



BAB TECHNOLOGIE GmbH

# **DATAWAREHOUSE 2.0**

## Documentation

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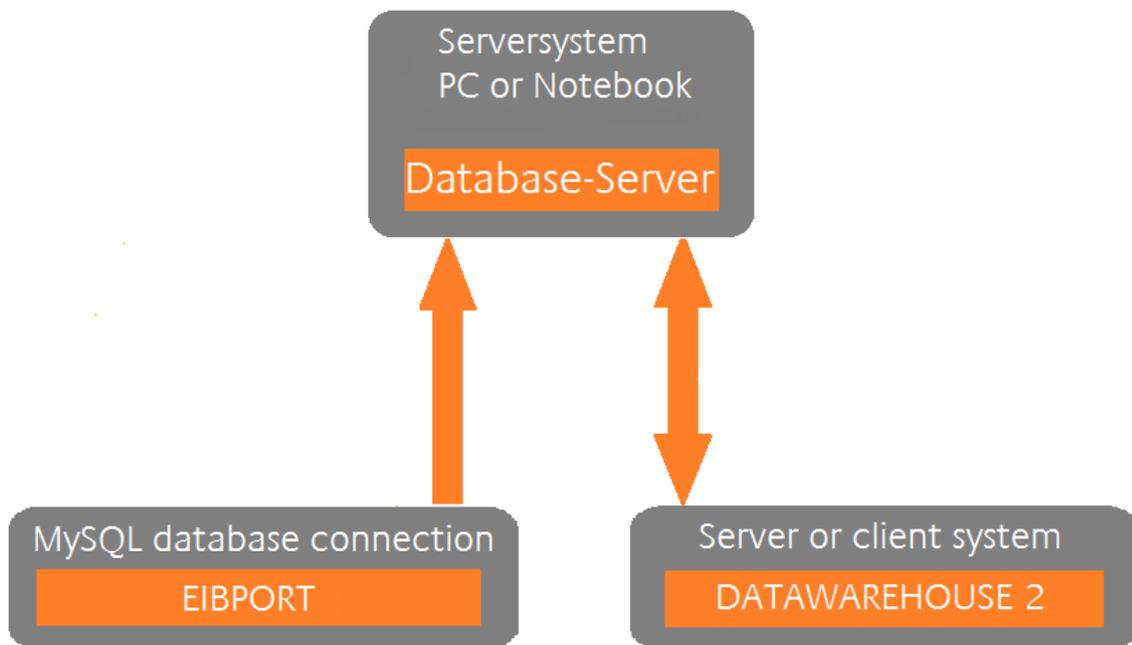
# 1 INTRODUCTION

The EIBPORT Version 3 has an internal ring memory for 500,000 telegrams, so that the last 500,000 telegrams are saved at all times. Depending on the telegram traffic in the system, the records only go back for a few weeks.

**Note: In the EIBPORT Version 2.1, the internal ring memory only contains 20,000 telegrams.**

To be able to create the telegram records over an extended period of time, it is necessary for the data to be archived from the EIBPORT to an external media. In this context, the EIBPORT provides a MySQL database connection which archives the telegram data in the MySQL database in the »Raw« format as soon as it reaches the EIBPORT. The DATA WAREHOUSE 2.0 software serves the purpose of linking this data with the correct types of data, of organising it, and of completing an evaluation of it as required.

**Note: No use of the DATAWAREHOUSE 2.0 software in the context of the DATALOGGER hardware as a MySQL server is intended. To be able to access the telegram data which is recorded by the DATALOGGER, it is therefore necessary for you to use the web interface of the DATALOGGER.**



## 2 REQUIREMENTS

The requirement for the functions described here is a MySQL server installation in the network into which the EIBPORT is able to write the data, and for which the DATAWAREHOUSE 2.0 software has access rights. Documentation on the installation of the differing MySQL server derivatives are available in the internet. The DATAWAREHOUSE 2.0 has the following requirements of the MySQL server:

MySQL Version:  $\geq 5.1.12$   
»Root«-User = SUPER Privileges

A MySQL server can be installed on a normal computer, on a server, or on an NAS hard drive. We recommend the use of an NAS drive, as it can guarantee continuous 24/7 operations, but it is not necessary to operate a complete server. You can purchase the appropriate NAS drives from us if you wish. A current installation package for the MySQL Server (»Community Server«) for a PC or server solution, including instructions, is available here:

<http://www.mysql.de>

For simple instructions, download the »MySQL Installer Community«. With the installer, you can install the MySQL Server and the MySQL Workbench (for Windows only). Follow the instructions on the screen when you install the MySQL Server. When setting up the server it is necessary to assign a password for the "root account"; this is important for the subsequent creation of a database with the DATAWAREHOUSE 2.0 on which the EIBPORT is able to write.

**Note: Becoming familiar with the material a little in advance is recommended. In particular, you should be able to access the user rights and settings of the database.**

### 2.1 CONFIGURE DATABASE WITH MYSQL WORKBENCH

The MySQL Workbench functions as a graphical interface for the administration of a MySQL database, such as the MySQL Community Server. The MySQL Workbench is included in the installation package of the MySQL Installer Community. You can install the MySQL Workbench either locally on the system on which the server operates or on another client for remote access.

Once the installation of the MySQL Server has been completed, initialise the MySQL Workbench. Log in to the root-Account which was created during the installation of the MySQL Server.

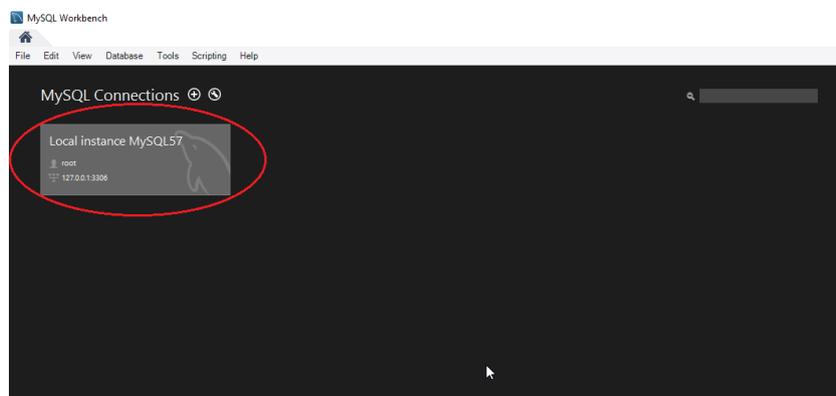


Figure 1: MySQL Workbench start page

Under Management on the left-hand side, go to the »User and Privileges« tab and highlight the "root-Account". The following configurations are now required.

