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# **beem Documentation**

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Steem is a blockchain-based rewards platform for publishers to monetize content and grow community.

It is based on *Graphene* (tm), a blockchain technology stack (i.e. software) that allows for fast transactions and ascalable blockchain solution. In case of Steem, it comes with decentralized publishing of content.

The beem library has been designed to allow developers to easily access its routines and make use of the network without dealing with all the related blockchain technology and cryptography. This library can be used to do anything that is allowed according to the Steem blockchain protocol.



# CHAPTER 1

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## About this Library

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The purpose of *beem* is to simplify development of products and services that use the Steem blockchain. It comes with

- it's own (bip32-encrypted) wallet
- RPC interface for the Blockchain backend
- JSON-based blockchain objects (accounts, blocks, prices, markets, etc)
- a simple to use yet powerful API
- transaction construction and signing
- push notification API
- *and more*





## CHAPTER 2

### Quickstart

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#### Note:

All methods that construct and sign a transaction can be given the `account=` parameter to identify the user that is going to be affected by this transaction, e.g.:

- the source account in a transfer
- the account that buys/sells an asset in the exchange
- the account whose collateral will be modified

**Important,** If no `account` is given, then the `default_account` according to the settings in `config` is used instead.

---

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
account = Account("test", steem_instance=steem)
account.transfer("<to>", "<amount>", "<asset>", "<memo>")
```

```
from beem.blockchain import Blockchain
blockchain = Blockchain()
for op in Blockchain.ops():
    print(op)
```

```
from beem.block import Block
print(Block(1))
```

```
from beem.account import Account
account = Account("test")
print(account.balances)
for h in account.history():
    print(h)
```

```
from beem.steem import Steem
stm = Steem()
stm.wallet.wipe(True)
stm.wallet.create("wallet-passphrase")
stm.wallet.unlock("wallet-passphrase")
stm.wallet.addPrivateKey("512345678")
stm.wallet.lock()
```

```
from beem.market import Market
market = Market("SBD:STEEM")
print(market.ticker())
market.steem.wallet.unlock("wallet-passphrase")
print(market.sell(300, 100) # sell 100 STEEM for 300 STEEM/SBD
```

### 3.1 Installation

The minimal working python version is 2.7.x. or 3.4.x

beem can be installed parallel to python-steem.

For Debian and Ubuntu, please ensure that the following packages are installed:

```
sudo apt-get install build-essential libssl-dev python-dev
```

For Fedora and RHEL-derivatives, please ensure that the following packages are installed:

```
sudo yum install gcc openssl-devel python-devel
```

For OSX, please do the following:

```
brew install openssl  
export CFLAGS="-I$(brew --prefix openssl)/include $CFLAGS"  
export LDFLAGS="-L$(brew --prefix openssl)/lib $LDFLAGS"
```

For Termux on Android, please install the following packages:

```
pkg install clang openssl-dev python-dev
```

Signing and Verify can be fasten (200 %) by installing cryptography:

```
pip install -U cryptography
```

Install beem by pip:

```
pip install -U beem
```

### 3.1.1 Manual installation

You can install beem from this repository if you want the latest but possibly non-compiling version:

```
git clone https://github.com/holgern/beem.git
cd beem
python setup.py build

python setup.py install --user
```

Run tests after install:

```
pytest
```

### 3.1.2 Installing beem with conda-forge

Installing beem from the conda-forge channel can be achieved by adding conda-forge to your channels with:

```
conda config --add channels conda-forge
```

Once the conda-forge channel has been enabled, beem can be installed with:

```
conda install beem
```

Signing and Verify can be fasten (200 %) by installing cryptography:

```
conda install cryptography
```

## 3.2 Quickstart

### 3.2.1 Steem

The steem object is the connection to the Steem blockchain. By creating this object different options can be set.

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**Note:** All init methods of beem classes can be given the `steem_instance=` parameter to assure that all objects use the same steem object. When the `steem_instance=` parameter is not used, the steem object is taken from `get_shared_steem_instance()`.

`get_shared_steem_instance()` returns a global instance of steem. It can be set by `set_shared_steem_instance` otherwise it is created on the first call.

---

```
from beem import Steem
stm = Steem()
account = Account("test", steem_instance=stm)
```

```
from beem import Steem
from beem.instance import set_shared_steem_instance
stm = Steem()
set_shared_steem_instance(stm)
account = Account("test")
```

### 3.2.2 Wallet and Keys

Each account has the following keys:

- Posting key (allows accounts to post, vote, edit, resteem and follow/mute)
- Active key (allows accounts to transfer, power up/down, voting for witness, ...)
- Memo key (Can be used to encrypt/decrypt memos)
- Owner key (The most important key, should not be used with beem)

Outgoing operation, which will be stored in the steem blockchain, have to be signed by a private key. E.g. Comment or Vote operation need to be signed by the posting key of the author or upvoter. Private keys can be provided to beem temporary or can be stored encrypted in a sql-database (wallet).

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**Note:** Before using the wallet the first time, it has to be created and a password has to set. The wallet content is available to beem.py and all python scripts, which have access to the sql database file.

---

#### Creating a wallet

`steem.wallet.wipe(True)` is only necessary when there was already an wallet created. .. code-block:: python

```
from beem import Steem
steem = Steem()
steem.wallet.wipe(True)
steem.wallet.create("wallet-passphrase")
```

#### Adding keys to the wallet

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
steem.wallet.addPrivateKey("xxxxxxx")
steem.wallet.addPrivateKey("xxxxxxx")
```

#### Using the keys in the wallet

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
account = Account("test", steem_instance=steem)
account.transfer("<to>", "<amount>", "<asset>", "<memo>")
```

#### Private keys can also set temporary

```
from beem import Steem
steem = Steem(keys=["xxxxxxxxx"])
account = Account("test", steem_instance=steem)
account.transfer("<to>", "<amount>", "<asset>", "<memo>")
```

### 3.2.3 Receiving information about blocks, accounts, votes, comments, market and witness

Receive all Blocks from the Blockchain

```
from beem.blockchain import Blockchain
blockchain = Blockchain()
for op in Blockchain.ops():
    print(op)
```

Access one Block

```
from beem.block import Block
print(Block(1))
```

Access an account

```
from beem.account import Account
account = Account("test")
print(account.balances)
for h in account.history():
    print(h)
```

A single vote

```
from beem.vote import Vote
vote = Vote(u"@gtg/ffdhu-gtg-witness-log|gandalf")
print(vote.json())
```

All votes from an account

```
from beem.vote import AccountVotes
allVotes = AccountVotes("gtg")
```

Access a post

```
from beem.comment import Comment
comment = Comment("@gtg/ffdhu-gtg-witness-log")
print(comment["active_votes"])
```

Access the market

```
from beem.market import Market
market = Market("SBD:STEEM")
print(market.ticker())
```

Access a witness

```
from beem.witness import Witness
witness = Witness("gtg")
print(witness.is_active)
```

### 3.2.4 Sending transaction to the blockchain

Sending a Transfer

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
account = Account("test", steem_instance=steem)
account.transfer("null", 1, "SBD", "test")
```

Upvote a post

```
from beem.comment import Comment
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
comment = Comment("@gtg/ffdhu-gtg-witness-log", steem_instance=steem)
comment.upvote(weight=10, voter="test")
```

Publish a post to the blockchain

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("wallet-passphrase")
steem.post("title", "body", author="test", tags=["a", "b", "c", "d", "e"], self_
    ↪vote=True)
```

Sell STEEM on the market

```
from beem.market import Market
from beem import Steem
steem.wallet.unlock("wallet-passphrase")
market = Market("SBD:STEEM", steem_instance=steem)
print(market.ticker())
market.steem.wallet.unlock("wallet-passphrase")
print(market.sell(300, 100) # sell 100 STEEM for 300 STEEM/SBD)
```

## 3.3 Tutorials

### 3.3.1 Bundle Many Operations

With Steem, you can bundle multiple operations into a single transactions. This can be used to do a multi-send (one sender, multiple receivers), but it also allows to use any other kind of operation. The advantage here is that the user can be sure that the operations are executed in the same order as they are added to the transaction.

A block can only include one vote operation and one comment operation from each sender.

```
from pprint import pprint
from beem import Steem
from beem.account import Account
from beem.comment import Comment
from beem.instance import set_shared_steem_instance

# not a real working key
wif = "5KQwrPbwdL6PhXujxW37FSSQZ1JiwsST4cqQzDeyXtP79zkvFD3"

stm = Steem(
    bundle=True, # Enable bundle broadcast
```

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```
# nobroadcast=True, # Enable this for testing
keys=[wif],
)
# Set stm as shared instance
set_shared_steem_instance(stm)

# Account and Comment will use now stm
account = Account("test")

# Post
c = Comment("@gtg/witness-gtg-log")

account.transfer("test1", 1, "STEEM")
account.transfer("test2", 1, "STEEM")
account.transfer("test3", 1, "SBD")
# Upvote post with 25%
c.upvote(25, voter=account)

pprint(stm.broadcast())
```

### 3.3.2 Use nobroadcast for testing

When using *nobroadcast=True* the transaction is not broadcasted but printed.

```
from pprint import pprint
from beem import Steem
from beem.account import Account
from beem.instance import set_shared_steem_instance

# Only for testing not a real working key
wif = "5KQwrPbwdL6PhXujxW37FSSQZ1JiwsST4cqQzDeyXtP79zkvFD3"

# set nobroadcast always to True, when testing
testnet = Steem(
    nobroadcast=True, # Set to false when want to go live
    keys=[wif],
)
# Set testnet as shared instance
set_shared_steem_instance(testnet)

# Account will use now testnet
account = Account("test")

pprint(account.transfer("test1", 1, "STEEM"))
```

When executing the script above, the output will be similar to the following:

```
Not broadcasting anything!
{'expiration': '2018-05-01T16:16:57',
 'extensions': [],
 'operations': [['transfer',
                  {'amount': '1.000 STEEM',
                   'from': 'test',
                   'memo': '',
                   'to': 'test1'}]]],
```

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```
'ref_block_num': 33020,
'ref_block_prefix': 2523628005,
'signatures': [
↪ '1f57da50f241e70c229ed67b5d61898e792175c0f18ae29df8af414c46ae91eb5729c867b5d7dcc578368e7024e414c23'
↪ '']}]
```

### 3.3.3 Clear BlockchainObject Caching

Each BlockchainObject (Account, Comment, Vote, Witness, Amount, ...) has a glocal cache. This cache stores all objects and could lead to increased memory consumption. The global cache can be cleared with a `clear_cache()` call from any BlockchainObject.

