



BAB TECHNOLOGIE GmbH

DATAWAREHOUSE 2.0

Documentation

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BAB TECHNOLOGIE GmbH

Hörder Burgstr. 18
44139 Dortmund

info@bab-tec.de

Tel.: +49 (0) 231 – 476 425 – 30

Fax: +49 (0) 231 – 476 425 – 59

www.bab-tec.de



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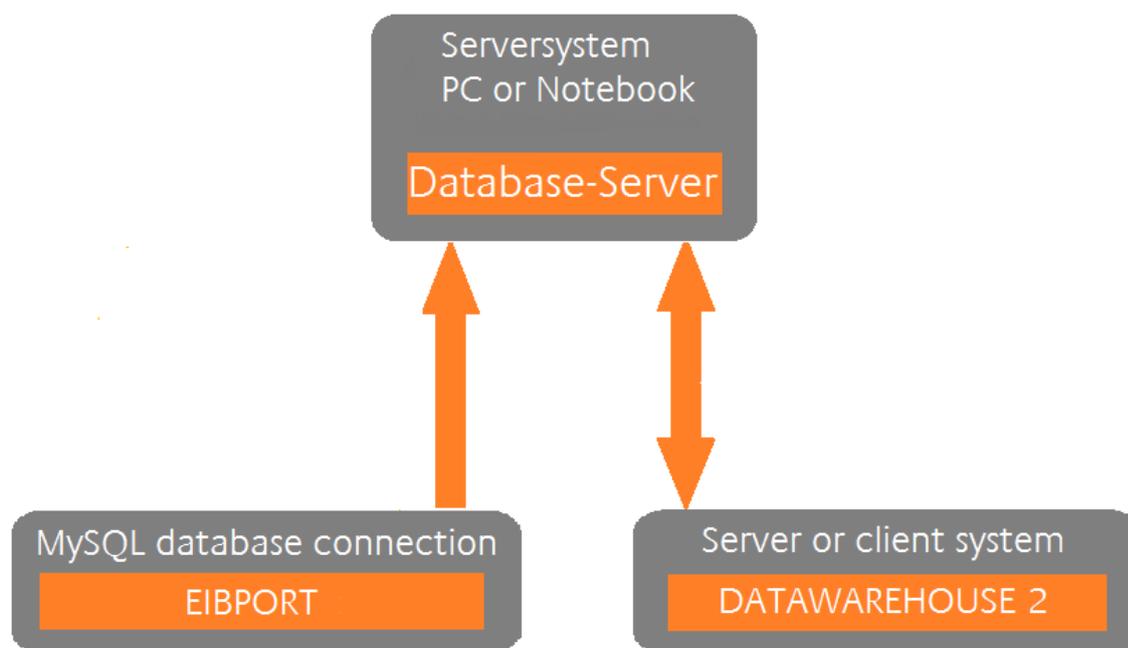
1 INTRODUCTION

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 SQL database connection (e.g. MySQL, MariaDB) which archives the telegram data in the SQL database in the »Raw« format as soon as it reaches the EIBPORT. The DATAWAREHOUSE 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 SQL 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 MARIADB COMMUNITY SERVER

2.1 REQUIREMENTS

The prerequisite for the functions described here is a SQL Server installation in the network to which the EIBPORT can write the data and to which the DATAWAREHOUSE 2.0 software has access rights. Documentation about the installation of the different MariaDB Server versions can be found on the Internet. The DATAWAREHOUSE 2.0 places the following requirements on the MariaDB server:

»Root«-User = SUPER Privileges

Note: The examples and settings in these instructions refer to the server version that is shown in the illustrations. For other versions, the security settings and authentication may have changed, which could cause connection problems.

For the MariaDB Community Server, downloads are available for several hardware and the respective operating system, as well as a normal Windows PC. The description in this manual refers to the Windows PC and can also serve as a template for other systems, such as NAS drives. Due to the variety of products and technical features, we cannot offer any support for this and you should have the necessary knowledge yourself.

<https://mariadb.com>

The download for MariaDB Community Server is "free" software and the version described was available at the following link.

<https://dln.mariadb.com/2690840/MariaDB/mariadb-10.10.2/winx64-packages/mariadb-10.10.2-winx64.msi>

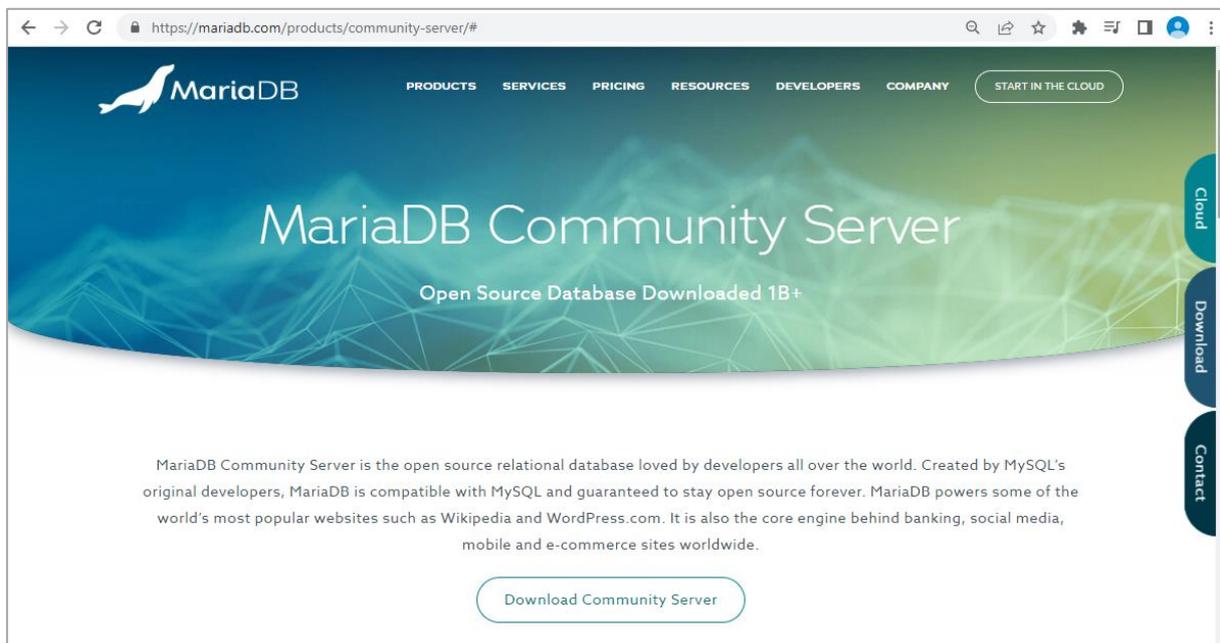


Figure 1: MariaDB COMMUNITY SERVER -Products



In the Version area, select the appropriate software and also the selection of the operating system and OS, i.e. MS Windows (64-bit), with which the settings in these instructions were tested.

Complete the free download and then install it on your PC.

No registration is required.

