

R:HASH 11



Help Manual



R:HASH 11

Help Manual

by R:BASE Technologies, Inc.

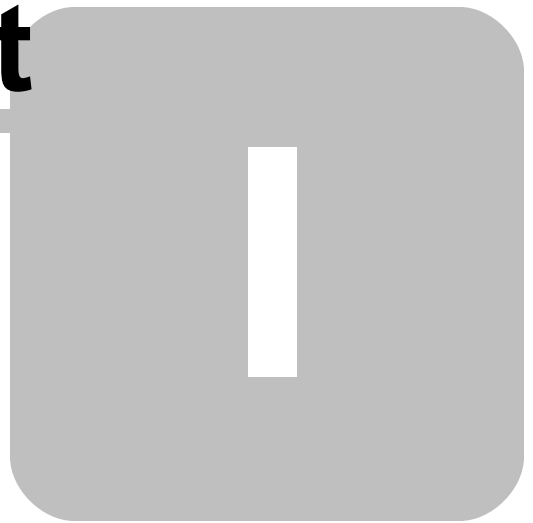
Welcome to R:HASH 11!

R:HASH is used to generate a hash value from internal cryptographic functions.

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Part



1 Introduction

1.1 Introducing R:HASH

The RHASH Plugin is used to generate a hash value from internal cryptographic functions. Based upon a text string value or file name, R:HASH uses one of many available hash functions to generate the hash value (also called a "message digest" or a "checksum") as a sort of "digital fingerprint" of the text string or document. The resulting fixed-size hash value is a concise representation of the source input from which it was computed. Of the output formats, Hexadecimal, Hexadecimal lowercase, MIME Base 64, UU Coding, and XX Coding are available.

R:HASH includes the following hash functions:

- MD4
- MD5
- SHA
- SHA1
- RMD128
- RMD160
- RMD256
- RMD320
- HAVAL256
- HAVAL224
- HAVAL192
- HAVAL160
- HAVAL128
- SAPPHIRE320
- SAPPHIRE288
- SAPPHIRE256
- SAPPHIRE224
- SAPPHIRE192
- SAPPHIRE160
- SAPPHIRE128
- SNEFRU
- SQUARE
- TIGER
- XOR16
- XOR32
- CRC16CCITT
- CRC16
- CRC32

The different hash functions can be used for a variety of computational purposes, including cryptography. Even small changes in the source input drastically alters the resulting output, also known as the avalanche effect.

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Printed: April 2025 in Murrysville, PA

First Edition

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LICENSEE RESPONSIBILITIES

- To help us expedite the process and provide high quality assistance, the licensee must provide proof of purchase when calling. Proof of purchase is defined as the following: registration number, purchase date, version and build number, and company or individual to which product is registered.
- To have operating system, workstations, and local network installed and functional. RBTI will NOT be responsible for resolving issues not pertaining to the Program.
- Our support staff deals with advanced issues, therefore the person contacting RBTI for assistance should be the system administrator or have other R:BASE/SQL experience and be able to understand and implement the advice given.
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1.4 Complimentary Support

30 DAY LIMITED COMPLIMENTARY TECHNICAL SUPPORT

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2. To have operating system, workstations, and local network installed and functional. R:BASE Technologies will NOT be responsible for resolving issues not pertaining to the software product.
3. Our support staff deals with advanced issues, therefore the person contacting R:BASE Technologies for assistance should be the system administrator or have other R:BASE/SQL experience and be able to understand and implement the advice given.
4. To have the database, application, and command files being reviewed, safely backed-up before attempting assistance. R:BASE Technologies will NOT be held responsible for lost data or corruption as a result of advice given.