```
from pprint import pprint
from beem.account import Account

account = Account("test")
pprint(str(account._cache))
account1 = Account("test1")
pprint(str(account._cache))
pprint(str(account1._cache))
account.clear_cache()
pprint(str(account._cache))
pprint(str(account1._cache))
```

### 3.3.4 Simple Sell Script

```
from beem import Steem
from beem.market import Market
from beem.price import Price
from beem.amount import Amount

# Only for testing not a real working key
wif = "5KQwrPbwdL6PhXujxW37FSSQZlJiwsST4cqQzDeyXtP79zkvFD3"

#
# Instanciate Steem (pick network via API node)
#
steem = Steem(
    nobroadcast=True,    # <--- set this to False when you want to fire!
    keys=[wif]           # <--- use your real keys, when going live!
)

#
# This defines the market we are looking at.
# The first asset in the first argument is the *quote*
# Sell and buy calls always refer to the *quote*
#
market = Market("SBD:STEEM",
    steem_instance=steem
)

#
# Sell an asset for a price with amount (quote)
```

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```
#
print(market.sell(
    Price(100.0, "STEEM/SBD"),
    Amount("0.01 SBD")
))
```

### 3.3.5 Sell at a timely rate

```
import threading
from beem import Steem
from beem.market import Market
from beem.price import Price
from beem.amount import Amount

# Only for testing not a real working key
wif = "5KQwrPbwdL6PhXujxW37FSSQZlJiwsST4cqQzDeyXtP79zkvFD3"

def sell():
    """ Sell an asset for a price with amount (quote)
    """
    print(market.sell(
        Price(100.0, "SBD/STEEM"),
        Amount("0.01 STEEM")
    ))

    threading.Timer(60, sell).start()

if __name__ == "__main__":
    #
    # Instanciate Steem (pick network via API node)
    #
    steem = Steem(
        nobroadcast=True,    # <--- set this to False when you want to fire!
        keys=[wif]           # <--- use your real keys, when going live!
    )

    #
    # This defines the market we are looking at.
    # The first asset in the first argument is the *quote*
    # Sell and buy calls always refer to the *quote*
    #
    market = Market("STEEM:SBD",
        steem_instance=steem
    )

    sell()
```

### 3.3.6 Batch api calls on AppBase

Batch api calls are possible with AppBase RPC nodes. If you call a Api-Call with `add_to_queue=True` it is not submitted but stored in `rpc_queue`. When a call with `add_to_queue=False` (default setting) is started, the complete queue is sendd at once to the node. The result is a list with replies.

```
from beem import Steem
stm = Steem("https://api.steemit.com")
stm.rpc.get_config(add_to_queue=True)
stm.rpc.rpc_queue
```

```
[{'method': 'condenser_api.get_config', 'jsonrpc': '2.0', 'params': [], 'id': 6}]
```

```
result = stm.rpc.get_block({"block_num":1}, api="block", add_to_queue=False)
len(result)
```

```
2
```

### 3.3.7 Account history

Lets calculate the curation reward from the last 7 days:

```
from datetime import datetime, timedelta
from beem.account import Account
from beem.amount import Amount

acc = Account("gtg")
stop = datetime.utcnow() - timedelta(days=7)
reward_vests = Amount("0 VESTS")
for reward in acc.history_reverse(stop=stop, only_ops=["curation_reward"]):
    reward_vests += Amount(reward['reward'])
curation_rewards_SP = acc.steem.vests_to_sp(reward_vests.amount)
print("Rewards are %.3f SP" % curation_rewards_SP)
```

Lets display all Posts from an account:

```
from beem.account import Account
from beem.comment import Comment
from beem.exceptions import ContentDoesNotExistsException
account = Account("holger80")
c_list = {}
for c in map(Comment, account.history(only_ops=["comment"])):
    if c.permlink in c_list:
        continue
    try:
        c.refresh()
    except ContentDoesNotExistsException:
        continue
    c_list[c.permlink] = 1
    if not c.is_comment():
        print("%s " % c.title)
```

### 3.3.8 Transactionbuilder

Sign transactions with beem without using the wallet and build the transaction by hand. Example with one operation with and without the wallet:

```
from beem import Steem
from beem.transactionbuilder import TransactionBuilder
from beembase import operations
stm = Steem()
# Uncomment the following when using a wallet:
# stm.wallet.unlock("secret_password")
tx = TransactionBuilder(stem_instance=stm)
op = operations.Transfer(**{"from": 'user_a',
                           "to": 'user_b',
                           "amount": '1.000 SBD',
                           "memo": 'test 2'})

tx.appendOps(op)
# Comment appendWif out and uncomment appendSigner when using a stored key from the_
↪wallet
tx.appendWif('5.....') # `user_a`
# tx.appendSigner('user_a', 'active')
tx.sign()
tx.broadcast()
```

Example with signing and broadcasting two operations:

```
from beem import Steem
from beem.transactionbuilder import TransactionBuilder
from beembase import operations
stm = Steem()
# Uncomment the following when using a wallet:
# stm.wallet.unlock("secret_password")
tx = TransactionBuilder(stem_instance=stm)
ops = []
op = operations.Transfer(**{"from": 'user_a',
                           "to": 'user_b',
                           "amount": '1.000 SBD',
                           "memo": 'test 2'})

ops.append(op)
op = operations.Vote(**{"voter": v,
                       "author": author,
                       "permlink": permlink,
                       "weight": int(percent * 100)})

ops.append(op)
tx.appendOps(ops)
# Comment appendWif out and uncomment appendSigner when using a stored key from the_
↪wallet
tx.appendWif('5.....') # `user_a`
# tx.appendSigner('user_a', 'active')
tx.sign()
tx.broadcast()
```

## 3.4 beempy CLI

*beempy* is a convenient CLI utility that enables you to manage your wallet, transfer funds, check balances and more.

### 3.4.1 Using the Wallet

*beempy* lets you leverage your BIP38 encrypted wallet to perform various actions on your accounts.

The first time you use *beempy*, you will be prompted to enter a password. This password will be used to encrypt the *beempy* wallet, which contains your private keys.

You can change the password via *changewalletpassphrase* command.

```
beempy changewalletpassphrase
```

From this point on, every time an action requires your private keys, you will be prompted to enter this password (from CLI as well as while using *steem* library).

To bypass password entry, you can set an environment variable UNLOCK.

```
UNLOCK=mysecretpassword beempy transfer <recipient_name> 100 STEEM
```

### 3.4.2 Common Commands

First, you may like to import your Steem account:

```
beempy importaccount
```

You can also import individual private keys:

```
beempy addkey <private_key>
```

Listing accounts:

```
beempy listaccounts
```

Show balances:

```
beempy balance account_name1 account_name2
```

Sending funds:

```
beempy transfer --account <account_name> <recipient_name> 100 STEEM memo
```

Upvoting a post:

```
beempy upvote --account <account_name> https://steemit.com/funny/@mynameisbrian/the-
↳content-stand-a-comic
```

### 3.4.3 Setting Defaults

For a more convenient use of *beempy* as well as the *beem* library, you can set some defaults. This is especially useful if you have a single Steem account.

```
beempy set default_account test
beempy set default_vote_weight 100
```

```
beempy config
```

```
+-----+-----+
| Key           | Value   |
+-----+-----+
| default_account | test    |
| default_vote_weight | 100    |
+-----+-----+
```

If you've set up your *default\_account*, you can now send funds by omitting this field:

```
beempy transfer <recipient_name> 100 STEEM memo
```

### 3.4.4 Commands

#### beempy

```
beempy [OPTIONS] COMMAND1 [ARGS]... [COMMAND2 [ARGS]...]...
```

#### Options

- n, --node <node>**  
URL for public Steem API (e.g. <https://api.steemit.com>)
- o, --offline**  
Prevent connecting to network
- d, --no-broadcast**  
Do not broadcast
- p, --no-wallet**  
Do not load the wallet
- x, --unsigned**  
Nothing will be signed
- l, --create-link**  
Creates steemconnect links from all broadcast operations
- s, --steemconnect**  
Uses a steemconnect token to broadcast (only broadcast operation with posting permission)
- e, --expires <expires>**  
Delay in seconds until transactions are supposed to expire(defaults to 60)
- v, --verbose <verbose>**  
Verbosity
- version**  
Show the version and exit.

