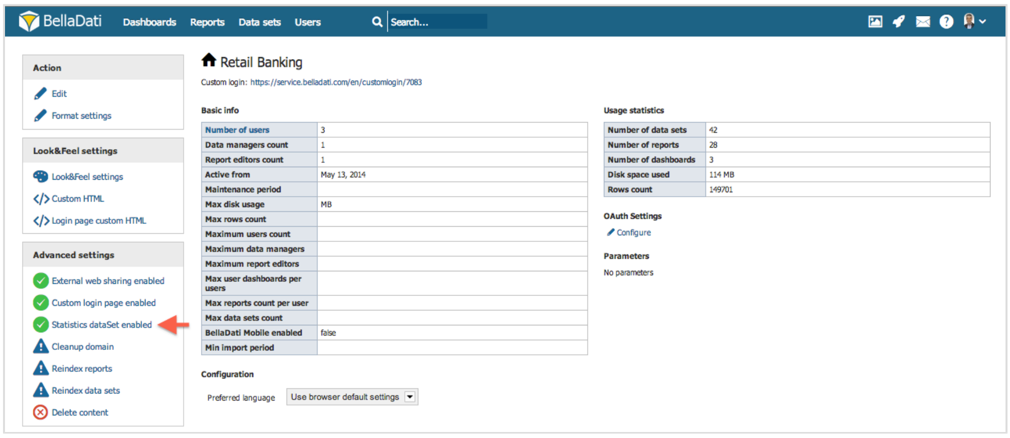
Parameters

No parameters

Usage Monitoring

BellaDati allows you to monitor usage of **reports and dashboards.** Statistics is available in **Usage monitoring** dataset. In order to turn on usage monitoring:

1. Go to **Domain Settings**
2. Click on **Statistics Dataset enabled**



Retail Banking

Custom login: https://service.belladati.com/en/customlogin/7083

Basic info

Number of users	3
Data managers count	1
Report editors count	1
Active from	May 13, 2014
Maintenance period	
Max disk usage	MB
Max rows count	
Maximum users count	
Maximum data managers	
Maximum report editors	
Max user dashboards per users	
Max reports count per user	
Max data sets count	
BellaDati Mobile enabled	false
Min import period	

Configuration

Preferred language: Use browser default settings

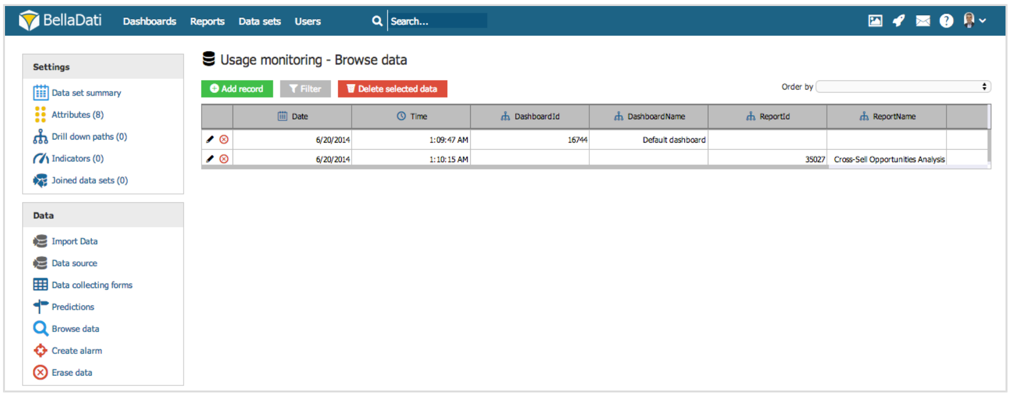
Usage statistics

Number of data sets	42
Number of reports	28
Number of dashboards	3
Disk space used	114 MB
Rows count	149701

Parameters

No parameters

BellaDati will generate **Usage monitoring** table in **Datasets**.



Usage monitoring - Browse data

	Date	Time	DashboardId	DashboardName	ReportId	ReportName
	6/20/2014	1:09:47 AM	16744	Default dashboard		
	6/20/2014	1:10:15 AM			35027	Cross-Sell Opportunities Analysis