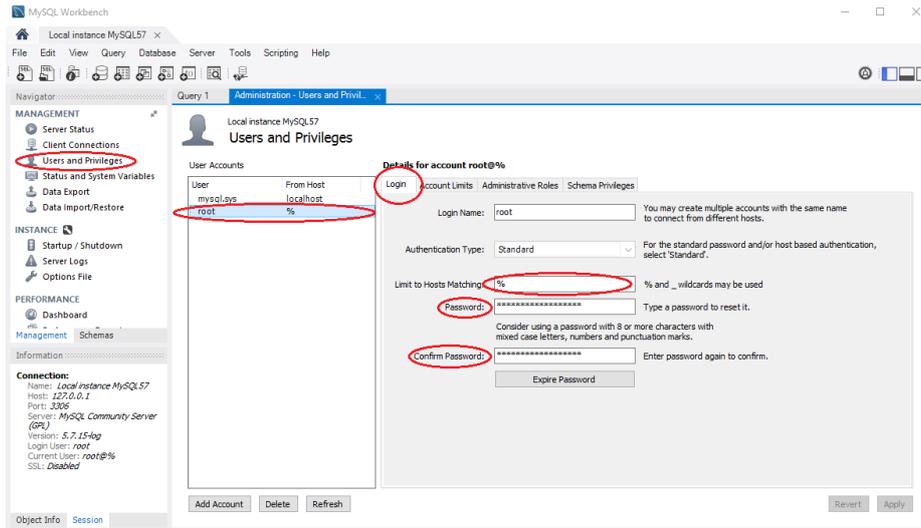


Figure 2: User and Privileges root-Account Login

**Login**

Here, change the “Limit to Host Matching” setting from “localhost” to “%”, and if necessary, set the password for the “root-Account” if the “root-Account” does not yet have a password.

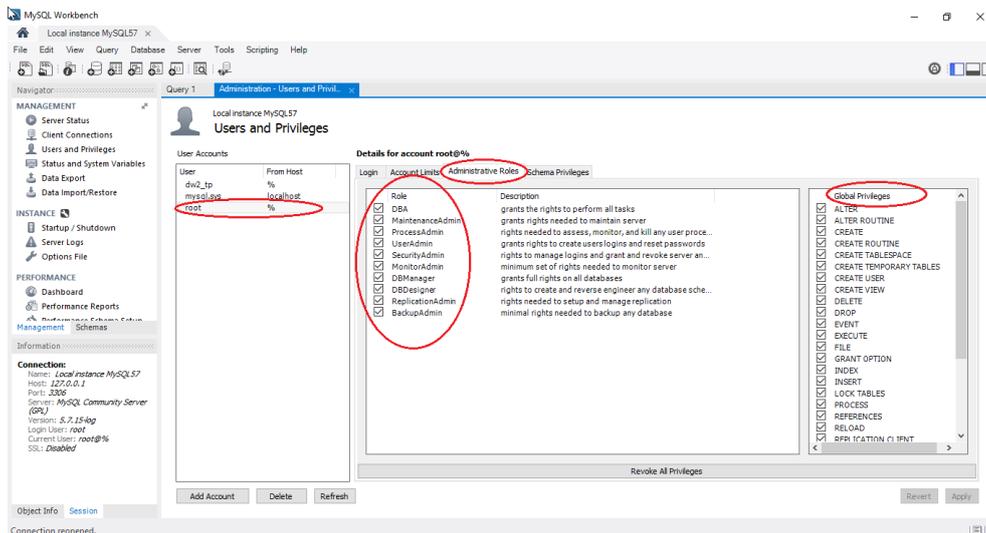


Figure 3: User and Privileges root-Account Administrative Roles

**Administrative Roles**

If it has not already taken place automatically, please change the rights for the root-Account here by checking all of the check boxes under “Role”. On this basis, the “Global Privileges” are also set automatically.

Confirm the settings with »Apply«.

Under Management on the left-hand side, now change to the »Option File« tab. The following configuration is now required here:

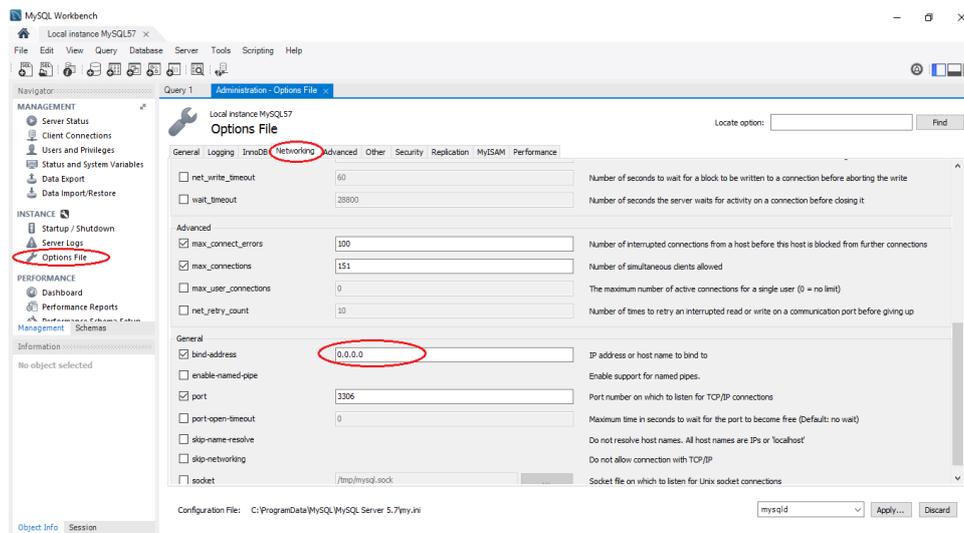


Figure 4: Option File root-Account Networking

## Networking

Change the “bind-address” from 127.0.0.1 to 0.0.0.0, so that the server responds to all IP addresses. Confirm the settings with »Apply«.

If you have created a new database and a database user with the DATAWAREHOUSE 2 as described under [Creating a database](#), it is now necessary to set their rights. Under Management on the left-hand side, go to the »User and Privileges« tab and highlight the User-Account.

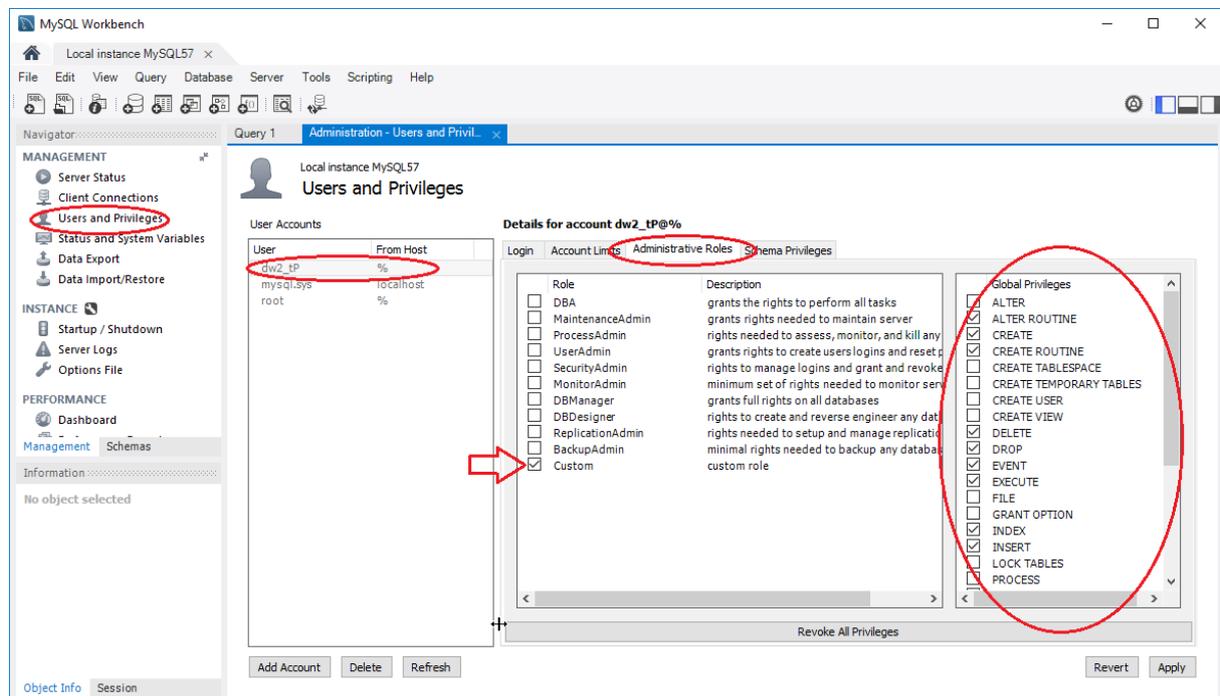


Figure 5: User and Privileges User Account Login

## Administrative Roles

This is where you activate the “Global Privileges” required for the User Account (see [Creating a database](#)).



