Database browser User Manual (12/20/2018)

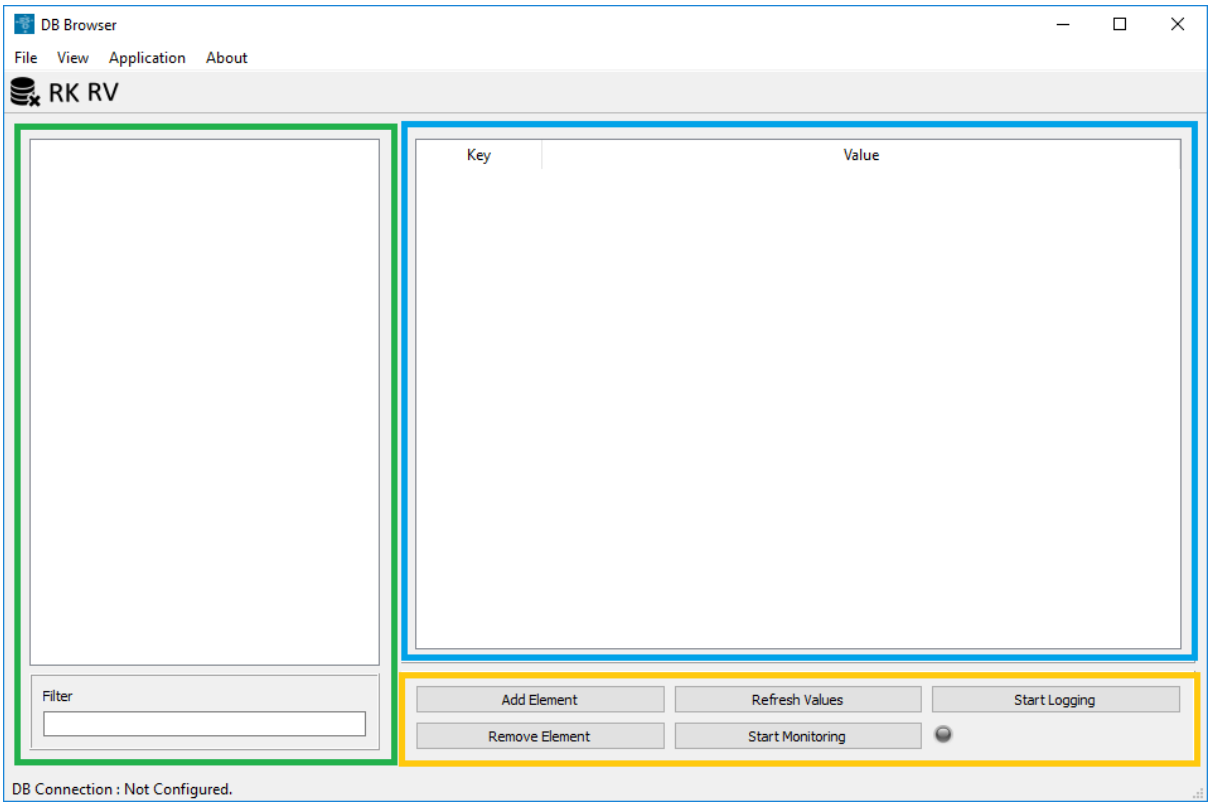
The Database browser tool provides the means for monitoring elements from the in-memory data structure store, REDIS.
This tool was developed using Pyside2 and Python 3.6.x and it should be compatible with any OS running Pyside2 and Python 3.6.x.

The following user manual provides useful information regarding the use of the Database browser application.

Application Structure

Layout

The application layout can be divided in three main components: browser, monitor and controllers.



The Browser component, located on the left side of the application, is composed by two functional elements: a list widget and a filter field. The list widget provides the necessary support for displaying the existing keys for a given database.
Typically, and in normal operation, every time a connection to a REDIS database is established, the list widget is automatically populated with all of the database keys.

The filter element, provides an intuitive and simple to use mechanism for filtering elements using simple patterns. This feature is particularly useful when the database is composed by hundreds or thousands of elements.
From the Browser it is possible to add elements to the Monitor component, either by double clicking or by dragging them to the Monitor component. The drag-n-drop functionality, supports dragging single or multiple elements into the Monitor component. Once an element has been added to the Monitor component it will be greyed out while it remains there.

The Monitor component, located on the right side of the application, is composed by a single functional element, namely a table widget. This table widget provides the necessary support for displaying pairs of "key, value" elements, from the Database.

