NAME
   name_hash -- Add, verify or remove a checksum as a suffix of the filename

SYNOPSIS
   name_hash (**-a**|**-v**|**-r**) *input_path*
   name_hash -h | **-x**

DESCRIPTION
   Bash_AVpres is a collection of Bash scripts for audio-visual preservation. One of these small programs
   is **name_hash** which can perform three different tasks:
   ⊕ add a checksum to the filename
   ⊕ verify if the integrated checksum matches the file content
   ⊕ remove the checksum from the filename

   The default format is:
      path/to/filename_checksum.extension

   The script dismisses the necessity of handling additional manifest files containing the checksums. It
   works with both a single file or all the files inside a folder recursively. Note that this is fully reversible
   and therefore adapting to an evolving archive's policy is not an issue.

   Bash version 3.2 or later is strongly recommended. We advise to use the current version 5.3.

OPTIONS
  BASIC OPTIONS
   -a *input_path*, **--add=***input_path*
         path to a file or a folder

         Add the checksum as suffix of the filename.

   -v *input_path*, **--verify=***input_path*
         path to a file or a folder

         Verify if the checksum matches the file's content.

         Note that the verification is faster when the **--algorithm** option is provided, especially when MD5
         or CRC-32 is used.

   -r *input_path*, **--remove=***input_path*
         path to a file or a folder

Remove the filename's suffix containing the checksum.

ADVANCED OPTIONS

The arguments of the advanced options can be overwritten by the user. Please remember that any string containing spaces must be quoted, or its spaces must be escaped.

--algorithm=(*xxh32|xxh64|xxh128|md5|sha1|sha256|sha512|crc32*)
We advise to use a faster non-cryptographic hash functions, because we consider that, for archival purposes, there is no necessity to apply a more complex unkeyed cryptographic hash function. The algorithm name can be passed in upper or lower case letters.

The default algorithm is xxHash 128:
    --algorithm='xxh128'

The alhorithm xxHash 128 and MD5 have the same checksum size. If the algorithm is not specified, then xxHash 128 is checked before MD5. Therefore, if you verify files with an MD5 checksum, then you may pass the option **--algorithm=md5** in order to speed-up the verification.

Also xxHash 32 and CRC-32 have the same checksum size. If the algorithm is not specified, then xxHash 32 is checked before CRC-32.

The script needs external commands to compute the hash checksum of the files. Run either **name_hash -x** or **name_hash --options** to see the actual default tools on a specific computer.

--xxh32='/bin/xxhsum -H32'
xxHash 32 command

--xxh64='/bin/xxhsum -H64'
xxHash 64 command

--xxh128='/bin/xxhsum -H128'
xxHash 128 command

--md5='/bin/md5sum'
MD5 command

--sha1='/bin/sha1sum'
SHA-1 command

--sha256='/bin/sha256sum'

SHA-256 command

--sha512='/bin/sha512sum'
    SHA-512 command

--crc32='/bin/crc32'
    CRC-32 command

--verbosity=(*path*|*filename*|*count*|*off*)
    For each processed file the Terminal will show:
        path   = full path
        filename = only filename and extension
        count   = a counter (default)
        off   = nothing, i.e. works silently

--confirmation=(*yes*|*no*)
    By default, the script demands confirmation from the user before removing any checksum. The
    option **--confirmation=no** avoids it, which is useful when the script is run in a batch process and/or
    chain of scripts.

--with_algorithm=(*yes*|*no*)
    By default, the script does not include the algorithm in the filename. By setting the option
    --with_algorithm=yes the filename becomes
        path/to/filename_algorithm_checksum.extension

INFORMATIVE OPTIONS
-h, --help
    display a help message

-x, --options
    display the advanced options with their default arguments and indicate if a local configuration has
    been defined or not

NOTES
It is possible to have multiple checksum suffixes, separated by an underscore, but **name_hash** considers
always the last one.

CONFIGURATION FILE
An external configuration file
    ${HOME}/.config/AVpres/Bash_AVpres/name_hash.txt

can be defined, allowing the script to import alternate default values for the following options:

    default_algorithm
    md5
    sha1
    sha256
    sha512
    xxh32
    xxh64
    xxh128
    crc32
    verbosity
    confirmation
    with_algorithm

Example:

    default_algorithm='md5'
    verbosity='off'
    confirmation='no'

LOG FILES

Temporary log files are stored at

    /tmp/AVpres/name_hash.XXXXXXXXXX

The log files can be used for debugging, for example by running **cat** on the address prompted with fatal error messages:

    cat /tmp/AVpres/name_hash.*XXXXXXXXXX*

SEE ALSO

Yann Collet: "xxHash fast digest algorithm", version 0.2.0, 2023-06-29
    https://github.com/Cyan4973/xxHash/blob/dev/doc/xxhash_spec.md

RFC 1321, "The MD5 Message-Digest Algorithm", April 1992
    https://www.rfc-editor.org/info/rfc1321

RFC 3174, "US Secure Hash Algorithm (SHA1)", September 2001
    https://www.rfc-editor.org/info/rfc3174

"Descriptions of SHA-256, SHA-384, and SHA-512"
    https://web.archive.org/web/20130526224224/http://csrc.nist.gov/

groups/STM/cavp/documents/shs/sha256-384-512.pdf

xxhsum(1), **md5sum**(1), **sha1sum**(1), **sha256sum**(1) and **sha512sum**(1).

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