

Hashing

Hashing is available with Mobius ver 0.5.0 (Rev547)or any later version. This function is used to prevent data falsification.

Activating the hashing

Activation of the hashing function can be performed with following procedure (hashing is inactivated by default):

1. Go to [Workflow]→[Settings...](Figure 1).
2. [Setting Dialog] box pops up (Figure 2).
3. Uncheck the [Turn off hashing per recording] to generate the Hash text file.
4. Uncheck the [Turn off hash checking of loaded files] to activate the hash checking.
5. Click OK.

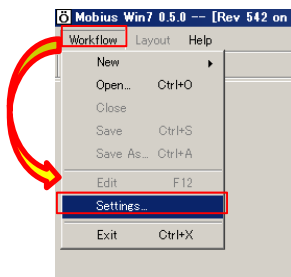


Figure 1.

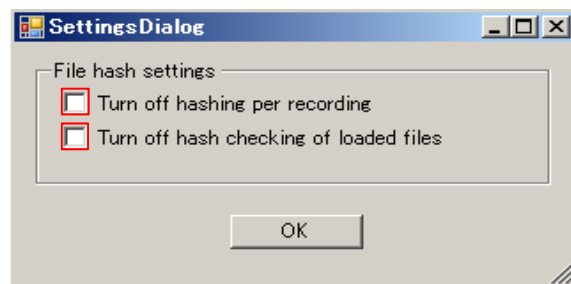


Figure 2.

NOTE:

When hash checking is enabled and a Mobius data file (.modat) is opened which does not have a hash text file, a message (as seen in the Figure 3) is displayed. The Mobius data file still can be opened after clicking 'OK.'

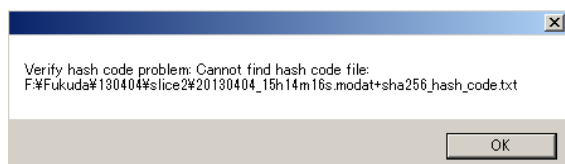


Figure 3.

How does Mobius hashing work?

When used for data security, a hash function uses a file's contents to output a string (hash code) which is generated based upon every value contained in the file. When a new file is created, a unique hash code string will be written to a .txt file. If any part of the data file is altered, then the hash function will not reproduce the original hash code for that file. When this happens, it indicates that the data file has been altered and there is a possible security breach by a person or other program.

In Mobius, when hashing is turned on, it uses the SHA256 hash function to generate a hash code every time a raw data file (.modat file) is finalized. This happens when the user clicks the Stop button or the recording time runs out but not for pausing. The generated hash code is stored in a separate .txt file (not in the raw data file). However, the hash file is linked to the raw data file by including the unique raw data file name in the hash file name.

When hash checking of loaded files is enabled, the SHA256 hash function is applied to any raw data file the user opens to replay. Mobius tries to re-generate the original hash code of the raw data file. If the data file has NOT been altered then the re-generated hash code will match the original one saved in the hash code file. However, if the data file has been altered then the re-generated code will not match the saved one. Since Mobius does not alter raw data files (.modat files) after they have been finalized, any changes to these files must have come from outside Mobius and are therefore unauthorized.

Outputted text file (.txt)

- ◆ The text file is saved in the same folder as the (.modat) data.
- ◆ File name: (Same name to the .modat file)+sha256_hash_code.txt

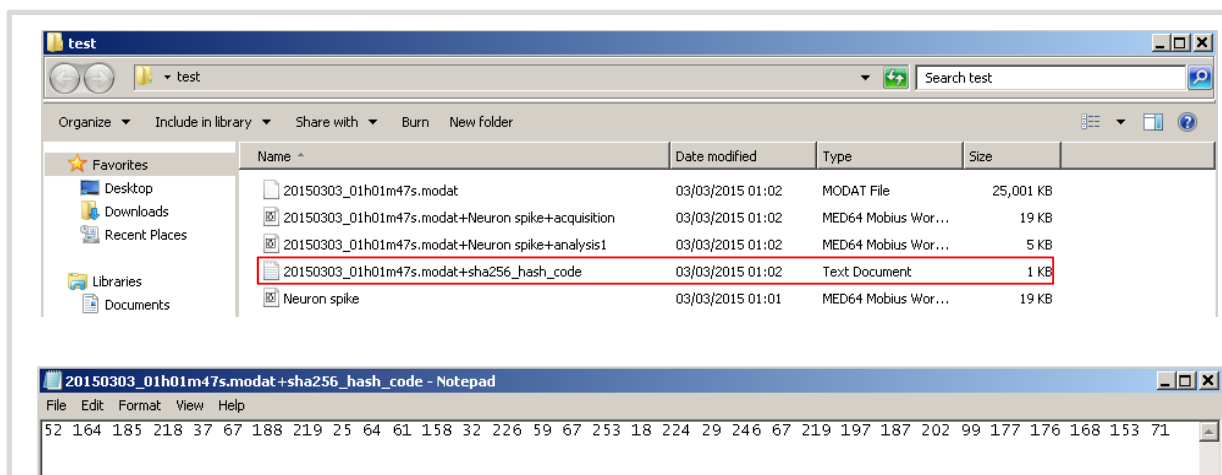
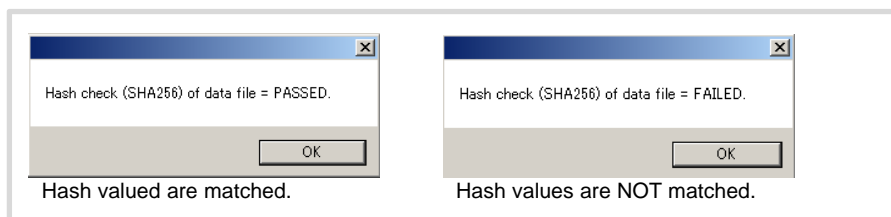


Figure 4.

Hash value comparison

- ◆ Match: Hash check (SHA256) of data file = PASSED
- ◆ Unmatch: Hash check (SHA256) of data file = FAILED
 - Data file can be opened once the OK is clicked anyway.



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