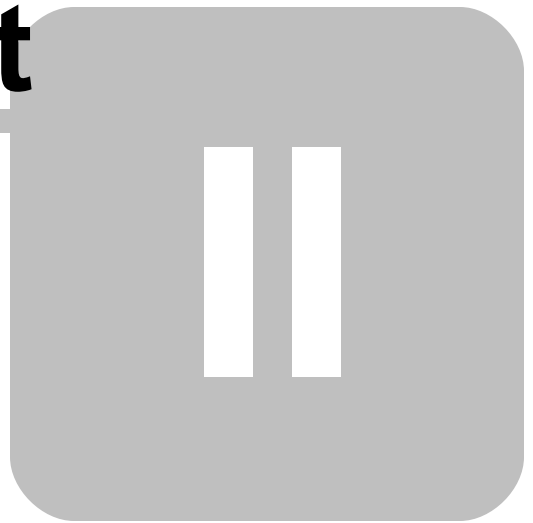
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1. To provide quality assistance in a timely manner to aid in the installation of the product and elementary conversion of database, application, and command files within 30 days of the date of purchase.
2. To provide a reasonable solution for any solvable issue. Not all issues may be solved, and therefore we will acknowledge the existence of known issues, or bugs, which we are presently aware of, that have no reasonable work-around.

R:BASE Technologies reserves the right to limit the amount of support time allotted to a maximum of 2 HOURS during the 30-Day Complimentary Technical Support period. We also reserve the right to limit the quantity of calls from a particular licensee to 30 MINUTES in a single day. Issues are dealt with on a case-by-case basis, and are handled at the discretion of the support agent assigned to the case. Complimentary Support is limited to INSTALLATION and ELEMENTARY CONVERSION related issues ONLY. Our support hours are Monday through Friday, from 10:00 AM to 6:00 PM (EST).

For application, design, or advanced conversion assistance, R:BASE Technologies offers Technical Support Plans of various types to meet your needs. Please visit the Support page at <https://www.rbase.com/support> for details and pricing.

Part



2 Installation

2.1 System Requirements

The following system specifications are recommended for the optimal use of R:BASE and R:BASE-related software.

Workstation Hardware

- 2-Core 2GHz+ CPU
- 2 GB of available RAM (4 GB recommended)
- 2 GB of available hard disk space
- 1024x768 or higher resolution video adapter and display
- Standard mouse or compatible pointing device
- Standard keyboard

Server Hardware

- 2-Core 2GHz+ CPU
- 6 GB of available RAM (8 GB recommended)

Operating System

- Microsoft Windows 11 (Professional)
- Microsoft Windows 10 (Professional)
- Microsoft Windows Server 2025
- Microsoft Windows Server 2022
- Microsoft Windows Server 2019
- Microsoft Windows Server 2016

Network

- Ethernet infrastructure (Gigabyte recommended)
- Internet connection recommended, but not required, for license activation, software updates, and support
- Anti-virus programs should exclude the R:BASE program, and any add-on product, executable and database files

2.2 Things You Will Need

- License Key

Before launching the installer, it is recommended that you have your 32-character License Key readily available. The License Key is provided in a document, with the email message, when the software was originally purchased. If you have lost or misplaced your License Key, please contact our Support Staff by email at support@rbase.com.

- Internet Access

The computer where the software will be launched should have access to the Internet for activation. The Internet access is used to visit the R:BASE Technologies Web site to provide your required Activation Key.

In instances where the software will be installed on a computer that is not connected to the Internet, you must then contact R:BASE Technologies to provide information displayed on the computer screen. Please contact our Product Activation Staff by email at activationkey@rbase.com. The Registration Number must be provided. The Registration Number is displayed on the invoice/order slip, and within the email, when the software was originally purchased.

2.3 Software Installation

The installation of R:HASH is fully automated and does not require user intervention for the initial setup.

Run the installer ".exe", provided by download, while physically sitting at the workstation to begin the installation process, and read the installer screens for licensing and other information as the program installs.

Installation Directory

C:\RBTI\RHASH11

Files Installed

RHASH11.rbm
RHASH11.chm
RHASH11.pdf
RHASH11.ico
License.rtf
ReadMe.txt

Requirements:

Plugin

The R:HASH 11 Plugin file (RHASH11.rbm) must be placed in the R:BASE 11 program directory (default: C:\RBTI\RBG11) or the runtime/compiled application directory.

2.4 Plugin Activation

R:BASE Plugins can be used to enhance, or extend R:BASE operations. Current R:BASE Plugins use the .RBM file extension.

