

RedCrab *PLUS*

The Calculator

This manual describe RedCrab^{PLUS} add-ons

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Index

- 1.1 Introduction
- 1.2 System requirements

- 2.1 Programming
- 2.2 RedCrab Interpreter (RCI)
- 2.3 PHP Script

- 3.0 Menu File
- 3.1 Menu File .New Page
- 3.2 Menu File .Import Module
- 3.3 Import Data Files

- 4.0 Menu Connection
- 4.1 Connection .Open
- 4.2 Connection Manager
- 4.3 Connection.Set Preferences
- 4.4 PHP Configuration
 - 4.4.1 Use of an existing server
 - 4.4.2 PHP Installation and Configuration

- 5.1 Menu Help.License
- 5.2 Menu Help.Freeware Registration
- 5.3 Menu Help.Shareware Free Trial
- 5.4 Menu Help.Activate Shareware

- 6.1 Portability
- 6.2 The Program Editor

1.1 Introduction

This manual describes the advanced features of *RedCrab^{Plus}*. This shareware provides direct access to *Microsoft Excel* and *Microsoft Access* files, input and import of data lists via text files, access to database such as *MySQL* via *TCP / IP*, write your own functions in *RedCrab's* built-in programming language, writing and running *PHP* programs in *RedCrab's* integrated programming environment.

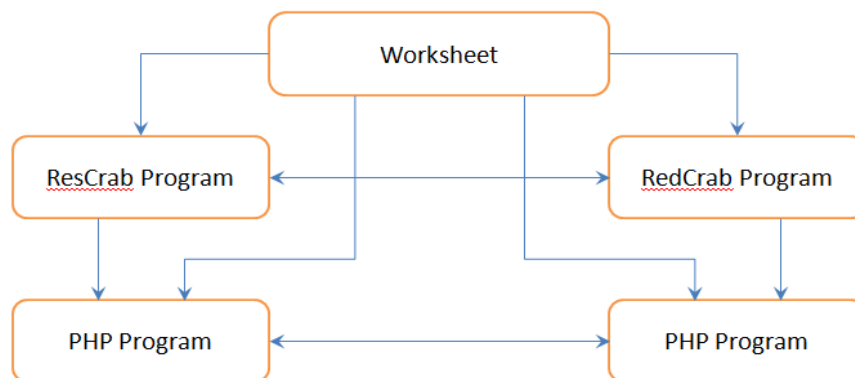
1.2 System requirements

Service	Requirement	Remark
Microsoft Excel	-/-	Driver included in Windows
Microsoft Access	-/-	Driver included in Windows
Data files	-/-	-/-
MySQL	MySQL driver installation	Free download
Other database	Driver installation	Not tested
RedCrab Program	-/-	-/-
PHP Program	PHP installation	Free download

2.1 Programming

RedCrab supports two variants to program your own functions. The first is an own program language, which is integrated in *RedCrab*, the *RedCrab* interpreter. The second variant is the programming language *PHP*.

Worksheet formulas have access to all functions of *RedCrab* and *PHP* programs. From *RedCrab* interpreter, you can call all functions in other *RedCrab* and *PHP* modules. *PHP* are not integrated in *RedCrab* and has only access to other *PHP* functions in his own or external modules. The following diagram shows the program hierarchy.



2.2 RedCrab Interpreter (RCI)

The *RedCrab* editor and program interpreter is integrated in *RedCrab*. The editor, depending on the configuration, displays in a tab or in a split window next to the worksheet. The interpreter has a simple command language that is easy to learn, especially for users without programming experience. The syntax of the interpreter is an extension of the worksheets syntax. That means, all the mathematical functions of the worksheet are also available in *RCI*. Likewise, the definition of variables and data fields is identical with the worksheet.

In addition, the *RCI* contains commands for programming functions, conditional branching (*If*, *Elseif*, *Else*) and loops (*While*). *RCI* programs execute when you press the *Enter* key / button to execute the statements in the worksheet.

For more information about *RCI* programming read the separate programmer manual.