#### addkey

Add key to wallet

When no [OPTION] is given, a password prompt for unlocking the wallet and a prompt for entering the private key are shown.

```
beempy addkey [OPTIONS]
```

## Options

**--unsafe-import-key** <unsafe\_import\_key>  
Private key to import to wallet (unsafe, unless shell history is deleted afterwards)

## addtoken

Add key to wallet

When no [OPTION] is given, a password prompt for unlocking the wallet and a prompt for entering the private key are shown.

```
beempy addtoken [OPTIONS] NAME
```

## Options

**--unsafe-import-token** <unsafe\_import\_token>  
Private key to import to wallet (unsafe, unless shell history is deleted afterwards)

## Arguments

**NAME**  
Required argument

## allow

Allow an account/key to interact with your account

**foreign\_account:** The account or key that will be allowed to interact with account. When not given, password will be asked, from which a public key is derived. This derived key will then interact with your account.

```
beempy allow [OPTIONS] [FOREIGN_ACCOUNT]
```

## Options

**--permission** <permission>  
The permission to grant (defaults to “posting”)

**-a, --account** <account>  
The account to allow action for

**--weight** <weight>  
The weight to use instead of the (full) threshold. If the weight is smaller than the threshold, additional signatures are required

**--threshold** <threshold>  
The permission’s threshold that needs to be reached by signatures to be able to interact

## Arguments

**FOREIGN\_ACCOUNT**  
Optional argument

## approvewitness

Approve a witnesses

```
beempy approvewitness [OPTIONS] WITNESS
```

## Options

**-a, --account** <account>  
Your account

## Arguments

**WITNESS**  
Required argument

## balance

Shows balance

```
beempy balance [OPTIONS] [ACCOUNT]...
```

## Arguments

**ACCOUNT**  
Optional argument(s)

## broadcast

broadcast a signed transaction

```
beempy broadcast [OPTIONS]
```

## Options

**--file** <file>  
Load transaction from file. If “-“, read from stdin (defaults to “-“)



## buy

Buy STEEM or SBD from the internal market

Limit buy price denoted in (SBD per STEEM)

```
beempy buy [OPTIONS] AMOUNT ASSET [PRICE]
```

### Options

**-a, --account** <account>  
Buy with this account (defaults to “default\_account”)

**--orderid** <orderid>  
Set an orderid

### Arguments

**AMOUNT**  
Required argument

**ASSET**  
Required argument

**PRICE**  
Optional argument

## cancel

Cancel order in the internal market

```
beempy cancel [OPTIONS] ORDERID
```

### Options

**-a, --account** <account>  
Sell with this account (defaults to “default\_account”)

### Arguments

**ORDERID**  
Required argument

## changewalletpassphrase

Change wallet password

```
beempy changewalletpassphrase [OPTIONS]
```

## claimreward

Claim reward balances

By default, this will claim all outstanding balances.

```
beempy claimreward [OPTIONS] [ACCOUNT]
```

### Options

**--reward\_steem** <reward\_steem>  
Amount of STEEM you would like to claim

**--reward\_sbd** <reward\_sbd>  
Amount of SBD you would like to claim

**--reward\_vests** <reward\_vests>  
Amount of VESTS you would like to claim

### Arguments

**ACCOUNT**  
Optional argument

## config

Shows local configuration

```
beempy config [OPTIONS]
```

## convert

Convert STEEMDollars to Steem (takes a week to settle)

```
beempy convert [OPTIONS] AMOUNT
```

### Options

**-a, --account** <account>  
Powerup from this account

### Arguments

**AMOUNT**  
Required argument

## createwallet

Create new wallet with a new password

```
beempy createwallet [OPTIONS]
```

### Options

**--wipe**  
Wipe old wallet without prompt.

## curation

Lists curation rewards of all votes for authorperm

When authorperm is empty or “all”, the curation rewards for all account votes are shown.

authorperm can also be a number. e.g. 5 is equivalent to the fifth account vote in the given time duration (default is 7 days)

```
beempy curation [OPTIONS] [AUTHORPERM]
```

### Options

**-a, --account** <account>  
Show only curation for this account

**-m, --limit** <limit>  
Show only the first minutes

**-v, --min-vote** <min\_vote>  
Show only votes higher than the given value

**-w, --max-vote** <max\_vote>  
Show only votes lower than the given value

**-x, --min-performance** <min\_performance>  
Show only votes with performance higher than the given value

**-y, --max-performance** <max\_performance>  
Show only votes with performance lower than the given value

**--payout** <payout>  
Show the curation for a potential payout in SBD as float

**-e, --export** <export>  
Export results to HTML-file

**-s, --short**  
Show only Curation without sum

**-l, --length** <length>  
Limits the permalink character length

**-p, --permalink**  
Show the permalink for each entry

**-t, --title**

Show the title for each entry

**-d, --days** <days>

Limit shown rewards by this amount of days (default: 7), max is 7 days.

## Arguments

**AUTHORPERM**

Optional argument

## currentnode

Sets the currently working node at the first place in the list

```
beempy currentnode [OPTIONS]
```

## Options

**--version**

Returns only the raw version value

**--url**

Returns only the raw url value

## delkey

Delete key from the wallet

PUB is the public key from the private key which will be deleted from the wallet

```
beempy delkey [OPTIONS] PUB
```

## Options

**--confirm**

Please confirm!

## Arguments

**PUB**

Required argument

## delprofile

Delete a variable in an account's profile

```
beempy delprofile [OPTIONS] VARIABLE...
```

### Options

**-a, --account** <account>  
delprofile as this user

### Arguments

**VARIABLE**  
Required argument(s)

### deltoken

Delete name from the wallet

name is the public name from the private token which will be deleted from the wallet

```
beempy deltoken [OPTIONS] NAME
```

### Options

**--confirm**  
Please confirm!

### Arguments

**NAME**  
Required argument

### disallow

Remove allowance an account/key to interact with your account

```
beempy disallow [OPTIONS] [FOREIGN_ACCOUNT]
```

### Options

**--permission** <permission>  
The permission to grant (defaults to “posting”)

**-a, --account** <account>  
The account to disallow action for

**--threshold** <threshold>  
The permission’s threshold that needs to be reached by signatures to be able to interact

## Arguments

**FOREIGN\_ACCOUNT**  
Optional argument

## disapprovewitness

Disapprove a witnesses

```
beempy disapprovewitness [OPTIONS] WITNESS
```

## Options

**-a, --account** <account>  
Your account

## Arguments

**WITNESS**  
Required argument

## downvote

Downvote a post/comment

POST is @author/permlink

```
beempy downvote [OPTIONS] POST [VOTE_WEIGHT]
```

## Options

**-a, --account** <account>  
Voter account name

**-w, --weight** <weight>  
Vote weight (from 0.1 to 100.0)

## Arguments

**POST**  
Required argument

**VOTE\_WEIGHT**  
Optional argument

## follow

Follow another account

```
beempy follow [OPTIONS] FOLLOW
```

### Options

**-a, --account** <account>  
Follow from this account

**--what** <what>  
Follow these objects (defaults to ["blog"])

### Arguments

**FOLLOW**  
Required argument

## follower

Get information about followers

```
beempy follower [OPTIONS] [ACCOUNT]...
```

### Arguments

**ACCOUNT**  
Optional argument(s)

## following

Get information about following

```
beempy following [OPTIONS] [ACCOUNT]...
```

### Arguments

**ACCOUNT**  
Optional argument(s)

## importaccount

Import an account using a passphrase

```
beempy importaccount [OPTIONS] ACCOUNT
```

## Options

**--roles** <roles>  
Import specified keys (owner, active, posting, memo).

## Arguments

**ACCOUNT**  
Required argument

## info

Show basic blockchain info

General information about the blockchain, a block, an account, a post/comment and a public key

```
beempy info [OPTIONS] [OBJECTS]...
```

## Arguments

**OBJECTS**  
Optional argument(s)

## interest

Get information about interest payment

```
beempy interest [OPTIONS] [ACCOUNT]...
```

## Arguments

**ACCOUNT**  
Optional argument(s)

## keygen

Creates a new random brain key and prints its derived private key and public key. The generated key is not stored.

```
beempy keygen [OPTIONS]
```

## Options

**--import-brain-key**  
Imports a brain key and derives a private and public key

**--sequence** <sequence>  
Sequence number, influences the derived private key. (default is 0)



## listaccounts

Show stored accounts

```
beempy listaccounts [OPTIONS]
```

## listkeys

Show stored keys

```
beempy listkeys [OPTIONS]
```

## listtoken

Show stored token

```
beempy listtoken [OPTIONS]
```

## mute

Mute another account

```
beempy mute [OPTIONS] MUTE
```

## Options

**-a, --account** <account>

Mute from this account

**--what** <what>

Mute these objects (defaults to ["ignore"])

## Arguments

**MUTE**

Required argument

## muter

Get information about muter

```
beempy muter [OPTIONS] [ACCOUNT]...
```

## Arguments

**ACCOUNT**

Optional argument(s)

## muting

Get information about muting

```
beempy muting [OPTIONS] [ACCOUNT]...
```

## Arguments

### ACCOUNT

Optional argument(s)

## newaccount

Create a new account

```
beempy newaccount [OPTIONS] ACCOUNTNAME
```

## Options

**-a, --account** <account>  
Account that pays the fee

**--fee** <fee>  
Base Fee to pay. Delegate the rest.

## Arguments

### ACCOUNTNAME

Required argument

## nextnode

Uses the next node in list

```
beempy nextnode [OPTIONS]
```

## Options

**--results**  
Shows result of changing the node.

## openorders

Show open orders

```
beempy openorders [OPTIONS] [ACCOUNT]
```

## Arguments

### ACCOUNT

Optional argument

### orderbook

Obtain orderbook of the internal market

```
beempy orderbook [OPTIONS]
```

## Options

### --chart

Enable charting

### -l, --limit <limit>

Limit number of returned open orders (default 25)

### --show-date

Show dates

### -w, --width <width>

Plot width (default 75)

### -h, --height <height>

Plot height (default 15)

### --ascii

Use only ascii symbols

### parsewif

Parse a WIF private key without importing

```
beempy parsewif [OPTIONS]
```

## Options

### --unsafe-import-key <unsafe\_import\_key>

WIF key to parse (unsafe, unless shell history is deleted afterwards)

### pending

Lists pending rewards

```
beempy pending [OPTIONS] [ACCOUNTS]...
```

## Options

- s, --only-sum**  
Show only the sum
- p, --post**  
Show pending post payout
- c, --comment**  
Show pending comments payout
- v, --curation**  
Shows pending curation
- l, --length <length>**  
Limits the permalink character length
- a, --author**  
Show the author for each entry
- e, --permalink**  
Show the permalink for each entry
- t, --title**  
Show the title for each entry
- d, --days <days>**  
Limit shown rewards by this amount of days (default: 7), max is 7 days.