To begin using any plugin product, the plugin must be registered for use.

The license type for R:BASE and R:BASE plugin products must match. The license keys supplied with Single Seat and 5 Seat plugin products will only be accepted within Single Seat and 5 Seat versions of R:BASE, and are not accepted within R:Compiler for R:BASE or Runtime for R:BASE programs. The same license structure is also in place for Runtime License Keys for plugin products, where the key will not be accepted within Single Seat and 5 Seat Licenses R:BASE.

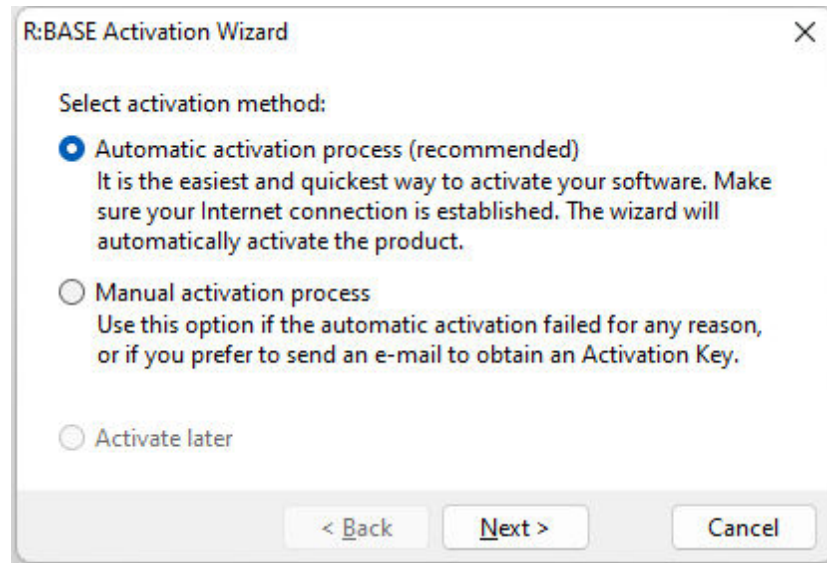
2.4.1 R:BASE

To begin using a plugin product, you must register the software within R:BASE by selecting "Help" > "Product Activation" from the main Menu Bar. In this window, select the "Add New" button where you can enter or copy and paste the License Key you received with your product.

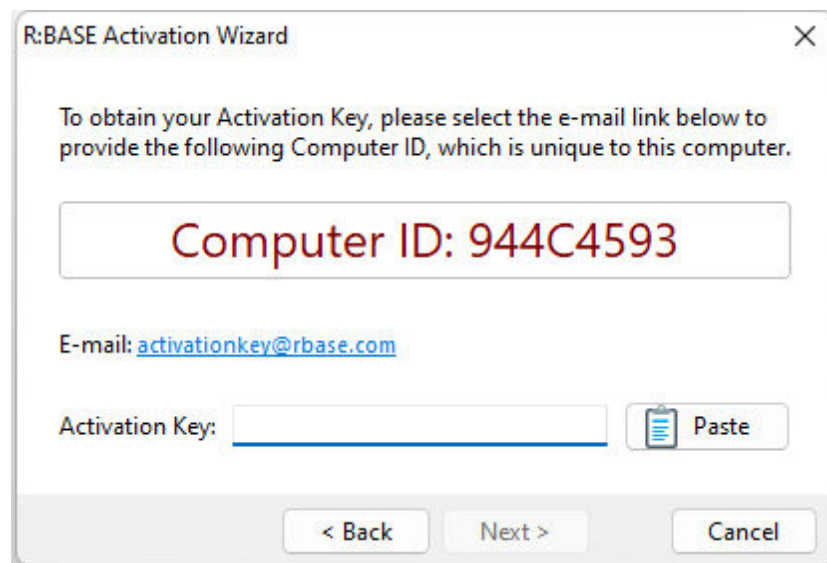
Only "Per Seat" License Keys are valid for this entry screen. All "Runtime" License Keys must be registered within R:Compiler for R:BASE or within Runtime for R:BASE separately.