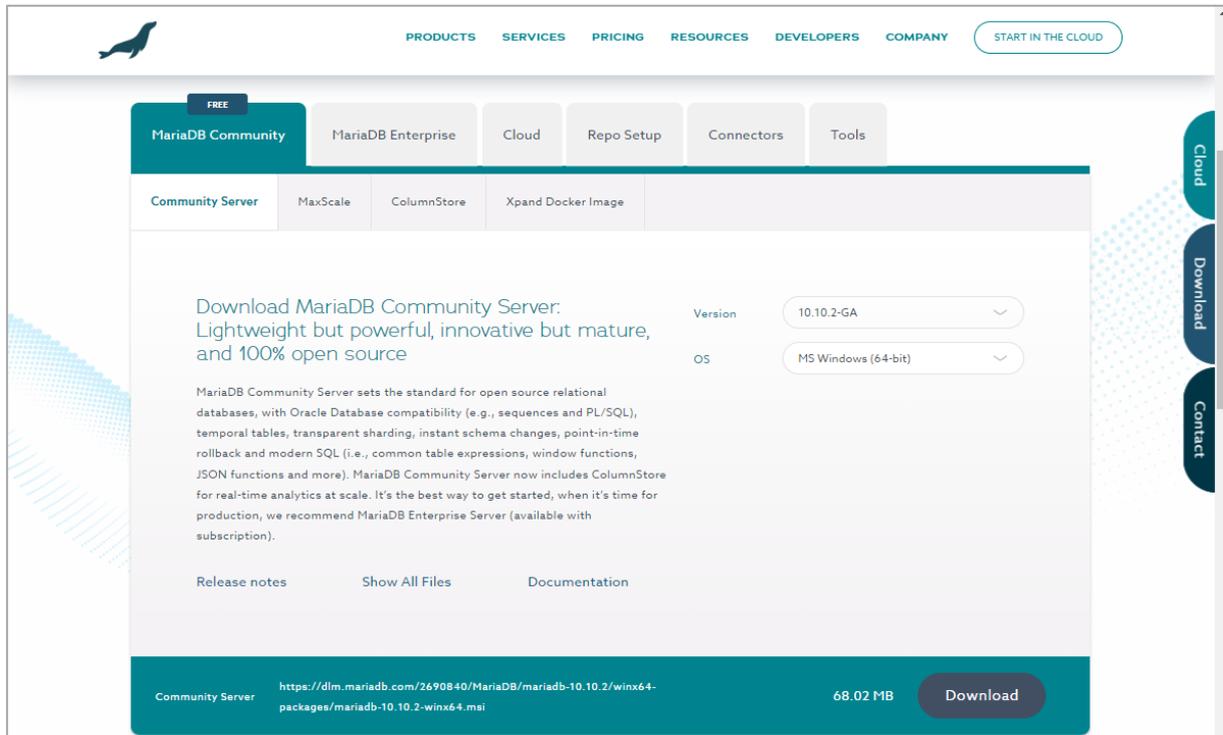


Figure 2: MariaDB COMMUNITY SERVER –Products - Download

Note: It is recommended that you familiarize yourself with the subject matter beforehand. In particular, you should be able to access the user rights and settings of the database.

Product update

To keep the products of your SQL applications up to date or to make changes, use the information from the respective manufacturers of these software modules. When using it, however, you must be aware that these changes have an impact on database communication, which we cannot influence.

Version notice: According as it shown in to the illustration, the settings under MariaDB have been successfully tested with the versions shown in the pictures and the respective current updates for the Windows operating system.

We have no influence on functional restrictions caused by subsequent updates of the SQL server software or security updates of the Windows operating system. You are responsible yourself for carrying out updates, if necessary use other SQL server versions.

2.2 CONFIGURATION OF MARIADB AT WINDOWS CLIENT HEIDISQL

As a free SQL client under Windows, the database system MariaDB offers HeidiSQL in the bundle. During the installation process of the MariaDB Community Server, a root account is created and as well the configuration menu for HeidiSQL.

Modify password for database user ,root': Enter a password as administrator (root user) for the MariaDB server.

Enable access from remote machines for ,root' user: You should only enable this function if you are sure that remote access is desired, taking into account all access privileges.

Use UTF8 as default server's character set: Enable that function.

The screenshot shows the 'User settings' dialog box for MariaDB Server. It is titled 'User settings' and has a 'MariaDB Server' logo in the top right. The main heading is 'Default instance properties' for 'MariaDB 10.10 (x64) database configuration'. There are three checked checkboxes: 'Modify password for database user 'root'', 'Use UTF8 as default server's character set', and 'Enable access from remote machines for 'root' user'. The 'Data directory' is set to 'C:\Program Files\MariaDB 10.10\data\'. There are 'Back', 'Next', and 'Cancel' buttons at the bottom. The 'Next' button is highlighted with a blue border.

Figure 3: MariaDB Server - Root Account

The properties should be left at the default values. At least the **TCP port** should be set to 3306.

The screenshot shows the 'Database settings' dialog box for MariaDB Server. It is titled 'Database settings' and has a 'MariaDB Server' logo in the top right. The main heading is 'Default instance properties' for 'MariaDB 10.10 (x64) database configuration'. There are two checked checkboxes: 'Install as service' and 'Enable networking'. The 'Service Name' is 'MariaDB', the 'TCP port' is '3306', the 'Buffer pool size' is '1979 MB', and the 'Page size' is '16 KB'. There are 'Back', 'Next', and 'Cancel' buttons at the bottom. The 'Next' button is highlighted with a blue border.

Figure 4: MariaDB Server – Properties

After completing the configuration, open the configuration for Heidi SQL.



2.2.1 AUTOMATIC CONFIGURATION OF THE DATABASE CONNECTION AND USERS WITH DATAWAREHOUSE 2

Open the application (icon) HeideSQL to create your (new) database connection in the MariaDB server.

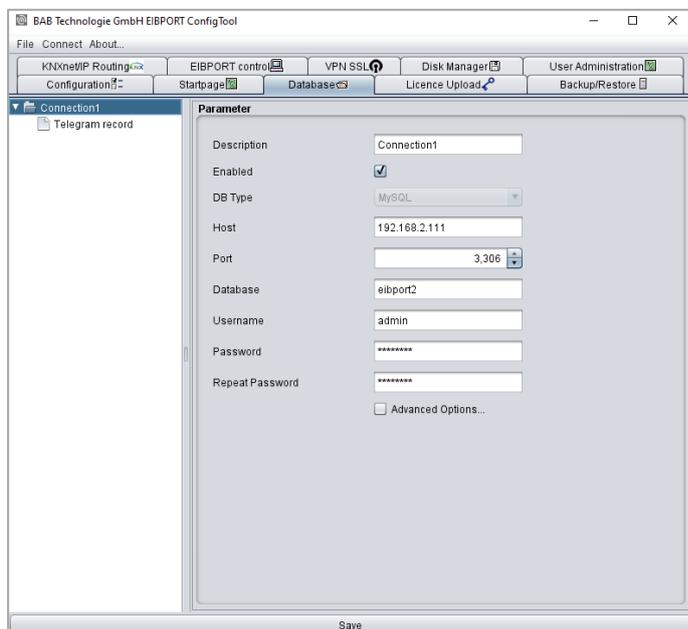


Figure 5: EIBPORT system – Database

The data of your database is entered in the HeidiSQL configuration menu.

- **Session name**; enter or edit, our example „**Connection 1**“
- **Hostname/IP**: leave on „127.0.0.1“
- **Password**; your password for the server
- **Databases**: „**eibport2**“

Save the entries and changes.

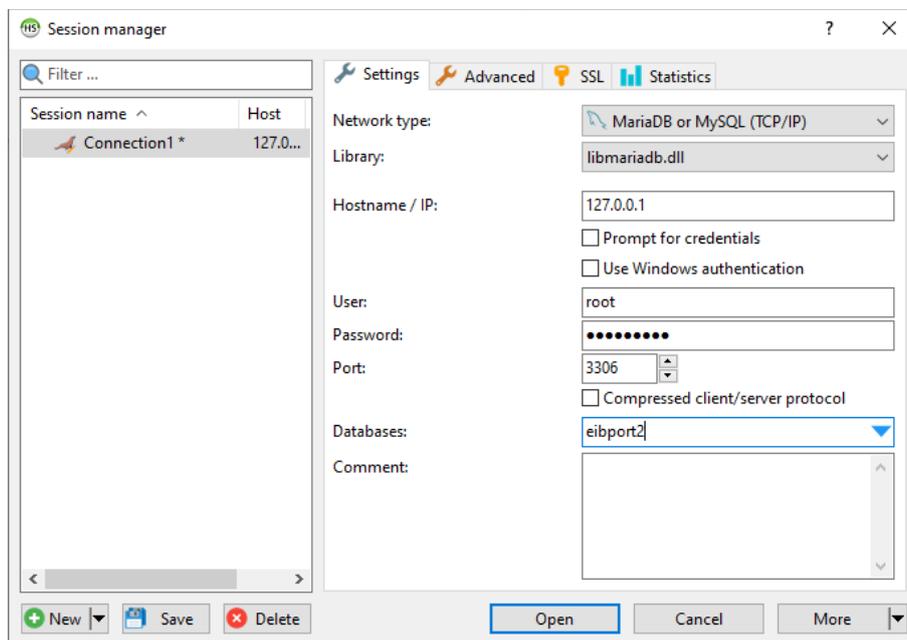


Figure 6: HeidiSQL - create DB connection

The further configuration of the SQL database connection is now carried out via the software tool DATAWAREHOUSE 2.0

Start Java application on your PC. Configure the database connection and users for automatic set-up in HeidiSQL.

Server Host: enter here "127.0.0.1".

"root" Password: Your existing password for the server

Database Name: according to the entries in EIBPORT, "eibport2"

Data Warehouse Username: according to the entries in EIBPORT, "admin"

Data Warehouse Password: according to the entries in EIBPORT, as assigned there.

With **OK**, the connection to the server is established and the user is entered there with all the necessary access privileges.