## Arguments

**ACCOUNTS**  
Optional argument(s)

### permissions

Show permissions of an account

```
beem permissions [OPTIONS] [ACCOUNT]
```

## Arguments

**ACCOUNT**  
Optional argument

### pingnode

Returns the answer time in milliseconds

```
beem pingnode [OPTIONS]
```

## Options

- raw**  
Returns only the raw value
- sort**  
Sort all nodes by ping value
- remove**  
Remove node with errors from list
- threading**  
Use a thread for each node

## power

Shows vote power and bandwidth

```
beempy power [OPTIONS] [ACCOUNT] ...
```

## Arguments

**ACCOUNT**  
Optional argument(s)

## powerdown

Power down (start withdrawing VESTS from Steem POWER)

amount is in VESTS

```
beempy powerdown [OPTIONS] AMOUNT
```

## Options

**-a, --account <account>**  
Powerup from this account

## Arguments

**AMOUNT**  
Required argument

## powerdownroute

Setup a powerdown route

```
beempy powerdownroute [OPTIONS] TO
```

## Options

**--percentage** <percentage>

The percent of the withdraw to go to the “to” account

**-a, --account** <account>

Powerup from this account

**--auto\_vest**

Set to true if the from account should receive the VESTS as VESTS, or false if it should receive them as STEEM.

## Arguments

**TO**

Required argument

## powerup

Power up (vest STEEM as STEEM POWER)

```
beempy powerup [OPTIONS] AMOUNT
```

## Options

**-a, --account** <account>

Powerup from this account

**--to** <to>

Powerup this account

## Arguments

**AMOUNT**

Required argument

## pricehistory

Show price history

```
beempy pricehistory [OPTIONS]
```

## Options

**-w, --width** <width>

Plot width (default 75)

**-h, --height** <height>

Plot height (default 15)

**--ascii**

Use only ascii symbols

**resteed**

Resteed an existing post

```
beempy resteed [OPTIONS] IDENTIFIER
```

**Options**

**-a, --account** <account>

Resteed as this user

**Arguments****IDENTIFIER**

Required argument

**rewards**

Lists received rewards

```
beempy rewards [OPTIONS] [ACCOUNTS]...
```

**Options**

**-s, --only-sum**

Show only the sum

**-p, --post**

Show post payout

**-c, --comment**

Show comments payout

**-v, --curation**

Shows curation

**-l, --length** <length>

Limits the permalink character length

**-a, --author**

Show the author for each entry

**-e, --permalink**

Show the permalink for each entry

**-t, --title**

Show the title for each entry

**-d, --days** <days>

Limit shown rewards by this amount of days (default: 7)

## Arguments

### ACCOUNTS

Optional argument(s)

### sell

Sell STEEM or SBD from the internal market

Limit sell price denoted in (SBD per STEEM)

```
beempy sell [OPTIONS] AMOUNT ASSET [PRICE]
```

## Options

**-a, --account** <account>

Sell with this account (defaults to “default\_account”)

**--orderid** <orderid>

Set an orderid

## Arguments

### AMOUNT

Required argument

### ASSET

Required argument

### PRICE

Optional argument

### set

Set default\_account, default\_vote\_weight or nodes

set [key] [value]

Examples:

Set the default vote weight to 50 %: set default\_vote\_weight 50

```
beempy set [OPTIONS] KEY VALUE
```

## Arguments

### KEY

Required argument

### VALUE

Required argument



## setprofile

Set a variable in an account's profile

```
beempy setprofile [OPTIONS] [VARIABLE] [VALUE]
```

### Options

**-a, --account** <account>  
setprofile as this user

**-p, --pair** <pair>  
"Key=Value" pairs

### Arguments

**VARIABLE**  
Optional argument

**VALUE**  
Optional argument

## sign

Sign a provided transaction with available and required keys

```
beempy sign [OPTIONS]
```

### Options

**--file** <file>  
Load transaction from file. If "-", read from stdin (defaults to "-")

## ticker

Show ticker

```
beempy ticker [OPTIONS]
```

### Options

**-i, --sbd-to-steem**  
Show ticker in SBD/STEEM

## tradehistory

Show price history

```
beem.py tradehistory [OPTIONS]
```

### Options

- d, --days** <days>  
Limit the days of shown trade history (default 7)
- hours** <hours>  
Limit the intervall history intervall (default 2 hours)
- i, --sbd-to-steem**  
Show ticker in SBD/STEEM
- l, --limit** <limit>  
Limit number of trades which is fetched at each intervall point (default 100)
- w, --width** <width>  
Plot width (default 75)
- h, --height** <height>  
Plot height (default 15)
- ascii**  
Use only ascii symbols

## transfer

Transfer SBD/STEEM

```
beem.py transfer [OPTIONS] TO AMOUNT ASSET [MEMO]
```

### Options

- a, --account** <account>  
Transfer from this account

### Arguments

- TO**  
Required argument
- AMOUNT**  
Required argument
- ASSET**  
Required argument
- MEMO**  
Optional argument

## unfollow

Unfollow/Unmute another account

```
beempy unfollow [OPTIONS] UNFOLLOW
```

### Options

**-a, --account** <account>  
UnFollow/UnMute from this account

### Arguments

**UNFOLLOW**  
Required argument

## updatememokey

Update an account's memo key

```
beempy updatememokey [OPTIONS]
```

### Options

**-a, --account** <account>  
The account to updatememokey action for

**--key** <key>  
The new memo key

## updatenodes

Update the nodelist from @fullnodeupdate

```
beempy updatenodes [OPTIONS]
```

### Options

**-s, --show**  
Prints the updated nodes

**-t, --test**  
Do change the node list, only print the newest nodes setup.

**-h, --only-https**  
Use only https nodes.

**-w, --only-wss**  
Use only websocket nodes.

**-a, --only-appbase**

Use only appbase nodes

**-n, --only-non-appbase**

Use only non-appbase nodes

## upvote

Upvote a post/comment

POST is @author/permlink

```
beempy upvote [OPTIONS] POST [VOTE_WEIGHT]
```

## Options

**-w, --weight <weight>**

Vote weight (from 0.1 to 100.0)

**-a, --account <account>**

Voter account name

## Arguments

**POST**

Required argument

**VOTE\_WEIGHT**

Optional argument

## verify

Returns the public signing keys for a block

```
beempy verify [OPTIONS] [BLOCKNUMBER]
```

## Options

**-t, --trx <trx>**

Show only one transaction number

**-u, --use-api**

Uses the get\_potential\_signatures api call

## Arguments

**BLOCKNUMBER**

Optional argument

## votes

List outgoing/incoming account votes

```
beempy votes [OPTIONS] [ACCOUNT]
```

### Options

- direction** <direction>  
in or out
- o, --outgoing**  
Show outgoing votes
- i, --incoming**  
Show incoming votes
- d, --days** <days>  
Limit shown vote history by this amount of days (default: 2)
- e, --export** <export>  
Export results to TXT-file

### Arguments

**ACCOUNT**  
Optional argument

## walletinfo

Show info about wallet

```
beempy walletinfo [OPTIONS]
```

### Options

- test-unlock**  
test if unlock is successful

## witness

List witness information

```
beempy witness [OPTIONS] WITNESS
```

### Arguments

**WITNESS**  
Required argument

## witnesscreate

Create a witness

```
beempy witnesscreate [OPTIONS] WITNESS PUB_SIGNING_KEY
```

### Options

**--maximum\_block\_size** <maximum\_block\_size>  
Max block size

**--account\_creation\_fee** <account\_creation\_fee>  
Account creation fee

**--sbd\_interest\_rate** <sbd\_interest\_rate>  
SBD interest rate in percent

**--url** <url>  
Witness URL

### Arguments

**WITNESS**  
Required argument

**PUB\_SIGNING\_KEY**  
Required argument

## witnessdisable

Disable a witness

```
beempy witnessdisable [OPTIONS] WITNESS
```

### Arguments

**WITNESS**  
Required argument

## witnessenable

Enable a witness

```
beempy witnessenable [OPTIONS] WITNESS SIGNING_KEY
```

### Arguments

**WITNESS**  
Required argument

**SIGNING\_KEY**

Required argument

**witnesses**

List witnesses

```
beempy witnesses [OPTIONS] [ACCOUNT]
```

**Options****--limit** <limit>

How many witnesses should be shown

**Arguments****ACCOUNT**

Optional argument

**witnessfeed**

Publish price feed for a witness

```
beempy witnessfeed [OPTIONS] WITNESS
```

**Options****-b, --base** <base>

Set base manually, when not set the base is automatically calculated.

**-q, --quote** <quote>

Steem quote manually, when not set the base is automatically calculated.