A screenshot of a "License Information" dialog box. The dialog has a title bar with a close button (X). Inside, the text "Enter License Key:" is followed by a series of seven empty rectangular boxes separated by hyphens. At the bottom, there are three buttons: "Paste" with a clipboard icon, "OK" with a green checkmark icon, and "Cancel" with a red X icon.

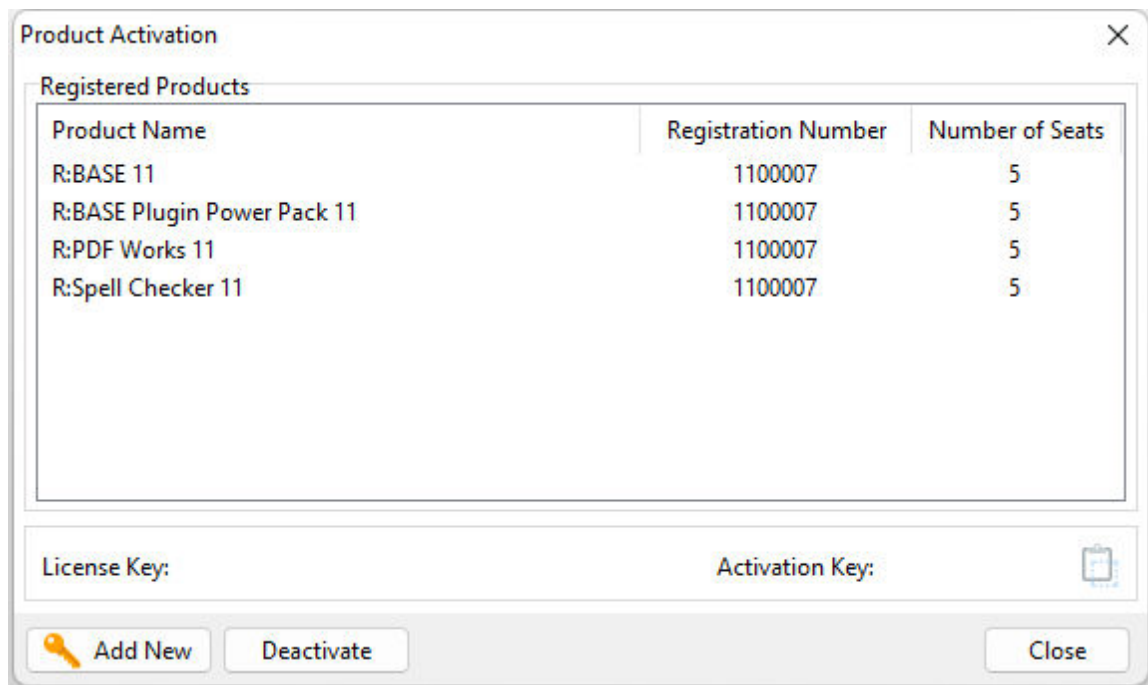
After entering the License Key, you will see a dialog to prompt for your activation method. The software can be activated automatically over the Internet, or manually by retrieving an Activation Key from R:BASE Technologies by email or over the phone. If you select "Later", you will be reminded each time R:BASE starts to activate your copy.



When activating the software manually, you select the e-mail link to launch your email client and send a pre-formatted message to R:BASE Technologies that will contain your License Key and the displayed Computer ID. You will need to provide your R:BASE Registration Number and Computer ID.



At any time, you can review your product information by starting R:BASE, and from the Menu Bar clicking on "Help" > "Product Activation". Your R:BASE Registration Number is displayed on the window. You can also enter additional License Keys for R:BASE add-on products.