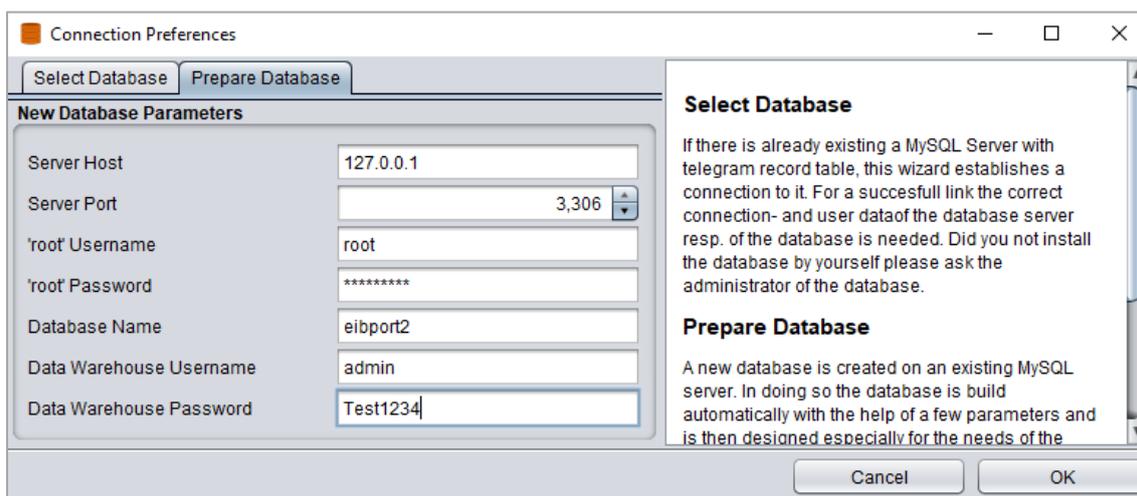


Figure 7: DATAWAREHOUSE 2.0 - Connection preferences

192.168.2.111 With the successful transfer of the data to the DB server, the database management window opens in DATAWAREHOUSE 2.0. Data must first be written into the server before the data can be managed. You can the break to enter the license for DATAWAREHOUSE 2.0. Then close the application for a short time and start DATAWAREHOUSE 2.0 again.

Select your created database connection. With "**Edit**" you can, for a better overview, change the name of the connection and also the server host from 127.0.01 to the known IP "192.168.2.111". Save with **OK**.

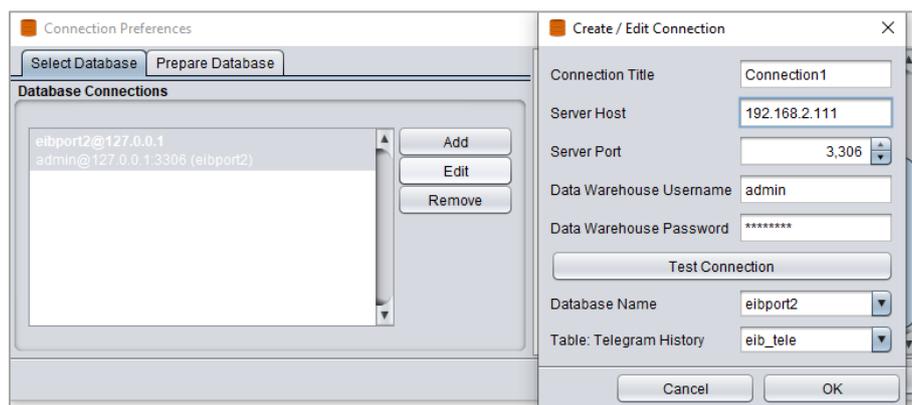


Figure 8: DATAWAREHOUSE 2.0 - Database Connection Preferences

Now, select the database connection again and click **OK** to get to the database management window in DATAWAREHOUSE 2.0

This completes the setup of the data base connection in MariaDB.



2.2.2 MANUAL CONFIGURATION OF THE DATABASE CONNECTION AT CONNECTION MANAGER HEIDISQL

As described in the previous chapter, the database connection can be established automatically. In order to make changes without reconfiguring the server binding, or even when troubleshooting, the manual configuration is described below.

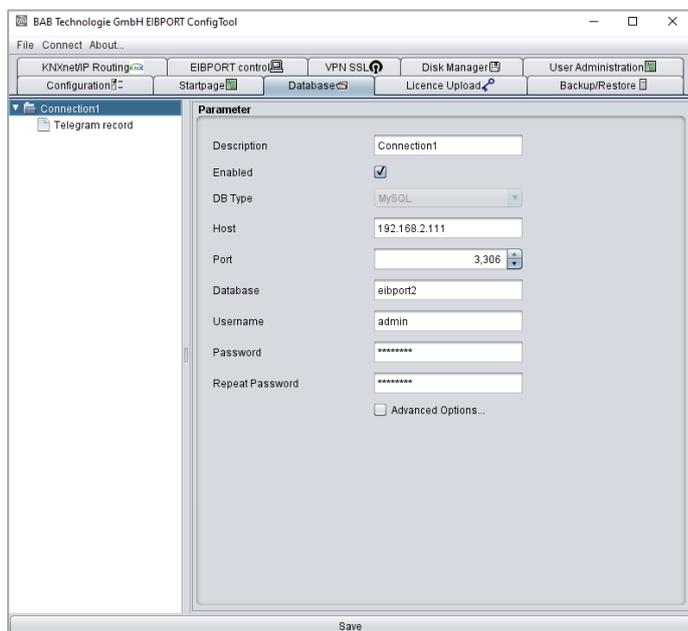


Figure 9: EIBPORT system - Database

The data of your database is entered in the HeidiSQL configuration menu.

- **Session name;** enter or edit, our example „*Connection 1*“
- **Hostname/IP:** leave on „127.0.0.1“
- **Password;** your password for the server
- **Databases:** „*eibport2*“

Save the entries and changes.

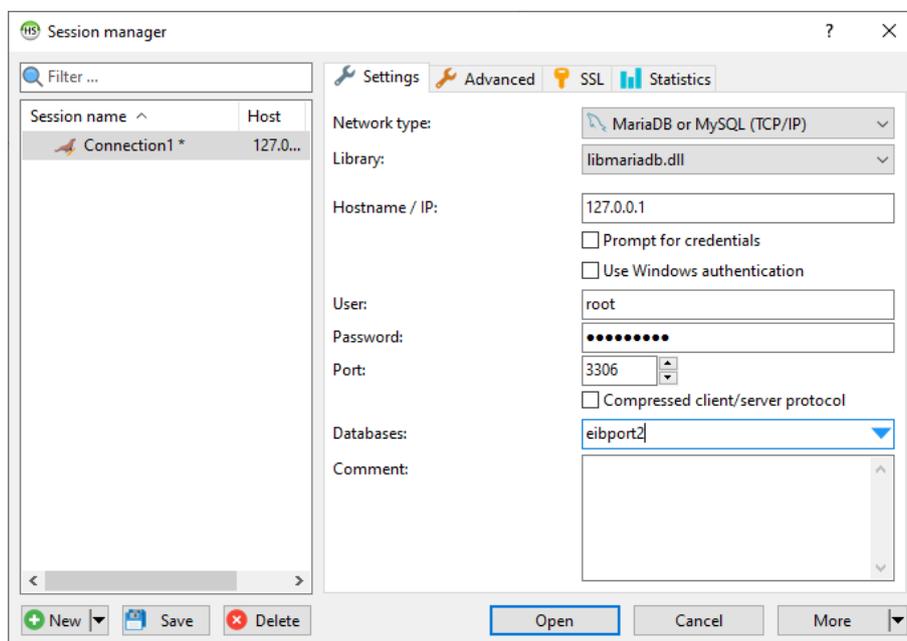


Figure 10: HeidiSQL - Session manager

After entering your data **Open** the Session manager.

A user must be created for database administration and the database privileges must be configured. Open the **User manager** at menu **Tools**.