2.3 PHP Script

The second alternative to writing your own functions is the programming language *PHP*. A programming environment with *PHP* editor is integrated into *RedCrab*. Like *RCI*, the programs can be executed directly in the editor. But, *PHP* program requires the installation of an external *PHP* processor.

- For more information about the installation read *PHP Installation* below.
- For information about the *PHP* interface read the *Programmers- Manual*.

Advantages of *PHP*:

- *PHP* is the most used programming language on the Internet servers and thus has a high level of awareness.
- Simple interface: Data exchange with *RedCrab* over standard input / output (`$_POST` / `echo`).
- Programs needs only to be stored once on any *LAN* server, and can be accessed from different workstations.
- Extensive program library: Several mathematical expansion modules are available, e.g. *GMP*, statistics, database access through *SQL*, and much more.
- The *PHP* Processor is free.

3.0 Menu File

The following section describes the additional file menus of *RedCrab*^{Plus}.

3.1 Menu File .New Page

New Page .RC Program

This menu opens a new editor window, to write *RedCrab* program code.

New Page .PHP Script

This menu opens a new editor window, to write *PHP* program code.

NewPage .Data Sheet

This menu opens a new editor window for data input.

3.2 Menu File .Import Module

ImportModule .RC Program

Load a *RedCrab* program in a tab sheet.

ImportModule .PHP Script

Load a *PHP* program in a tab sheet.

ImportModule .Data Sheet

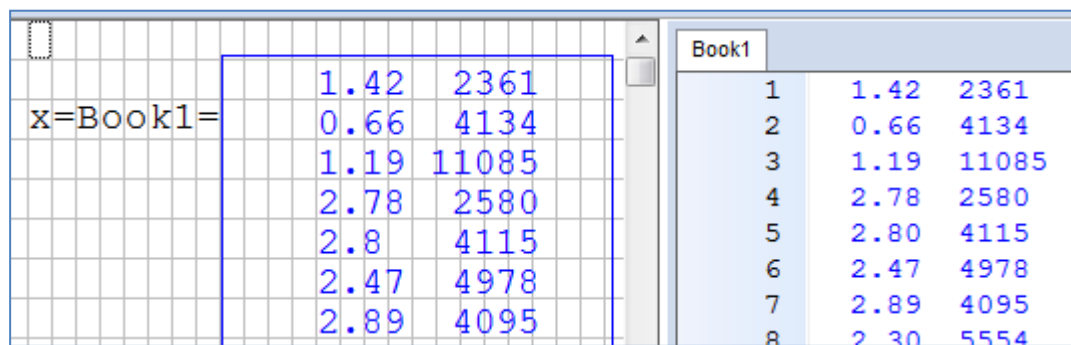
Load a data file in a tab sheet.

3.3 Import Data Files

This section describes the way to read data into *RedCrab* from a file. Typically this data is available as a plain text file organized into columns and rows. *RedCrab* can handle plain text file that contains comma, tab or space as column separator. Rows are delimited with linefeeds or semicolon.

To import a file click the *file* menus item *Import Module .Data Sheet*; this opens the file browser where you can select the file. *RedCrab* shows the loaded file in a named tab sheet. The tab sheet name is the reference to the worksheet or *RCI* program.

The example below shows the import of the text file *Book1.txt*. The statement `x=Book1` on the worksheet store the file as a data field in the variable `x`. In a *RCI* program, write `Let x=Book1`.



The screenshot shows a software interface with a worksheet on the left and a data table on the right. The worksheet has a formula `x=Book1=` in the first row, followed by a selection of data from the table on the right. The data table on the right is titled 'Book1' and contains 8 rows of data.