The controllers component encompass all of the Main Window buttons and provide a fast way of triggering specific actions, such as:

- Adding or removing elements from the Monitor component;
- Manual, table widget, refresh;
- Start cyclic Monitoring (automatic refresh of the elements being monitored);
- Start recording changes in the elements being monitored.

In the controllers component, an activity LED, provides visual information about the state of the automatic monitoring feature.

Toolbar

The application toolbar provides quick access to the REDIS connection configuration, connection state and, refresh browser and monitor elements.
The first toolbar button provides can be used to:

- Access application configurations;
- Close REDIS connection;
- Open REDIS connection.

Accessing the application configurations can be achieved when the button is showing the following icon:

After configuring the application the icon will change to :

Which means that the application is configured, i.e. connection settings are valid, but no connection is established.
In this state, pressing the button will try to establish a connection with the REDIS DB and if successfully, the icon will change to:

At this point, the DB list of keys will be presented at the Browser widget.

The next two buttons, provides quick access application refresh functionalities as follows:

RK Refresh list of keys

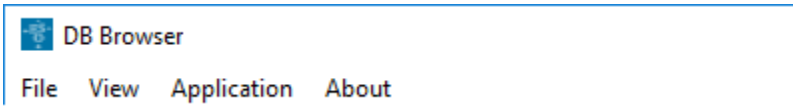
RV Refresh list of values

Menus

The DB Browser menu bar, follows a typical application structure where actions or functionalities are grouped together in a normal drop-down menu.
The following four different menus can be found at the application menu bar:

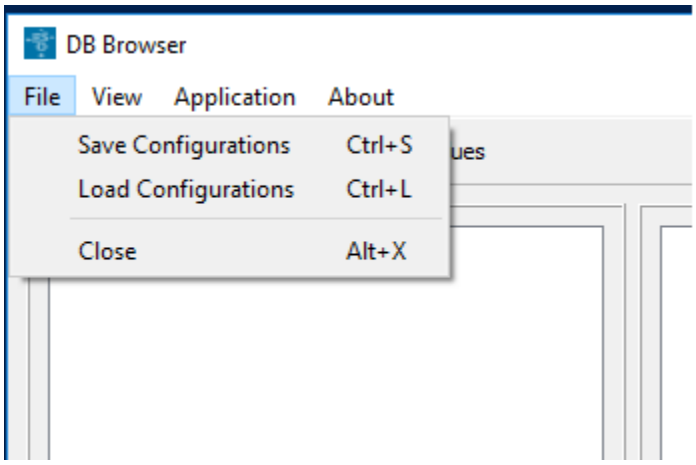
- "File";
- "View";
- "Application";
- "About".

The application menu bar is depicted below.