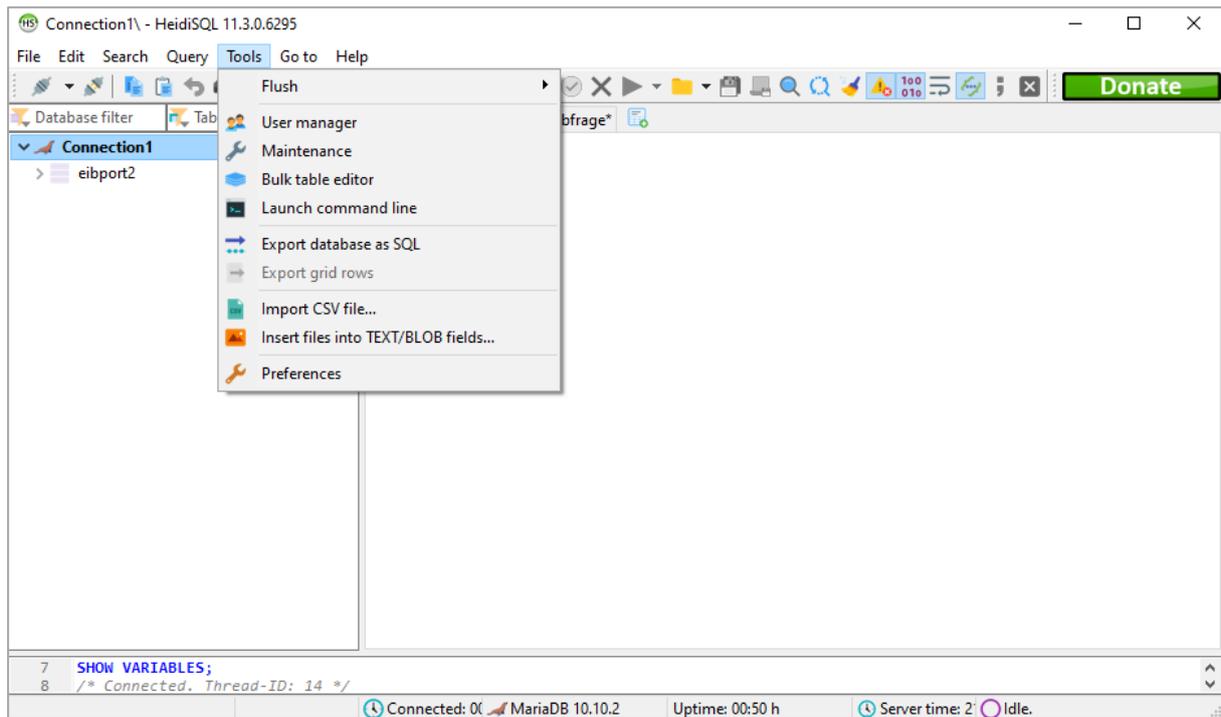


Figure 11: HeidiSQL - Configuration DB connection/ User manager

In the user manager, the **root** user can be set to "%" in **From host**, previously it was 127.0.0.1. This gives the root user access from anywhere, including remote operation. Check that the root user has all global rights.

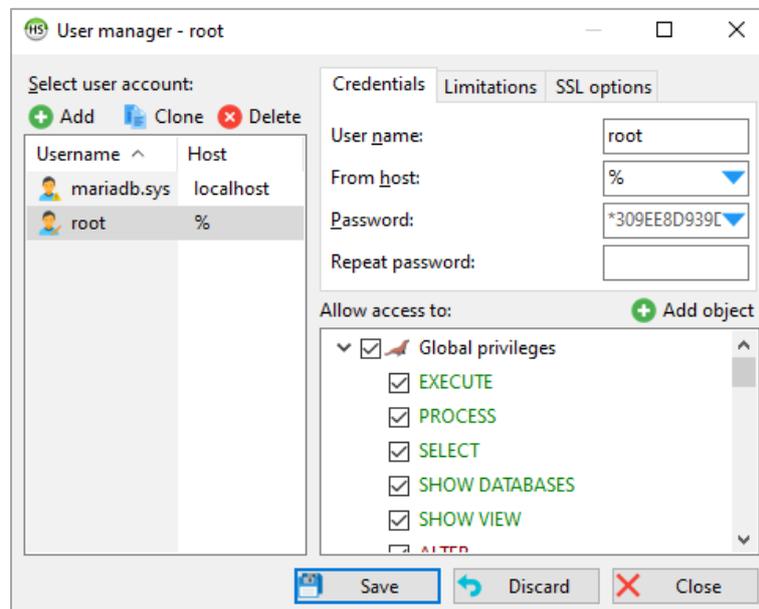


Figure 12: root-user and privileges

Note: As a Database administrator, you are responsible for granting access and privileges. In some cases, including when setting up a system, it can make sense to grant comprehensive access and global privileges. These should then be limited again to a necessary level in normal operation.



Create the user of your database with **+Add**.
 Enter the data as stored in the EIBPORT / database.
Username: our example, "admin"
From host: set on "%", or select Access from anywhere, limited for the period of connection setup
Password: as assigned for this user.
Allow access to: to configure the privileges of a user, there are necessary the privileges for the database (the respective object). For this under **+Add object**. (eibport2) and activate the privileges.
Save your entries for the users.

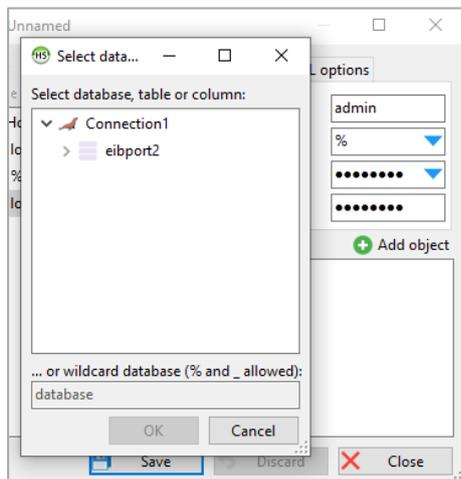


Figure 13: Database user - privileges project

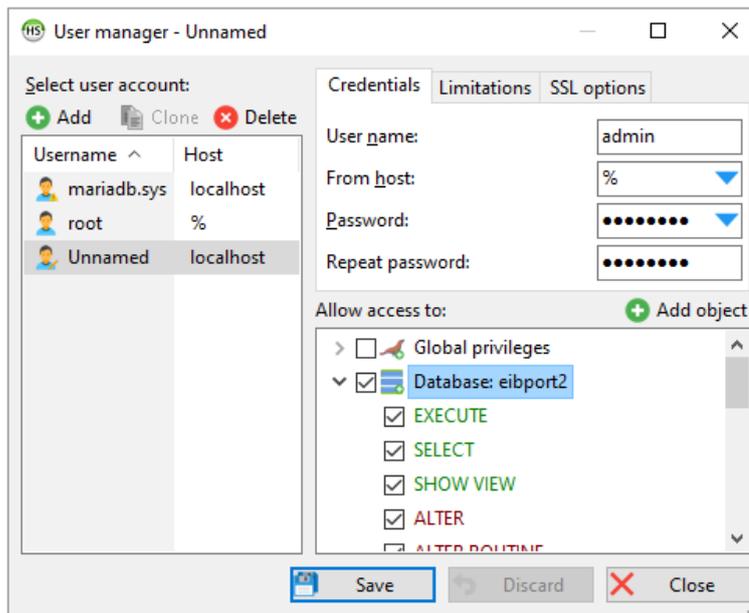


Figure 14: Database user - configuration

To complete the configuration of the database connection, the database query (table) must be configured. For this, the EIBPORT (database / table) generates the required configuration file, which is to be copied into the query.

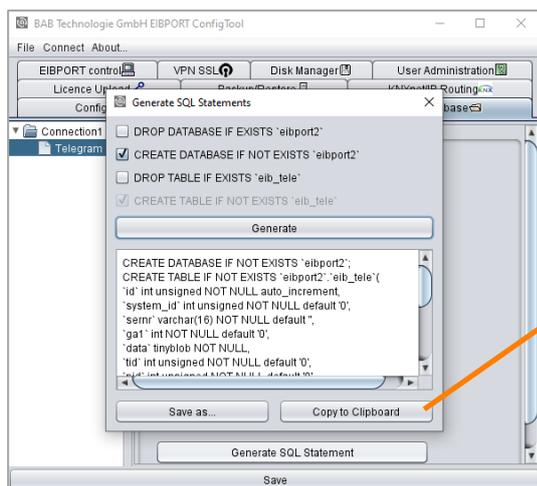


Figure 15: EIBPORT - Database configuration file

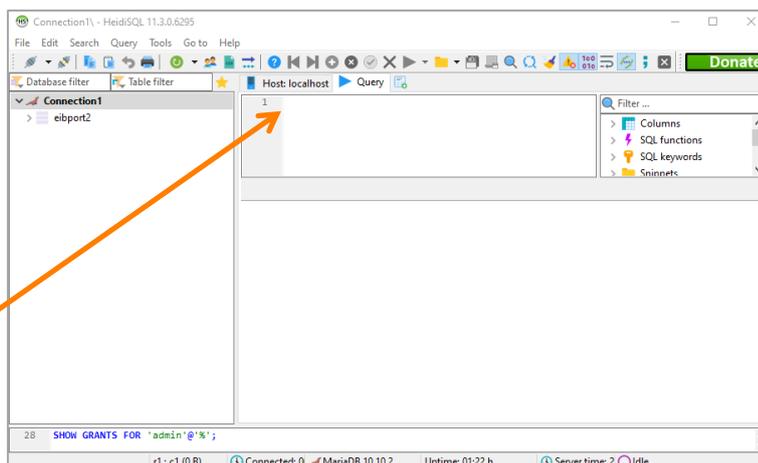


Figure 16: HeidiSQL - Database configuration - Query

After the generated configuration file has been copied, the database query can be started.

