k2hash

Release 1.0.0

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ONE

K2HASH_PYTHON

1.1 Overview

k2hash_python is an official python driver for k2hash.

1.2 Install

Firstly you must install the k2hash shared library:

```
curl -o- https://raw.github.com/yahoojapan/k2hash_python/master/utils/libk2hash.sh | bash
```

Then, let's install k2hash using pip:

```
pip install k2hash
```

1.3 Usage

Try to set a key and get it:

```
import k2hash

k = k2hash.K2hash('test.k2h')
k.set('hello', 'world')
v = k.get('hello')
print(v)    // world
```

1.4 Development

Clone this repository and go into the directory, then run the following command:

```
$ python3 -m pip install --upgrade build
$ python3 -m build
```

1.5 Documents

Here are documents including other components.

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About K2HASH

About AntPickax

1.6 Packages

Here are packages including other components.

k2hash(python packages)

1.7 License

MIT License. See the LICENSE file.

1.8 AntPickax

k2hash_python is a project by AntPickax, which is an open source team in Yahoo Japan Corporation.

CHAPTER

TWO

K2HASH

2.1 k2hash package

2.1.1 Submodules

2.1.2 k2hash.k2hash module

K2hash Python Driver

class k2hash.k2hash.**K2hash**(*k2hfile=''*, *flag=None*, *readonly=True*, *removefile=True*, *fullmap=True*, *maskbit=8*, *cmaskbit=4*, *maxelementcnt=1024*, *pagesize=512*, *waitms=0*, *logfile=''*)

Bases: `object`

K2hash class provides methods to handle key/value pairs in k2hash hash database.

K2H_INVALID_HANDLE = 0

add_attribute_plugin_lib(*path*)
Adds a shared library that handles an attribute

add_decryption_password(*password*)
Adds a passphrase to decrypt a value.

add_subkey(*key*, *subkey*, *subval*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Adds subkeys to a key/value pair.

begin_tx(*txfile*, *prefix=None*, *param=None*, *expire_duration=None*)
Starts a transaction logging.

close()
Closes a k2h file.

static create(*pathname*, *maskbit=8*, *cmaskbit=4*, *maxelementcnt=1024*, *pagesize=512*)
Creates a k2hash file.

dump_to_file(*path*, *is_skip_error=True*)
Dumps data to a file.

enable_encryption(*enable=True*)
Enables a feature to encrypt a value.

enable_history(*enable=True*)
Enables a feature to record a key modification history.

enable_mtime(*enable=True*)
Enables a feature to record value modification time.

get(*key*, *password=None*)
Gets the value

get_attributes(*key*, *use_str=True*)
Gets attributes of a key.

get_iterator(*key=None*)
Returns the k2hash iterator

get_subkeys(*key*, *use_str=True*)
Gets keys of subkeys of a key.

get_tx_file_fd()
Gets a transaction log file descriptor.

static get_tx_pool_size()
Gets the number of transaction thread pool.

property handle
Returns a Queue handle.

property libc
returns libc handle

property libk2hash
returns libk2hash handle

load_from_file(*path*, *is_skip_error=True*)
Loads data from a file.

print_attribute_plugins()
Prints attribute plugins to stderr.

print_attributes()
Prints attributes to stderr.

print_data_stats()
Prints data statistics.

print_table_stats(*level=DumpLevel.HEADER*)
Prints k2hash key table information.

remove(*key*, *remove_all_subkeys=False*)
Removes a key.

remove_subkeys(*key*, *subkeys*)
Removes subkeys from the key.

rename(*key*, *newkey*)
Renames a key with a new key.

set(*key*, *val*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Sets a key/value pair

set_attribute(*key*, *attr_name*, *attr_val*)
Sets an attribute of a key.

set_default_encryption_password(*password*)
Sets the default encryption passphrase.

set_encryption_password_file(*path*)
Sets the data encryption password file.

set_expiration_duration(*expire_duration*, *time_unit=TimeUnit.SECONDS*)
Sets the duration to expire a value.

set_log_level(*level=LogLevel.INFO*)
Creates a k2hash file.

set_subkeys(*key*, *subkeys*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Sets subkeys.

static set_tx_pool_size(*size*)
Sets the number of transaction thread pool.

stop_tx()
Stops a transaction logging.

static version()
Prints version information.

class k2hash.k2hash.**K2hashIterator**(*k2h*, *key=None*)
Bases: `object`

implements iterator of k2hash

2.1.3 k2hash.keyqueue module

K2hash Python Driver

class k2hash.keyqueue.**KeyQueue**(*k2h*, *fifo=True*, *prefix=None*, *password=None*, *expire_duration=None*)
Bases: `object`

KeyQueue class provides methods to handle key/value pairs in k2hash hash database.

clear()
Removes all of the elements from this collection (optional operation).

close()
Free QueueHandle

element(*position=0*)
Finds and gets a object from the head of this queue.

empty()
Returns true if, and only if, queue size is 0.

get()
Finds and gets a object from the head of this queue.

property handle
Returns a Queue handle.

print()
Print the objects in this queue.

put(*obj*)
Inserts an element into the tail of this queue.

qsize()
Returns the number of queue.

remove(*count=1*)
Removes objects from this queue.