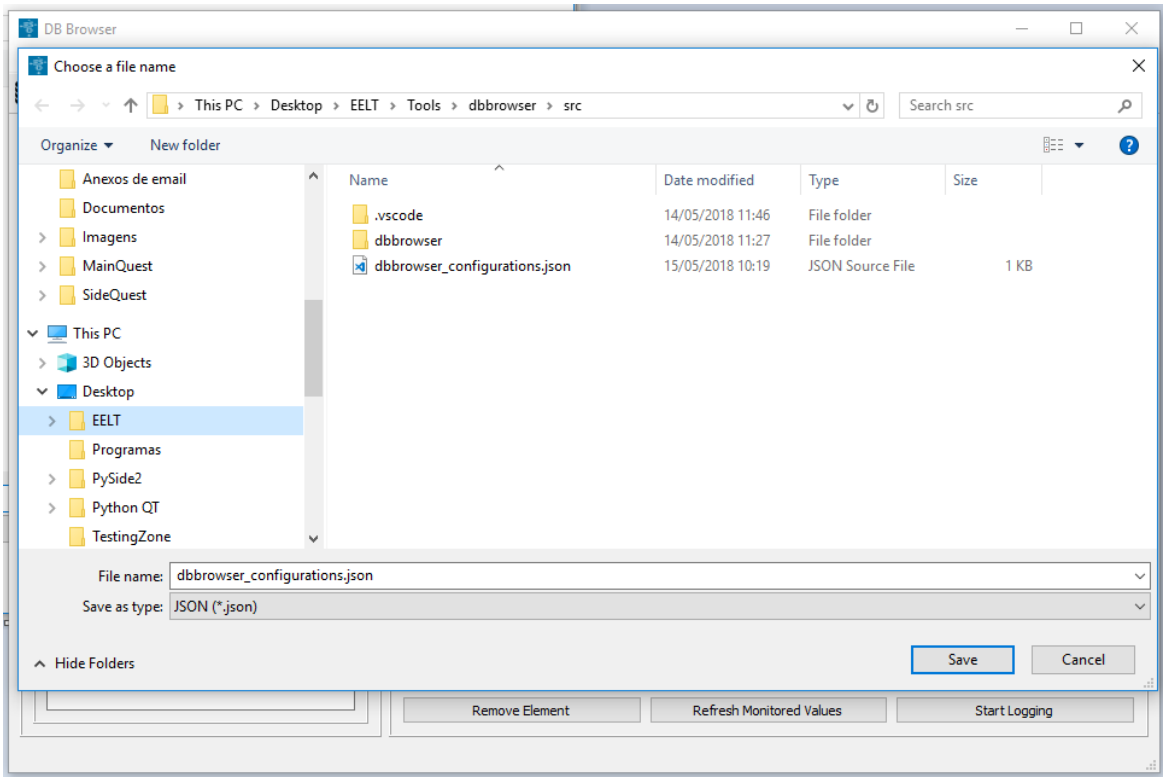


File Menu

The "File" menu is dedicated to the application configurations. There it is possible to save (Ctrl+S) and load (Ctrl+L) user defined configurations and also close (Alt+X) the application.

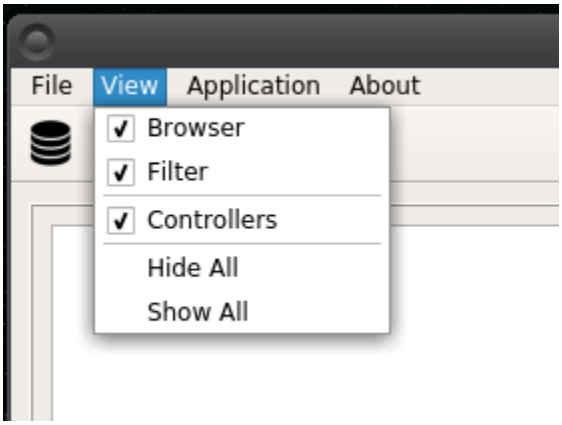


Saving and loading configurations is a very simple process that requires the user to specify the JSON file where the configurations are going to be saved or loaded from. During this process a typical window, as depicted below, will appear when selecting any of the configuration options.