## 3 START DATAWAREHOUSE 2.0

Once the installation of the MySQL Server has been successfully completed, it is possible for the DATAWAREHOUSE 2.0 to be started directly as a Java program. It does not need to be installed. Create a new database on an existing server with the assistant («Create Database») or create a connection with an existing database («Select Database»).

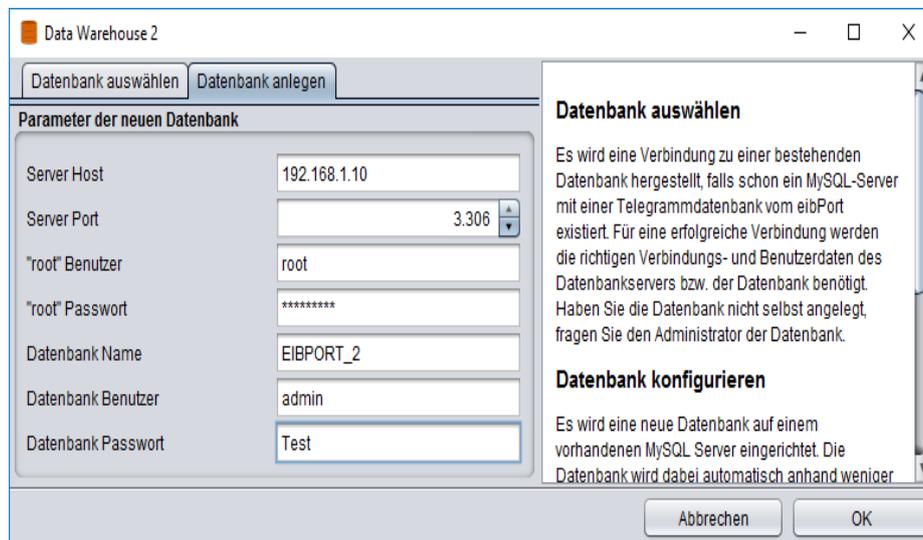


Figure 6: DATAWAREHOUSE 2.0 - Assistant

### 3.1 CREATING A DATABASE

To create a new database for the EIBPORT on an existing MySQL Server, go to the «Create Database» tab. In this respect, on the basis of a few parameters, the database is created automatically and is then especially configured for the requirements of the DATAWAREHOUSE 2.0. The following information is now required:

#### Server Host / Server Port

The IP address or the host name of the database server (e.g. on an NAS drive). The port number is entered underneath. The standard port for MySQL is 3306.

#### “root” user / “root” password

The «root» user is the administrator of the database server. They now have the rights to create new user and databases (unless you have already assigned a different user for this purpose). This user will be created when creating the database server ([Configure database with MySQL Workbench](#)).

**Note:** Ensure that the «root» database administrator has the necessary rights in advance. It may be the case that the «root» user is created without a password and only has the rights to access the server locally. It is necessary to assign a password and the user should be able to enjoy access from every host (%').

#### Database name

Specifies the name to be given to the new database (in our example, EIBPORT\_2).

#### Database user / database password

Is the user account which uses the DATAWAREHOUSE 2.0. At this point, the user data is determined (for security reasons, the DATAWAREHOUSE 2.0 should not use the «root» User Account, but its own account which has the required rights).

By clicking on «OK», the defined database with the user account is created on the server. In this respect, a table structure which is predefined by us is created (see [page 12](#)). If the process fails, a corresponding

error message is provided. Please ensure you check that everything has been created correctly on your database server (especially the user rights).

Once the database has been successfully created, a corresponding entry is created in the selection under »Select database« (see [Select database](#)).

Open the workbench again and create the rights for the previously specified user as follows:  
Under Management on the left-hand side, go to the »User and Privileges« tab and highlight the User-Account.

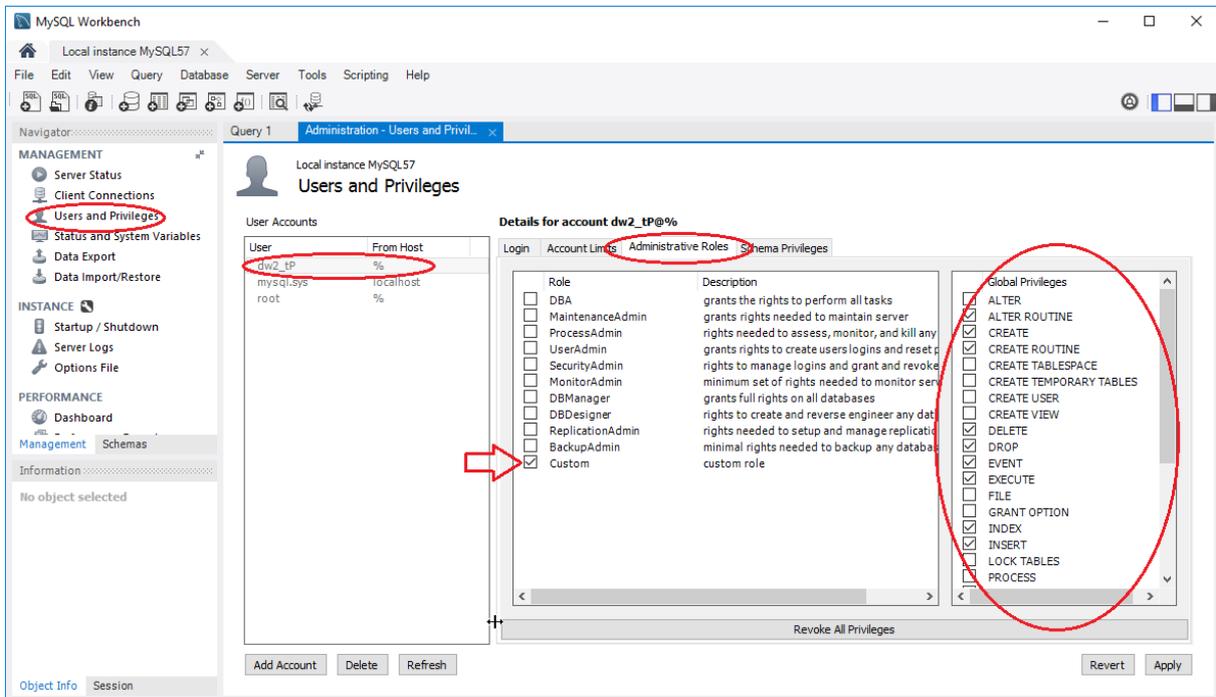


Figure 7: User rights of the new account

### Administrative Roles

The user rights that are required are shown on the following list. The “Custom-Role” is activated automatically if you activate the Global Privileges.