	1	2	3
1	1.42	2361	
2	0.66	4134	
3	1.19	11085	
4	2.78	2580	
5	2.8	4115	
6	2.47	4978	
7	2.89	4095	
8	2.30	5554	

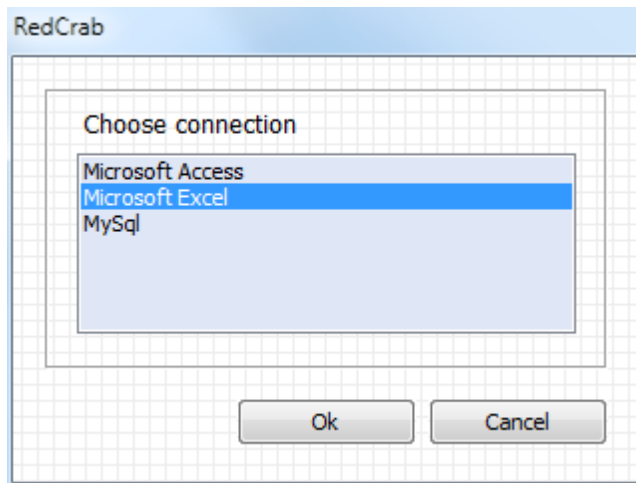
For manual input of data lists, with the *file* menu *New Page.Data Sheet* you can open an empty tab sheet. Then input the data in the format which is described above.

4.0 Menu Connection

The menu *Connection* contains items which provide access to external database and servers.

4.1 Connection .Open

The menu *Open* opens a dialog box to select a connection to a database or file type.

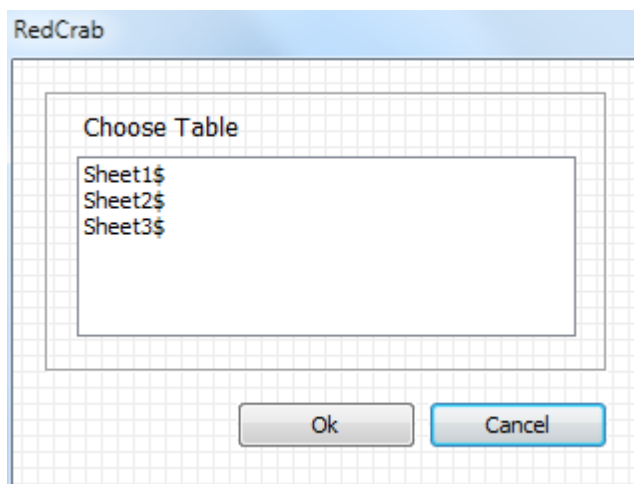


In the example above, three connections are configured. These connections are preconfigured in *RedCrab*. You can create your own connections. For this read the description below about the *Connection Manager*.

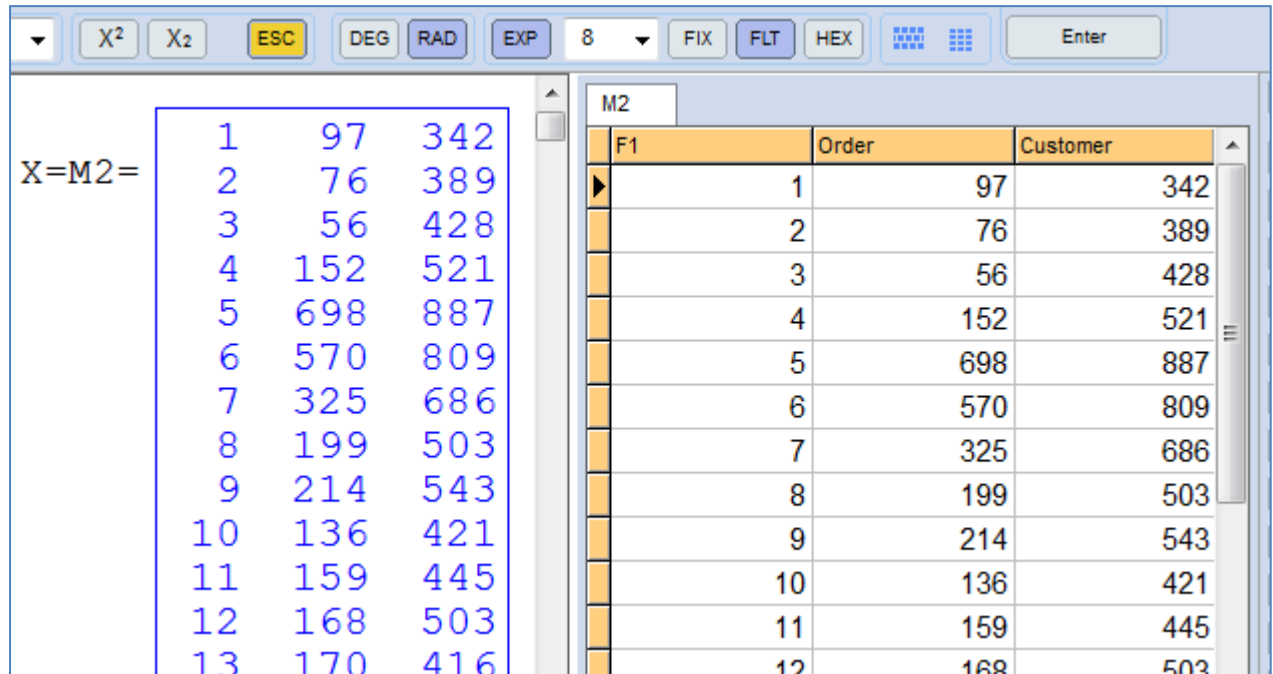
The following description illustrates an example of a *Microsoft Excel* file import.