**--support-peg**Supports peg adjusting the quote, is overwritten by `--set-quote!`**Arguments****WITNESS**

Required argument

**witnessupdate**

Change witness properties

```
beempy witnessupdate [OPTIONS]
```

## Options

**--witness** <witness>  
Witness name

**--maximum\_block\_size** <maximum\_block\_size>  
Max block size

**--account\_creation\_fee** <account\_creation\_fee>  
Account creation fee

**--sbd\_interest\_rate** <sbd\_interest\_rate>  
SBD interest rate in percent

**--url** <url>  
Witness URL

**--signing\_key** <signing\_key>  
Signing Key

### 3.4.5 beempy -help

You can see all available commands with `beempy --help`

```
~ % beempy --help
Usage: cli.py [OPTIONS] COMMAND1 [ARGS]... [COMMAND2 [ARGS]...]...

Options:
  -n, --node TEXT          URL for public Steem API (e.g.
                           https://api.steemit.com)
  -o, --offline            Prevent connecting to network
  -d, --no-broadcast       Do not broadcast
  -p, --no-wallet          Do not load the wallet
  -x, --unsigned           Nothing will be signed
  -e, --expires INTEGER    Delay in seconds until transactions are supposed to
                           expire(defaults to 60)
  -v, --verbose INTEGER    Verbosity
  --version                Show the version and exit.
  --help                   Show this message and exit.

Commands:
  addkey                  Add key to wallet When no [OPTION] is given,...
  allow                   Allow an account/key to interact with your...
  approvewitness          Approve a witnesses
  balance                 Shows balance
  broadcast                broadcast a signed transaction
  buy                     Buy STEEM or SBD from the internal market...
  cancel                  Cancel order in the internal market
  changewalletpassphrase  Change wallet password
  claimreward              Claim reward balances By default, this will...
  config                  Shows local configuration
  convert                  Convert STEEMDollars to Steem (takes a week...
  createwallet             Create new wallet with a new password
  currentnode              Sets the currently working node at the first...
  delkey                   Delete key from the wallet PUB is the public...
  delprofile               Delete a variable in an account's profile
  disallow                 Remove allowance an account/key to interact...
```

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disapprovewitness	Disapprove a witnesses
downvote	Downvote a post/comment POST <b>is...</b>
follow	Follow another account
follower	Get information about followers
following	Get information about following
importaccount	Import an account using a passphrase
info	Show basic blockchain info General...
interest	Get information about interest payment
listaccounts	Show stored accounts
listkeys	Show stored keys
mute	Mute another account
muter	Get information about muter
muting	Get information about muting
newaccount	Create a new account
nextnode	Uses the <b>next</b> node <b>in</b> list
openorders	Show <b>open</b> orders
orderbook	Obtain orderbook of the internal market
parsewif	Parse a WIF private key without importing
permissions	Show permissions of an account
pingnode	Returns the answer time <b>in</b> milliseconds
power	Shows vote power <b>and</b> bandwidth
powerdown	Power down (start withdrawing VESTS from...
powerdownroute	Setup a powerdown route
powerup	Power up (vest STEEM <b>as</b> STEEM POWER)
pricehistory	Show price history
resteen	Resteen an existing post
sell	Sell STEEM <b>or</b> SBD <b>from the</b> internal market...
<b>set</b>	Set default_account, default_vote_weight <b>or...</b>
setprofile	Set a variable <b>in</b> an account's <b>profile</b>
sign	Sign a provided transaction <b>with</b> available...
ticker	Show ticker
tradehistory	Show price history
transfer	Transfer SBD/STEEM
unfollow	Unfollow/Unmute another account
updatememokey	Update an account's <b>memo</b> <b>key</b>
upvote	Upvote a post/comment POST <b>is...</b>
votes	List outgoing/incoming account votes
walletinfo	Show info about wallet
witnesscreate	Create a witness
witnesses	List witnesses
witnessupdate	Change witness properties

## 3.5 Configuration

The pysteem library comes with its own local configuration database that stores information like

- API node URLs
- default account name
- the encrypted master password
- the default voting weight
- if keyring should be used for unlocking the wallet

and potentially more.

You can access those variables like a regular dictionary by using

```
from beem import Steem
steem = Steem()
print(steem.config.items())
```

Keys can be added and changed like they are for regular dictionaries.

If you don't want to load the `beem.Steem` class, you can load the configuration directly by using:

```
from beem.storage import configStorage as config
```

It is also possible to access the configuration with the commandline tool *beempy*:

```
beempy config
```

### 3.5.1 API node URLs

The default node URLs which will be used when *node* is *None* in `beem.Steem` class is stored in `config["nodes"]` as string. The list can be get and set by:

```
from beem import Steem
steem = Steem()
node_list = steem.get_default_nodes()
node_list = node_list[1:] + [node_list[0]]
steem.set_default_nodes(node_list)
```

*beempy* can also be used to set nodes:

```
beempy set nodes wss://steemd.privex.io
beempy set nodes "['wss://steemd.privex.io', 'wss://gtg.steem.house:8090']"
```

The default nodes can be resetted to the default value. When the first node does not answer, *steem* should be set to the offline mode. This can be done by:

```
beempy -o set nodes ""
```

or

```
from beem import Steem
steem = Steem(offline=True)
steem.set_default_nodes("")
```

### 3.5.2 Default account

The default account name is used in some functions, when no account name is given. It is also used in *beempy* for all account related functions.

```
from beem import Steem
steem = Steem()
steem.set_default_account("test")
steem.config["default_account"] = "test"
```

or by *beempy* with

```
beempy set default_account test
```

### 3.5.3 Default voting weight

The default vote weight is used for voting, when no vote weight is given.

```
from beem import Steem
steem = Steem()
steem.config["default_vote_weight"] = 100
```

or by beempy with

```
beempy set default_vote_weight 100
```

### 3.5.4 Setting password\_storage

The password\_storage can be set to:

- environment, this is the default setting. The master password for the wallet can be provided in the environment variable *UNLOCK*.
- keyring (when set with beempy, it asks for the wallet password)

```
beempy set password_storage environment
beempy set password_storage keyring
```

#### Environment variable for storing the master password

When *password\_storage* is set to *environment*, the master password can be stored in *UNLOCK* for unlocking automatically the wallet.

#### Keyring support for beempy and wallet

In order to use keyring for storing the wallet password, the following steps are necessary:

- Install keyring: *pip install keyring*
- Change *password\_storage* to *keyring* with *beempy* and enter the wallet password.

It also possible to change the password in the keyring by

```
python -m keyring set beem wallet
```

The stored master password can be displayed in the terminal by

```
python -m keyring get beem wallet
```

When keyring is set as *password\_storage* and the stored password in the keyring is identically to the set master password of the wallet, the wallet is automatically unlocked everytime it is used.

## Testing if unlocking works

Testing if the master password is correctly provided by keyring or the *UNLOCK* variable:

```
from beem import Steem
steem = Steem()
print(steem.wallet.locked())
```

When the output is False, automatic unlocking with keyring or the *UNLOCK* variable works. It can also be tested by beem.py with

```
beem.py walletinfo --test-unlock
```

When no password prompt is shown, unlocking with keyring or the *UNLOCK* variable works.

## 3.6 Modules

### 3.6.1 beem Modules

#### beem.account

**class** `beem.account.Account` (*account*, *full=True*, *lazy=False*, *steem\_instance=None*)

Bases: `beem.blockchainobject.BlockchainObject`

This class allows to easily access Account data

##### Parameters

- **account\_name** (*str*) – Name of the account
- **steem\_instance** (`beem.steem.Steem`) – Steem instance
- **lazy** (*bool*) – Use lazy loading
- **full** (*bool*) – Obtain all account data including orders, positions, etc.

**Returns** Account data

**Return type** dictionary

**Raises** `beem.exceptions.AccountDoesNotExistException` – if account does not exist

Instances of this class are dictionaries that come with additional methods (see below) that allow dealing with an account and its corresponding functions.

```
>>> from beem.account import Account
>>> account = Account("gtg")
>>> print(account)
<Account gtg>
>>> print(account.balances)
```

---

**Note:** This class comes with its own caching function to reduce the load on the API server. Instances of this class can be refreshed with `Account.refresh()`. The cache can be cleared with `Account.clear_cache()`

---

**allow** (*foreign*, *weight=None*, *permission='posting'*, *account=None*, *threshold=None*, *\*\*kwargs*)

Give additional access to an account by some other public key or account.

#### Parameters

- **foreign** (*str*) – The foreign account that will obtain access
- **weight** (*int*) – (optional) The weight to use. If not define, the threshold will be used. If the weight is smaller than the threshold, additional signatures will be required. (defaults to threshold)
- **permission** (*str*) – (optional) The actual permission to modify (defaults to `posting`)
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)
- **threshold** (*int*) – (optional) The threshold that needs to be reached by signatures to be able to interact

**approvewitness** (*witness*, *account=None*, *approve=True*, *\*\*kwargs*)

Approve a witness

#### Parameters

- **witness** (*list*) – list of Witness name or id
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**available\_balances**

List balances of an account. This call returns instances of `beem.amount.Amount`.

**balances**

Returns all account balances as dictionary

**cancel\_transfer\_from\_savings** (*request\_id*, *account=None*, *\*\*kwargs*)

Cancel a withdrawal from 'savings' account.

#### Parameters

- **request\_id** (*str*) – Identifier for tracking or cancelling the withdrawal
- **account** (*str*) – (optional) the source account for the transfer if not `default_account`

**claim\_reward\_balance** (*reward\_steem='0 STEEM'*, *reward\_sbd='0 SBD'*, *reward\_vests='0 VESTS'*, *account=None*, *\*\*kwargs*)

Claim reward balances. By default, this will claim all outstanding balances. To bypass this behaviour, set desired claim amount by setting any of *reward\_steem*, *reward\_sbd* or *reward\_vests*.

#### Parameters

- **reward\_steem** (*str*) – Amount of STEEM you would like to claim.
- **reward\_sbd** (*str*) – Amount of SBD you would like to claim.
- **reward\_vests** (*str*) – Amount of VESTS you would like to claim.
- **account** (*str*) – The source account for the claim if not `default_account` is used.

**convert** (*amount*, *account=None*, *request\_id=None*)

Convert SteemDollars to Steem (takes 3.5 days to settle)

#### Parameters

- **amount** (*float*) – amount of SBD to convert

- **account** (*str*) – (optional) the source account for the transfer if not `default_account`
- **request\_id** (*str*) – (optional) identifier for tracking the conversion‘

**curation\_stats()**

Returns the curation reward of the last 24h and 7d and the average of the last 7 days

**Returns** Account curation

**Return type** dictionary

Sample output:

```
{
  '24hr': 0.0,
  '7d': 0.0,
  'avg': 0.0
}
```

**delegate\_vesting\_shares** (*to\_account*, *vesting\_shares*, *account=None*, *\*\*kwargs*)

Delegate SP to another account.

**Parameters**

- **to\_account** (*str*) – Account we are delegating shares to (delegatee).
- **vesting\_shares** (*str*) – Amount of VESTS to delegate eg. *10000 VESTS*.
- **account** (*str*) – The source account (delegator). If not specified, `default_account` is used.