Since all elements of a database administration have been created here, it is sufficient under DATAWAREHOUSE 2 to only create and activate the connection to the database under **Select Database**.

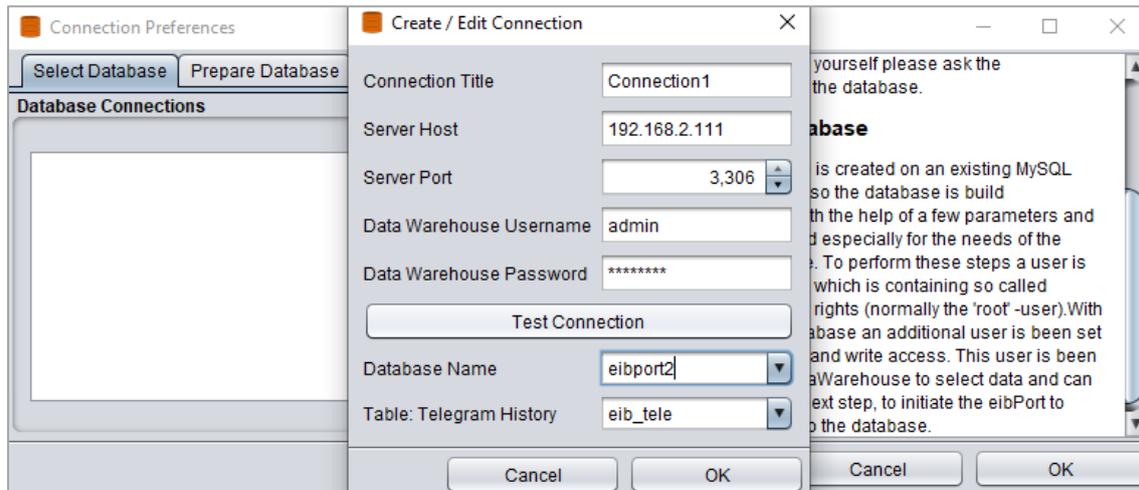


Figure 17: DATAWAREHOUSE 2.0 - create connection

The use of DATAWAREHOUSE 2 and its several functions is described in the following chapters.

The privileges for the database user can now also be reset to the required level for database users. The DATAWAREHOUSE 2.0 database user requires the following privileges:

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

This completes the setup of the DB connection in MariaDB.



3 START DATAWAREHOUSE 2.0

Once the installation of the SQL 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»).

Note: If you use the DATAWAREHOUSE 2.0 demo, not all functions and settings have yet been released. For full use you need a license which you can request for your EIBPORT via info@bab-tec.de.

3.1 CREATING A DATABASE

To create a new database for the EIBPORT on an existing SQL 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:

Parameter der neuen Datenbank	
Server Host	192.168.2.154
Server Port	3.306
"root" Benutzer	root
"root" Passwort	*****
Datenbank Name	eibport_2
Datenbank Benutzer	admin
Datenbank Passwort	Test

Datenbank konfigurieren

Es wird eine neue Datenbank auf einem vorhandenen MySQL Server eingerichtet. Die Datenbank wird dabei automatisch anhand weniger Parameter erstellt, und ist dann speziell auf die Bedürfnisse der DataWarehouse ausgelegt. Zum Ausführen dieser Schritte wird ein Datenbank Benutzeraccount abgefragt der sog. "SUPER"-User Rechte besitzt (i.d.R der 'root'-Benutzer). Beim Anlegen der Datenbank wird ein weiterer Benutzer erstellt der Lese- und Schreibrechte auf der Datenbank hat. Dieser Benutzer wird von der DataWarehouse verwendet um Daten aus der Datenbank auszulesen und kann im nächsten Schritt auch dazu verwendet werden, den eibPort zu veranlassen in die Datenbank zu schreiben.

Abbrechen OK

Figure 18: DATAWAREHOUSE 2.0 - Creating database

Server Host / Server Port

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

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 of 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.

These rights are selected correctly only to the necessary user rights after the database connection has been successfully established.

Once the database has been successfully created, a corresponding entry is created in the selection under »Select database«.



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:

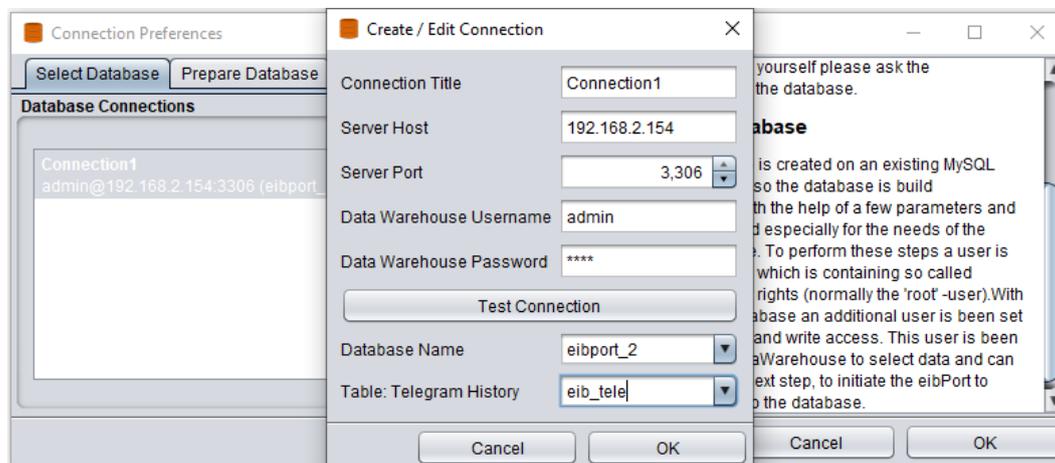


Figure 19: DATAWAREHOUSE 2.0 - Select database

Name of the connection

Give the connection a name.

Server Host

IP address or host name of the computer where the database is installed.

Server Port

Port number under the MySQL server communicates. As long as you have not changed the port number of your MSQL, the standard port for SQL-server 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 (see [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«.

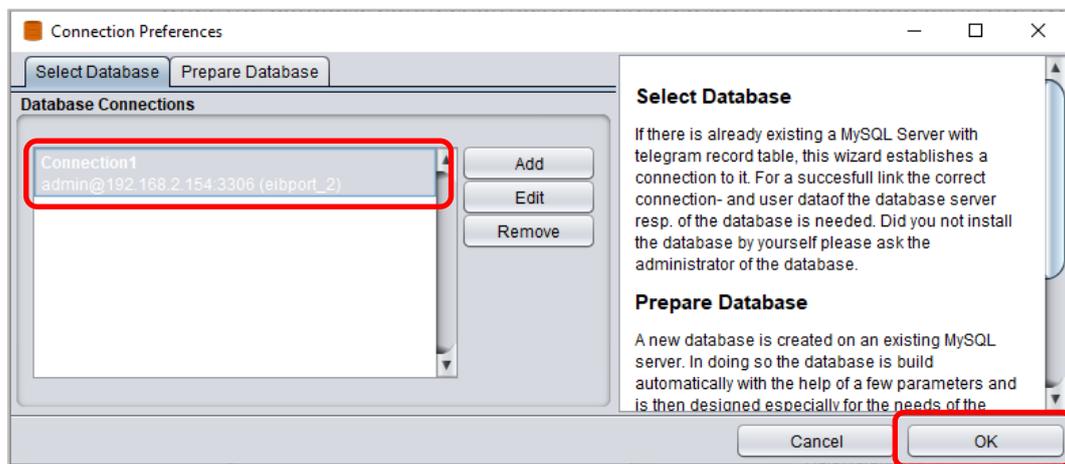


Figure 20: DATAWAREHOUSE 2.0 - Database connection

After selecting the database connection and clicking OK, the DATAWAREHOUSE 2.0 main menu opens