1. First Select the file type *Microsoft Excel* and confirm the selection with the *OK* button.
2. *RedCrab* opens a file browser in which you open an *Excel* file in the usual way.

3. If the file contains more than one table, *RedCrab* opens a dialog box for selection of the desired table.



The selected table is displayed on a tab. The name of the tab is the reference to the table. You can refer the table to a variable ($X=M2$) and use it like a *RedCrab* data field. Similar to this, write in a *RedCrab* program code: `Let X=M2`



The screenshot shows the RedCrab interface. On the left, a variable is defined as `X=M2=`. To its right, a table of 13 rows and 3 columns is displayed. The columns are labeled 1, 2, and 3. The values are as follows:

1	2	3
97	342	
76	389	
56	428	
152	521	
698	887	
570	809	
325	686	
199	503	
214	543	
136	421	
159	445	
168	503	
170	416	

On the right side of the interface, a tab labeled "M2" is active. Below the tab, a table structure is shown with columns "F1", "Order", and "Customer". The data in this table matches the data in the table on the left.

F1	Order	Customer
1	97	342
2	76	389
3	56	428
4	152	521
5	698	887
6	570	809
7	325	686
8	199	503
9	214	543
10	136	421
11	159	445
12	168	503

The access to other database like *Microsoft Access* or *MySQL* is basically identical, but may vary depending on configuration. If the table is loaded via *TCP/IP*, the database name is already defined in the configuration. Depending

on the configuration, a dialog box for input of the user name and password can be opened.

4.2 Connection Manager

The menu *Connection .Manager* opens a window where you can configure the connections to database and servers. This description gives you an overview of the different functions of the *Connection Manager*.

Connection Name:

The connections name. The name is free to choose.

Driver Name:

The database drivers name. The format (in curly brackets) and the text must be identical to the manual of the specific database

Server IP:

The servers IP address. In the example below showed 127.0.0.1 for *localhost*.

Server Port:

The servers port number. In the example below showed 3306 for *MySQL* database.

User Name:

The users name of the database.

Password:

The user password. If you enable the *Hide* checkbox, the password is not displayed in plain text.

Option:

Database specific options.

Extension:

This field is for another database or server-specific entries that are not provided in the fields above.

Connection:

This field displays the configuration string, which is generated from the fields above. It must match the description in the database manual.

The database functions were tested with *MySQL* and *Microsoft Access*. The communication to the database uses *SQL*, which is compatible to most common database systems. Parameters which have no entries can be inserted in *Extension*. It is also possible to write the configuration string to *Extension* completely, and leave all other fields blank.

