

IBM QMF Vision
Version 12 Release 1

Getting Started with IBM QMF Vision



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Notes

Before using this information and the product it supports, be sure to read the general information under “Notices” at the end of this information.

This edition applies to Version 12 Release 1 of IBM DB2 Query Management Facility (QMF) Enterprise Edition, which is a feature of IBM DB2 12 for z/OS (5650-DB2) and IBM DB2 11 for z/OS (5615-DB2). It also applies to Version 12 Release 1 of IBM DB2 QMF for z/OS (5697-QM2), which is a stand-alone IBM DB2 for z/OS tool. This information applies to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. About QMF Vision

QMF Vision provides companies with self-service dashboards that provide the capability to analyze data in an intuitive way. This capability enables users to dynamically adjust their analysis in accordance with their varying business needs.

QMF Vision is easy to deploy on the Cloud and on-site, and requires minimum maintenance, which reduces overhead costs. QMF Vision simplifies business intelligence (BI) for the organization and improves efficiency. QMF Vision also facilitates sharing of analyses among multiple users to enable quick decision-making through the collaboration feature.

- **Connect:** You can view information the way they want to so that they can make informed decisions and take appropriate actions. QMF Vision provides interactive visualizations. You can create reports and dashboards without IT support with the help of the drag-and-drop feature.
- **Discover:** QMF Vision has a comprehensive portfolio of integrated BI capabilities such as dashboards, files, and data. QMF Vision improves decision-making across the organization by delivering timely business information to improve productivity. The solution is scalable and reliable.
- **Share:** You can share dashboards for reuse across the enterprise. Real-time messaging services enable you to connect with each other. Because the solution is supported on various mobile devices, you can easily access dashboards and reports.

Chapter 2. Installing QMF Vision components

The following topics describe the procedure of installing QMF™ Vision and the IBM Data Service ODBC driver.

System requirements for QMF Vision

Before you begin installation, ensure that your system is configured.

About this task

QMF Vision supports the following server requirements on Microsoft Windows.

Microsoft Windows Server Requirements

- Windows 7 64-bit
- Windows Server 2008 R2 Service Pack 1
- Windows Server 2012 with .NET Framework 3.5 enabled

Ensure that your production environment has the following minimum configurations:

- 4-core microprocessor
- 8 GB RAM
- 250 GB free disk space

Browser Requirements

You can access QMF Vision through the following browsers:

- Chrome version 50.0.2661.102
- Firefox version 47.0.1
- Microsoft Edge version 25.10586.0.0
- Apple® Safari version 9.0.3 and above

Installing QMF Vision

You can install QMF Vision through the graphical user interface (GUI) installer.

About this task

Note: If the **Keep user data** check box is not selected, all customer data including settings, license, dashboards, and queries will be deleted.

Procedure

1. Download the setup_win64.exe installer.
2. Right-click and run the installer as an administrator.
3. Click **Next** to proceed with the installation.
4. Click **I Agree** to accept the license agreement.
5. This window is displayed if you have MongoDB installed on your system. Browse to the MongoDB bin directory and click **Next**. If you do not have MongoDB installed on your system, follow Step 6 and Step 7 to install MongoDB.
6. Accept the license to install MongoDB.

7. Select the directory to install MongoDB.
8. Optional: Click the link in the dialog box to download the TeraData driver, and then click **Next**. Alternatively, you can install the TeraData driver after installing QMF Vision. If TeraData is already installed on your system, the dialog box is not displayed.
9. Select the directory where you want to install QMF Vision and click **Next**.
10. Select the directory where you want to store the application data and click **Install**.

Note:

If you modified the `dataengine.ini` or `webserver.yml` files in previous versions of QMF Vision, these files are overridden when you upgrade to the next version. By default, QMF Vision creates a backup of these files in the `<original file name date stamp>` format. The `dataengine.ini` backup file is saved in the `<installation directory>\andes\data-engine\bin\config\` folder and the `webserver.yml` file is saved in the `<install_dir>\etc\` folder.

11. Click **Finish** to complete the installation process.

Connecting to data sources

Data sources should be configured on the QMF Vision interface.

QMF Vision supports databases and cloud storage sources.

- To access cloud storage through QMF Vision, a user must configure cloud storage on the relevant website. The user must add the Client ID and Client Secret values received from the cloud storage website to the API LIST tab on the Company Profile page of QMF Vision.
- To access database sources, a user must provide information such as host, port, user name, and password on the Data page of the QMF Vision user interface. This information can be modified on the **Data** page.

Additionally, you can add CSV files through the Home and Data pages. On either of the pages, you can drag a source file or browse to select the file. To access data through a file, click **Connect** on the data page, and drag a source file. Alternatively, you can upload the file

To connect to the ODBC System DSN connector, ensure that the System DSN name provided in the QMF Vision user interface matches the one configured in ODBC Data Source Administrator.

Connecting to SFDC

Use these steps to connect to SFDC using the Client Key and Client Secret.

Procedure

1. Log in to QMF Vision (Administrator account).
2. Click your name and select **Settings**.
3. Click **API LIST**.
4. In the **Salesforce** area, do the following:
 - a. Copy the SFDC Consumer Key obtained from the Salesforce site and paste it in the **Client ID** field.

- b. Copy the SFDC Consumer Secret obtained from the Salesforce site and paste it in the **Client Secret** field.

Enabling OAuth settings

Use these steps to obtain the SFDC Client Key and Client Secret.

Procedure

1. Log in to Salesforce.
2. Click **Setup** in the upper-right corner.
3. Do one of the following to access the Manage apps area:
 - Click **Create** in the left panel under the **Build** area, and then click **Apps**.
 - Click **Manage** under the **Quick Links** area.
4. Click **New** in the **Connected Apps** area. The New Connected App page is displayed.
5. Complete the information in the **Basic Information** area:
 - a. In the **Connected App Name** field, type the connected app name.
 - b. Click the **API Name** field. The **API Name** field is populated with the name entered in the **Connected App Name** field.
 - c. In the **Contact Email** field, enter an email address.
6. Complete the information in the **API (Enable OAuth Settings)** area:
 - a. Select **Enable OAuth Settings**.
 - b. In the **Callback URL** field, enter `https://discoverhost:discoverport/api/v1/salesforce/oauth2/callback` For example, the QMF Vision URL is: `https://vision.ibm.com:3000`. The callback URL is: `https://https://vision.ibm.com:3000/api/v1/salesforce/oauth2/callback`.
 - c. In the **Selected OAuth Scopes** field, use the right arrow button to move the following from the **Available OAuth Scopes** list to the **Selected OAuth Scopes** list:
 - Full access (full)
 - Perform requests on your behalf at any time (refresh_token, offline_access)
7. Click **Save**.

The Consumer Key and the Consumer Secret are generated and displayed in the Connected App details page.

- Consumer Key: the Client ID of Salesforce in QMF Vision
- Consumer Secret: the Client Secret of Salesforce in QMF Vision

For the Consumer Secret, click **Click to reveal** to show the details.

Configuring third-party applications

The administrator configures settings that enable QMF Vision to connect with third-party applications.

About this task

The following applications can be configured in QMF Vision using these steps:

- IBM Connections
- Dropbox
- Salesforce

- Box
- IBM Watson Workspace
- Slack

The server administrator sets up an OAuth 2.0 internal application to connect with the QMF Vision server. If the server is on-premise, the administrator provides the URL for the server. The Client ID and Client Secret fields are provided by the server administrator.

Procedure

1. Log in to QMF Vision.
2. Click your avatar and select **Settings**.
3. On the **API LIST** tab, complete the following fields:

Field	Description
Server Base URL (IBM Connections and Slack)	The identifier of the server.
Client ID	The identifier generated by the server.
Client Secret	The identifier generated by the server.

Connecting to the SMTP server

By default, QMF Vision sends an email without a Simple Mail Transfer Protocol (SMTP) relay server. However, you can configure your SMTP relay server to send an email with or without authentication.

There are two ways to configure the internal mail relay:

SMTP without authentication

To configure your system to use anonymous internal email relay, make the following modifications in the `webserver.yml` file located in the `<install_dir>\etc\folder`:

```
email:
  transport: "SMTP"
  options:
    host: "host_name"
    port: "port_number"
  tls:
    rejectUnauthorized: false
  debug: true
```

SMTP with authentication

To use the relay provided by QMF Vision, modify the `webserver.yml` as follows:

```
email:
  transport: "SMTP"
  options:
    host: "host_name"
    port: "25"
  auth:
    user: "username"
    pass: "password"
  tls:
    rejectUnauthorized: false
  debug: true
```

Upgrading QMF Vision

You can upgrade to the latest version of QMF Vision.

About this task

Procedure

1. Download the setup_win64.exe.
2. Right-click the setup_win64.exe file and run it as an administrator.
3. Follow Step 3 to Step 9 in the topic, "Installing QMF Vision" on page 3.

Chapter 3. Administering QMF Vision

The first user to register in QMF Vision is by default the administrator. After an administrator is defined, other users can send registration requests to the administrator for approval. An administrator can configure administration and company settings.