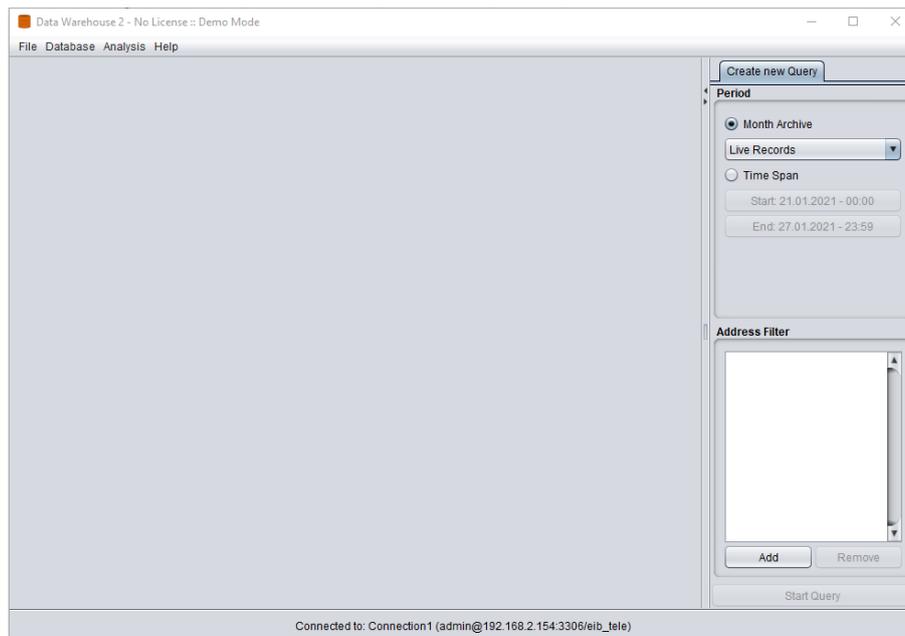


Figure 21: DATAWAREHOUSE 2.0 - start menu

If you have created a new database and a database user with DATAWAREHOUSE 2, as described under [Creating a database](#), still you have to set their rights in the SQL server.

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:

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

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.

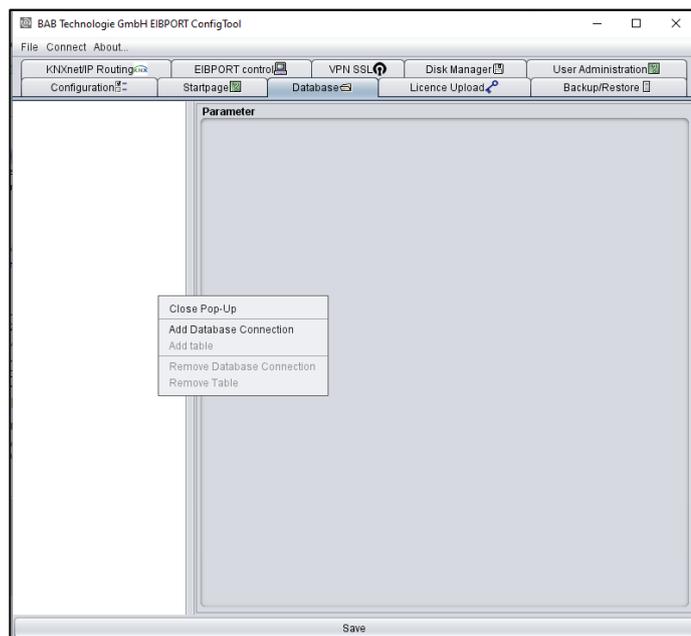


Figure 22: Database connection in the EIBPORT

If you do not want to use the database connection any more, then remove the connection in the EIBPORT. If the database server is switched off for an extended period of time, deactivate the connection. This is important, as otherwise the EIBPORT will continue trying to establish a connection in the background.



4.1 DATABASE

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

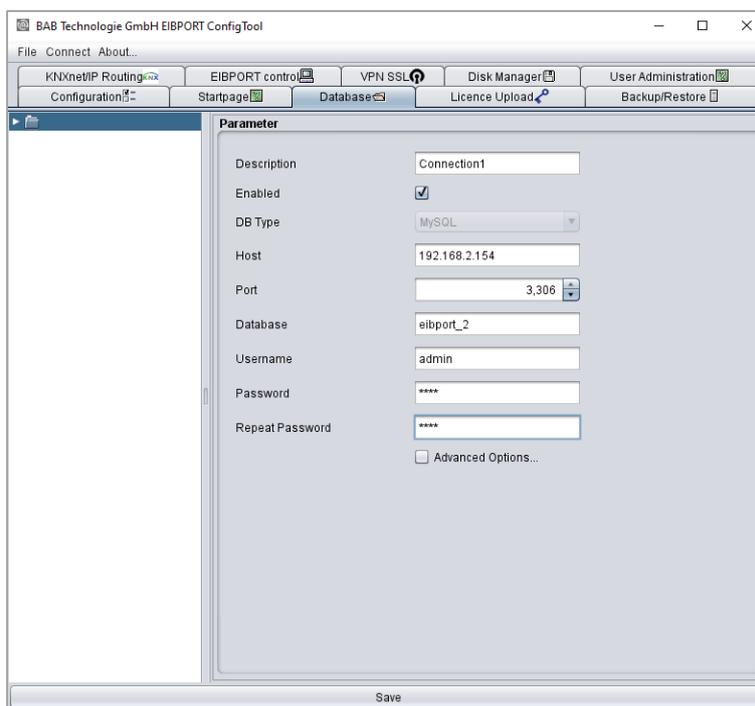


Figure 23: EIBPORT – Add Database Connection

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

The database type is fixed, it is only 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).

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

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:

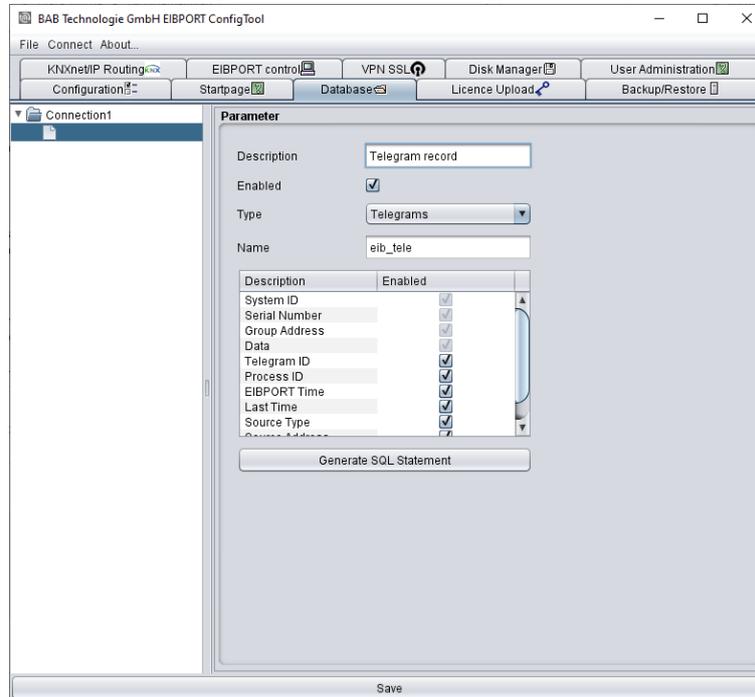


Figure 24: EIBPORT - Add table

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

4.3.1 FROM EIBPORT VERSION 3

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

`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 25: EIBPORT - database status).

4.3.2 EARLIER VERSIONS OF EIBPORT

To check the connection from the EIB**PORT** to the database server, a small .cgi script is available in the EIB**PORT** 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_statcgi`

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

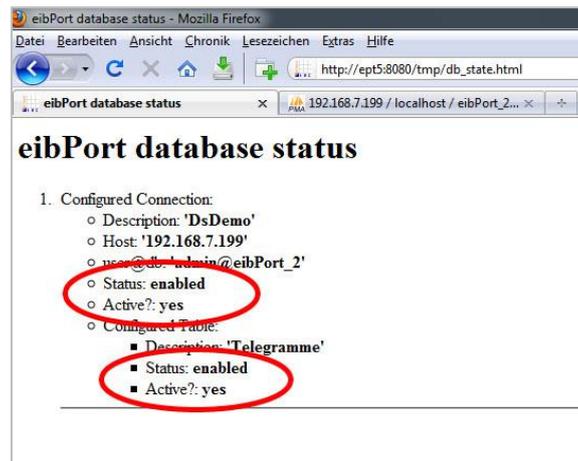


Figure 25: EIBPORT - database status

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

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 Create database connection in EIBPORT). If the database server is switched off for an extended period of time, deactivate the connection. 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.