The DATAWAREHOUSE 2.0 database user requires the following authorisations:

- SELECT
- INSERT
- UPDATE
- DELETE
- DROP
- CREATE
- INDEX
- ALTER
- CREATE ROUTINE
- ALTER ROUTINE
- EXECUTE
- EVENT

Confirm the settings with »Apply«.



## 3.2 SELECT DATABASE

It is possible to make a connection with an existing database with »Select database«. To create a new connection, please click on »New«.

The following information is required for the connection assistant:

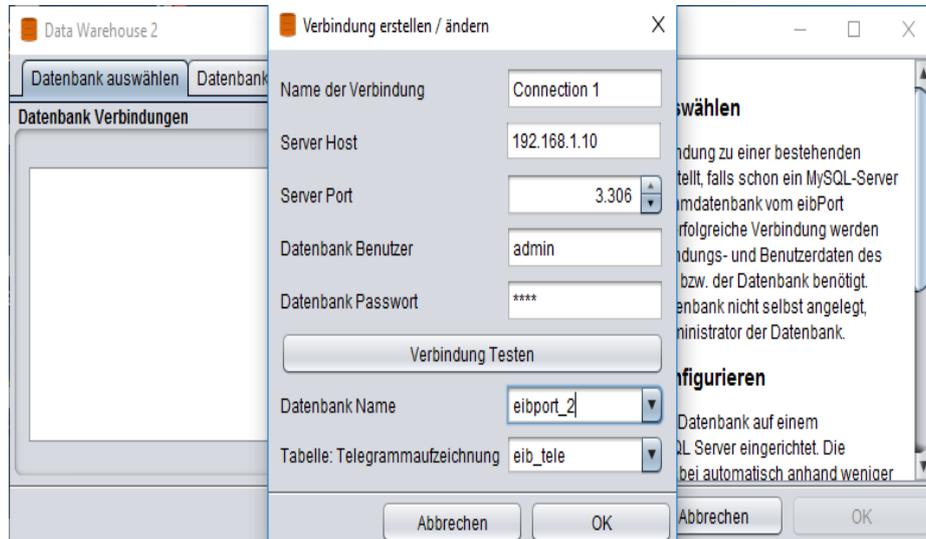


Figure 8: Create / change connection

### Name of the connection

Give the connection a name.

### Server Host

The IP address or the host name of the computer on which the database is installed.

### Server Port

The port number on which the MySQL server communicates. As long as you have not changed the port number of your MySQL, the standard port for MySQL is 3306.

### Database user / database password

The user account with which the DATAWAREHOUSE 2.0 communicates with the database server (see [Creating a database](#)).

### Test the connection

Test your connection details. In the case of a successful test, all of the databases and tables will automatically be shown in, and can be selected in, the drop-down menus underneath. If the connection fails, an appropriate error message will appear.

### Database name

To make a selection here, it is necessary for the above connection test to be completed successfully. You can then select all of the accompanying databases. You previously assigned the name of the database yourself when setting up the DATAWAREHOUSE 2.0 ([Creating a database](#)) or with a separate method.

### Table: Telegram records

For the subsequent evaluation, it is important for the correct table to be selected here. In this context, it is always necessary to select the table of the telegram records. The table with the name »eib\_tele« is in the predefined table structure!

The table structure of the DATAWAREHOUSE 2.0 database is as follows:

- dw\_eibport
- dw\_knx\_data
- dw\_knx\_groupaddress
- dw\_knx\_grouprange
- dw\_queries
- eib\_tele
- eib\_tele\_YYYY\_MM (Y = year / M = month)

**Note:** The database sorts the daily telegrams in a monthly directory following the end of each day. They are created automatically and serve the purpose of a superior performance. Further information about this is available in section *Sort function for* performance optimisation.

Once the database connection has been created successfully, it appears in the overview and is saved there in the future. To access the evaluation interface, just double click on the connection. You can change the database connections by highlighting the connection and clicking on »Change«.

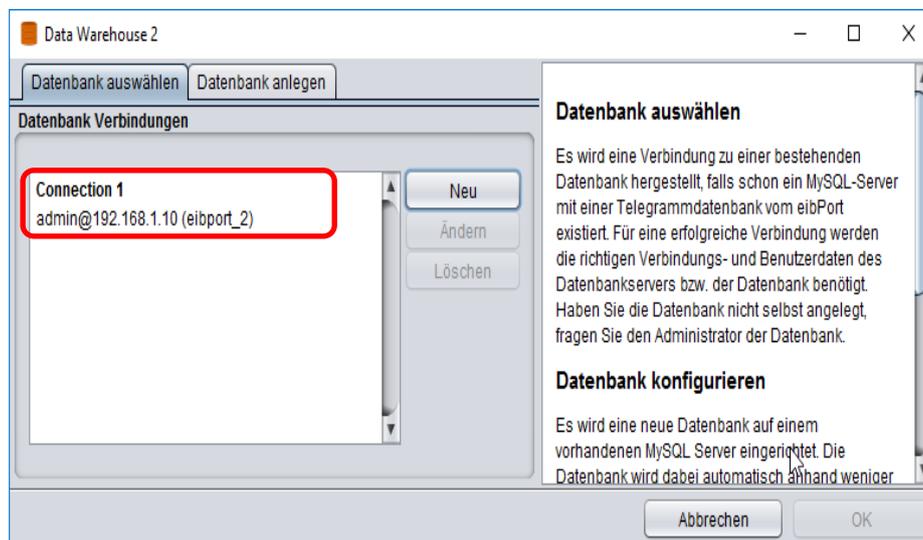


Figure 9: Database connection



## 4 CREATE DATABASE CONNECTION IN EIBPORT

If a database has been successfully created with the DATAWAREHOUSE 2.0 assistant (see [Creating a database](#)), the EIBPORT has to be prompted to write the database with data. To do this, via the system settings of the EIBPORT, open the »System« and click on the »Database« tab in the new window.

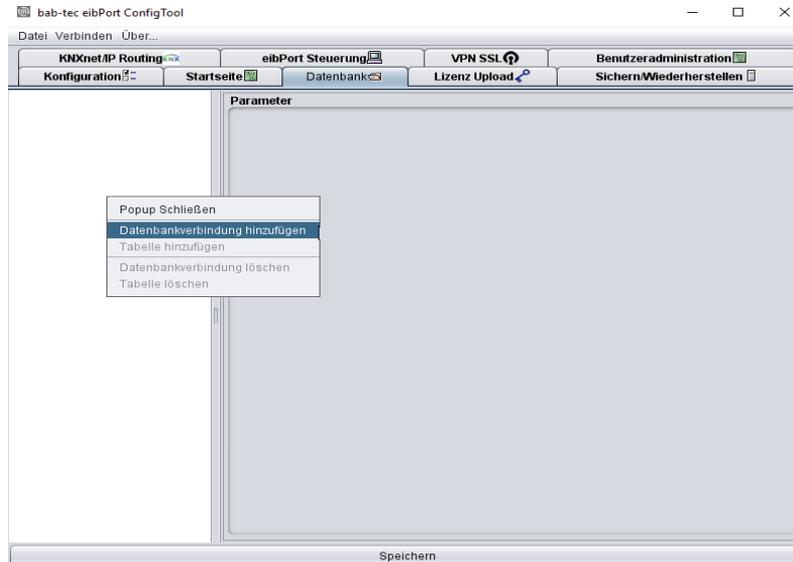


Figure 10: Database connection in the EIBPORT

### 4.1 DATABASE

Configure the database connection by right-clicking in the white window on the left and selecting »Add database connection«.