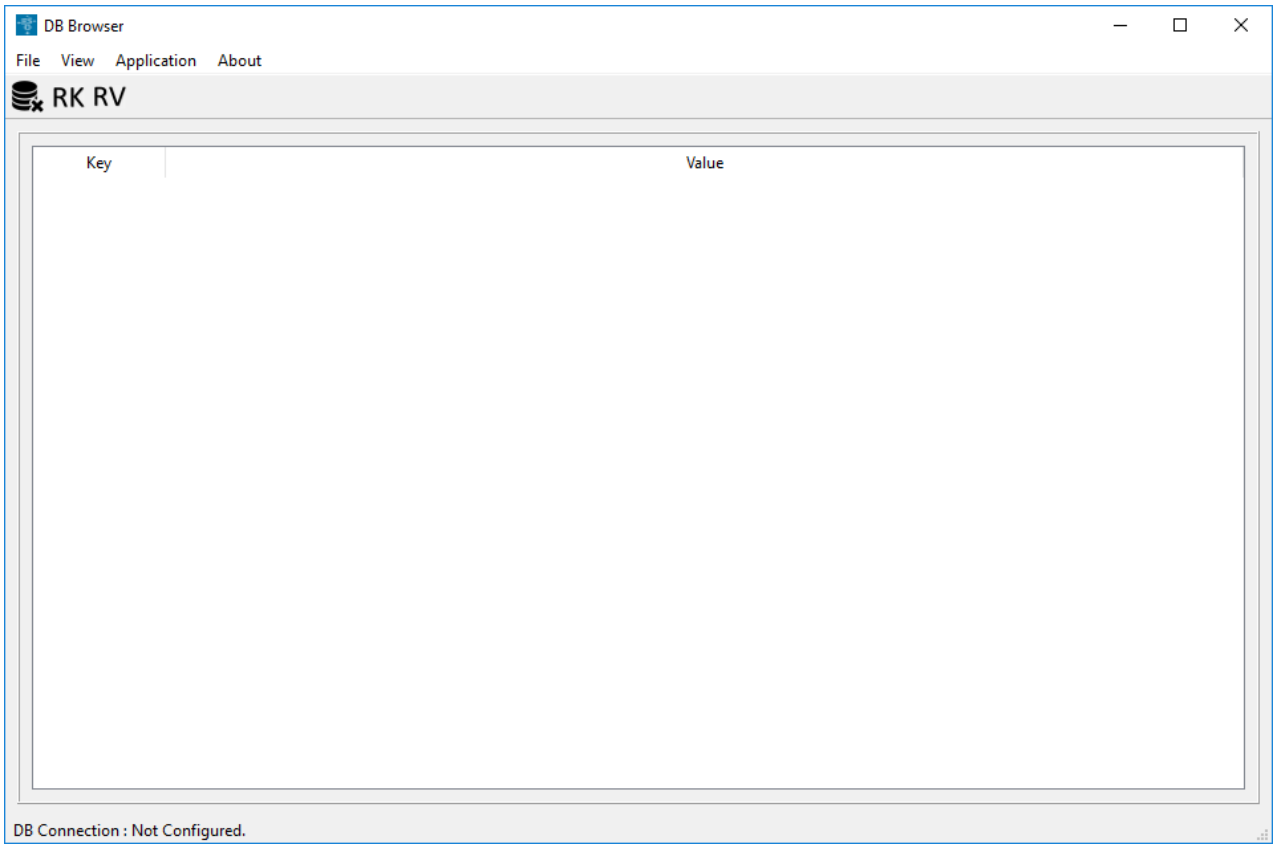


View Menu

The "View" menu is dedicated to the application visual configuration, i.e. it provides the means for hiding or showing components, which can be useful when the visual space occupied by the "full" application can be an issue. In order to minimize the application real estate, it is possible to hide the "Browser", the "Controllers" components and also the "Browser" filter field, as depicted next.



A "Hide All" option is also present, which can be very useful, in those cases where a stripped down version of the application is required, either because the list of monitored elements is static, i.e. the list don't change over time, or when running multiple applications simultaneously and side-by-side is required. Below it is possible to see the stripped down version of the application layout. To quickly return to the default view, a "Show All" option is present as well.

