

kiHash.dll (tm) Kenneth Ives kenaso@tx.rr.com

I am open to ways to improve this application, please email me.

Visual Basic 6.0 with Service Pack 6 runtime files required.

To obtain required files (VBRun60sp6.exe):

<http://www.microsoft.com/downloads/details.aspx?FamilyId=7B9BA261-7A9C-43E7-9117-F673077FFB3C>

VBRun60sp6.exe installs Visual Basic 6.0 SP6 run-time files.

<http://support.microsoft.com/kb/290887>

This software has been tested on Windows XP through Windows 7.

Windows 9x, 2000 and NT4 are no longer supported.

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REFERENCE:

NIST (National Institute of Standards and Technology)

FIPS (Federal Information Processing Standards Publication)

SP (Special Publications)

<http://csrc.nist.gov/publications/PubsFIPS.html>

FIPS 180-2 (Federal Information Processing Standards Publication)

dated 1-Aug-2002, with Change Notice 1, dated 25-Feb-2004

http://csrc.nist.gov/publications/fips/fips180-2/FIPS180-2_changenotice.pdf

FIPS 180-3 (Federal Information Processing Standards Publication)

dated Oct-2008 (supercedes FIPS 180-2)

http://csrc.nist.gov/publications/fips/fips180-3/fips180-3_final.pdf

FIPS 180-4 (Federal Information Processing Standards Publication)

dated Mar-2012 (Supercedes FIPS-180-3)

<http://csrc.nist.gov/publications/fips/fips180-4/fips-180-4.pdf>

Examples of the implementation of the secure hash algorithms

SHA-1, SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224 and

SHA-512/256, can be found at:

<http://csrc.nist.gov/groups/ST/toolkit/examples.html>

http://csrc.nist.gov/groups/ST/toolkit/documents/Examples/SHA2_Additional.pdf

Aaron Gifford's additional test vectors
<http://www.adg.us/computers/sha.html>

Guidelines for Media Sanitization (SP800-88)
http://csrc.nist.gov/publications/nistpubs/800-88/NISTSP800-88_rev1.pdf

Feb-2005: SHA-1 has been compromised. Recommended that you do not use for password or document authentication.
http://www.schneier.com/blog/archives/2005/02/sha1_broken.html
<http://csrc.nist.gov/groups/ST/toolkit/documents/shs/NISTHashComments-final.pdf>

March 15, 2006: The SHA-2 family of hash functions (i.e., SHA-224, SHA-256, SHA-384 and SHA-512) may be used by Federal agencies for all applications using secure hash algorithms. Federal agencies should stop using SHA-1 for digital signatures, digital time stamping and other applications that require collision resistance as soon as practical, and must use the SHA-2 family of hash functions for these applications after 2010. After 2010, Federal agencies may use SHA-1 only for the following applications:

- hash-based message authentication codes (HMACs)
- key derivation functions (KDFs)
- random number generators (RNGs)

Regardless of use, NIST encourages application and protocol designers to use the SHA-2 family of hash functions for all new applications and protocols.
<http://csrc.nist.gov/groups/ST/hash/policy.html>

Export Control: Certain cryptographic devices and technical data regarding them are subject to Federal export controls. Exports of cryptographic modules implementing this standard and technical data regarding them must comply with these Federal regulations and be licensed by the Bureau of Export Administration of the U.S. Department of Commerce. Information about export regulations is available at:
<http://www.bis.doc.gov/index.htm>

SHA-2 support on MS Windows

Paraphrasing: Regarding SHA-224 support, SHA-224 offers less security than SHA-256 but takes the same amount of resources. Also SHA-224 is not generally used by protocols and applications. The NSA's (National Security Agency) Suite B standards also does not include it. Microsoft has no plans to add it to future versions of their Cryptographic Service Providers (CSP).

<http://blogs.msdn.com/b/alejacma/archive/2009/01/23/sha-2-support-on-windows-xp.aspx>

How to use:

For a simple example, execute the SHA_Demo application. The demo converts the data to a byte array prior to passing it to the DLL to be hashed.

[STRING DATA]
Convert string data to byte array prior to passing to the HashString function.

Example: `abytData() = StrConv("abc", vbFromUnicode)`

[FILE DATA]
Just the path and filename are passed in the byte array. Convert the path\filename data to byte array prior to passing to the HashFile function.

The HashFile routine will open and read the file into an internal byte array.

Example:

```
abytData() = StrConv("C:\Files\Test Folder\Testfile.doc", vbFromUnicode)
```

Both will create a hashed output string based on file data input.

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Located in Hash (clsHash.cls)
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```
' *****
' Enumerations
' *****
Public Enum enumHASH_ALGORITHM
    eHASH_MD4          ' 0
    eHASH_MD5          ' 1
    eHASH_SHA1         ' 2
    eHASH_SHA224        ' 3
    eHASH_SHA256        ' 4
    eHASH_SHA384        ' 5
    eHASH_SHA512        ' 6
    eHASH_SHA512_224    ' 7
    eHASH_SHA512_256    ' 8
    eHASH_SHA512_320    ' 9
    eHASH_RIPEMD128     ' 10
    eHASH_RIPEMD160     ' 11
    eHASH_RIPEMD256     ' 12
    eHASH_RIPEMD320     ' 13
    eHASH_TIGER128      ' 14
    eHASH_TIGER160      ' 15
    eHASH_TIGER192      ' 16
    eHASH_TIGER224      ' 17
    eHASH_TIGER256      ' 18
    eHASH_TIGER384      ' 19
    eHASH_TIGER512      ' 20
    eHASH_WHIRLPOOL224  ' 21
    eHASH_WHIRLPOOL256  ' 22
    eHASH_WHIRLPOOL384  ' 23
    eHASH_WHIRLPOOL512  ' 24
End Enum

' *****
' **** Properties ****
' *****
Version - Output - String - Name of DLL and version information

StopProcessing - Input/Output - Boolean - True if user wants to stop
processing.

HashMethod - Input only - [OPTIONAL] Long integer (0-22) designating what
hash algorithm to use. See enumHASH_ALGORITHM

HashRounds - Input only - [OPTIONAL] Long integer (1-10) designating number
of hash iterations to use.

ReturnLowercase - Input only - [OPTIONAL] Boolean - Return hashed data in
upper or lower case format. Default = TRUE

' *****
' **** Methods ****
' *****
' Creates a hash output string based on string data input
' in byte array format.
Function HashString(ByRef abyInput() As Byte) As Variant

' Creates a hash output string based on file data input.
' Input is the Path/File location only in byte array format.
Function HashFile(ByRef abyInput() As Byte) As Variant
```



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```

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