The database connection requires the following parameters:

#### Description

A clear naming of the connection (in our example, Connection 1).

#### Activate

Activates or deactivates the connection.

#### Database type

It is only possible to select the »MySQL« type.

#### Host

The IP address or host name of the database.

#### Port

The port on which the database server communicates. As long as the port has not been changed, the standard setting is 3306.

#### Database

Designates the name of the database. You set this when you created the database with the database assistant (in our example, EIBPORT\_2 [Figure 6: DATAWAREHOUSE 2.0 - Assistant](#)).

**Username / password:**



Please enter the data of the database user whom you have created in the DATAWAREHOUSE 2.0 (see [Creating a database](#)). Next, press the »Save« button below.

## 4.2 CREATING A TABLE

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For the database to subsequently contain the correct data, it is necessary to notify the EIBPORT the table in which it is to write. To do this, in the EIBPORT, click on the newly created database connection with the right mouse key and select »Add table«. With this configuration, you have the following parameters:

### Description

A clear labelling of the table (e.g. »Telegram records«).

### Activate

Every newly created table is activated as standard. It can be deactivated as required.

### Type / name

For the evaluation of the telegram data, only the »eib\_tele« table is of relevance.

### Generate SQL instruction

To create the required structure on a database server, with this function, it is possible to generate an SQL instruction. This can then be copied and run on the database server. For the DATAWAREHOUSE 2.0, this is not required. The program has already created the data structure (see [Creating a database](#)).

### Save

It is necessary for the settings to be saved with the »Save« button before the EIBPORT writes in the database.

## 4.3 CHECK DATABASE CONNECTION

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### 4.3.1 FROM EIBPORT VERSION 3

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The connection between the EIBPORT and the database server can be checked via the EIBPORT web interface. For this purpose, enter the following address in the address line of your browser and log in with the EIBPORT administrator account of your EIBPORT.

`http://<EIBPORT_IP>/report/service/`

Once you have pressed »Enter«, under the »MySQL Status« tab, you will find a page which will provide you with the »eibPort database status«. You will find information about the status of the connection there ([Figure 1.1: EIBPORT - database status](#)).

### 4.3.2 EARLIER VERSIONS OF EIBPORT

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To check the connection from the EIBPORT to the database server, a small .cgi script is available in the EIBPORT which can be activated via a website. To do this, enter the following address in the address line of your browser:

`http://<EIBPORT_IP>/cgi-bin/db_statecgi`

Once you have pressed »Enter«, a page appears which will provide you with the »eibPort database status«. You will find information about the status of the connection there.



### 4.3.3 EIBPORT DATABASE STATUS

Once the connection with the table »eib\_tele« has been successfully made, the output is as follows:



Figure 11: EIBPORT - database status

Both the status of the connection with the database and the connection status with the corresponding table are shown. It is also stated whether the connection is activated (»Status: enabled«) and whether the connection is active and/or the connection is successful (»Active?: yes«).

If it is not possible to create the connection, a »no« will be displayed in the »Active?« line, and an error message such as »Access denied...« due to incorrect user data will appear in the line below. Next, check the settings in the EIBPORT, change them as required, and save the connection again. To request the database status again it is necessary for the aforementioned URL to be activated again.

**If you do not want to use the database connection any more, then remove the connection in the EIBPORT (see Figure 10: Database connection in the EIBPORT). If the database server is switched off for an extended period of time, deactivate the connection as described under Database. This is important, as otherwise the EIBPORT will continue trying to establish a connection in the background.**

## 5 LICENSING THE DATAWAREHOUSE 2.0

To upload a valid license in the DATAWAREHOUSE 2.0, please use the menu »Help« → »license« in the main window of the DATAWAREHOUSE 2.0. The main window opens as soon as a database connection has been selected.

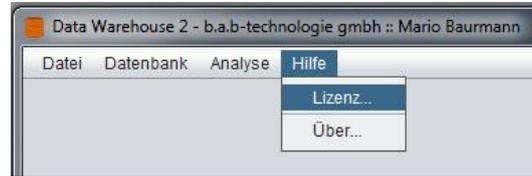


Figure 12: Help Menu license

A license for the DATAWAREHOUSE 2.0 can be requested via [info@bab-tec.de](mailto:info@bab-tec.de). Without a license, you cannot export any data from the DATAWAREHOUSE 2.0.



## 6 DATABASE EVALUATION

If a database connection has been established with an existing database as described in section 4 and it contains the appropriate data, an evaluation can be created. Double click on the connection so as to enter the main window of the DATAWAREHOUSE 2.0.

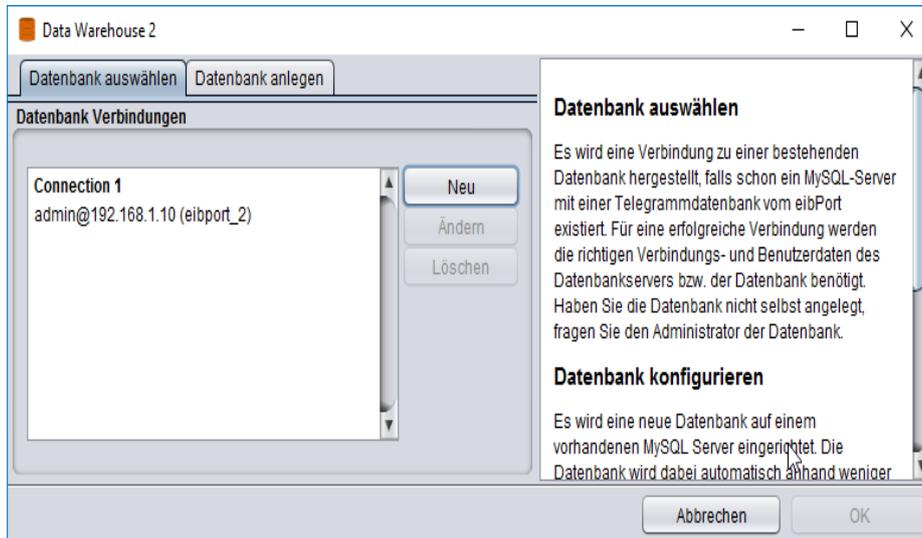


Figure 13: Select database

### 6.1 CONFIGURE EIBPORT

Information about the different types of data are required for the DATAWAREHOUSE 2.0 to be able to interpret the telegram data correctly. The ESF data serves this purpose (ETS address file) which the EIBPORT also uses. The data is loaded in the database and connected with the telegram data. Once loaded, it is always available to you in the future.