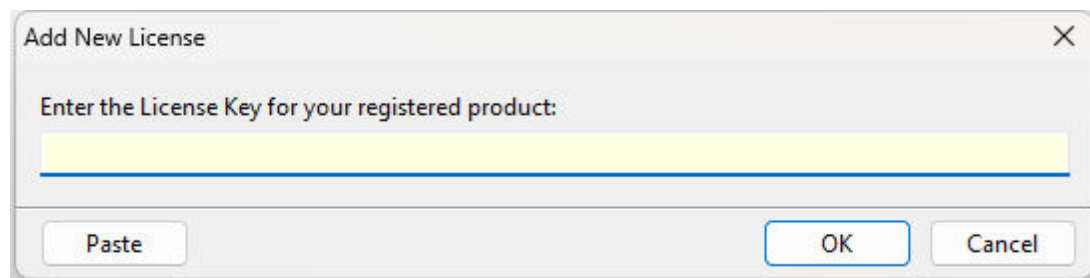
Please be advised that if you are activating multiple workstations, it is highly recommended that you keep records of the computer name, Computer ID and Activation Key for future reference. Access to this information will prove convenient in the event of a hardware failure or license transfer when uninstalling R:BASE.

Please see: [Uninstall/Reinstall](#)

2.4.2 R:Compiler for R:BASE

Runtime License Key

Runtime license keys for an R:BASE Plugin must be stored within the compiled executable. A specific Runtime License Key would be provided after your purchase of the Runtime software product. Adding a Runtime License to your project can be done by selecting the "Add License" button, and pasting the appropriate Runtime License Key into the displayed dialog window.



After a Runtime License is added as a resource, it will be assigned a "Resource ID". This ID consists of the word "License" and an incrementing value for the number of licenses added to the executable.

Plugin File (.RBM)

R:BASE Plugin files can be added and stored within the compiled executable or included within the R:BASE application directory. The Runtime license key pertaining to the R:BASE Plugin must be stored in the compiled executable.

Adding a Plugin to the list of resources can be performed by selecting the "Add Plugin" button on the Tool Bar. You will be prompted to locate the appropriate Plugin file with the .RBM file extension. After a Plugin file is added as a resource, it will be assigned a "Resource ID". This ID consists of the Plugin file name.

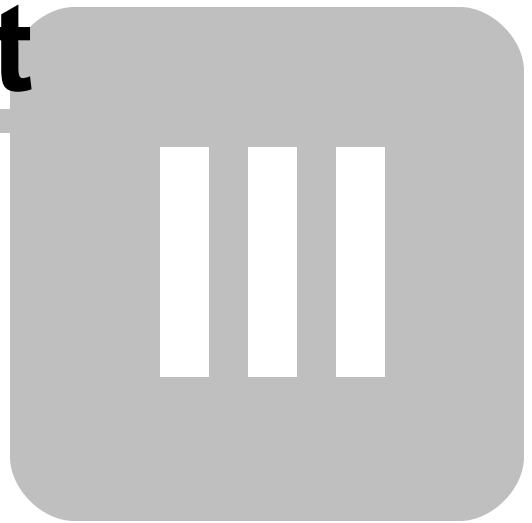
2.4.3 Runtime for R:BASE

After R:BASE Plugins are acquired for Runtime for R:BASE applications, the Plugin file must be included in the Runtime application folder, to be loaded when the Runtime application launches.

To load the Plugin, the License Key must be included into the Runtime for R:BASE session by adding the following PROPERTY command within the application startup file:

```
PROPERTY ADD_LICENSE #####-#####-#####-#####-#####-#####-#####-##### ' '
```