2.1.4 k2hash.queue module

K2hash Python Driver

class k2hash.queue.**Queue**(*k2h*, *fifo=True*, *prefix=None*, *password=None*, *expire_duration=None*)

Bases: object

Queue class provides methods to handle key/value pairs in k2hash hash database.

clear()
Removes all of the elements from this collection (optional operation).

close()
Free QueueHandle

element(*position=0*)
Finds and gets a object from the head of this queue.

empty()
Returns true if, and only if, queue size is 0.

get()
Finds and gets a object from the head of this queue.

property handle
Returns a Queue handle.

print()
Print the objects in this queue.

put(*obj*, *attrs=None*)
Inserts an element into the tail of this queue.

qsize()
Returns the number of queue.

remove(*count=1*)
Removes objects from this queue.

2.1.5 Module contents

k2hash package

class k2hash.**AttrPack**

Bases: _ctypes.Structure

C Attr structure

keylength
Structure/Union member

pkey
Structure/Union member

pval
Structure/Union member

vallength
Structure/Union member

class k2hash.**DumpLevel**(*value*)

Bases: enum.Enum

k2hash file status information

ELEMENT = 4

HASH_TABLE = 2

HEADER = 1

PAGE = 5

SUB_HASH_TABLE = 3

class k2hash.**K2hash**(*k2hfile=''*, *flag=None*, *readonly=True*, *removefile=True*, *fullmap=True*, *maskbit=8*, *cmaskbit=4*, *maxelementcnt=1024*, *pagesize=512*, *waitms=0*, *logfile=''*)

Bases: `object`

K2hash class provides methods to handle key/value pairs in k2hash hash database.

K2H_INVALID_HANDLE = 0

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Adds a shared library that handles an attribute

add_decryption_password(*password*)
Adds a passphrase to decrypt a value.

add_subkey(*key*, *subkey*, *subval*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Adds subkeys to a key/value pair.

begin_tx(*txfile*, *prefix=None*, *param=None*, *expire_duration=None*)
Starts a transaction logging.

close()
Closes a k2h file.

static create(*pathname*, *maskbit=8*, *cmaskbit=4*, *maxelementcnt=1024*, *pagesize=512*)
Creates a k2hash file.

dump_to_file(*path*, *is_skip_error=True*)
Dumps data to a file.

enable_encryption(*enable=True*)
Enables a feature to encrypt a value.

enable_history(*enable=True*)
Enables a feature to record a key modification history.

enable_mtime(*enable=True*)
Enables a feature to record value modification time.

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Gets the value

get_attributes(*key*, *use_str=True*)
Gets attributes of a key.

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print_attribute_plugins()
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rename(*key*, *newkey*)
Renames a key with a new key.

set(*key*, *val*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Sets a key/value pair

set_attribute(*key*, *attr_name*, *attr_val*)
Sets an attribute of a key.

set_default_encryption_password(*password*)
Sets the default encryption passphrase.

set_encryption_password_file(*path*)
Sets the data encryption password file.

set_expiration_duration(*expire_duration*, *time_unit=TimeUnit.SECONDS*)
Sets the duration to expire a value.

set_log_level(*level=LogLevel.INFO*)
Creates a k2hash file.

set_subkeys(*key*, *subkeys*, *password=None*, *expire_duration=None*, *time_unit=TimeUnit.SECONDS*)
Sets subkeys.

static set_tx_pool_size(*size*)
Sets the number of transaction thread pool.

stop_tx()
Stops a transaction logging.

static version()
Prints version information.

class k2hash.**K2hashIterator**(*k2h*, *key=None*)
Bases: `object`

implements iterator of k2hash

class k2hash.**KeyPack**
Bases: `_ctypes.Structure`

C KeyPack structure

length
Structure/Union member

pkey
Structure/Union member

class k2hash.**KeyQueue**(*k2h*, *fifo=True*, *prefix=None*, *password=None*, *expire_duration=None*)
Bases: `object`

KeyQueue class provides methods to handle key/value pairs in k2hash hash database.

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empty()
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get()
Finds and gets a object from the head of this queue.

property handle
Returns a Queue handle.

print()
Print the objects in this queue.

put(*obj*)
Inserts an element into the tail of this queue.

qsize()
Returns the number of queue.

remove(*count=1*)
Removes objects from this queue.

class k2hash.**LogLevel**(*value*)
Bases: `enum.Enum`

k2hash log level

DEBUG = 5

ERROR = 2

INFO = 4

SILENT = 1

WARNING = 3

class k2hash.**OpenFlag**(*value*)
Bases: enum.Enum

k2hash file open flags

EDIT = 2

MEMORY = 4

READ = 1

TEMPFILE = 3

class k2hash.**Queue**(*k2h*, *fifo=True*, *prefix=None*, *password=None*, *expire_duration=None*)
Bases: object

Queue class provides methods to handle key/value pairs in k2hash hash database.

clear()
Removes all of the elements from this collection (optional operation).

close()
Free QueueHandle

element(*position=0*)
Finds and gets a object from the head of this queue.

empty()
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property handle
Returns a Queue handle.

print()
Print the objects in this queue.

put(*obj*, *attrs=None*)
Inserts an element into the tail of this queue.

qsize()
Returns the number of queue.

remove(*count=1*)
Removes objects from this queue.

class k2hash.**TimeUnit**(*value*)
Bases: enum.Enum

k2hash time units

DAYS = 1

HOURS = 2

MILLISECONDS = 3

MINUTES = 4

SECONDS = 5

CHAPTER

THREE

CREDITS

3.1 Development Lead

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3.2 Contributors

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CHAPTER

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HISTORY

4.1 1.0.0 (2022-02-07)

- First release on PyPI.

CHAPTER

FIVE

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