Configuring the company profile

The administrator configures the **Home** page, which is the first page that users see when they log in.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the **COMPANY PROFILE** tab, complete the following fields:

Field	Action
Company Name	Enter the name of your company.

Configuring display settings

You can set a default calendar for your company, and set a header and footer for the dashboard.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and then select **Settings**.
3. Click **DISPLAY SETTINGS**, and perform one or more of the following actions:
 - To view the account option on the login screen, select **Display the Create Account**.
 - Select your preferred language from the **Language** list. The administrator sets the language and you can change it when you login for the first time.
 - Select the primary and accent colors for the user interface.
 - Select the background color and texture for the user interface.
 - Select the pre-defined fiscal calendar from the **Company Calendar** list. Alternatively, you can define a custom range, start week, date, and date format for a custom calendar.
 - Define the number format used by the company.
 - Set the position of the currency symbol.
 - Set the negative number style.
 - Set the thousand and decimal number separator.
 - Set the decimal number count.
 - Create header information for a dashboard.
 - Create a signature to be displayed below your dashboard.

Configuring social network

The administrator configures settings that enable QMF Vision to connect with an IBM server as a third-party application. The IBM server administrator sets up an OAuth 2.0 internal application to connect with the QMF Vision server. If the IBM connection server is on-premise, the IBM administrator provides the URL for the server. The Client ID and Client Secret fields are provided by the IBM server administrator.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the SOCIAL NETWORKS tab complete the following fields:

Field	Description
Server Base URL	The identifier of the IBM server.
Client ID	The identifier generated by the IBM server.
Client Secret	The identifier generated by the IBM server.

Managing users

The administrator can create and apply licenses, view status of licenses, and delete inactive users from the system.

To manage users, the administrator performs the following tasks:

Registering users

The administrator can register users one at a time or create a .CSV file and register multiple users at once. The .CSV file must have each user's email address in the first column and password in the second column.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the **USER MANAGEMENT** tab, enter the email address of the user you want to register.
4. Select a license, and click **REGISTER**.

Registering users through LDAP

The administrator can register users and groups of users who are in an LDAP directory.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the **USER MANAGEMENT** tab, expand the **Invite User** panel.
4. On the **LDAP** tab, click **Enable SSL** to make a secure connection with the LDAP directory, and complete the following fields:

Field	Action
LDAP host name	Enter the host name of the LDAP directory to which you want to connect. For example, ldap.ibm.com.
Port	Enter the port number, 389.
Base DN	Enter the base distinguished name that is used for queries against the LDAP directory server. For example, c=com.
LDAP password	Enter the password for LDAP connection.
LDAP username	The name of the user used to connect to the LDAP directory. For example, user@ibm.com.

5. To load multiple users, click **LOAD USERS**, and then click **IMPORT USERS**.
6. To load a user group, click **LOAD USERS** , and then click **IMPORT GROUPS**.

Approving new users

The administrator can view the list of registered users waiting for approval.

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the **USER MANAGEMENT** tab, view a list of all users waiting for approval.
4. Expand the **Pending Users** panel to view the users awaiting registration approval.
5. Click **Approve**.

Viewing user statistics

The administrator can search for registered users and view their login details. The list of users can be sorted by clicking on a column name.

About this task

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and select **Settings**.
3. On the **USER MANAGEMENT** tab, view the following user details.

Option	Description
Name	The name of the user.
Status	The status of the user. A logged in user is displayed as Online.
Created Date	The date when the user was registered.
Last login	The time elapsed since the user's last login.

Chapter 4. Configuring Profile settings

A user can configure accounts, create and manage groups, set TM1 sources, and define social network settings. An administrator can also perform these configurations for other users.

The user can perform the following tasks to configure the user profile settings:

Managing account settings

After you create a QMF Vision account, you receive an email that contains your temporary password. You can also select option to view the QMF Vision tutorial.

Procedure

1. Use the user name and password that you received in the email to log into QMF Vision.
2. Click your avatar, and select **Profile**.
3. On the **ACCOUNT** tab, click **RESET PASSWORD**.
4. Enter the new password, and confirm that it is correct.
5. Click **UPDATE**.

Managing groups

You can create a group of users. Each user in the group has permission to view or edit the group.

Procedure

1. Log in to QMF Vision, and click your avatar.
2. Select **Profile**, and click **GROUPS**.
3. Click **CREATE**, and complete the following fields:

Field	Action
Name	Enter the name of the group.
Description	Enter a meaningful description of the group.

4. Click **ADD**. A list of all the registered users is displayed.
5. Select the users to whom you want to assign a permission. A user with edit permission can add other users to the group.
6. From the drop-down list, select the relevant permission.
7. Click **ADD**.
8. Optional: To remove a user from the group, click the **Delete** icon, and then click the **Delete** icon adjacent to the name of the user to remove.

Related reference:

Chapter 12, "Sharing and collaboration," on page 51

You can chat with other users and share dashboards, sources, and queries.

Viewing source security

When a user shares a TM1 dashboard, the server name, URL of the TM1 server, along with the login credentials of the user are displayed in the SOURCE SECURITY tab.

Connecting to social networks

A user can connect to IBM connections configured by the administrator.

Before you begin

Ensure that IBM Connections are configured in the API LIST tab on the **Settings** page.

About this task

Procedure

1. Log in to QMF Vision and click your avatar.
2. Select **Profile** and click **SOCIAL NETWORKS**.
3. Click **CONNECT**.

Default formatting

A user can configure default settings for number, language and currency.

About this task

Procedure

1. Log in to QMF Vision.
2. Click your avatar, and then select **Profile** and click **FORMATTING**.
3. Optional: From the **Choose preferred language** list, select a language.
4. Optional: From the **Choose preferred date format** list, select the date format.
5. Optional: From the **Currency** list, select the currency.
6. Optional: Select the currency prefix, decimal, and setting for negative numbers.
7. Optional: Select the decimal count and Thousand Separator from the list.

Chapter 5. QMF Vision Home page

The **Home** page is the first page that you see when you log in. From the home page, you can view all of the dashboards that you created and all of the dashboards that were shared with you.

The following section explains the layout of the **home** page:

Option	Description
Discovery page	Develop and format visualizations and associate new data sources with dashboards. Search dashboards and presentation.
Data page	View, modify, search, and delete queries
Sharing	Share dashboards and set view and edit permissions. Create a copy of your data source and dashboards. Search data, dashboard, and source.
Search	Search for a specific dashboard.
Search bar	Perform a global search for keywords, terms, and names.
Undo	Undo the step that you last performed.
Redo	Redo the last step that you performed.
Deleted Items	Restore, or permanently delete items.
+DASHBOARD	Create a dashboard.
+PRESENTATION	Create a presentation of all selected dashboards.
Edit	Select and delete your dashboards.
Toolbox	Apply settings to a visualization, collaborate with other users through chat, and select dashboard templates.
My Dashboards	Display all of the dashboards that you created.
My Presentations	Display all the presentations that you created.
All	Display all of the dashboards and presentations that are available.
Favorite	Display all dashboards and presentations that are marked as favorite.
Shared	Displays the dashboards and presentations that are shared with the user who is logged in.
Shared View As Grid	Arrange the dashboards in a grid.
Shared View As List	Arrange the dashboards in a list.

Chapter 6. Discovery overview

The **Discovery** page displays a view, where you can perform various tasks with a visualization.

On a dashboard you can perform the following tasks:

- Delete a visualization by hovering over it.
- Resize the placement of a visualization through the **MOVE** option.
- Synchronize visualizations.
- Create a presentation.
- Print the dashboard as a PDF by clicking the fly-out menu on the **Discovery** page. You can select the layout and paper size.
- Modify and discard a dashboard by clicking the **DELETE** button in the drawer menu.
- Add a visualization by dragging it from the Chart Type panel to your dashboard.
- Select a template. The number of grids display the number of visualizations on a dashboard. You can create a custom template by opening a dashboard and clicking the **TEMPLATE** icon. The new template has the same format as the current dashboard.
- Add a header and footer to the dashboard.
- Connect to a data source.
- Set a dashboard as a landing page by selecting **ENABLE LANDING PAGE** in the menu.
- Share the dashboard by selecting various social media options under **SOCIAL NETWORKS** in the menu.

Chapter 7. Content migration

A user can create a package with multiple dashboards and sources associated with those dashboards. This package can be imported to another environment running QMF Vision. The users accessing this environment should have access to the imported database sources. A user can search for a package on the **Sharing** page and delete it.

About this task

To package the dashboards:

1. On the **Home** page click MORE.
2. Select the dashboards you want to group, and click **IMPORT/EXPORT**.
3. Click **Done**.

Chapter 8. Data preparation

You can connect to data sources on a server or in a database, or in files that are imported into QMF Vision and prepare the data for analysis.