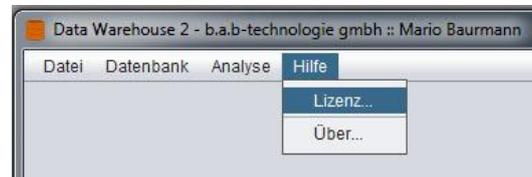


Figure 26: Help Menu license

A license for the DATAWAREHOUSE 2.0 can be requested via 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 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.

Note: If you use the DATAWAREHOUSE 2.0 demo, not all functions and settings have yet been released. For full use you need a license which you can request for your EIBPORT via info@bab-tec.de.

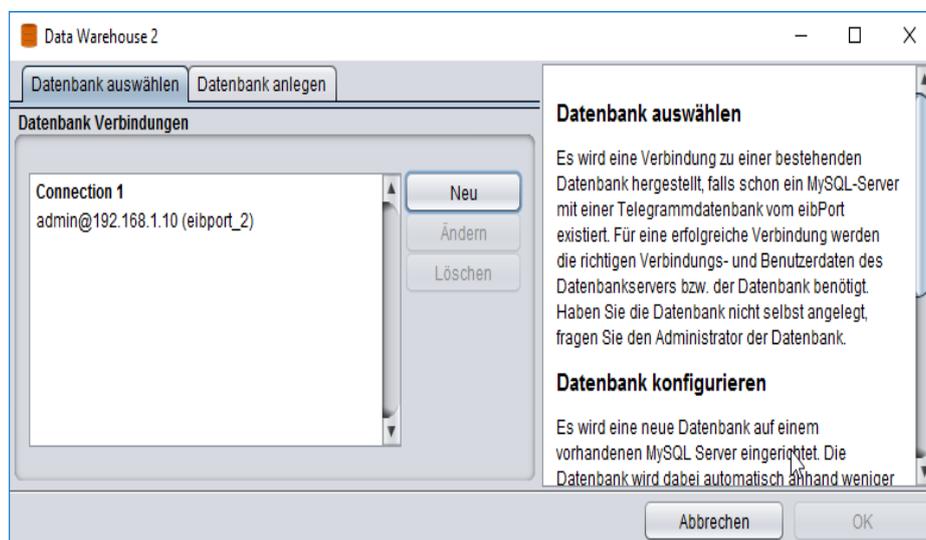


Figure 27: Select database

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:

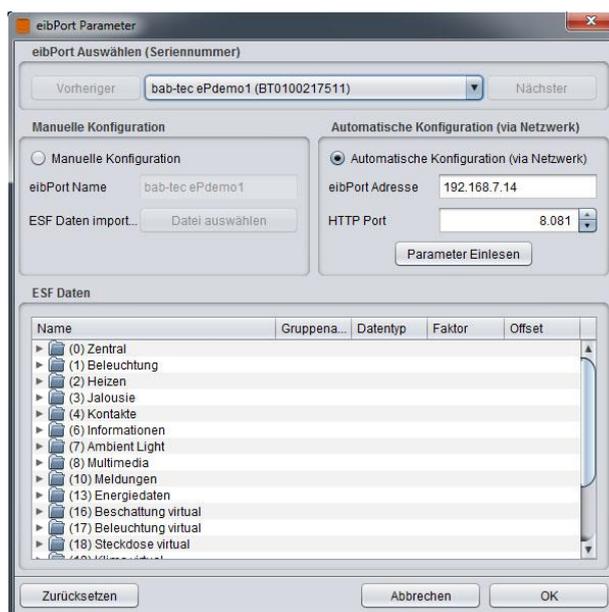


Figure 28: Configure DATAWAREHOUSE 2.0 – EIBPORT

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)

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

Read parameters

The ESF data is transferred automatically from the selected EIB**PORT**. 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 29: Creating a query

Figure 30: Start a query

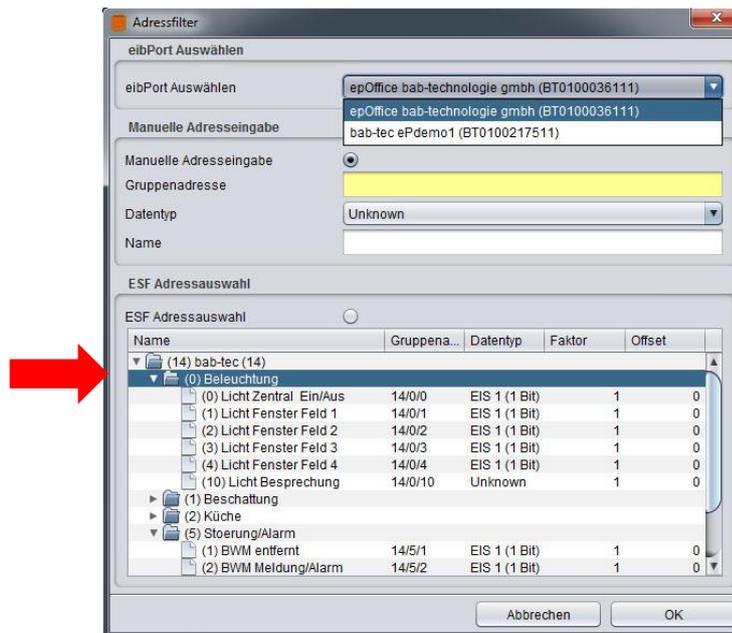


Figure 31: Address filter

ESF address selection

The database obtained the address information via the menu item »Database« → »Configure eibPort«. 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.



8 EXPORTING / EVALUATING DATA

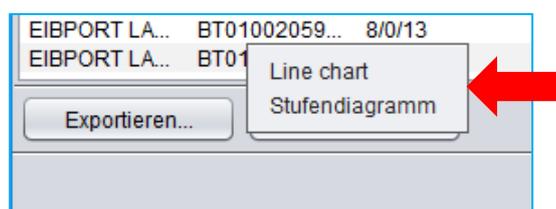
Above all else, the DATAWAREHOUSE 2.0 is an additional program for the organisation of the arising data and for its correct interpretation according to the ETS Information. In addition to this, it has the purpose of retrieving and exporting the values to be sent for a graphic evaluation from the database.

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.