**disallow** (*foreign*, *permission='posting'*, *account=None*, *threshold=None*, *\*\*kwargs*)

Remove additional access to an account by some other public key or account.

**Parameters**

- **foreign** (*str*) – The foreign account that will obtain access
- **permission** (*str*) – (optional) The actual permission to modify (defaults to `posting`)
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)
- **threshold** (*int*) – The threshold that needs to be reached by signatures to be able to interact

**disapprovewitness** (*witness*, *account=None*, *\*\*kwargs*)

Disapprove a witness

**Parameters**

- **witness** (*list*) – list of Witness name or id
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**ensure\_full()**

Ensure that all data are loaded

**estimate\_virtual\_op\_num** (*blocktime*, *stop\_diff=1*, *max\_count=100*)

Returns an estimation of an virtual operation index for a given time or blockindex

**Parameters**

- **blocktime** (*int/datetime*) – start time or start block index from which account operation should be fetched
- **stop\_diff** (*int*) – Sets the difference between last estimation and new estimation at which the estimation stops. Must not be zero. (default is 1)
- **max\_count** (*int*) – sets the maximum number of iterations. -1 disables this (default 100)

```
utc = pytz.timezone('UTC')
start_time = utc.localize(datetime.utcnow()) - timedelta(days=7)
acc = Account("gtg")
start_op = acc.estimate_virtual_op_num(start_time)

b = Blockchain()
start_block_num = b.get_estimated_block_num(start_time)
start_op2 = acc.estimate_virtual_op_num(start_block_num)
```

```
acc = Account("gtg")
block_num = 21248120
start = t.time()
op_num = acc.estimate_virtual_op_num(block_num, stop_diff=1, max_count=10)
stop = t.time()
print(stop - start)
for h in acc.get_account_history(op_num, 0):
    block_est = h["block"]
    print(block_est - block_num)
```

**follow** (*other*, *what*=['blog'], *account*=None)

Follow/Unfollow/Mute/Unmute another account's blog

#### Parameters

- **other** (*str*) – Follow this account
- **what** (*list*) – List of states to follow. ['blog'] means to follow other, [] means to unfollow/unmute other, ['ignore'] means to ignore other, (defaults to ['blog'])
- **account** (*str*) – (optional) the account to allow access to (defaults to default\_account)

**getSimilarAccountNames** (*limit*=5)

Deprecated, please use get\_similar\_account\_names

**get\_account\_bandwidth** (*bandwidth\_type*=1, *account*=None)

**get\_account\_history** (*index*, *limit*, *order*=-1, *start*=None, *stop*=None, *use\_block\_num*=True, *only\_ops*=[], *exclude\_ops*=[], *raw\_output*=False)

Returns a generator for individual account transactions. This call can be used in a for loop.

#### Parameters

- **index** (*int*) – first number of transactions to return
- **limit** (*int*) – limit number of transactions to return
- **start** (*int/datetime*) – start number/date of transactions to return (*optional*)
- **stop** (*int/datetime*) – stop number/date of transactions to return (*optional*)
- **use\_block\_num** (*bool*) – if true, start and stop are block numbers, otherwise virtual OP count numbers.

- **only\_ops** (*array*) – Limit generator by these operations (*optional*)
- **exclude\_ops** (*array*) – Exclude these operations from generator (*optional*)
- **batch\_size** (*int*) – internal api call batch size (*optional*)
- **order** (*int*) – 1 for chronological, -1 for reverse order
- **raw\_output** (*bool*) – if False, the output is a dict, which includes all values. Otherwise, the output is list.

... **note::** only\_ops and exclude\_ops takes an array of strings: The full list of operation ID's can be found in beembase.operationids.ops. Example: ['transfer', 'vote']

**get\_account\_votes** (*account=None*)

Returns all votes that the account has done

**get\_balance** (*balances, symbol*)

Obtain the balance of a specific Asset. This call returns instances of *beem.amount.Amount*. Available balance types:

- "available"
- "saving"
- "reward"
- "total"

#### Parameters

- **balances** (*str*) – Defines the balance type
- **dict) symbol** (*(str,)*) – Can be "SBD", "STEEM" or "VESTS"

```
>>> from beem.account import Account
>>> account = Account("test")
>>> account.get_balance("rewards", "SBD")
0.000 SBD
```

**get\_balances** ()

Returns all account balances as dictionary

**Returns** Account balances

**Return type** dictionary

Sample output:

```
{
  'available': [102.985 STEEM, 0.008 SBD, 146273.695970 VESTS],
  'savings': [0.000 STEEM, 0.000 SBD],
  'rewards': [0.000 STEEM, 0.000 SBD, 0.000000 VESTS],
  'total': [102.985 STEEM, 0.008 SBD, 146273.695970 VESTS]
}
```

**get\_bandwidth** ()

Returns used and allocated bandwidth

**Return type** dict

Sample output:



```
{
    'used': 0,
    'allocated': 2211037
}
```

**get\_blog** (*start\_entry\_id=0, limit=100, raw\_data=False, account=None*)

**get\_blog\_account** (*account=None*)

**get\_blog\_entries** (*start\_entry\_id=0, limit=100, raw\_data=False, account=None*)

**get\_conversion\_requests** (*account=None*)

Returns `get_owner_history`

**Return type** list

**get\_creator** ()

Returns the account creator or *None* if the account was mined

**get\_curation\_reward** (*days=7*)

Returns the curation reward of the last *days* days

**Parameters** *days* (*int*) – limit number of days to be included int the return value

**get\_feed** (*start\_entry\_id=0, limit=100, raw\_data=False, account=None*)

Returns the user feed

**Parameters**

- **start\_entry\_id** (*int*) – default is 0
- **limit** (*int*) – default is 100
- **raw\_data** (*bool*) – default is False
- **account** (*beem.account.Account*) – default is None

**get\_follow\_count** (*account=None*)

**get\_followers** (*raw\_name\_list=True*)

Returns the account followers as list

**get\_following** (*raw\_name\_list=True*)

Returns who the account is following as list

**get\_muters** (*raw\_name\_list=True*)

Returns the account muters as list

**get\_muting** (*raw\_name\_list=True*)

Returns who the account is muting as list

**get\_owner\_history** (*account=None*)

**Return type** list

**get\_recharge\_time** (*voting\_power\_goal=100*)

Returns the account voting power recharge time in minutes

**Parameters** *voting\_power\_goal* (*float*) – voting power goal in percentage (default is 100)

**get\_recharge\_time\_str** (*voting\_power\_goal=100*)

Returns the account recharge time as string

**Parameters** *voting\_power\_goal* (*float*) – voting power goal in percentage (default is 100)

**get\_recharge\_timedelta** (*voting\_power\_goal=100*)

Returns the account voting power recharge time as timedelta object

**Parameters** **voting\_power\_goal** (*float*) – voting power goal in percentage (default is 100)

**get\_recovery\_request** (*account=None*)

Returns get\_recovery\_request

**Return type** list

**get\_reputation** ()

Returns the account reputation in the (steemit) normalized form

**get\_similar\_account\_names** (*limit=5*)

Returns limit similar accounts with name as list

**Parameters** **limit** (*int*) – limits the number of accounts, which will be returned

**Returns** Similar account names as list

**Return type** list

```
>>> from beem.account import Account
>>> account = Account("test")
>>> len(account.get_similar_account_names(limit=5))
5
```

**get\_steem\_power** (*onlyOwnSP=False*)

Returns the account steem power

**get\_vote** (*comment*)

Returns a vote if the account has already voted for comment.

**Parameters** **comment** (*str/Comment*) – can be a Comment object or a authorpermmlink

**get\_voting\_power** (*with\_regeneration=True*)

Returns the account voting power in the range of 0-100%

**get\_voting\_value\_SBD** (*voting\_weight=100, voting\_power=None, steem\_power=None*)

Returns the account voting value in SBD

**get\_withdraw\_routes** (*account=None*)

Returns withdraw\_routes

**Return type** list

**has\_voted** (*comment*)

Returns if the account has already voted for comment

**Parameters** **comment** (*str/Comment*) – can be a Comment object or a authorpermmlink

**history** (*start=None, stop=None, use\_block\_num=True, only\_ops=[], exclude\_ops=[], batch\_size=1000, raw\_output=False*)

Returns a generator for individual account transactions. The earliest operation will be first. This call can be used in a for loop.

**Parameters**

- **start** (*int/datetime*) – start number/date of transactions to return (*optional*)
- **stop** (*int/datetime*) – stop number/date of transactions to return (*optional*)
- **use\_block\_num** (*bool*) – if true, start and stop are block numbers, otherwise virtual OP count numbers.

- **only\_ops** (*array*) – Limit generator by these operations (*optional*)
- **exclude\_ops** (*array*) – Exclude these operations from generator (*optional*)
- **batch\_size** (*int*) – internal api call batch size (*optional*)
- **raw\_output** (*bool*) – if False, the output is a dict, which includes all values. Otherwise, the output is list.

... **note::** only\_ops and exclude\_ops takes an array of strings: The full list of operation ID's can be found in beembase.operationids.ops. Example: ['transfer', 'vote']

```
acc = Account("gtg")
max_op_count = acc.virtual_op_count()
# Returns the 100 latest operations
acc_op = []
for h in acc.history(start=max_op_count - 99, stop=max_op_count, use_block_
↪num=False):
    acc_op.append(h)
len(acc_op)
```

100

```
acc = Account("test")
max_block = 21990141
# Returns the account operation inside the last 100 block. This can be empty.
acc_op = []
for h in acc.history(start=max_block - 99, stop=max_block, use_block_
↪num=True):
    acc_op.append(h)
len(acc_op)
```

0

```
acc = Account("test")
start_time = datetime(2018, 3, 1, 0, 0, 0)
stop_time = datetime(2018, 3, 2, 0, 0, 0)
# Returns the account operation from 1.4.2018 back to 1.3.2018
acc_op = []
for h in acc.history(start=start_time, stop=stop_time):
    acc_op.append(h)
len(acc_op)
```

0

**history\_reverse** (*start=None, stop=None, use\_block\_num=True, only\_ops=[], exclude\_ops=[], batch\_size=1000, raw\_output=False*)

Returns a generator for individual account transactions. The latest operation will be first. This call can be used in a for loop.