You can connect to data through the **Home** page, Data page or **TOOLBOX**. The data can also be accessed directly through databases. On either of the pages, you can drag a source file or browse to select the file. To access data through a file, click **Connect** on the data page, and drag a source file. Alternatively, you can upload the file. For more information about Configuring data sources, see “Connecting to data sources” on page 4. QMF Vision provides functions to help a user manipulate data for further analysis.

Hierarchies

Data in the context list can be organized in a meaningful structure. You can rely on QMF Vision to generate automatic hierarchies or create custom hierarchies. These hierarchies are useful to view drill down on the dimension data in reports.

To navigate to data quickly, combine two or more contexts into a hierarchy, or generate a smart hierarchy automatically. New hierarchies can be created by clicking on the **TOOLBOX** menu on the **Data** page.

Manipulating data

The data that you upload from a file or from a server connection is displayed without modification. To analyze the data, you must apply operations that are provided by QMF Vision.

Working with queries

The **Data** page lists all of the queries and data sources that you create or that are shared with you. By default, the query and the source have the same name, which is the name of the source. The source corresponds to the data source you access, and the query represents the data that is displayed in a visualization. From the **Data** page you can delete, view, and duplicate a query; apply operations such as JOIN, PIVOT, and SUM; and create a query and dashboard.

The following operations are available to transform data:

- Add a TABLE
- Add a FILTER
- Add an APPEND operation
- Add a JOIN operation
- Add a PIVOT
- Add a SUM
- Add a CUBE

Columns

You can perform the following functions on the data in columns:

- Generate automatic hierarchies to organize the data.

- Sort the columns in alphabetical order, followed by context and measures, and then formulas.
- Create categories to group data logically.
- Use the Shift key to select multiple columns for a PIVOT operation.



Managing columns

A user can perform multiple functions in columns on the **Data** page.

A user can perform the following tasks on the **Data** page:

- Search for a specific column.
- When a query is opened on the Data page, the total number of rows and columns, and the last updated status are displayed on the top-right side of the page. You can download the query by clicking the download icon



- Expand and collapse the  icon to view the data preparation area. You can then apply operators such as FILTER, JOIN, PIVOT, and so on.
- Enter the formula for computation in the Type a formula box.
- Sort a column by clicking the **Sort** icon  in that column.
- Reorder the columns by clicking **More**, and then selecting the Reorder option.
- Create a category by clicking **More** and then selecting Categorise. Additional functions that can be applied to the new category are displayed in the **TOOLBOX**. If no category is applied, a user can select to view original values, leave the values empty or display Other.
- Split the contents of a column by selecting **More**, and then selecting the Split option. In the **TOOLBOX**, a user can define the separator field displayed in both the columns.
- Modify the data type by clicking the column and then selecting the new data type from the list.

Numeric functions

Use functions to perform calculations on measures and dimensions.

About this task

On the Data page click **Create Formula** to view the formula bar. When you enter the name of the function, the syntax for the function is automatically displayed.

The following table describes the functions:

Function	Description
ABS(NUMBER)	Returns the absolute value of the number.
ACOS(NUMBER)	Calculates the inverse cosine of a number and returns an angle in radian between 0 and π . For example, $ACOS(1/SQRT(2))$ returns π .

Function	Description
CHAR(NUMBER)	Returns the ANSI character that corresponds to a specific number. For example, CHAR(65) returns A.
ASIN(NUMBER)	Calculates the inverse sine of a number and returns an angle between $-\pi/2$ and $\pi/2$.
ATAN(NUMBER)	Calculates the inverse tangent of a number and returns an angle in radian between $-\pi/2$ and $\pi/2$. For example, ATAN(1) returns $\pi/4$.
CEILING(NUMBER)	Rounds a positive number up and a negative number, down. For example, CEILING(-9.7) returns -9.
COS(RADIAN)	Returns the cosine of an angle. For example, COS(.785398163) returns 707106781.
MONTHDAYS(MONTHS, YEARS)	Returns the number of days in the given month of the year. For example, MONTHDAYS(12,2014) returns 31.
OR(BOOLEAN,BOOLEAN)	Validates the arguments and returns TRUE if any of the conditions is true. Else, it returns FALSE. For example, the expression, (Price = 345.6 OR (Price >100, Price < 300) returns TRUE.
AND(BOOLEAN,BOOLEAN)	Validates the arguments and returns TRUE if all of the conditions are true. Else, it returns FALSE. For example, the expression (Price = 345.6 AND(Price >100, Price <300) returns TRUE.
NOT(BOOLEAN)	Returns the value opposite to the value supplied by the user.
FIND(TEXT,TEXT,INTEGER)	Returns the position of a character within a text string. This function is case sensitive. FIND(n,Canada,1) returns 3. If you do not specify a value for INTEGER, it is 1.
FLOOR(NUMBER)	Rounds a positive number down and a negative number, up. For example, FLOOR(-9.89) returns the value -10.
TEXT(DATE_TIME,DATE_FORMAT)	Converts the format of the values to text. For example, TEXT(1-Jan-06,'DDMMYYYY') = 01012016.
IF(BOOLEAN,VAR,VAR)	Checks whether a condition is met and returns a value if the condition is TRUE or another value if the condition is FALSE. For example, IF(Gross Profit >100, 'bigger', 'smaller').
ISNULL(VAR)	Checks the column for a value. Returns '1' if the value is in the column and '0' if it is not.
LN(NUMBER)	Returns the natural logarithm of a number. For example, LN(10) returns 2.30.
LOG(NUMBER)	Returns the logarithm of a number.
NOW()	Returns the current date and time.

Function	Description
ROUND(NUMBER,INTEGER)	Rounds a number to a specified number of digits. For example, Round(123.456,2) returns 123.46.
SIN(RADIAN)	Returns the sine of a given angle in radians. For example, SIN(RADIANS(-30)).
SQRT(UNSIGNED)	Returns the square root of a number.
LEFT(TEXT,INTEGER)	Returns the specified number of characters from the start of a text string. For example, LEFT(Chicago,3) returns Chi.
LEN(TEXT)	Returns the number of characters in a text string. For example, LEN(Chicago) returns 7.
RIGHT(TEXT,INTEGER)	Returns the specified number of characters from the end of a text string. For example, RIGHT(Chicago, 3) returns "ago".
MID(TEXT,INTEGER,INTEGER)	Returns the character from the middle of a text string. For example, MID(USA,2,2) if country is USA, the function returns SA.
TAN(RADIAN)	Returns the tangent of an angle.
LOWER(TEXT)	Converts the text to lowercase.
UPPER(TEXT)	Converts the text to uppercase.
TRUNC(NUMBER,INTEGER)	Truncates a number to an integer by removing the decimal part. For example, Trunc(2.345,2) truncates the number to, 2.34.
DATE(YEAR,MONTH,DAY)	Returns the date. For example, DATE(2013,4,29) returns 2013-04-29.

Related tasks:

“Creating custom exception” on page 36

A user can define a custom exception for a measure in a dashboard with cross-tab and KPI visualizations.

Creating formulas

To perform mathematical functions, apply addition, subtraction, multiplication, and division functions on measures. To calculate complex functions, enclose the functions in parentheses.

Before you begin

About this task

For more information about mathematical functions, see “Numeric functions” on page 22.

Procedure

1. In the query area, click **CREATE FORMULA**. A new formula column is added to the list of all available columns.
2. Select the formula column, and in the **TOOLBOX** menu, give a relevant name to the formula. For example, Profit.
3. From the drop-down in the **TOOLBOX** menu select the data type. For example, Integer.

4. From the drop-down in the **TOOLBOX** menu select the Dimension or Measure options.
5. Select the formula column, and select or type the formula.
6. Click the **Apply** .

Adding an APPEND operator

The APPEND operation combines data from multiple sources. It is helpful when data of the same type has to be combined. The source that is appended should have the same column structure as the main source. In this example, append `Go_Discover_Sales_2013.CSV` with `Go_Discover_Sales_2014.CSV`. Both the sources have same columns. The resultant query shows the combined sales for years 2013 and 2014.

Before you begin

On the Data page, select one of the CSV queries and click on **View Query**. Select **TABLE** and select the other CSV file.

Procedure

1. Click the **APPEND** operation. It automatically links the two selected tables.
2. Enter a name for the APPEND operation in the **TOOLBOX**. This helps you identify the purpose of the APPEND operation, especially if you have complex queries. In this example, the name of the operation is Sales by region.
3. Select the columns you want to append in **TOOLBOX**. The area below the query region displays the combined data.
4. Click **CREATE DASHBOARD**. The dashboard with applied APPEND operator is displayed.

Adding a Filter

You can add a filter to the data to view selected columns. This operation eliminates rows from a specific data set. In this example, add a quantity-based filter on the sales data in the `Go_Sales_Discover_product_sales.CSV`.

Before you begin

Ensure that you open the query.

About this task

Procedure

1. Select the source and click **FILTER**. The Filter operation is added to the query area.
2. Select the Filter operation and edit the default name to a meaningful name. This helps to convey the reason behind filtering and also differentiates between multiple filters. In this example, the filter is applied to quantity.
3. Select the source and then, click **Add a filter**. Multiple drop-down lists are displayed. The first drop-down is a list that is selected for specifying the column to filter. The second drop-down list contains conditional operators such as Less Than, Greater Than, Is Not, Between. The last field is to enter a value for the filter. For example, you can select Quantity Less Than 20.