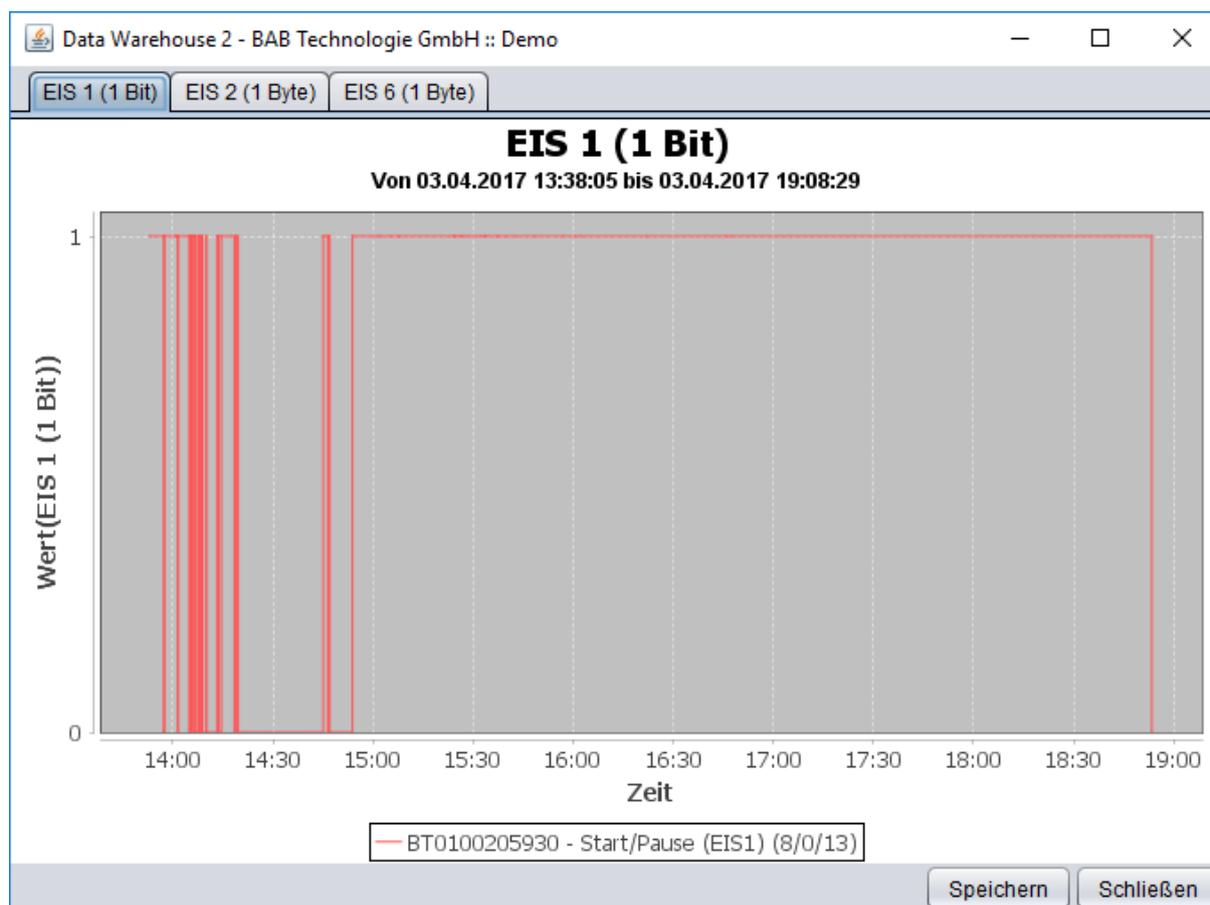


Figure 33: DATAWAREHOUSE 2 - diagram

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.

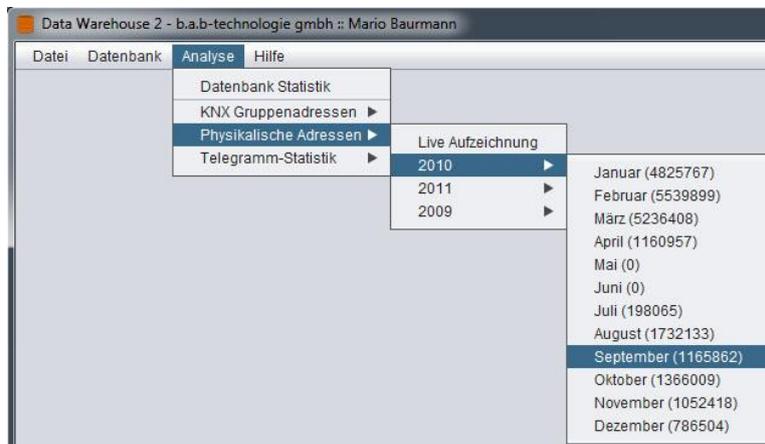


Figure 34: Analysis - statistics

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 SQL 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.

10.1 USER RIGHTS FOR THE DATABASE USERS

The DATAWAREHOUSE 2.0 database user requires the following authorisations:

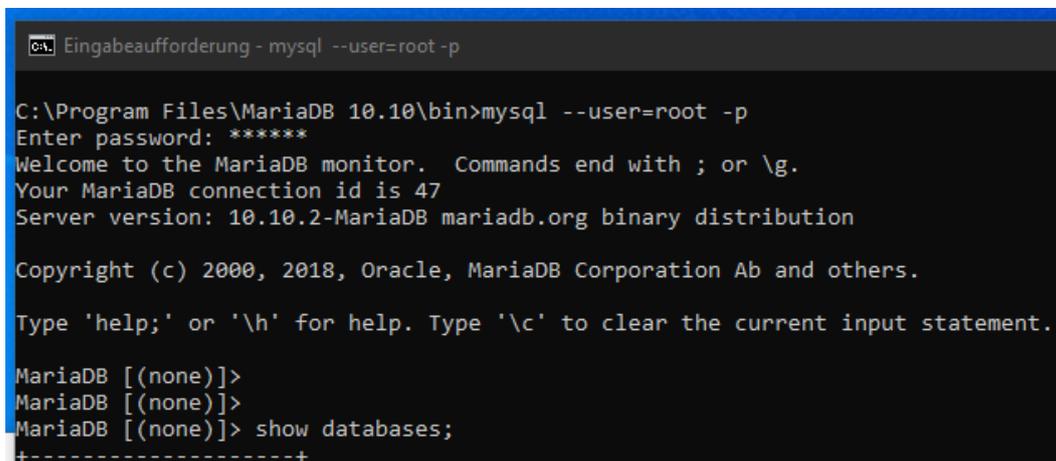
- SELECT
- INSERT
- UPDATE
- DELETE
- DROP
- CREATE
- INDEX
- ALTER
- CREATE ROUTINE
- ALTER ROUTINE
- EXECUTE
- EVENT

These can be assigned via an SQL client (e.g., HeidiSQL under the user administration) or via the command line.

The SQL client "HeidiSQL" is a software which is started with a double click.

Access via the command line is as follows. Under Windows, first start the command prompt via "Start" and the command "cmd.exe". Use "cd followed by <path>" to change to the "bin" directory of the database installation.

With a standard installation, the directory is under "\\Program Files\\MariaDB 10.10\\bin".



```
Ca. Eingabeaufforderung - mysql --user=root -p

C:\Program Files\MariaDB 10.10\bin>mysql --user=root -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 47
Server version: 10.10.2-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]> show databases;
+-----+
```

Figure 35: Command prompt

The login to the SQL server in the console is triggered by the following command

```
mysql --user=root -p
```



10.2 SORT FUNCTION FOR PERFORMANCE OPTIMISATION

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 at "Global privileges".

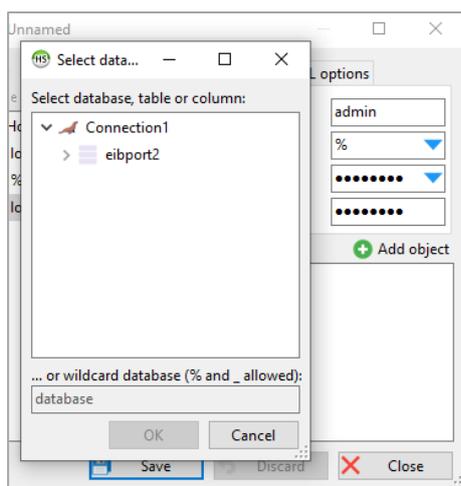


Figure 36: Database user - privileges project

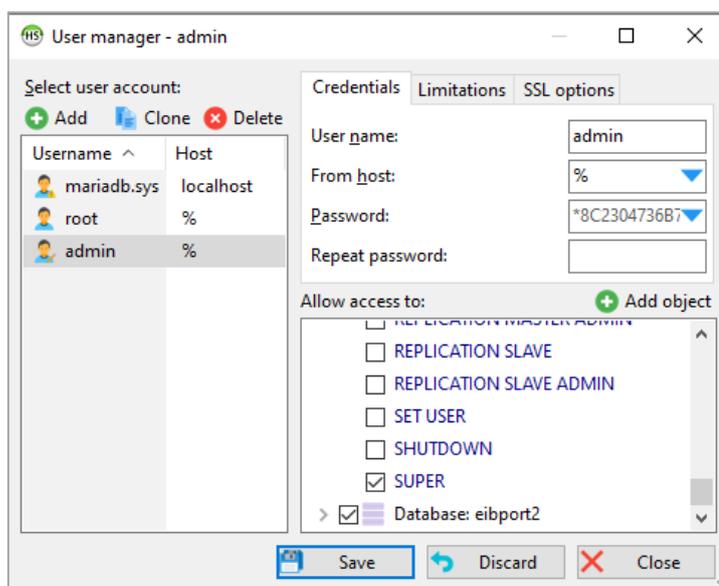


Figure 37: Database user - Global privileges "SUPER"

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

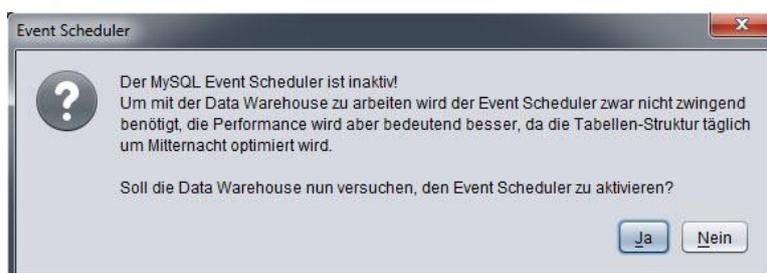


Figure 38: »Event Scheduler inactive« message



11 INFORMATION ON FUNCTIONAL SAFETY

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.