#### Parameters

- **start** (*int/datetime*) – start number/date of transactions to return. If negative the virtual\_op\_count is added. (*optional*)
- **stop** (*int/datetime*) – stop number/date of transactions to return. If negative the virtual\_op\_count is added. (*optional*)

- **use\_block\_num** (*bool*) – if true, start and stop are block numbers, otherwise virtual OP count numbers.
- **only\_ops** (*array*) – Limit generator by these operations (*optional*)
- **exclude\_ops** (*array*) – Exclude these operations from generator (*optional*)
- **batch\_size** (*int*) – internal api call batch size (*optional*)
- **raw\_output** (*bool*) – if False, the output is a dict, which includes all values. Otherwise, the output is list.

... **note::** only\_ops and exclude\_ops takes an array of strings: The full list of operation ID's can be found in beembase.operationids.ops. Example: ['transfer', 'vote']

```
acc = Account("gtg")
max_op_count = acc.virtual_op_count()
# Returns the 100 latest operations
acc_op = []
for h in acc.history_reverse(start=max_op_count, stop=max_op_count - 99, use_
↪block_num=False):
    acc_op.append(h)
len(acc_op)
```

```
100
```

```
max_block = 21990141
acc = Account("test")
# Returns the account operation inside the last 100 block. This can be empty.
acc_op = []
for h in acc.history_reverse(start=max_block, stop=max_block-100, use_block_
↪num=True):
    acc_op.append(h)
len(acc_op)
```

```
0
```

```
acc = Account("test")
start_time = datetime(2018, 4, 1, 0, 0, 0)
stop_time = datetime(2018, 3, 1, 0, 0, 0)
# Returns the account operation from 1.4.2018 back to 1.3.2018
acc_op = []
for h in acc.history_reverse(start=start_time, stop=stop_time):
    acc_op.append(h)
len(acc_op)
```

```
0
```

### **interest()**

Calculate interest for an account

**Parameters** **account** (*str*) – Account name to get interest for

**Return type** dictionary

Sample output:

```
{
  'interest': 0.0,
  'last_payment': datetime.datetime(2018, 1, 26, 5, 50, 27, tzinfo=<UTC>),
  'next_payment': datetime.datetime(2018, 2, 25, 5, 50, 27, tzinfo=<UTC>),
  'next_payment_duration': datetime.timedelta(-65, 52132, 684026),
  'interest_rate': 0.0
}
```

**is\_fully\_loaded**

Is this instance fully loaded / e.g. all data available?

**Return type** bool

**json()****json\_metadata**

**mute** (*mute*, *account=None*)

Mute another account

**Parameters**

- **mute** (*str*) – Mute this account
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**name**

Returns the account name

**print\_info** (*force\_refresh=False*, *return\_str=False*, *use\_table=False*, *\*\*kwargs*)

Prints import information about the account

**profile**

Returns the account profile

**refresh()**

Refresh/Obtain an account's data from the API server

**rep**

Returns the account reputation

**reward\_balances****saving\_balances**

**set\_withdraw\_vesting\_route** (*to*, *percentage=100*, *account=None*, *auto\_vest=False*, *\*\*kwargs*)

Set up a vesting withdraw route. When vesting shares are withdrawn, they will be routed to these accounts based on the specified weights.

**Parameters**

- **to** (*str*) – Recipient of the vesting withdrawal
- **percentage** (*float*) – The percent of the withdraw to go to the 'to' account.
- **account** (*str*) – (optional) the vesting account
- **auto\_vest** (*bool*) – Set to true if the 'to' account should receive the VESTS as VESTS, or false if it should receive them as STEEM. (defaults to `False`)

**sp**

Returns the accounts Steem Power

**total\_balances**

**transfer** (*to*, *amount*, *asset*, *memo*=", *account*=None, *\*\*kwargs*)

Transfer an asset to another account.

**Parameters**

- **to** (*str*) – Recipient
- **amount** (*float*) – Amount to transfer
- **asset** (*str*) – Asset to transfer
- **memo** (*str*) – (optional) Memo, may begin with # for encrypted messaging
- **account** (*str*) – (optional) the source account for the transfer if not default\_account

transfer example: .. code-block:: python

```
from beem.account import Account from beem import Steem active_wif = "5xxxx" stm =
Steem(keys=[active_wif]) acc = Account("test", steem_instance=stm) acc.transfer("test1", 1,
"STEEM", "test")
```

**transfer\_from\_savings** (*amount*, *asset*, *memo*, *request\_id*=None, *to*=None, *account*=None, *\*\*kwargs*)

Withdraw SBD or STEEM from 'savings' account.

**Parameters**

- **amount** (*float*) – STEEM or SBD amount
- **asset** (*float*) – 'STEEM' or 'SBD'
- **memo** (*str*) – (optional) Memo
- **request\_id** (*str*) – (optional) identifier for tracking or cancelling the withdrawal
- **to** (*str*) – (optional) the source account for the transfer if not default\_account
- **account** (*str*) – (optional) the source account for the transfer if not default\_account

**transfer\_to\_savings** (*amount*, *asset*, *memo*, *to*=None, *account*=None, *\*\*kwargs*)

Transfer SBD or STEEM into a 'savings' account.

**Parameters**

- **amount** (*float*) – STEEM or SBD amount
- **asset** (*float*) – 'STEEM' or 'SBD'
- **memo** (*str*) – (optional) Memo
- **to** (*str*) – (optional) the source account for the transfer if not default\_account
- **account** (*str*) – (optional) the source account for the transfer if not default\_account

**transfer\_to\_vesting** (*amount*, *to*=None, *account*=None, *\*\*kwargs*)

Vest STEEM

**Parameters**

- **amount** (*float*) – Amount to transfer
- **to** (*str*) – Recipient (optional) if not set equal to account

- **account** (*str*) – (optional) the source account for the transfer if not `default_account`

**type\_id** = 2

**unfollow** (*unfollow*, *account=None*)

Unfollow/Unmute another account's blog

#### Parameters

- **unfollow** (*str*) – Unfollow/Unmute this account
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**update\_account\_metadata** (*metadata*, *account=None*, *\*\*kwargs*)

Update an account's profile in `json_metadata`

#### Parameters

- **metadata** (*dict*) – The new metadata to use
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**update\_account\_profile** (*profile*, *account=None*, *\*\*kwargs*)

Update an account's profile in `json_metadata`

#### Parameters

- **profile** (*dict*) – The new profile to use
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

Sample profile structure:

```
{
  'name': 'Holger',
  'about': 'beem Developer',
  'location': 'Germany',
  'profile_image': 'https://cl.staticflickr.com/5/4715/38733717165_
↪7070227c89_n.jpg',
  'cover_image': 'https://farm1.staticflickr.com/894/26382750057_69f5c8e568.
↪jpg',
  'website': 'https://github.com/holgern/beem'
}
```

```
from beem.account import Account
acc = Account("test")
profile = acc.profile
profile["about"] = "test account"
acc.update_account_profile(profile)
```

**update\_memo\_key** (*key*, *account=None*, *\*\*kwargs*)

Update an account's memo public key

This method does **not** add any private keys to your wallet but merely changes the memo public key.

#### Parameters

- **key** (*str*) – New memo public key

- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**verify\_account\_authority** (*keys*, *account=None*)

**virtual\_op\_count** (*until=None*)

Returns the number of individual account transactions

**Return type** list

**vp**

Returns the account voting power in the range of 0-100%

**withdraw\_vesting** (*amount*, *account=None*, *\*\*kwargs*)

Withdraw VESTS from the vesting account.

**Parameters**

- **amount** (*float*) – number of VESTS to withdraw over a period of 13 weeks
- **account** (*str*) – (optional) the source account for the transfer if not `default_account`

**class** beem.account.**Accounts** (*name\_list*, *batch\_limit=100*, *lazy=False*, *full=True*,  
*steem\_instance=None*)

Bases: `beem.account.AccountsObject`

Obtain a list of accounts

**Parameters**

- **name\_list** (*list*) – list of accounts to fetch
- **batch\_limit** (*int*) – (optional) maximum number of accounts to fetch per call, defaults to 100
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

**class** beem.account.**AccountsObject**

Bases: list

**printAsTable** ()

**print\_summarize\_table** (*tag\_type='Follower'*, *return\_str=False*, *\*\*kwargs*)

## beem.aes

**class** beem.aes.**AESCipher** (*key*)

Bases: object

A classical AES Cipher. Can use any size of data and any size of password thanks to padding. Also ensure the coherence and the type of the data with a unicode to byte converter.