The screenshot shows the 'RedCrab Connection Manager' window. It has a main configuration area on the left and a 'Choose Connection' panel on the right. The main area contains fields for Connection Name (MySQL), Driver Name ({MySQL ODBC 5.1 Driver}), Server IP (127.0.0.1), Server Port (3306), Data Base (redcrab), User (Gast), Password (Password), and Options (6). There is a 'Hide' checkbox next to the password field. The 'Choose Connection' panel has a dropdown menu showing 'MySQL' and buttons for 'New', 'Test', 'Save', and 'Delete'. Below these are checkboxes for 'Open browser for file selection', 'Ask for Login', and 'Hide Connection', along with a 'File command' field. At the bottom, there is a section for 'SQL Style' with radio buttons for 'SQL Standard' (selected) and 'Microsoft Excel'. At the very bottom of the window is an 'Exit' button.

Connection Name	MySQL
Driver Name	{MySQL ODBC 5.1 Driver}
Server IP	127.0.0.1
Server Port	3306
Data Base	redcrab
User	Gast
Password	Password
Options	6

Choose Connection: MySQL

New Test Save Delete

☐ Open browser for file selection

File command

☐ Ask for Login ☐ Hide Connection

SQL Style

☒ SQL Standard ☐ Microsoft Excel

Extension

Connection

Exit

Choose Connection:

With *Choose Connection* you can select a connection for editing.

New:

New clears all the fields to create a new Connection.

Test:

Test checks a *TPC/IP* connection to a data base.

Save:

Save stored the configuration.

Delete:

Delete remove the connection.

Open browser for file selection:

If you use a connection where this check box is checked, *RedCrab* opens a file browser to choose the data file. This is pre-configured for the *Microsoft Excel* connection.

File command:

Here the key word is entered, which marks the file name in the driver command string (example: DBQ by *Microsoft Access* and *Excel*).

Ask for Login:

If this checkbox is checked, *RedCrab* opens a dialog box for inputting the user name and password.

Hide Connection:

The connections where this checkbox is checked, are not displayed in the list box which open with the *Connection.Open* menu.

SQL Style:

SQL Style is always set to *SQL Standard*, except by *Microsoft Excel*.

You can create different connections for one database or file type. If you use the same *Excel* file often, you can create a special connection for this file. The example below shows how create a connection for the *Excel* file *Orders.xlsx*.

Example:

- Select the pre configured connection *Microsoft Excel* in the combo box *Choose Connection*.
- In the row *Connection Name* on the left, change the name *Microsoft Excel* to *Excel Order*.
- Reset the checkbox *Open browser for file selection*.
- Write the following path and file string to the row *Extension*:
DBQ=D:docs\Order.xlsx.
- Click the *Save* Button to store the connection.

The new connection is additional to the existents. It does not overwrite the pre-configured connection *Microsoft Excel*.

When you use this new connection, *RedCrab* loads the file *Orders.xlsx* directly, without opening a file dialog.

4.3 Connection.Set Preferences

Set Preferences refresh the pre configured connections in *Connection Manager*. You only need this function, if pre-configured connections are changed or deleted.

4.4 PHP Configuration

Before you can run a *PHP* program in *RedCrab* you must install a *PHP* processor. In a network, one *PHP* processor is necessary only. *RedCrab* can use this processor on all workstations. It is important that *RedCrab* has write permission of the processors document directory. In addition, *RedCrab* need a connection named *PHP* that describe the connection. Note that the name of the connection must be the three letters *PHP* only, without extension.

4.4.1 Use of an existing server

If an intranet server (like *Apache* + *PHP*) is running in a network, *RedCrab* can use this. You only need to configure the *Connection Manager*. *RedCrab* includes a pre-configured connection for intranet server.