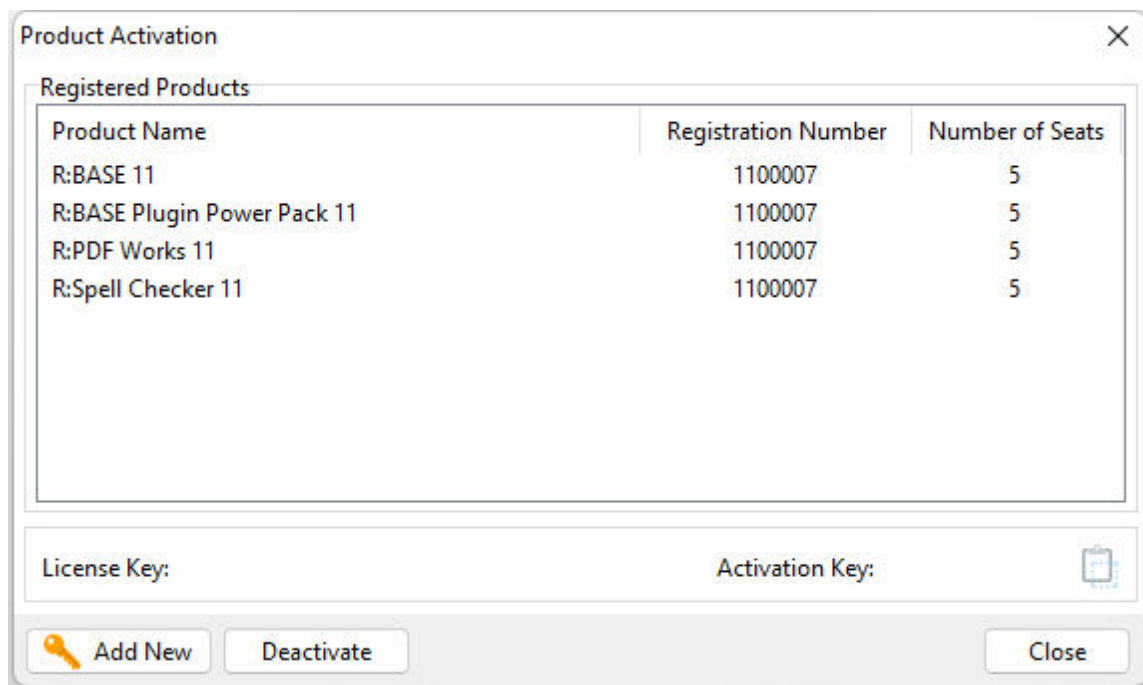

Part



3 Uninstall

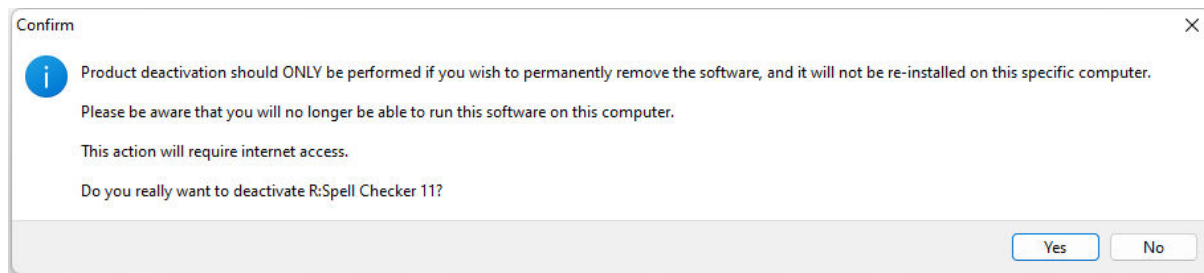
If a computer is no longer using R:HASH, through license transfer or hardware failure, the Activation Key that was used on that computer must be submitted to R:BASE Technologies so we can then remove the Activation Key from our log. We will disable the Key, which will then free up that used activation. Once a key is reported to us as no longer in use and deactivated, it can no longer be used on that computer.

Product deactivation can be performed automatically from within R:BASE. To review your product information select "Help" > "Product Activation" from the Menu Bar. Here, the License Key and Activation Key for a selected product is available for review.



If the License Key for your product is not readily available for the license transfer, select the "Copy License Key" button to send your License Key to the clipboard.

To deactivate a listed product, select it and press the "Deactivate" button. The below confirmation dialog will appear. After selecting "Yes", the product will be removed from the list.



After completing the deactivation of the product, it can be successfully reinstalled and activated.