- Select and enter the criterion. For example, Quantity is > 20. The resulting columns are displayed below the query area. In this example, all products that have a quantity higher than 20 are displayed.

Hide Available Column List

ID	ProductNa...	ProductType	Product Line	Quantity	Region	Name	City
5	FusionTV 24 Col...	Standard TVs	Home Theater	120	WA	Smith	Walla Walla
518	Locator iPod Extr...	iPod	Personal Audio	510	TX	Smith	Austin
615	Colossal MP3 JT...	MP3 Players	Personal Audio	740	NSW	Smith	Sydney
646	Sonic 101	Cassette Record...	Hi-Fi	64	Greater London	Smith	London
804	Fusion MDR7504	Headphones	Accessories	49	Greater London	Smith	London

- Click **CREATE DASHBOARD**.

Adding a JOIN operator

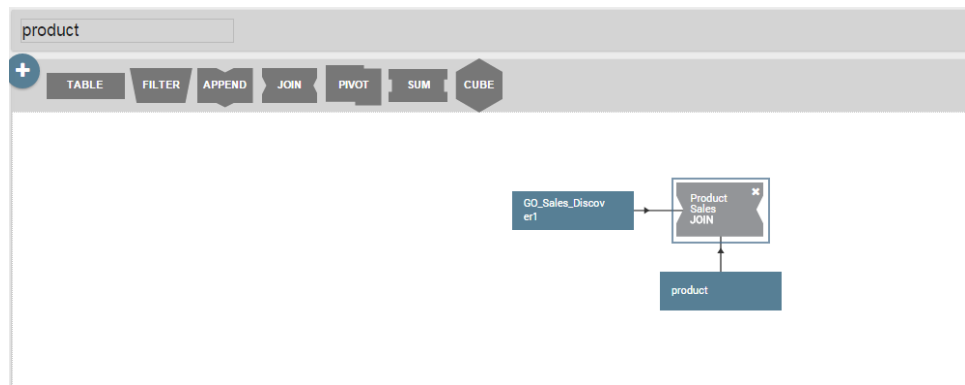
This operator combines rows with columns. It is helpful when data is logically related. For example, you can use this operation to join transaction records with customer details. Sometimes data may only partially relate to one another. You can use the Venn diagram (or join type) to determine what unmatched rows still get included. An **INNER JOIN** operation returns rows if same key value exists in both the tables. A **LEFT JOIN** operation returns all rows from the left table even though no rows match with the right table. A **RIGHT JOIN** operation returns all the rows from the right table even though no rows match with the left table.

About this task

In the following example, the **LEFT OUTER JOIN** is applied to the `Go_Sales_Discover1.CSV` and the `product.CSV`.

Procedure

- Click the **JOIN** operator.



- Enter the name for the JOIN operator. This helps you differentiate between multiple JOIN operators. In the example, the name of the operation is **Product sales**.
- In the **TOOLBOX**, select the CSV sources and the columns from the **Nodes** drop-down list. In this example, the sources are `Go_Sales_Discover` and `product`. All the columns in the CSV files are automatically populated. The `ProductName` column from both the sources are matched and the resulting columns are displayed below the query region.

Hide Available Column List columns: 14 rows: 573

Quantity	Customer N...	Customer S...	Unit Sale Pr...	Total Cost	Sales Amo...	Profit Margin	ProductNo...	Product Type	Product Line
			0	0	0	0	Alphamicon PD...	Walkman	Personal Audio
120	Skyliet	Small Business	8.42	53.75	1010.4	956.65	Alphamicon PD...	Walkman	Personal Audio
40	Acme Inc	Corporate	25.26	52.5	1010.4	957.9	Alphamicon PD...	Walkman	Personal Audio
260	Oringotts	Small Business	8.5	115	221	2095	Alphamicon PD...	Walkman	Personal Audio
520	Skyliet	Small Business	7	222	364	3418	Alphamicon PD...	Walkman	Personal Audio

- Select the condition to apply on the JOIN operation. For example, Unit Sale Price = 10.
- Click **CREATE DASHBOARD**. The dashboard with applied JOIN operation is displayed.

Adding a PIVOT operator

A PIVOT operation transforms data that is in cross-tab format to a flat table. You can pivot the data around measures or columns.

Before you begin

Ensure that you open the query and the data source is displayed on the **Data** page.

Procedure

- Click the **PIVOT** operation. The system automatically groups the measures to create a multi-value pivot group. If required, you can add measures to this group.
- Optional: Select All Measures or All Column from the drop-down list.
- Enter a meaningful name for the Pivot column.
- Optional: Click the **Plus** icon to create a new pivot group.
- Expand the group to add pivot values.
- Click **CREATE DASHBOARD**.

Applying the Cube operator

The Cube operator enables a user to prepare data for direct consumption by the IBM Cognos TM1 server.

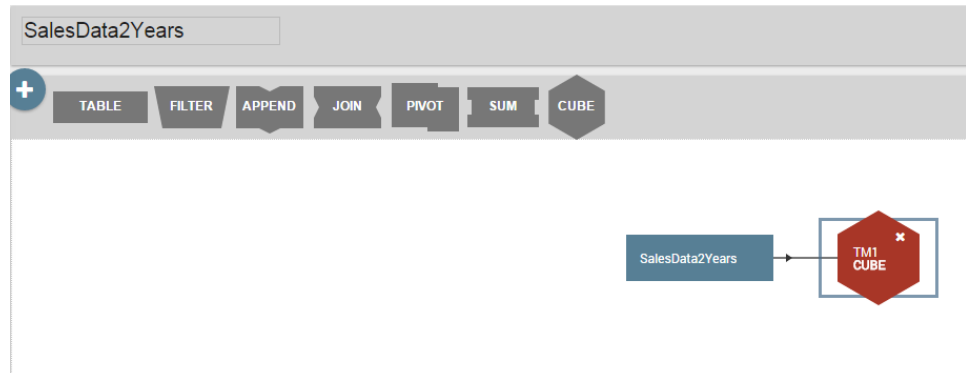
Before you begin

Ensure that you are connected to an IBM Cognos TM1 server and the query is displayed on the **Data** page.

About this task

Procedure

1. Click the **CUBE** operator and rename it in the **TOOLBOX**.



2. Select the TM1 source from the drop-down list.
3. Select the IBM Cognos TM1 server from the **Output Connection** drop-down list.
4. Click **CUBE**. The systems populates dimensions and measures in the **TOOLBOX**.
5. Select the server from the Output list and then click **SEND** to send the data to the TM1 server.

Adding the SUM operator

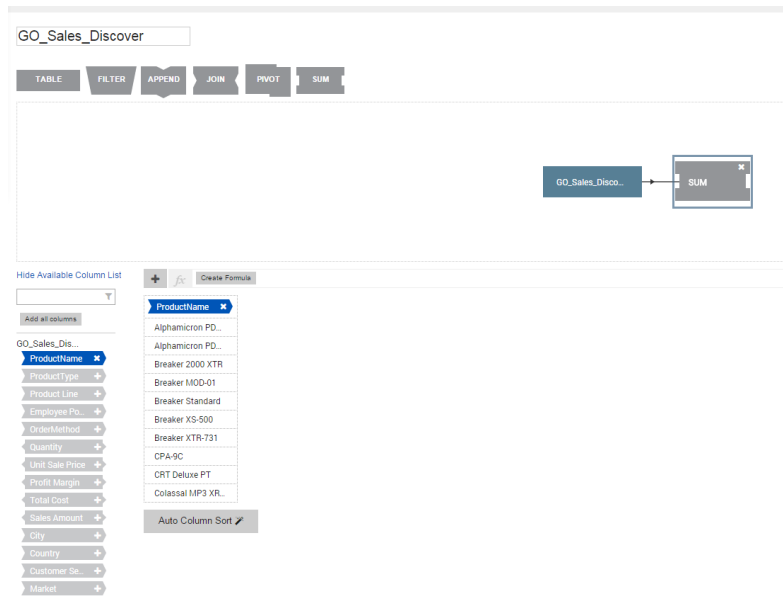
The aggregate function helps you to summarize large data. When a column has recurring fields, this function combines these fields and their corresponding values, reducing the size of data to query. The aggregate function comprises count, sum, average, minimum, and maximum sub functions. In this example, various Aggregation functions are applied on the `Go_sales_Discover.CSV` file.

Before you begin

Ensure that you open the query and the data source is displayed on the **Data** page.

Procedure

1. Click **SUM**.



- The column area lists the aggregated values of the Product name context.
2. Click the **Quantity** column. By default, the sum function is selected in the **TOOLBOX** menu and the aggregation of quantity is displayed against the corresponding product.
 3. Click **SUM** in the query area, and then select the column to apply the sub functions. In this example, the average of quantity of products is calculated.
 4. Select **Average** in the **TOOLBOX** menu. A new column that with the average quantity of each product is displayed below the query area.