For this purpose, in the DATAWAREHOUSE 2.0, select the »Database« → »Configure eibPort...« menu. All EIBPORT are automatically displayed which write into the selected database. The EIBPORT name and the appropriate serial number then appears. Two options are available to you for loading the ESF data in the database:

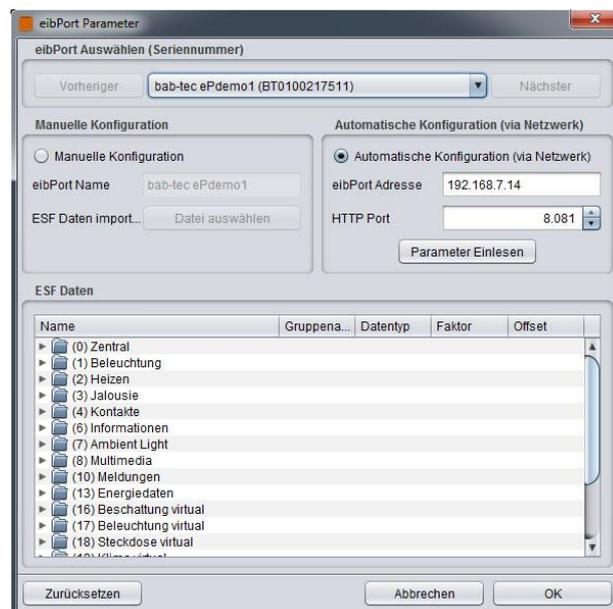


Figure 14: Configure DATAWAREHOUSE 2.0 - EIBPORT



## 6.1.1 MANUAL CONFIGURATION

---

The address data are loaded manually, e.g. from the hard disk of the client computer in the DATAWAREHOUSE 2.0. The connection takes place automatically.

### **eibPort Name**

The best idea is to use the same name as the one for the EIBPORT.

### **Import ESF data**

The ESF data come from the ETS and contain information about the designator and the data type of the addresses. Select the appropriate file here (with the ending \*.esf). The imported data are shown in the »ESF Data« window. Confirm the process with »OK«, the file is then saved in the database.

**Note:** The .esf file only contains the data type EIS 1. All of the other data types are connected in the .esf file as »unknown« and have to be assigned manually. Alternatively, they can also be loaded from the EIBPORT if the assignments have already been made there.

## 6.1.2 AUTOMATIC CONFIGURATION (VIA NETWORK)

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This function allows you to load the address file directly from the EIBPORT (if it is available there) into the DATAWAREHOUSE 2.0. For this purpose, the host name or the IP address and the HTTP port of the EIBPORT have to be stated.

### **Read parameters**

The ESF data is transferred automatically from the selected EIBPORT. The data are then shown in the »ESF Data« window. By clicking on the »OK« button, the selection is confirmed and written in the database.



## 7 CREATING A QUERY

To be able to create an evaluation of specific telegram data, it is necessary for a query of the database according to the time frame and group addresses to take place. A query is configured via the »Create query« tab. The period and address filters can be determined there.

### 7.1 PERIOD

Either the monthly archive or a randomly definable time span are available for the selection of the time frame.

#### Monthly archive

The monthly archives are created automatically by the database. The new monthly archive is written immediately after the end of the first day of a month. This takes place automatically at 0:05 every day with a so-called »Event Scheduler«.

**Note:** Please be sure to take the information on the Event Scheduler in part 10.3 at the end of this document into account in order to guarantee its flawless functioning.

In addition to the monthly archives, the »Live records« selection is also available. This contains all the telegrams of the current day.

#### Time span

With this menu, you can select random time frames from a calendar overview which can then be filtered according to the required group addresses.

### 7.2 ADDRESS FILTER

The address filter contains all of the group addresses which can be added to the evaluation. With »Add«, a selection menu opens in the device (several EIBPORT are able to write in a database) and it is possible for addresses to be selected.

#### Select EIBPORT

Several EIBPORT can write in each database. The database is able to differentiate the information using the EIBPORT serial numbers. To make it easier for the user, the EIBPORT name is also displayed.

#### Manual address input

Enter the group address, the correct data type and a description of the group address.

Figure 15: Creating a query

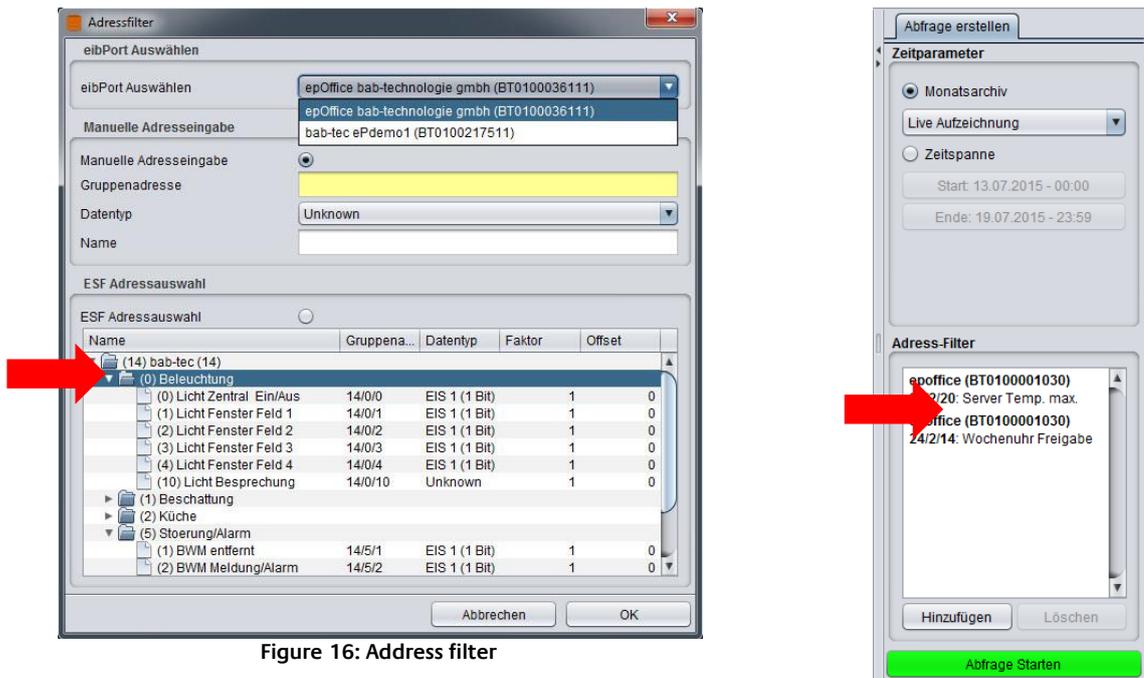


Figure 16: Address filter

### ESF address selection

The database obtained the address information via the menu item »Database« → »Configure eibPort« (see part 6.1.1). To select a address, highlight it with the mouse and click on »OK«. It is only possible to select one address at the same time. The selected addresses are then shown in the "Address filter" window.



## 7.3 START QUERY

Once you have defined a time frame and selected one or several group addresses, with the »Start query« button, you can filter the appropriate data from the database. This query may take some time, depending on the scope of your query and the computing power of your database server.