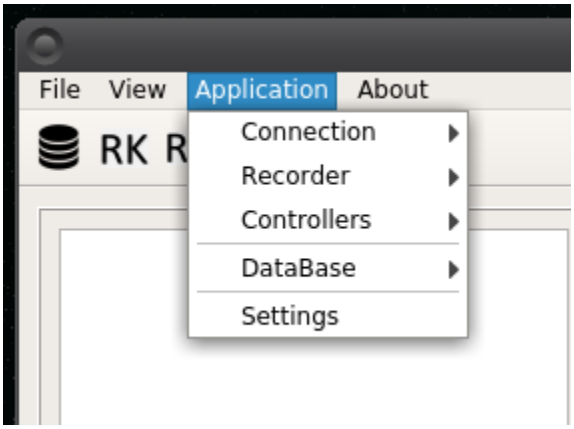


Application Menu

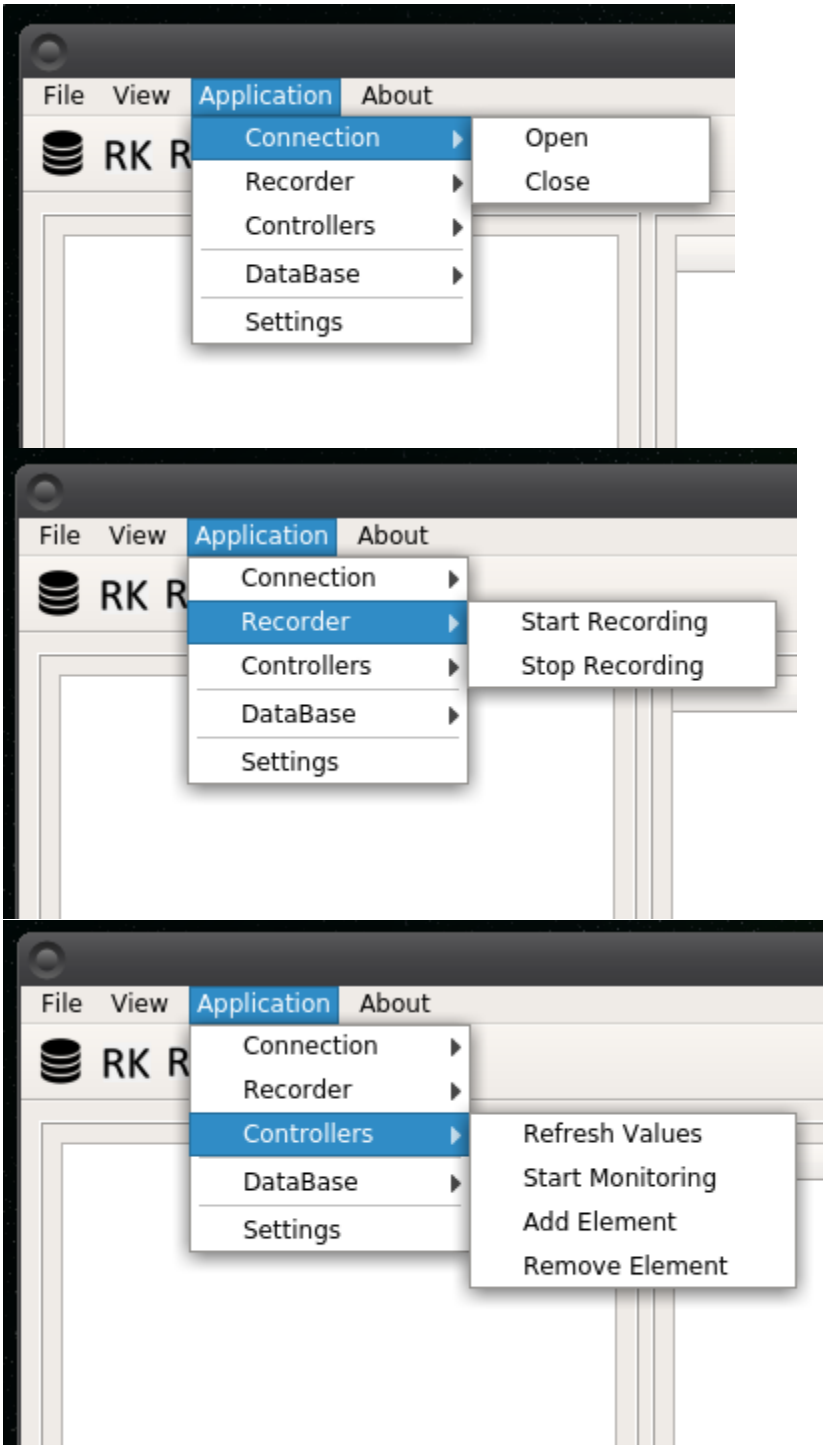
The "Application" menu, groups all of the application actions in the following dedicated sub-menus:

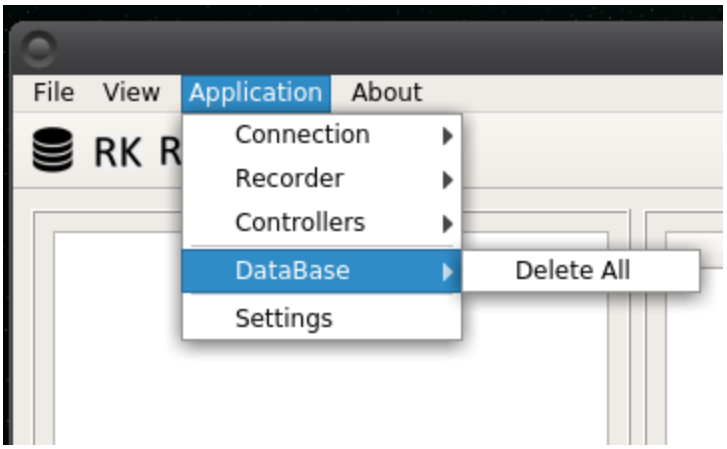
- Connection;
- Recorder;
- Controllers;
- DataBase;
- Settings.

The various application menus, are depicted below.