RedCrab Connection Manager

Connection Name: PHP Web Server

Driver Name:

Server IP: 127.0.0.1

Server Port:

Data Base:

User:

Password: ☐ Hide

Options:

Choose Connection: PHP Web Server

New Test Save Delete

☐ Open browser for file selection

File command:

☐ Ask for Login ☒ Hide Connection

SQL Style

☒ SQL Standard ☐ Microsoft Excel

Extensions: ROOT=D:\www\;

Connection: SERVER=127.0.0.1;ROOT=D:\www\;

Exit

If you use this configuration, change the following rows:

- Change *Connection Name* to *PHP* by deleting the words *Web Server*.
- Overwrite the IP-address in the row *Server IP*. Runs the intranet-server on your own machine, you can leave the address 127.0.0.1.
- Change in *Extension* the *ROOT* statement to the intranet server's document directory.
- Finally clicks the *Save* Button.

4.4.2 PHP Installation and Configuration

Download the *PHP* processor version 5.4 - VC9 x86 from the web site:

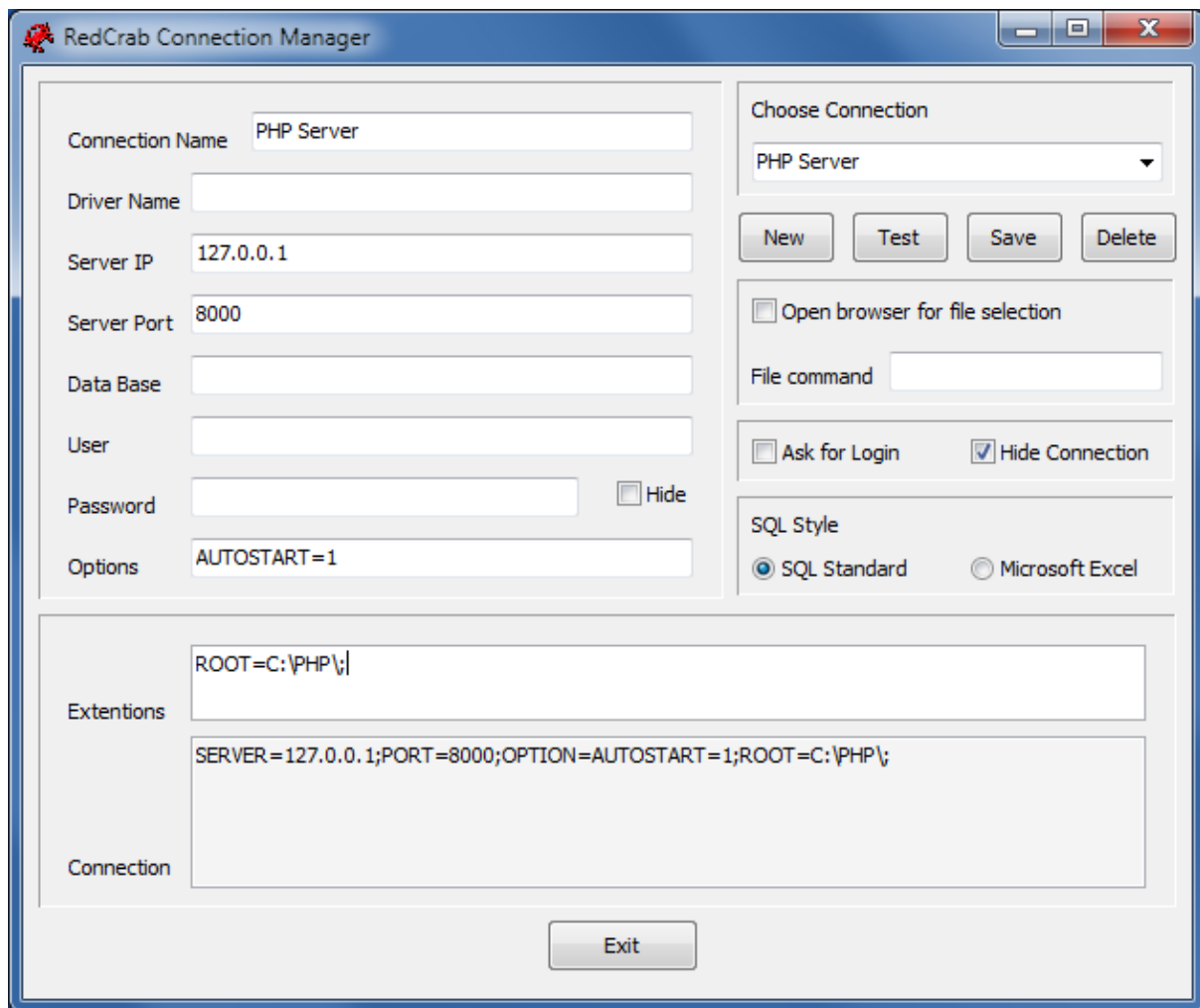
<http://windows.php.net/download/>

If you have installed an older version, you must upgrade to version 5.4 and above as older versions do not have the integrated web server functions. Unzip the file in a directory of your choice. The *PHP* processor requires the configuration file *php.ini*. Copy the preconfigured file *php.ini-development* and rename it to *php.ini*.

The *Configuration Manager* contains a pre-configured connection for a stand-alone *PHP* processor (refer to example below).

The configuration steps as follow:

- Change *Connection Name* to *PHP* by deleting the word *Server*.
- Overwrite the IP-address in the row *Server IP*. Runs the *PHP* processor on your own machine, you can leave the address 127.0.0.1.
- *Server Port* is always 8000.
- The *AUTOSTART=1* statement in *Option* means, *RedCrab* starts up the *PHP* processor automatically by first access to a *PHP* program and shut down the processor if *RedCrab* is closed.
- Change in *Extension* the *ROOT* statement to the *PHP* processor's document directory.
- Finally clicks the *Save* Button.



If the *PHP* processor is installed on another machine in the network, you must start up the processor on this machine manually. In this case, change in *Options* the *AUTOSTART* statement to *AUTOSTART=0* or delete the statement completely.

For manual *PHP* start-up open a *DOS* shell in the *PHP* installation directory and start *PHP* with the option below:

Example: `Php.exe -S 192.168.1.130:8000`

Instead of the IP-address 192.168.1.130, you must use the IP-address of the server where *PHP* runs.

5.1 Menu Help.License

This menu opens a message box which displays information about the license.

5.2 Menu Help.Freeware Registration