A window will appear with the name »Create query1«. All of the data are listed in successive order and sorted according to the time. It is possible to determine which information is shown with the »Select columns« button.

eibPort Name	Seriennummer	Gruppenadre...	Name	Datentyp	Wert	eibPort Zeit	Datenbank Z...	Quelltyp	Physikalisch...
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	50,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/13	Start/Pause (...)	EIS 1 (1 Bit)	1,00	03.04.2017 1...	02.04.2017 2...	BMX_TCP	Virtuelle GA
EIBPORT LA...	BT01002059...	8/0/13	Start/Pause (...)	EIS 1 (1 Bit)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	2.7.0
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/6	Lautstärke a...	EIS 6 (1 Byte)	1,00	03.04.2017 1...	02.04.2017 2...	EIB	4.7.12
EIBPORT LA...	BT01002059...	8/0/13	Start/Pause (...)	EIS 1 (1 Bit)	0,00	03.04.2017 1...	02.04.2017 2...	BMX_TCP	Virtuelle GA
EIBPORT LA...	BT01002059...	8/0/13	Start/Pause (...)	EIS 1 (1 Bit)	0,00	03.04.2017 1...	02.04.2017 2...	EIB	2.7.0

Figure 17: Created query

## 8 EXPORTING / EVALUATING DATA

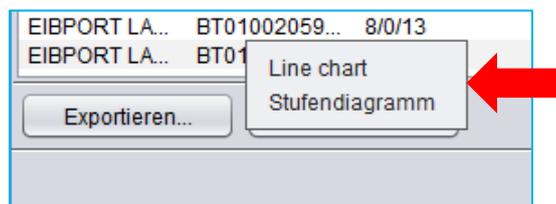
Above all else, the DATAWAREHOUSE 2.0 is an additional program for the organisation of the arising data and for its correct interpretation according to the ETS Information. In addition to this, it has the purpose of retrieving and exporting the values to be sent for a graphic evaluation from the database.

### Export

The data which is previously collated on the basis of the defined query are exported in the form of a »Comma Separated Value« file (\*.CSV). As a universal format, this data can then be used by additional programs in order to generate a graphic evaluation (e.g. in Microsoft™ Excel).

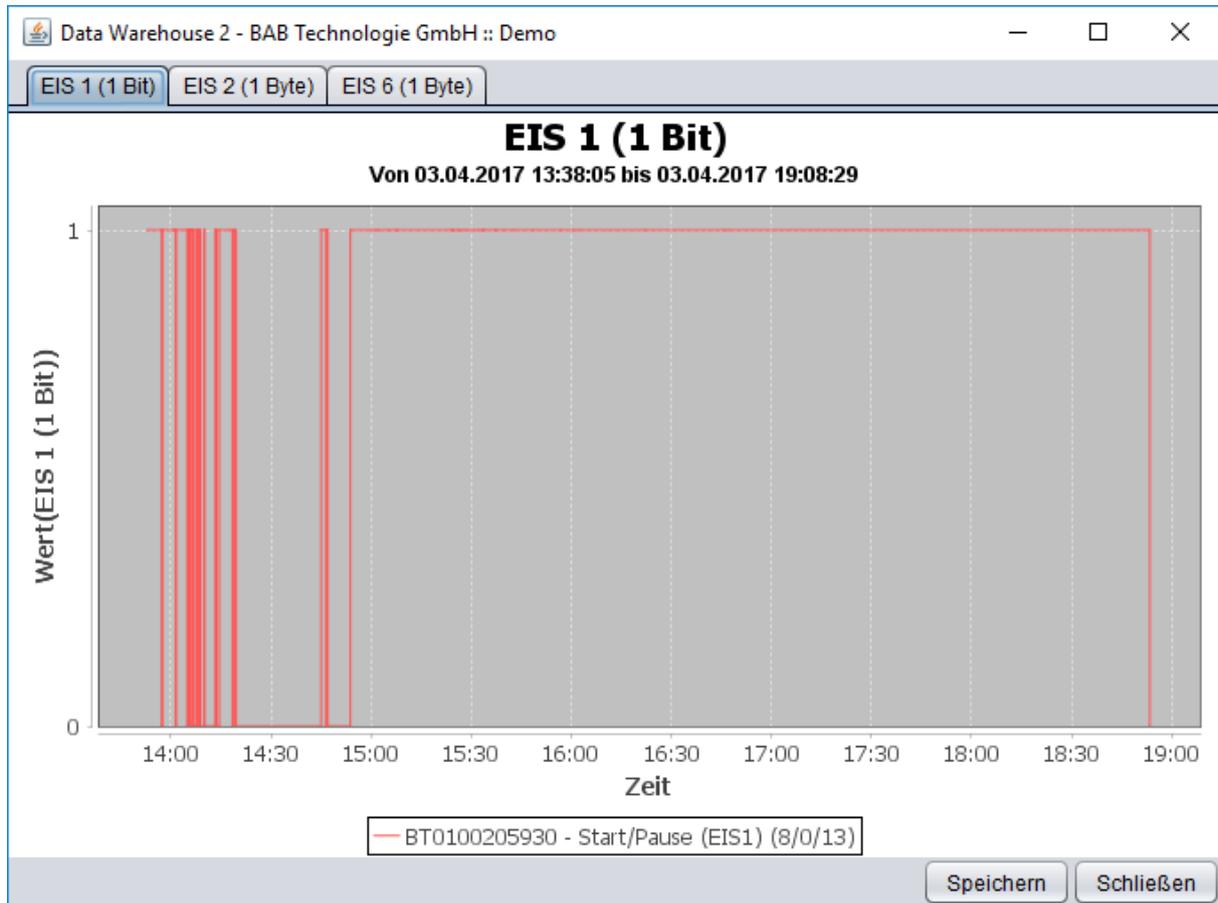
### Evaluate

The data which is previously collated on the basis of the defined query can be graphically evaluated here. You can decide between 2 views (line chart or bar chart).



**Please note that it is only possible to evaluate data types with numerical values.**

The diagram opens in a new window, and an individual tab is created for every data type to be selected.





## 9 ANALYSIS

The »Analysis« menu item provides some ready-made database queries in the form of an analysis. It is therefore possible to query some general statistics via the database and/or via the telegram traffic in the system.

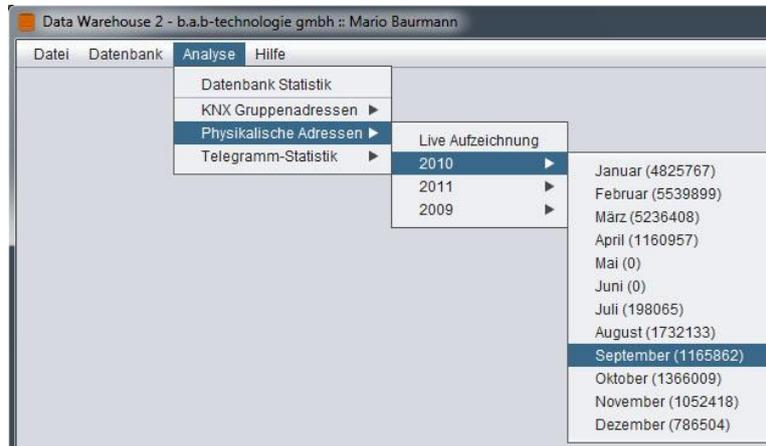


Figure 18: Analysis - statistics

### Database statistics

Shows an overview of the different tables (monthly archive) the number of telegrams they contain, and how much memory space they require.

### KNX Group addresses

Queries a telegram count, sorted according to group addresses. The query can occur for either the live records (the current day) or for the individual monthly archive.