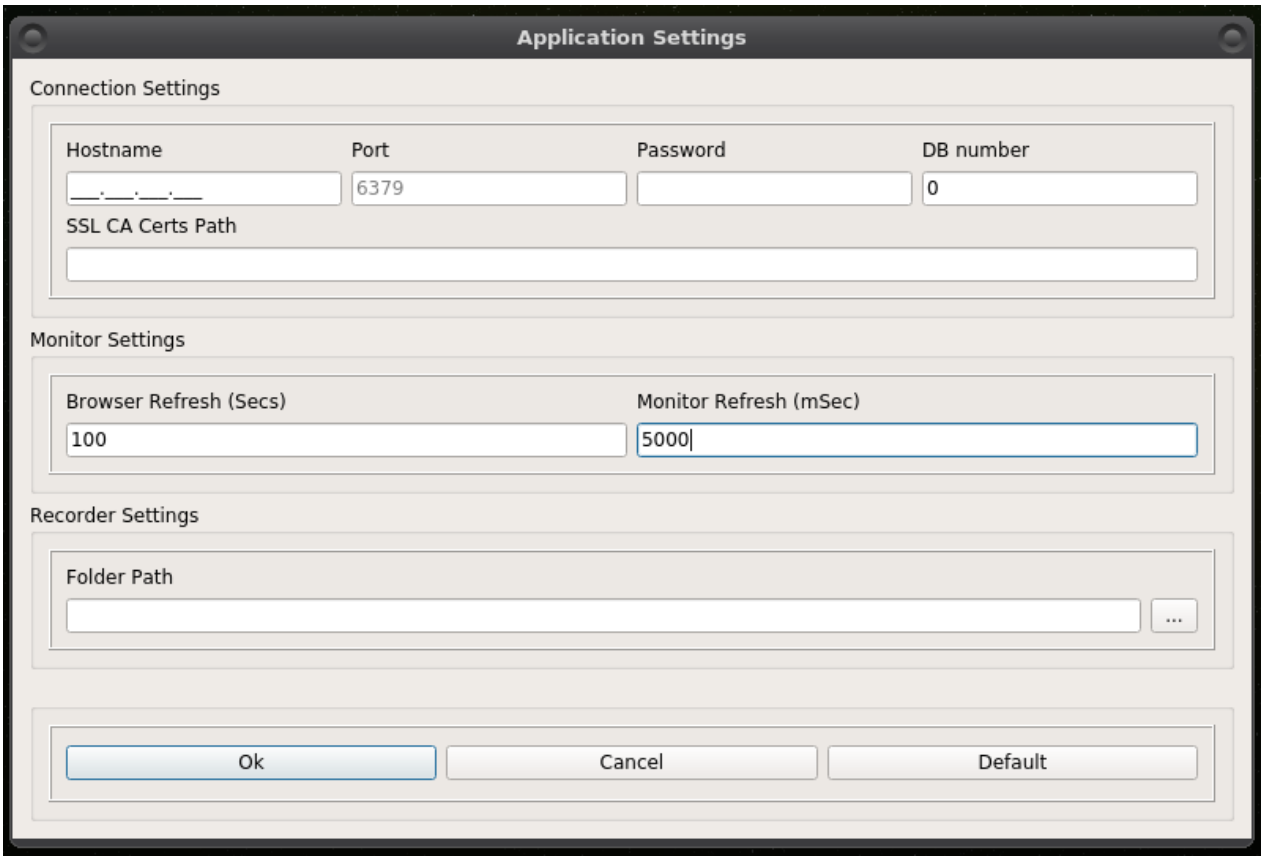


From the Connection sub-menu it is possible to control the REDIS connection, i.e. "open" or "close" the connection.
From the Recorder sub-menu it is possible to control the recorder state, i.e. "start" and "stop" recording.
The Controllers sub-menu mimics the Controller component and provides access to the same actions.
From the DataBase sub-menu it is possible to delete the database.
Finally the settings sub-menu, provides a way of accessing the application configuration window.





The Application settings window, contains all of the configurations required by the application to function properly and is divided in three different sections: Connection Settings, Monitor Settings, Logger Settings.



In the **Connection Settings** section, all of the configuration parameters required to establish a REDIS connection can be found.
The list of available configuration parameters and their type, are as follows:

- **Hostname** : IP address of the machine running the REDIS database (**Mandatory**);
- **Port** : Port number where the REDIS database is listening (**Mandatory**);
- **Password** : Password used to access REDIS database (**Optional**, only databases with a password defined);
- **DB number** : Number of the Database to be used (**Mandatory**, by default the database number is zero);
- **SSL CA Certs Path** : Path to certificates required by the REDIS connection (**Optional**).

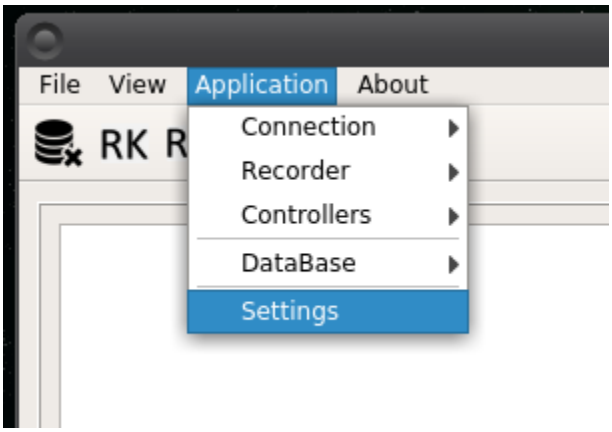
In the **Monitor Settings** section it is possible to specify the update period of the Browser and Monitor components.
The update period of the Browser is measured in seconds because it is expectable that the DB keys won't change very often, while it is expectable that the Monitor values change many times per second and therefore a faster update period is required.