This menu opens a dialog box for the *RedCrab* freeware registration. For registration, only your email address is required. Registration is optional and has no effect of the freeware operation. As a registered user, you will receive email notifications about updates or other information about *RedCrab*.

To register, an online connection is required.

5.3 Menu Help.Shareware Free Trial

This menu opens a dialog box which activates the shareware free trial of 14 days. For registration, only your email address is required. After successful activation, a message box displays your registration key. You need this key number if you want to extend the duration.

The shareware mode is automatically enabled after successful registration. The activation is only valid for the registered computer. You can activate multiple computers with the same email address.

To register, an online connection is required.

5.4 Menu Help.Activate Shareware

This menu opens a dialog box to update the duration of the shareware. To do this, you must insert your registered email and registered key. This update is necessary if you have acquired an extension of the duration through the purchase of a license or participate in a promotion.

The acquired duration is stored in *RedCrab* setup. If you lost the information by reinstall of the operating system or by deleting the configuration data, you can reactivate it again.

For activating, an online connection is required.

6.1 Portability

The portability is an important feature of the *RedCrab* calculator. The shareware is fully portable, although the license is assigned to a specific computer. You can start the shareware like the freeware from a *USB* flash drive and save the setup in the configuration file *redcrab.con* instead of *Windows Registry*.

RedCrab has a timer that allows you to use the shareware on non-registered computers up to two days. If you start the program again on the registered computer, the timer resets the two days activation restriction.

The portability is limited only by databases access via *TCP-IP*, this require the installation of the database driver and using of *PHP* applications that require a *PHP* processor.

Note: For faster handling of data transfer, *RedCrab* write the settings of the *Connection Manager* temporary in the *Windows Registry*. When *RedCrab* terminate, it delete the entries, and updated the changes in the configuration file.

6.2 The Program Editor

The program editor has a popup menu that can be opened by pressing the right mouse button. The menu contains the standard *File* and *Edit* menu items. The main menu in the taskbar has no effect the editor.