Adding categories to data

Data can be categorized data based on a custom criteria. Categories are defined to group the data from the Data page. In this example, Profit and Loss categories are created to group data in the Go_Sales_Discover file.

Before you begin

Ensure that you open the query and the data source is displayed on the **Data** page.

Procedure

1. On the Data page, select the column to create categories. In this example, Total Cost is selected.
2. In the Toolbox, click **Categorize**. Alternatively, you can click **CATEGORIZE** below the query region.
3. Edit the default category name. For example, Profit.
4. Expand the category to add a filter criteria.
5. Enter the name of the filter criteria. For example, Profit more than 100. By default, system automatically generates the name of the criteria.
6. Expand the filter to define the function to calculate profit.
7. From the drop-down list, select the conditional operation. For example, Greater Than.

8. Enter the value that measures profit. For example, 100. The category, Profit is more than 100 is displayed with the filter applied to all the values that are greater than 100.

Querying a database

You can run a query against the top 1000 rows and columns in a database or against the entire table. The SQL statement of the query running in the background is displayed if you expand SQL.

Procedure

Create a database query, and perform one of the following steps:

- To run the query against the entire table, click **RUN**.
- To run the query against top 1000 rows and columns, click **Top 1000**.
- To stop the execution of the query, click **STOP**. The dashboard displays partial data.
- To customize the SQL query, select **Customize**.

Creating data packs

A data pack is a logical association of source tables, that is created by linking other data source tables in the relational database management system (RDMS). It acts as a single data source table. You can create query and dashboard from a data pack.

Before you begin

Ensure that you are connected a data source. For more information about connecting to a source, see Chapter 8, “Data preparation,” on page 21.

About this task

In this example, a data pack is created by linking the Suppliers and Products tables in an SQL server data source.

Procedure

1. Navigate to the Data page, and click the **SQL Server**. A list of tables in the data source displays.
2. Click **Create Data pack** beside one of the tables. For example, the Suppliers table. The Suppliers table is displayed as an Entity Relationship Diagram (ERD).
3. Enter a name for the data pack. In this example, the data pack is renamed to **Order details**.
4. On the Data page, click the Plus (+) sign next to the table that you want to link with the selected table. In this example, in the **TOOLBOX** the Products table is selected.
5. In the **TOOLBOX**, click **Add** to view the linking criteria.
6. In the **TOOLBOX**, select the primary key from the dropdown. A Primary key is displayed with the **Key** icon next to it. In this example, SupplierID is selected for the Product table.
7. To include all the records from the selected table, click **Include all**. If you do not select this option, only the values that satisfy the linking criteria are included in the data pack.

8. In the **TOOLBOX**, select the other table from the menu. In this example, Suppliers is selected.
9. Select the foreign key for the other table. In this example, SupplierID is selected.
10. Repeat Step 7 and click **Done**.

What to do next

You can edit and delete a data pack from the Data page. To create a query and dashboard from a data pack, see Chapter 10, "Dashboards," on page 41.

Chapter 9. Visualizations

To view data in a format that is relevant to you, create a visualization.

A visualization displays data in a graphical format, such as a bar chart, a heat map, and a cross-tab. To customize a visualization, change the color, the axes orientation, and the layout. Cross-tab is the default visualization. You can drill down into a visualization. For example, you can view yearly data, then quarterly data, and then monthly data.

The following table describes the available visualizations:

Visualization	Description
Box plot	Displays a set of values across a range in the ascending order. The values are represented by percentile with median placed in the centre of the box.
Bubble	Used to visualize data in three dimensions. This chart is used if your data has three data sets as opposed to commonly used, two data sets.
Bullet chart	This chart is used to portray comparative performance. It is a horizontal bar graph that features a single, primary measure and displays that measure in comparison to one or more other measures in the context of qualitative ranges of performance. For example, you can show actual and target performance.
Column chart	Displays data in the form of vertical bars. The axes of the chart contain various measures and context. For example, the following chart displays the number of people who are injured across different districts in a country.
Dashboard Filter	Used to apply filter criterion to a dashboard.
Dot plot	Displays data points that are plotted on a scale using circles. This chart is used for continuous data. It is usually used for moderate sizes data sets.
Geo bubble	This chart is a combination of geo map and bubble chart. The bubble size and color intensity combined with regional color fills is used to display data.
Geo map	Presents quantitative data for a country, region, and city by the way of varying color intensity. A user can view analysis of a data based on various geographies. This map can be drilled down to display detailed analysis.
Heat map	This chart is made of cells arranged as a tabular matrix. Each cell displays a quantitative value by varying color gradient.

Visualization	Description
KPI	Displays the key performance indicators for your data. You can add a histogram to this visualization to view the trend of data along with the value of KPI.
Line chart	Displays information as points connected by straight-line segments. It represents variations in data at fixed time intervals. For example, a finance manager can use this chart to see the trend in wages that are paid to employees in a decade.
Pareto	Contains both bars and a line graph. The line that appears above the bar graph shows the cumulative total.
Pie chart	This chart is circular and divided into sectors. The arc length of the chart represents the quantity. Users can explode the chart for an insight into segments.
Scatter plot	The data is represented by a collection of points or clusters. These points are displayed in uneven intervals. A sales manager can use this chart to view the correlation between percentage sales across different demographics. A trend line on the scatter plot shows the sales trend of a product over time.
Spider Chart	Displays multivariate data in the form of a two-dimensional chart. It consists of equiangular spokes. Each spoke represents one of the variables. Each category is plotted on a separate axis, starting in the center and ending on the outer ring.
Stack bar	This chart uses horizontal or vertical bars to display comparison among different categories. Values are plotted on one axis of the graph and categories on the other. This graph can be stacked horizontally. A sales manager can use the bar chart to view sales for five years.
Stacked area	Displays quantitative data on a graph. It is used to compare two or more quantities and the area between axis and line is emphasized by different colors.
Sunburst	This multilevel pie chart is best suited to represent hierarchical by the way of concentric circles. The outermost circle represents the data in top of the hierarchy.
Table	Presents the summary of data that are grouped by categories. It provides relation between two variables. The data is represented in form of a matrix with frequency distribution of variables.
Text and images	Add a description of the key elements on the dashboard or additional information to help the user understand the analysis.

Visualization	Description
Tree map	Represents the data in form of nested rectangles. It helps you to view large data in a small space.
Waterfall	Displays the effect of a series of positive and negative values on the initial value. By default, the negative values are displayed in red color and positive numbers are indicated by green color. These colors can be modified.
Web page	Enables you to embed HTML code on your dashboard.
Word cloud	This chart is used to visualize text data. The text size of these words represents the frequency of the word. To generate meaningful word cloud, the text to be entered should be free of fillers. It can be used to convey the most salient points in a report. This report also makes it easier for a user to spot text. They have a strong visual impact and are easy to understand.

Related tasks:

Creating a dashboard through the home page

The Home page is the first page that you view after logging in to QMF Vision. You can create a dashboard from this page.

“Creating a dashboard from the Data page” on page 41

You should use this method when you want to browse through various data sources and queries before creating a dashboard.

Working with a scatter plot

You can view analysis of data, correlation between data points, and data trend on a scatter plot. Based on your selection of dimensions and measures, the data is displayed in aggregation and transaction modes.

If you select two or more dimensions on the X axis and one measure on the Y axis, and drill down to the last level on the plot, the analysis is displayed in the aggregation mode. If you select two or more measures on the Y axis and more than one dimensions on the X axis, and drill down to the lowest level data, the analysis is displayed in the transaction mode.

The scatter plot also displays correlations between two paired sets of data. The correlation is categorized as weak, moderate, and strong.

The following table lists the correlation category and the corresponding criteria:

Category	Criteria
Weak	If the value of correlation is greater than -0.3 and less than <0.3.
Moderate positive	If the value of correlation is less than 0.7 and greater than 0.3.
Moderate negative	If the value is greater than -0.7 and less than -0.3.

Category	Criteria
Strong positive	If the value is less than 1 and greater than 0.7.
Strong negative	If the value is greater than -1 and less than -0.7.

Overview of table

QMF Vision provides added reporting functionality by the way of tables, also known as a *cross-tab* visualization. A cross-tab helps you summarize complex data that is displayed on a data sheet and can be organized in multiple ways.

About this task

You can perform the following functions on a cross-tab visualization:

- Swap the rows and columns by clicking **SWAP**.
- Toggle between the Simple-tab and cross-tab view by clicking **CROSS-TAB**.
- Hide or show a column by clicking the **Show/Hide** icon. This option is visible when you hover the mouse over a column header.

You can format data in cross-tab visualizations by selecting the following options available in **TOOLBOX**.