Part

IV

4 Command Syntax

Syntax:

```
PLUGIN RHASH vResult |Parameters
```

Parameters:

Parameters	Value	Description
VALUE	value	specifies the string value
FILE	value	specifies the file name
TYPE	value	specifies the hash function Name. Refer to the Available Functions table.
OUTPUT_FORMAT	COPY - One to One binary (input = output) HEX - Hexadecimal HEXL - Hexadecimal lowercase MIME64 - MIME Base 64 UU - UU Coding XX - XX Coding	specifies the output value format

Available Functions

Name	Result	Key Size	Type	Description	Collision
MD4	16 byte	128 bit	Cryptographic	Message Digest 4	Yes
MD5	16 byte	128 bit	Cryptographic	Message Digest 5	Yes
SHA	20 byte	160 bit	Cryptographic	Secure Hash Algorithm	Yes
SHA1	20 byte	160 bit	Cryptographic	Secure Hash Algorithm 1	Yes
RMD128	16 byte	128 bit	Cryptographic	Ripe Message Digest 128	Yes
RMD160	20 byte	160 bit	Cryptographic	Ripe Message Digest 160	No
RMD256	32 byte	256 bit	Cryptographic	Ripe Message Digest 256	No
RMD320	40 byte	320 bit	Cryptographic	Ripe Message Digest 320	No
HAVAL256	32 byte	256 bit	Cryptographic	Haval-256	Yes
HAVAL224	28 byte	224 bit	Cryptographic	Haval-224	Yes
HAVAL192	24 byte	192 bit	Cryptographic	Haval-192	Yes
HAVAL160	20 byte	160 bit	Cryptographic	Haval-160	Yes
HAVAL128	16 byte	128 bit	Cryptographic	Haval-128	Yes
SAPPHIRE320	40 byte	320 bit	Cryptographic	Sapphire II-320	No
SAPPHIRE288	36 byte	288 bit	Cryptographic	Sapphire II-288	No
SAPPHIRE256	32 byte	256 bit	Cryptographic	Sapphire II-256	No
SAPPHIRE224	28 byte	224 bit	Cryptographic	Sapphire II-224	No
SAPPHIRE192	24 byte	192 bit	Cryptographic	Sapphire II-192	No
SAPPHIRE160	20 byte	160 bit	Cryptographic	Sapphire II-160	No
SAPPHIRE128	16 byte	128 bit	Cryptographic	Sapphire II-128	No
SNEFRU	32 byte	256 bit	Cryptographic	Snefru-256	Yes
SQUARE	16 byte	128 bit	Cryptographic	Square	No
TIGER	24 byte	192 bit	Cryptographic	Tiger	Yes
XOR16	2 byte	16 bit	Checksum	XOR-16	N/A
XOR32	4 byte	32 bit	Checksum	XOR-32	N/A
CRC16CCITT	2 byte	16 bit	Cyclic redundancy checks	CRC-16 CCITT	N/A
CRC16	2 byte	16 bit	Cyclic redundancy checks	CRC-16 Standard	N/A
CRC32	4 byte	32 bit	Cyclic redundancy checks	CRC-32	N/A

Notes:

- The variable name and parameters must be separated by a "|" pipe character.
- The specified variable will return the hash value of the string/file, or a specific "Error Return Value".

Error Return Value	Description
-1	The specified file does not exists.

-2	An error has occurred during the calculations.
-3	The VALUE or FILE parameter was not specified.

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5 Examples

Example 01:

```
PLUGIN RHASH vHash_HAVAL192 +  
|VALUE This is my text value +  
|TYPE HAVAL192 +  
|OUTPUT_FORMAT HEX  
  
SHOW VAR vHash_HAVAL192 =60  
E72D0B4805EB2DDFF3535D4CA1D79A1D5D3B950B0B128161
```

Example 02:

```
PLUGIN RHASH vHash_RMD256 +  
|FILE C:\RBTI\ProgrammingInRBASE.pdf +  
|TYPE RMD256 +  
|OUTPUT_FORMAT MIME64  
  
SHOW VAR vHash_RMD256 =60  
ID/2aaGsFPxXV+nRWJQs6hiEXtQRE+febg6BHhkZ5Ec=
```

Example 03:

```
PLUGIN RHASH vHash_SAPPHIRE320 +  
|FILE C:\RBTI\GainingSpeedWithProgramming.pdf +  
|TYPE SAPPHIRE320 +  
|OUTPUT_FORMAT XX  
  
SHOW VAR vHash_SAPPHIRE320 =60  
clkuZX+rWQyRmpKe-FHS5OT7L-NbtXMR9nqb938d-N0c-9xNRqLsa3E++
```

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6 Technical Support

Please read over the help documentation at least once before seeking support. We have worked very hard to make the help documentation clear and useful, but concise. It is suggested that you reread these instructions once you have become accustomed to using the software, as new uses will become apparent.