### Physical addresses

Here, the telegram count is sorted according to the physical addresses. The query occurs for either the live records (the current day) or for the individual monthly archive. The information »Virtual GA« describes the physical address at which all of the virtual addresses of the EIBPORT are sent.

### Telegram count

Creates a telegram count, grouped according to months or individual days. If an individual day is selected, the overall telegram rate is divided into 1h blocks. If a month is selected, it is divided into days.



## 10 IMPORTANT INFORMATION ON THE USE OF THE DATABASE

It is necessary for the database to fulfil various requirements for the DATAWAREHOUSE 2.0 to be able to work with an optimum performance. In this context, the recorded data are sorted at 0:05 every day. If telegrams are already available in the records, depending on the amount of data and the performance of the database server, the initial sorting can take a few hours. During this time, the database server should not be shut down. Before shutting down, for safety reasons, you should also backup the database.

The criteria for the optimum operation can be arranged as follows:

### Telegram records

This part consists of two components: First of all, a function is created with which dynamic new tables of records can be created, after which an initial records table is created in which the EIBPORT is able to write telegrams.

### Data Warehouse Userspace

The DATAWAREHOUSE 2.0 saves settings and ESF data in the database. Some additional tables are also created.

### Sorting module

The sorting processes optimise the recorded data by arranging the data according to the month and saving it.

### Sorting event

The sorting modules are initialised daily at 0:05. In this context, an event is created which is initialised automatically by the MySQL Server and the optimisation begins. For the daily optimisation to take place, it is necessary for the Event Scheduler to start.

To create these conditions, the user of the DATAWAREHOUSE 2.0 database has to hold the rights for the database server as described in part 10.1 .

## 10.1 USER RIGHTS FOR THE DATABASE USERS

The DATAWAREHOUSE 2.0 database user requires the following authorisations:

- SELECT
- INSERT
- UPDATE
- DELETE
- DROP
- CREATE
- INDEX
- ALTER
- CREATE ROUTINE
- ALTER ROUTINE
- EXECUTE
- EVENT

Alternatively, these can also be assigned via »phpMyAdmin«, »MySQL Administrator« or the command line.

Under Windows, start the command line via »Start« → »cmd.exe« and enter »cd <Path>« in order to change to your MySQL installation in the »bin« directory. By inputting



```
mysql --user=root <Database name>
```

you connect to your database as a »root« user. The database user can be created via the command line with the following command on the MySQL server:

```
CREATE USER '<Username>'@'%' IDENTIFIED BY '<Password>';
```

The following syntax is used when allocating the authorisations:

```
GRANT <Command> ON '<Database name>'. * TO '<Username>'@'%';
```

The following terms can be used for <Command>:

SELECT, INSERT, UPDATE, DELETE, DROP, CREATE, INDEX,  
ALTER, CREATE ROUTINE, ALTER ROUTINE, EXECUTE, EVENT

More information on the MySQL administration is available here:

<http://dev.mysql.com/doc/refman/5.7/en/index.html>

## 10.2 SORT FUNCTION FOR PERFORMANCE OPTIMISATION

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Once the DATAWAREHOUSE 2.0 has »prepared« the database, hat, there is a table with the designation »eib\_tele« in which the EIBPORT writes its data. To prevent excess table data from slowing down smaller servers with the less RAM (e.g. NAS hard disks), the data records are resorted every day. In this context, the sorting function starts during the night at 0:05 (see part 10.3). The data records are therefore arranged in monthly archives.

The tables are then named as follows: »eib\_tele\_2010\_01«, »eib\_tele\_2010\_02«, »eib\_tele\_2010\_03« etc. In these tables, with an average telegram rate (4 telegrams / second), there will be approx. 10 million data records per month.

**Note: On a slower server, only one EIBPORT should log into a database, although several databases can run on one server. On a high-performance server, several EIBPORT can write into a database without any problems.**

## 10.3 ACTIVATE EVENT SCHEDULER

The Event Scheduler is required to enable the sorting of the data every night. It can only be activated if the database user has »SUPER« rights. These can also be assigned via the command line, as explained in part 10.1:

```
GRANT SUPER ON 'Database name'. * TO 'Username'@'%';
```

If the Event Scheduler isn't activated, the message shown in figure 11 appears. If the database user has »SUPER« rights, the Event Scheduler is activated automatically by clicking on »Yes«. However, this parameter is lost if the MySQL server is restarted. To activate the Event Scheduler at the start of the server, it has to be specified in the configuration of the MySQL server.

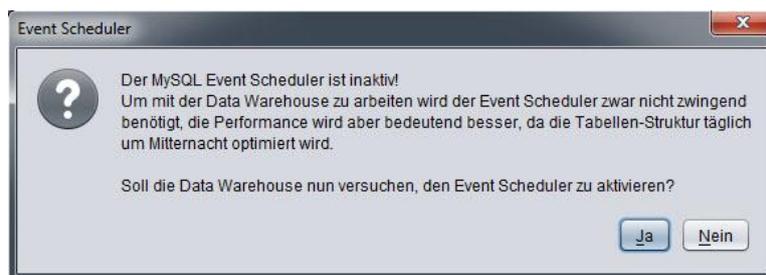


Figure 19: »Event Scheduler inactive« message

To activate the Event Scheduler manually, you have to start by connecting to your MySQL server, as described in part 10.1. The Event Scheduler can now be activated with the help of the command

```
SET GLOBAL event_scheduler = ON;
```

via the command line on the MySQL server.



## 11 TROUBLESHOOTING

Most error messages which can occur due to the use of the DATAWAREHOUSE 2.0 software consist of MySQL specific error messages. Information on the handling of errors is available in the MySQL Reference Manual at <http://dev.mysql.com/doc/refman/5.7/en/error-handling.html>.

With the »perror« MySQL tool, it is possible to show the MySQL error codes. In Windows, the »perror.exe« is located in the »bin« folder of your MySQL directory. To do this, start the command line via »Start« → »cmd.exe« and with

```
cd <Path>
```

change to the »bin« directory. By adding

```
perror <Errorcode>
```

 to the command line

it is possible to activate explanations of the appropriate error code. Further explanations on »perror« are available here: <http://dev.mysql.com/doc/refman/5.7/en/perror.html>

A listing of the server-related MySQL error codes (Error: 1xxx), and the client-related MySQL error codes (Error:2xxx) and their meaning can also be found under the following addresses:

<http://dev.mysql.com/doc/refman/5.7/en/error-messages-server.html>

<http://dev.mysql.com/doc/refman/5.7/en/error-messages-client.html>

If you experience problems with the DATAWAREHOUSE 2.0 software despite this, please contact our support team:

Email: [info@bab-tec.de](mailto:info@bab-tec.de)

Tel.: +49 (0) 231 – 476 425 – 30

Fax: +49 (0) 231 – 476 425 – 59

We welcome your suggestions!



## 12 INFORMATION ON FUNCTIONAL SAFETY

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The purpose of this software is logging the data of the KNX bus system. It therefore serves the purpose of collecting data from values which are generated by applications of risk classes III and IV (according to IEC 65A (SEC) 123). If data from higher risk classes are logged, it is necessary for the operator of the software to take the appropriate risk avoidance measures.

Liability and claims for damages for the direct or indirect results of the malfunctioning of the software are hereby excluded.

Please also refer to the building systems technology handbook, Principles of ZVEI/ZVEH.