In the **Recorder Settings** section it is possible to define the file name and path used by the recorder to store value changes.

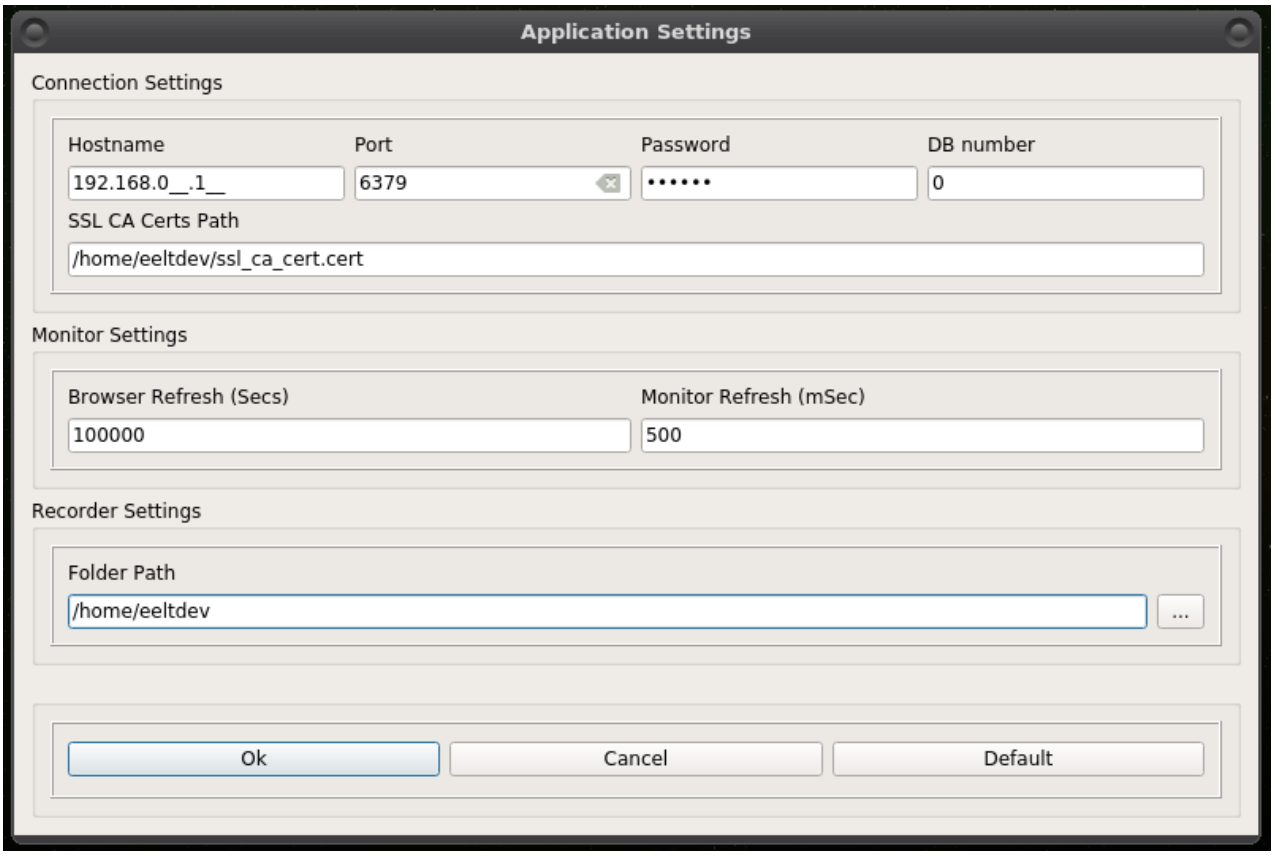
In development environments where connection configurations are present at the environment variables, it is possible to auto-populate the Connection Settings by pressing the "Default" button.

Configure Database Connection

In order to configure the Database connection, the user must select "Settings" from the "Application" menu, like depicted next.



After selecting "**settings"** the Application Settings window will appear and the user can specify the REDIS Database connection settings (Connection Settings section), as depicted below.