- View the breadcrumb trail of the navigational path when you drill down the data in a column by selecting **Breadcrumb**.
- View the sub total of every row by selecting **Sub Total**.
- View the grand total of every column by selecting **Grand Total**
- View the serial number of every row by selecting **Line Number**.
- View grey stripes on alternate rows by selecting **Striped Row**.
- Modify the background colors for dimension, measures, and groups.
-

If the Y axis of cross-tab has two or more dimensions, you can drill down a column by selecting the column and clicking **Drill**.

•

Select a column and apply formatting options. You can modify the alignment of the text, font size, and font color.

- View cells, columns, rows, and table as percentage.
- Click a dimension to view the various tasks you can perform on a Context.
 - The **Sort** option enables you to apply conditions on the context and see the resulting values in the cross-tab. You can sort the values by name or value.
 - The **Exception** option enables you to select outliers and define custom exceptions.

Creating custom exception

A user can define a custom exception for a measure in a dashboard with cross-tab and KPI visualizations.

Procedure

1. Log into QMF Vision.

2. Create a dashboard. For more information about creating a dashboard, see [Creating dashboards](#).
3. Click the **chevron** icon on the context for which you want to create the exception.
4. Select **Exception > Self-defined**.
5. Enter the exception criteria by using mathematical functions. For more information about these functions, see [Calculation functions](#).
6. Click **Done**.

Defining alerts criteria

Alerts are generated for a self-defined exception in a cross-tab and KPI visualizations.

About this task

A schedule that is associated with the cross-tab visualization runs and generates an alert if the exception condition is met. The details of the alert are sent to a user through an email. For information about defining a custom exception in cross-tab, see [Creating custom exception](#).

Procedure

1. Log into QMF Vision.
2. Click the **Sharing** icon.
3. Select the dashboard that has the cross-tab or KPI visualization with the self-defined exception.
4. Enter the user or group to share the alert.
5. Select **Share with alerts** option.

Related tasks:

“Creating custom exception” on page 36

A user can define a custom exception for a measure in a dashboard with cross-tab and KPI visualizations.

Formatting a visualization

You can change the look and feel of a visualization.

Before you begin

You must edit a dashboard to modify the visualization.

Procedure

1. On the **Discovery** page click **Chart action** in TOOLBOX and select the following options:

Option	Description
Data Grouping	Select the type of grouping you want to apply.
Data Sorting	Select the order in which you want to sort the data.
Data orientation	Select this option to exchange the value on X axis with those on the Y axis.

2. Click **Chart style** in **Toolbox** on the **Discovery** page.
3. Based on your visualization, you can view and select the following options:

Option	Description
X-Axis	Displays the labels on the X-axis.
Y-Axis	Displays the labels on the Y-axis.
Short number format	Displays the values in shortened format. For example, you can view the number 1,000 as 1k.
Legend	Displays the values from the selected Context. You can select the legends that you want to see in the final visualization.
Group	Combines the values that represent 80% of the highest value. The remaining area is grouped as Others.
Width	Move the slider to modify the width of the bars on a chart.
Height	Move the slider to modify the height of the bars on a chart.
Text Rotate	Move the slider to rotate the text on the X-axis.
Enter your link	Enter a link for which you want to view the KPI.
Number format	Displays the format of numeric values.
Interactive	Displays the values when you hover the mouse over the data point. If this option is not selected, you can view the values only on the line.
Trend	Displays the trend of data on a chart.
Magnify	Displays the zoomed in view of data on X axis when you hover the mouse. Ensure that you select the Magnify option in the visualization.
Label Style	Displays different slices of a Pie chart.
Format (percentage)	Displays data in percentage.
Pie Inner Radius	Move the slider to adjust the radius of the Pie chart.
showValues	Displays the values of the X coordinate.
Bar color	Select the color to display the bars on the Pareto chart.
Line color	Select the color to display the line (cumulative total) on the Pareto chart.
Order	Select the order of the data.
Left	Move the slider to modify the width of the Heat map.
Top	Move the slider to reduce the height of the Heat map.
Grid Size	Select the size of the grid from the list.
Customer	Select a custom map from the list.

Option	Description
AU Postcode	Enter a valid Australian post code.
Map Type	Select the type of map. For example, you can select to view the terrain of a region.
Breadcrumb	Select to display the drill down path of dimensions on the chart.
Add reference line	Click to add a reference line to compare the bars against a new value.

4. Click **Show Query Status** to view the last updated status of the query.

Working with maps

A user can create dashboards with Geo map and bubble maps, and customize them to display data in a way that is relevant to you.

Procedure

1. Open the source on the **Discovery** page.
2. Expand **TOOLBOX** and select the preferred map.
3. Apply the header settings for the map. For more information see, “Creating header titles for visualizations” on page 43
4. In the **Chart style** panel, select the map type from the list. For more information about chart styles, see Formatting a visualization.
5. In the **Group data limit** list, select the data that you want to display on the map.

What to do next

You can drill down the data on the dashboard by double-clicking the data points on the map.

Chapter 10. Dashboards

You can create dashboards from the **Home** page or Data page. Viewing dashboards from the **Home** page is useful when you do not want to alter the data. Whereas, viewing dashboards through Data page enables you to manipulate the data.

About this task

By default, QMF Vision provides sample dashboards, associated queries, and sources. When a user logs into QMF Vision, these sample dashboards are displayed on the Home page. These sample files are located in the `etc/webserver.yml` folder. The user can create new dashboards, export them, and place in the folder to be used as samples.

Related tasks:

“Creating custom exception” on page 36

A user can define a custom exception for a measure in a dashboard with cross-tab and KPI visualizations.

Dashboard governance navigator

The dashboard navigator provides a seamless view of all the dashboards, queries, sources, and association between them. When a user selects an element, the other elements associated with it are highlighted. The user can drill-down the selected element. For example, when the user selects a dashboard, the source, query, and users associated with that dashboard are highlighted. The dashboard navigator is displayed when a user clicks the chevron icon.

Creating a dashboard from the Data page

You should use this method when you want to browse through various data sources and queries before creating a dashboard.

Procedure

1. Navigate to the Data page, and click a query or source.
2. Click the **DASHBOARD** icon. To format the visualization, add contexts and measures.
3. Click **Done**. The dashboard is displayed on the **Discovery** page.

Editing dashboards

Change the size, modify color schemes, and add new visualizations to a dashboard.

You can perform the following tasks to modify a visualization:

- Expand a visualization.
- Add a calculation by selecting values and mathematical functions.
- Modify the properties of a visualization through the **Setting** option.
- Add a title to the visualization by selecting **Show header**.
- Copy of the visualization.
- Refresh the visualization to view the modifications.

- Apply filters to the visualization by selecting the filter criterion from the list. Use the Histogram option to drill down and view the data for a specific date range.
- Apply aggregation on a chart to view the average, count, and sum.
- Set colors for a measure to identify values by the intensity of the color. The start color represents the lowest value and end color displays the highest value.



For example, select a color to represent the minimum and maximum number of sales, as shown.



- To drill down through a visualization, apply time-specific filters on a date context. The following chart displays the filters that are selected for a context.



Creating header titles for visualizations

You can provide a meaningful name to your visualization. This helps you differentiate between various visualizations on your **Home** page.

Before you begin

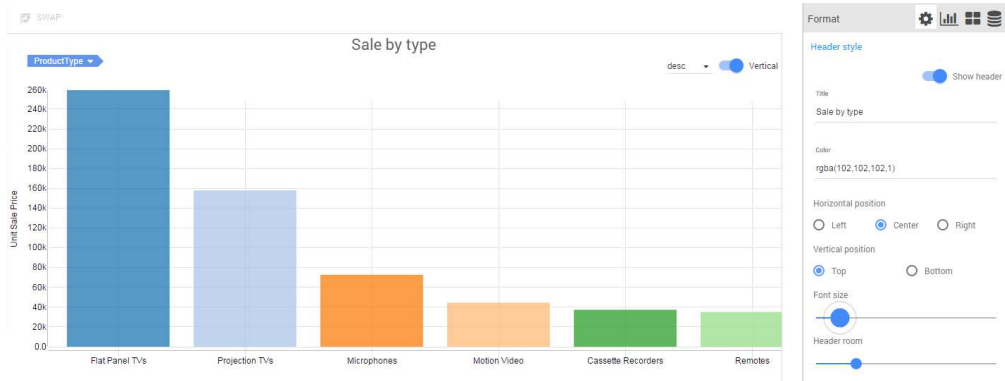
You must edit a visualization to add and modify a header.

Procedure

1. Click **Header style** in the **TOOLBOX** on the Discovery page.
2. Click **Show header**.
3. Enter a title for the visualization.
4. Click the description box to select a color from the color picker.
5. Select the horizontal position of the header.
6. Select the vertical position of the header.
7. Drag the Font size slider to adjust the font size.
8. Drag the header room slider to adjust the space below the title.

Results

The following example displays a dashboard with the unit sale price of a product that is based on the type.



Example

What to do next

Applying chart action

You can modify the way data is grouped on a visualization, sort the data, and change the orientation of the axes.

Before you begin

You must edit a dashboard to modify the visualization.