If you have further questions, and cannot find the answers in the documentation, you can obtain information from the below sources:

- Email our Technical Support Staff at: support@rbase.com
- Access the R:BASE Technologies Support home page online at <https://www.rbase.com/support>

You may be required to purchase a technical support plan. Several support plans are available to suit the needs of all users. [Available Technical Support Plans](#)

Please be prepared to provide the following:

- The product registration number, which is located on the invoice/order slip for the purchased product
- The type of operating system and hardware in use
- Details regarding your operating environment; such as available memory, disk space, your version of R:BASE, local area network, special drivers, related database structures, application files, and other files that are used or accessed by your application

All provide information will be used to better assist you.

R:BASE Technologies has a number of different services available for R:BASE products. As a registered user, you will receive information about new features for R:BASE and other R:BASE Technologies products. Please remember to register your software. <https://www.rbase.com/register/>

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7 Useful Resources

- . R:BASE Home Page: <https://www.rbase.com>
- . Up-to-Date R:BASE Updates: <https://www.rbaseupdates.com>
- . Current Product Details and Documentation: <https://www.rbase.com/rbg11>
- . Support Home Page: <https://www.rbase.com/support>
- . Product Registration: <https://www.rbase.com/register>
- . Official R:BASE Facebook Page: <https://www.facebook.com/rbase>
- . Sample Applications: <https://www.razzak.com/sampleapplications>
- . Technical Documents (From the Edge): <https://www.razzak.com/fte>
- . Education and Training: <https://www.rbase.com/training>
- . Product News: <https://www.rbase.com/news>
- . Upcoming Events: <https://www.rbase.com/events>
- . R:BASE Online Help Manual: <https://www.rbase.com/support/rsyntax>
- . Form Properties Documentation: <https://www.rbase.com/support/FormProperties.pdf>
- . R:BASE Beginners Tutorial: <https://www.rbase.com/support/rtutorial>
- . R:BASE Solutions (Vertical Market Applications): <https://www.rbase.com/products/rbasesolutions>

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8 Feedback

Suggestions and Enhancement Requests:

From time to time, everyone comes up with an idea for something they'd like a software product to do differently.

If you come across an idea that you think might make a nice enhancement, your input is always welcome.

Please submit your suggestion and/or enhancement request to the R:BASE Developers' Corner Crew (R:DCC) and describe what you think might make an ideal enhancement. In R:BASE, the R:DCC Client is fully integrated to communicate with the R:BASE development team. From the main menu bar, choose "Help" > "R:DCC Client". If you do not have a login profile, select "New User" to create one.

If you have a sample you wish to provide, have the files prepared within a zip archive prior to initiating the request. You will be prompted to upload any attachments during the submission process.

Unless additional information is needed, you will not receive a direct response. You can periodically check the status of your submitted enhancement request.

If you are experiencing any difficulties with the R:DCC Client, please send an e-mail to rdcc@rbase.com.

Reporting Bugs:

If you experience something you think might be a bug, please report it to the R:BASE Developers' Corner Crew. In R:BASE, the R:DCC Client is fully integrated to communicate with the R:BASE development team. From the main menu bar, choose "Help" > "R:DCC Client". If you do not have a login profile, select "New User" to create one.

You will need to describe:

- What you did, what happened, and what you expected to happen
- The product version and build
- Any error message displayed
- The operating system in use
- Anything else you think might be relevant

If you have a sample you wish to provide, have the files prepared within a zip archive prior to initiating the bug report. You will be prompted to upload any attachments during the submission process.

Unless additional information is needed, you will not receive a direct response. You can periodically check the status of your submitted bug.

If you are experiencing any difficulties with the R:DCC Client, please send an e-mail to rdcc@rbase.com.

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