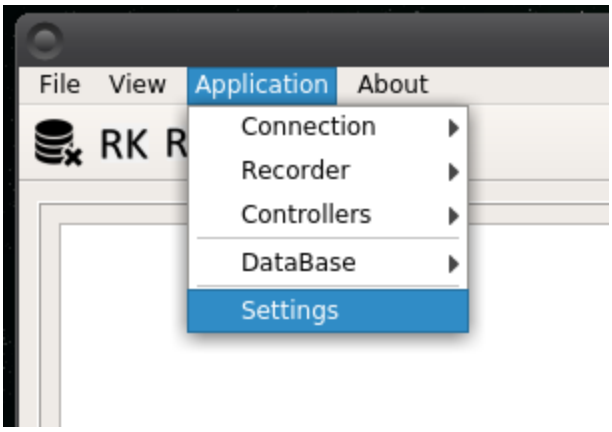


At the **Connection Settings** section, the user must specify the following parameters:

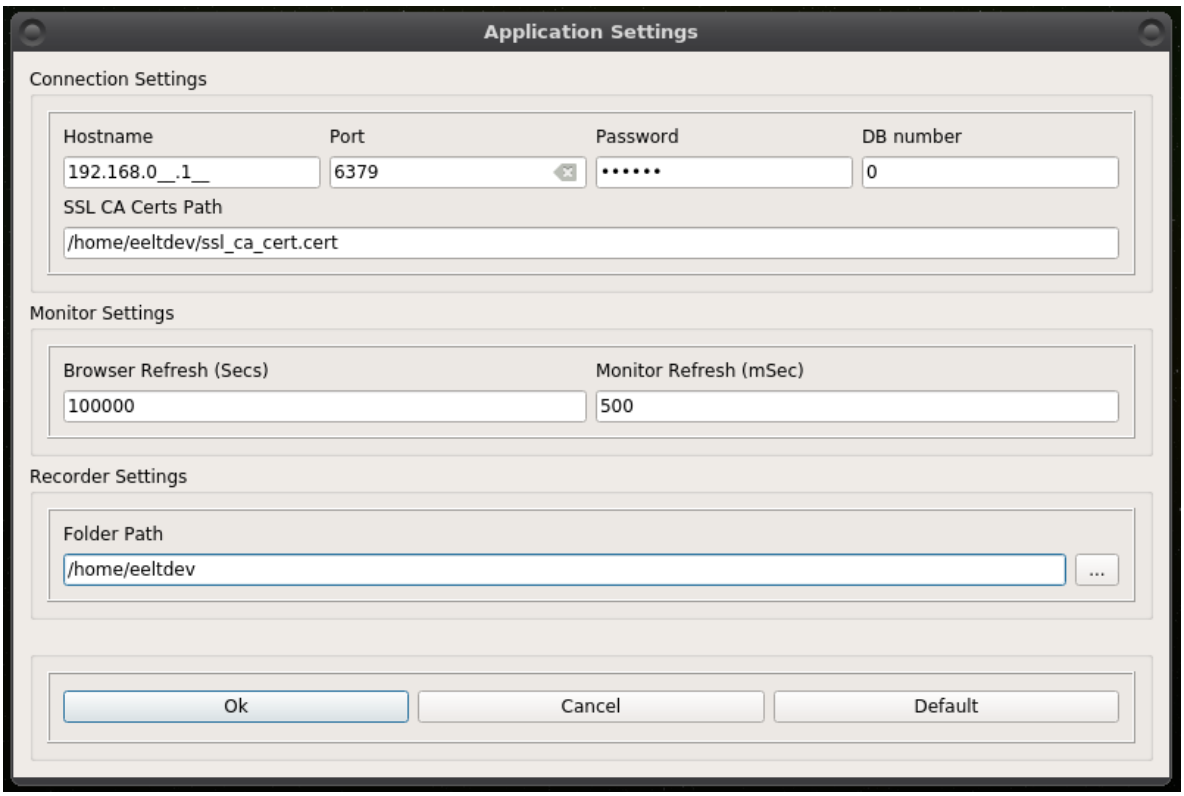
- **IP address (HOST)** of the machine running REDIS database (located locally or on a remote machine);
- **Port** used by the REDIS database, typically the port number used is the **6379**;
- **Password** used by the REDIS database;
- **Db number** specify the database number that the user wants to access (**required** when multiple DBs are located at the same machine);
- **SSL_CA_Certs** full path to the certificate used to access the database (required when the DB requires the usage of a trustful certificate).

Configure Browser and Monitor Update Frequency

In order to configure the Browser and Monitor update frequency, the user must select "Settings" from the "Application" menu, like depicted next.



After selecting "**settings"** the Application Settings window will appear and the user can specify the monitor configurations (Monitor Settings section), as depicted below.



At the **Monitor Settings** section, the user can specify following parameters:

- **Browser Refresh** - update interval, in seconds, of the browser component (located at the left side of the application);
- **Monitor Refresh** - update interval, in milliseconds, of the monitor component (located at the right side of the application).

Note: For large REDIS DB, using a low ***browser refresh*** value could permanently "freeze" the application.