About this task

Procedure

1. Open a dashboard in edit mode.
2. Expand **TOOLBOX**, and click the **Setting** icon.
3. Click **Hide Chart action** in **TOOLBOX**, and select the following options:

Option	Description
Data Grouping	Select the type of grouping you want to apply.
Data Sorting	Select the order in which you want to sort the data.
Data orientation	Select this option to exchange the value on X axis with those on the Y axis.

Applying chart style

You can customize the data that you view on a visualization.

About this task

Procedure

1. Open a dashboard in the edit mode.
2. Expand **TOOLBOX**, and click the **Setting** icon.
3. Click **Chart style**
4. Based on your visualization, you can view and select the following options:

Option	Description
X-Axis	Displays the labels on the X-axis.
Y-Axis	Displays the labels on the Y-axis.
Short number format	Displays the values in shortened format. For example, you can view the number 1,000 as 1k.
Legend	Displays the values from the selected context. You can select the legends that you want to see in the final visualization.
Group	Combines the values that represent 80% of the highest value. The remaining values are grouped as Others.
Width	Move the slider to modify the width of the bars on a chart.
Height	Move the slider to modify the height of the bars on a chart.
Text Rotate	Move the slider to rotate the text on the X-axis.
Enter your link	Enter a link for which you want to view the KPI.
Number format	Displays the format of numeric values.
Interactive	Displays the values when you hover the mouse over data point. If this option is not selected, you can view the values only on the line.
Trend	Displays the trend of data on a chart.
Label Style	Displays different slices of a pie chart.
Format (percentage)	Displays data as a percentage.
Pie Inner Radius	Move the slider to adjust the radius of the pie chart.
showValues	Displays the values of the X axis.
Bar color	Select the color for display on the bars on a Pareto chart.
Line color	Select the color to display the line (cumulative total) on the Pareto chart.
Order	Select the order of the data. You can order the data named of the row.
Grid Size	Select the size of the grid from the list.
Map Type	Select the type of map. For example, you can select a map that displays the terrain.
Breadcrumb	Select to display the drill down path of dimensions on the chart.

Data transformation

To reduce the time that it takes to display a large data set, restrict the number of rows to analyze and display on the dashboard.

Procedure

1. Open a dashboard in the edit mode.
 2. Expand **TOOLBOX**, and click the **Setting** icon.
 3. Expand **Data transformation**, and select the data limit from the list.
 4. Click **Show Query Status** to view the last updated status of the query.
-

Viewing dashboards

You can view all of your dashboards on the **Home** page.

You can share dashboards and mark them as favorites. You can categorize your dashboards if you are working on multiple dashboards. You can view all dashboards, shared, and recently worked on dashboards.

Tagging a dashboard

To organize dashboards related dashboards into logical groups, add tags to the dashboards.

Before you begin

To add a tag, you must have editing permissions for the dashboard.

Procedure

1. Navigate to the **Home** page, and click the **List View** icon to view the list of dashboards.
 2. Click the dashboard that you want to tag, and enter the value for the tag. For example, the `GO_Sales_Discover` dashboard displays sales data. Therefore, **sales** is a relevant tag.
-

Applying a filter container

A filter container comprises different filter criterion a user wants to apply to a dashboard. This functionality helps you get a limited view of the data.

About this task

Procedure

1. Click the dashboard you want to add filters to.
 2. Expand **TOOLBOX**, and then click the **Filter** icon.
 3. Click the **Add** icon on the filter containers.
 4. From the **Field** list, select the measure or dimension.
 5. From the **Condition** list, select a comparison condition, such as Null or Is less than.
 6. Enter a value for the filter.
-

Adding filters

To limit the data displayed on a dashboard that has multiple visualizations, apply filters.

About this task

Procedure

1. Open the dashboard to which you want to apply filter.
2. Expand the **TOOLBOX** and click **Filter**
3. Select the field, condition, and enter the value.
4. Click **Plus** to add the filter to the dashboard.

Associating visualizations

You can associate two or more visualizations that are generated by two different data sources on a dashboard. This functionality provides a comprehensive analysis of the resulting data. By associating different visualizations you get to view data in a different perspective.

Before you begin

Ensure that the dashboard has two reports with two different data sources.

Procedure

1. Open the Dashboard.
2. On the **Discovery** page, click the **Association** icon in **TOOLBOX**.
3. Select the source and fields from the drop-down lists.
4. Click **ADD FIELD** and repeat Step 3.

Linking dashboards

A user can link various dashboards. This functionality enables a user to create a logical group with easy to use navigation across linked dashboards.

About this task

The user can add multiple dashboards together on the Discovery page by clicking the **Show Dashboard Links** button and adding the selected dashboards. These dashboards are displayed as hyperlinks. You can click the back arrow to view the parent dashboards.

Dashboard settings

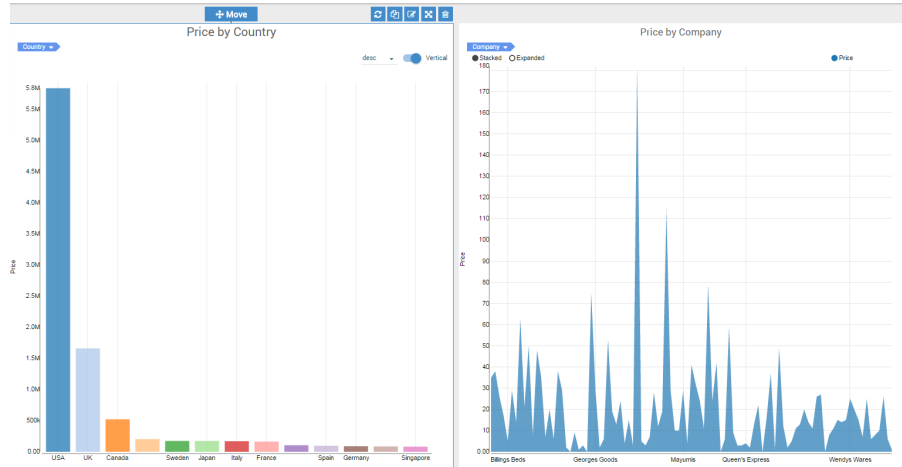
You can perform additional functions on a dashboard on the **Discovery** page.

About this task

To view the setting options, click the **Setting** icon in the **TOOLBOX**, and select the following options:

Dashboard Coordinate Highlight:

You can select a specific measure in one visualization and view it in a different context in the remaining visualizations. For example, the following image displays two visualizations with a common data source. The column graph displays the price by country, the stacked chart displays the price of items by company. If you can drill down in the column bar by country, the stacked chart displays the price of the company you selected in the column graph.



Refresh query when open dashboard

This function enables you to run a query associated with a dashboard when you open the dashboard from the **Home** page. This option ensures that the dashboard displays the latest data.

Auto Play

This function provides two ways to reload the dashboard.

Reload Dashboard

The dashboard is automatically updated at the configured time interval. This functionality is available when the report on the dashboard is created from a database.

Step through data

A specific data source and column in a dashboard is automatically updated at the configured time interval.

Chapter 11. Presentation

A user can transform dashboards into a presentation. Logically similar dashboards can be combined to create a presentation.

Creating presentations

A user can create a presentation by combining multiple dashboards.

About this task

Procedure

1. Log in to QMF Vision, and click **+PRESENTATION**.
2. On the **Discovery** page, click the **Add** icon to add a new dashboard to the presentation. The queries and dashboards associated with the presentation are also shared.
3. Click the **Play** icon to view the presentation.
4. Optional: Click the **Return** icon to return to the dashboard.

Copying presentations

A user can create copies of presentations on the Home and Sharing pages.

Before you begin

About this task

Procedure

1. Log in to QMF Vision, and click **My Presentations**.
2. Click **More** to highlight the presentations.
3. Select the presentations and click **COPY**.

Chapter 12. Sharing and collaboration

You can chat with other users and share dashboards, sources, and queries.

Sharing

Use the Sharing page to search for types of files, sources, and dashboards.

You can assign, view, and modify permissions for a user or a group of users.

Collaboration

QMF Vision provides a way for users to connect and collaborate in real time. You can chat with users, view their availability, and create chat groups.

You can share dashboard with other users through the chat functionality in following ways:

- **Home page:** Drag and drop the dashboard into the chat window.
- **Discovery page:** Click the **Share** icon in the chat window. The dashboard that you are working on is shared with the user. This functionality is helpful if you want to share a draft of your dashboard work before you finalize it.

Related tasks:

“Managing groups” on page 13

You can create a group of users. Each user in the group has permission to view or edit the group.

Sharing dashboards

You can share dashboards with other users and view dashboards that other users shared with you.

Procedure

1. Navigate to the Sharing page, and select the dashboard to share.
2. Enter the name of the user or the group that you want to share the dashboard with.
3. Select access permissions, and click **Add**.

Example

Note: By default, IBM Cognos TM1 server users do not have to establish a connection with the server to view a dashboard that is shared with them. However, to restrict users from accessing your TM1 source, QMF Vision prompts users to connect with TM1 server with their credentials to view a shared dashboard.

Click **Share with credentials** to share the dashboard with other users using your TM1 user name and password. If you do not select this option, QMF Vision prompts users to provide their TM1 user name and password.

What to do next

Alternatively, you can share the dashboard from the Discovery page by selecting **Share** from the menu.

Sharing dashboards through IBM Connections

You can share a dashboard with various communities in IBM Connections. The dashboard can be shared as a status update, bookmark, or idea from the Sharing and Discovery page.

About this task

If a dashboard is shared as a status, updates to the dashboard are visible to members of the community. A bookmark is a hyperlink of the dashboard. Members can click the link to view the dashboard. An idea is similar to a status but with added voting functionality. Members of the community can like and comment on the idea associated with the shared dashboard.

Before you begin

IBM Connections must be configured. For more information, see [Configuring social networks](#).

Procedure

1. Open the dashboard that you want to share.
2. Click the **Menu** icon, and select **SOCIAL NETWORKS > IBM CONNECTIONS**.
3. Select the mode for sharing the dashboard. For example, you can share the dashboard as a bookmark.
4. Select the communities to share the dashboard with.
5. Enter a message and click **OK**.

Chapter 13. Overview of scheduling

You can create multiple schedules to update queries and dashboards that are created using a database source.

Schedules can be configured to run at a specific minute, hour, day, week, or month. By default, a schedule is run daily at midnight. If the system encounters a predefined exception after running a schedule, an alert is sent to the user through an email.

Scheduling a task

You can create a schedule to run a task at a specific time. If a schedule fails, an email notification is sent to the owner of the dashboard.

Procedure

1. In **Toolbox**, click **Schedule**.
2. Select **Enable Schedule**.
3. From the **Refresh Frequency** drop-down list, select one of the following options:

Option	Description
By Minute	Runs the task at the specific minute
Hourly	Runs the task at the specific hour.
Daily	Runs the task daily at the specific hour.
Weekly	Runs the task every week on the selected days and specified time.
Monthly	Runs the task every month on the selected days and specified time.

4. In the **Social Network Notification** area, select any social network that you want to notify. Social networks must be configured for options to display in the **Social Network Notification** area.

For more information, see “Configuring social network” on page 10.

Chapter 14. Working with IBM Cognos TM1

You can connect to an IBM Cognos TM1 server and use the pre-defined cubes to generate dashboards.

About this task

The data in cubes can be modified through the QMF Vision user interface and gets updated in the TM1 server. This functionality is called *write back*. Any cell in the cube that has text or numerical values can be written back to the TM1 server. A consolidated value in a cell is displayed in bold. If you modify this value, all the individual values associated with it are automatically updated.

Note: QMF Vision connects to the TM1 server using the latest TM1 REST API. This requires IBM Cognos TM1 version 10.2.2 Fix Pack 3 and above.

By default the TM1 REST API is not enabled. To enable this API, edit the `tm1s.cfg` file for each IBM Cognos TM1 server.

Procedure

1. Select the IBM Cognos TM1 server, and then enter the host, user name, and password. The default value of port number is 5895.
2. Click **Connect** and select the server. In this example, Planning Sample is selected. All the cubes on the Planning Sample server are displayed.
3. Select the cube, and click **CREATE DASHBOARD**. The dashboard with the data from the cube is displayed.
4. To view shared, private, and public views, click **Views**. You can also change the current view by clicking another view.
5. View the dimensions and their hierarchy by clicking **Context**. You can search for elements within the hierarchy
6. To change the axis on which data is displayed, click **SWAP**. Additionally, you can change the axis by exchanging dimensions in Rows and Columns.
7. Click **HIERARCHY** to toggle between showing the row elements in a list or showing them in a hierarchy.
8. Select a color from the gradient by dragging a measure below the color picker.
9. To expand the hierarchy, click **EXPAND ALL**.
10. To refresh the data displayed, click **UPDATE**.
11. To show or hide empty rows and columns select the relevant option by clicking **Show empty data**.
12. To view the data as a finance statement, select **Finance** from the **Mode** drop-down list in the **TOOLBOX**.
13. To show and hide columns, click the **Toggle** option in the column header in the cross-tab.
14. Select the TI process in the **TOOLBOX**. The T1 process parameters defined on the TM1 server for the selected process are displayed.
15. Click **EXECUTE** to run the process.
16. Click **DONE**.

Searching an element

You can search an element in multiple subsets of a dimension.

Before you begin

Ensure that you are connected to an IBM TM1 server.

Procedure

1. Click the Data page and select the TM1 server.
2. Click View to see the cubes on the server.
3. Select the cube, and then click **Create Dashboard**.
4. Expand the dimension in which you want to search the element. The default subset is displayed in the **Current Subset** drop-down list.
5. Enter the element you want to search.

Searching and saving a subset

A dimension has multiple subsets and elements. A user can search for an element in a subset pertaining to a dimension and narrow the search by attributes, value of element, and the element level.

Before you begin

Ensure that you are connected to an IBM TM1 server.

About this task

The search results can be saved and used as a new subset. Drag the search result and drop it to the right panel or click the **Copy** icon to create a new subset. You can rename the new subset by clicking the **Add** icon in the right panel.

Procedure

1. Click the Data page and select the TM1 server.
2. Click View to see the cubes on the server.
3. Select the cube, and then click **Create Dashboard**.
4. Expand the dimension in which you want to search the subset.
5. Click SUBSET EDITOR, and then enter the name of the element.
6. Click **SAVE**.

Applying a label

A label is an alias that is applied on alphabetical values in cells. Caption is the default label.

Before you begin

Ensure that you are connected to an IBM TM1 server.

About this task

Procedure

1. Click the dimension to which you want to apply a label.
2. Click the **LABEL** tab.
3. Select the label you want to apply.
4. Click outside the panel to close it.

Creating a custom subset

The first custom subset is generated by the system, and the subsequent subsets are created by the user. All the custom subsets are created in QMF Vision are based on the public subsets on the IBM Cognos TM1 server.

Before you begin

Ensure that you are connected to an IBM TM1 server.

About this task

Procedure

1. Click the dimension in a row or column for which you want to create a dynamic subset.
2. Click **SUBSET EDITOR**. The default subset is displayed in the right panel. The name of the default subset is prefixed with the name of the current subset followed by New.
3. Optional: Delete some elements and save the current subset as a new custom subset.

Adding a mathematical function to a subset

You can add a mathematical function to subset.

Before you begin

Ensure that you are connected to an IBM TM1 server.

About this task

Procedure

1. Click the dimension in row or column for which you want to create a dynamic element.
2. Click the **SUBSETS** tab.
3. Click **SUBSET EDITOR**.
4. Click the **SUBSETS** tab.
5. Enter the name and formula for the subset.
6. Click **Add**.

Adding a mathematical function to an element

You can add a mathematical function to an element.

Before you begin

Ensure that you are connected to an IBM TM1 server.

About this task

Procedure

1. Click the dimension in row or column for which you want to create a dynamic element.
2. Click the **SUBSETS** tab.
3. Click **SUBSET EDITOR**.
4. Click the **ELEMENTS** tab.
5. Enter the name and formula for the element.
6. Click the **Add** icon.

Performing basic calculations

You can perform basic mathematical calculations by applying QMF Vision and IBM Cognos TM1 specific functions on the elements.

About this task

Before you begin

Ensure that you are connected to a TM1 server.

Procedure

1. Click the dimension on which you want to perform a calculation.
2. Click **BASIC CALCULATIONS** to perform basic calculations.
3. Enter the name of the element.
4. Select values from the A and B drop-down list.
5. Select one of the QMF Vision functions. If you select the IBM Cognos TM1 function, multiple values can be selected from the drop-down list.
6. Click **SAVE**.

Performing advanced calculations

Perform advanced calculations by applying Multi Dimensional Expression (MDX) based formula.

About this task

Before you begin

Ensure that you are connected to a TM1 server.

Procedure

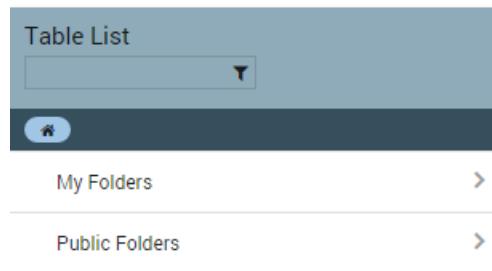
1. Click the dimension on which you want to perform a calculation.
2. Click **ADVANCED**
3. Enter the name of the element.
4. Enter the function in the *Function(dimension.element_name)* format.
5. Click **SAVE**.

Chapter 15. Connecting to the IBM Cognos BI server

A user can connect to the IBM Cognos BI server and create a dashboard.

Procedure

1. Select the IBM Cognos BI server, and then enter the server information, user name, and password.
2. Click **CONNECT**. All the folders are displayed.
3. Navigate to the folder to select the relevant cube. Alternatively, you can search for the cube in the **Table List** search box.



4. Click **Create Query**.
5. Modify the query as required and create a dashboard.

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