**decrypt** (*enc*)

**encrypt** (*raw*)

**static str\_to\_bytes** (*data*)

## beem.asciichart

**class** beem.asciichart.**AsciiChart** (*height=None*, *width=None*, *offset=3*, *placeholder='{ :8.2f} '*,  
*charset='utf8'*)

Bases: object



Can be used to plot price and trade history

#### Parameters

- **height** (*int*) – Height of the plot
- **width** (*int*) – Width of the plot
- **offset** (*int*) – Offset between tick strings and y-axis (default is 3)
- **placeholder** (*str*) – Defines how the numbers on the y-axes are formatted (default is '{:8.2f}')
- **charset** (*str*) – sets the charset for plotting, utf8 or ascii (default: utf8)

#### **adapt\_on\_series** (*series*)

Calculates the minimum, maximum and length from the given list

**Parameters** **series** (*list*) – time series to plot

```
from beem.asciichart import AsciiChart
chart = AsciiChart()
series = [1, 2, 3, 7, 2, -4, -2]
chart.adapt_on_series(series)
chart.new_chart()
chart.add_axis()
chart.add_curve(series)
print(str(chart))
```

#### **add\_axis** ()

Adds a y-axis to the canvas

```
from beem.asciichart import AsciiChart
chart = AsciiChart()
series = [1, 2, 3, 7, 2, -4, -2]
chart.adapt_on_series(series)
chart.new_chart()
chart.add_axis()
chart.add_curve(series)
print(str(chart))
```

#### **add\_curve** (*series*)

Add a curve to the canvas

**Parameters** **series** (*list*) – List with float data points

```
from beem.asciichart import AsciiChart
chart = AsciiChart()
series = [1, 2, 3, 7, 2, -4, -2]
chart.adapt_on_series(series)
chart.new_chart()
chart.add_axis()
chart.add_curve(series)
print(str(chart))
```

#### **clear\_data** ()

Clears all data

#### **new\_chart** (*minimum=None, maximum=None, n=None*)

Clears the canvas

```
from beem.asciichart import AsciiChart
chart = AsciiChart()
series = [1, 2, 3, 7, 2, -4, -2]
chart.adapt_on_series(series)
chart.new_chart()
chart.add_axis()
chart.add_curve(series)
print(str(chart))
```

**plot** (*series*, *return\_str=False*)  
All in one function for plotting

```
from beem.asciichart import AsciiChart
chart = AsciiChart()
series = [1, 2, 3, 7, 2, -4, -2]
chart.plot(series)
```

**set\_parameter** (*height=None*, *offset=None*, *placeholder=None*)  
Can be used to change parameter

## beem.amount

**class** beem.amount.**Amount** (*amount*, *asset=None*, *new\_apibase\_format=False*,  
*steem\_instance=None*)

Bases: dict

This class deals with Amounts of any asset to simplify dealing with the tuple:

```
(amount, asset)
```

### Parameters

- **args** (*list*) – Allows to deal with different representations of an amount
- **amount** (*float*) – Let’s create an instance with a specific amount
- **asset** (*str*) – Let’s you create an instance with a specific asset (symbol)
- **steem\_instance** (*steem.steem.Steem*) – Steem instance

**Returns** All data required to represent an Amount/Asset

**Return type** dict

**Raises** **ValueError** – if the data provided is not recognized

Way to obtain a proper instance:

- args can be a string, e.g.: “1 SBD”
- args can be a dictionary containing amount and asset\_id
- args can be a dictionary containing amount and asset
- args can be a list of a float and str (symbol)
- args can be a list of a float and a *beem.asset.Asset*
- amount and asset are defined manually

An instance is a dictionary and comes with the following keys:

- `amount` (float)
- `symbol` (str)
- `asset` (instance of `beem.asset.Asset`)

Instances of this class can be used in regular mathematical expressions (+-\*/%) such as:

```
from beem.amount import Amount
from beem.asset import Asset
a = Amount("1 STEEM")
b = Amount(1, "STEEM")
c = Amount("20", Asset("STEEM"))
a + b
a * 2
a += b
a /= 2.0
```

```
2.000 STEEM
2.000 STEEM
```

#### **amount**

Returns the amount as float

#### **asset**

Returns the asset as instance of `steem.asset.Asset`

#### **copy()**

Copy the instance and make sure not to use a reference

#### **json()**

#### **symbol**

Returns the symbol of the asset

#### **tuple()**

### **beem.asset**

**class** `beem.asset.Asset` (*asset*, *lazy=False*, *full=False*, *steem\_instance=None*)

Bases: `beem.blockchainobject.BlockchainObject`

Deals with Assets of the network.

#### **Parameters**

- **Asset** (*str*) – Symbol name or object id of an asset
- **lazy** (*bool*) – Lazy loading
- **full** (*bool*) – Also obtain bitasset-data and dynamic asset dat
- **steem\_instance** (`beem.steem.Steem`) – Steem instance

**Returns** All data of an asset

---

**Note:** This class comes with its own caching function to reduce the load on the API server. Instances of this class can be refreshed with `Asset.refresh()`.

---

#### **asset**

```
precision
refresh()
    Refresh the data from the API server
symbol
type_id = 3
```

## beem.steem

```
class beem.steem.Steem(node="", rpcuser=None, rpcpassword=None, debug=False,
                        data_refresh_time_seconds=900, **kwargs)
```

Bases: object

Connect to the Steem network.

### Parameters

- **node** (*str*) – Node to connect to (*optional*)
- **rpcuser** (*str*) – RPC user (*optional*)
- **rpcpassword** (*str*) – RPC password (*optional*)
- **nobroadcast** (*bool*) – Do **not** broadcast a transaction! (*optional*)
- **unsigned** (*bool*) – Do **not** sign a transaction! (*optional*)
- **debug** (*bool*) – Enable Debugging (*optional*)
- **keys** (*array, dict, string*) – Predefine the wif keys to shortcut the wallet database (*optional*)
- **wif** (*array, dict, string*) – Predefine the wif keys to shortcut the wallet database (*optional*)
- **offline** (*bool*) – Boolean to prevent connecting to network (defaults to `False`) (*optional*)
- **expiration** (*int*) – Delay in seconds until transactions are supposed to expire (*optional*) (default is 30)
- **blocking** (*str*) – Wait for broadcasted transactions to be included in a block and return full transaction (can be “head” or “irreversible”)
- **bundle** (*bool*) – Do not broadcast transactions right away, but allow to bundle operations. It is not possible to send out more than one vote operation and more than one comment operation in a single broadcast (*optional*)
- **appbase** (*bool*) – Use the new appbase rpc protocol on nodes with version 0.19.4 or higher. The settings has no effect on nodes with version of 0.19.3 or lower.
- **num\_retries** (*int*) – Set the maximum number of reconnects to the nodes before NumRetriesReached is raised. Disabled for -1. (default is -1)
- **num\_retries\_call** (*int*) – Repeat num\_retries\_call times a rpc call on node error (default is 5)
- **timeout** (*int*) – Timeout setting for https nodes (default is 60)
- **use\_sc2** (*bool*) – When True, a steemconnect object is created. Can be used for broadcast posting op or creating hot\_links (default is False)

- **steemconnect** (*SteemConnect*) – A SteemConnect object can be set manually, set `use_sc2` to True

Three wallet operation modes are possible:

- **Wallet Database:** Here, the steemlibs load the keys from the locally stored wallet SQLite database (see `storage.py`). To use this mode, simply call `Steem()` without the `keys` parameter
- **Providing Keys:** Here, you can provide the keys for your accounts manually. All you need to do is add the wif keys for the accounts you want to use as a simple array using the `keys` parameter to `Steem()`.
- **Force keys:** This more is for advanced users and requires that you know what you are doing. Here, the `keys` parameter is a dictionary that overwrite the `active`, `owner`, `posting` or `memo` keys for any account. This mode is only used for *foreign* signatures!

If no node is provided, it will connect to default nodes of <http://geo.steem.pl>. Default settings can be changed with:

```
steem = Steem(<host>)
```

where `<host>` starts with `https://`, `ws://` or `wss://`.

The purpose of this class it to simplify interaction with Steem.

The idea is to have a class that allows to do this:

```
>>> from beem import Steem
>>> steem = Steem()
>>> print(steem.get_blockchain_version())
```

This class also deals with edits, votes and reading content.

**broadcast** (*tx=None*)

Broadcast a transaction to the Steem network

**Parameters** *tx* (*tx*) – Signed transaction to broadcast

**chain\_params**

**clear** ()

**comment\_options** (*options*, *identifier*, *beneficiaries=[]*, *account=None*, *\*\*kwargs*)

Set the comment options

**Parameters**

- **options** (*dict*) – The options to define.
- **identifier** (*str*) – Post identifier
- **beneficiaries** (*list*) – (optional) list of beneficiaries
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

For the options, you have these defaults::

```
{
    "author": "",
    "permlink": "",
    "max_accepted_payout": "1000000.000 SBD",
    "percent_steem_dollars": 10000,
    "allow_votes": True,
```

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```
"allow_curation_rewards": True,  
}
```

**connect** (*node*="", *rpcuser*="", *rpcpassword*="", *\*\*kwargs*)

Connect to Steem network (internal use only)

**create\_account** (*account\_name*, *creator*=None, *owner\_key*=None, *active\_key*=None, *memo\_key*=None, *posting\_key*=None, *password*=None, *additional\_owner\_keys*=[], *additional\_active\_keys*=[], *additional\_posting\_keys*=[], *additional\_owner\_accounts*=[], *additional\_active\_accounts*=[], *additional\_posting\_accounts*=[], *storekeys*=True, *store\_owner\_key*=False, *json\_meta*=None, *delegation\_fee\_steem*='0 STEEM', *\*\*kwargs*)

Create new account on Steem

The brainkey/password can be used to recover all generated keys (see *beemgraphenebase.account* for more details).

By default, this call will use *default\_account* to register a new name *account\_name* with all keys being derived from a new brain key that will be returned. The corresponding keys will automatically be installed in the wallet.

**Warning:** Don't call this method unless you know what you are doing! Be sure to understand what this method does and where to find the private keys for your account.

---

**Note:** Please note that this imports private keys (if password is present) into the wallet by default when *nobroadcast* is set to False. However, it **does not import the owner key** for security reasons by default. If you set *store\_owner\_key* to True, the owner key is stored. Do NOT expect to be able to recover it from the wallet if you lose your password!

---

---

**Note:** Account creations cost a fee that is defined by the network. If you create an account, you will need to pay for that fee! **You can partially pay that fee by delegating VESTS.** To pay the fee in full in STEEM, leave *delegation\_fee\_steem* set to 0 STEEM (Default). To pay the fee partially in STEEM, partially with delegated VESTS, set *delegation\_fee\_steem* to a value greater than 1 STEEM. *Required VESTS will be calculated automatically.* To pay the fee with maximum amount of delegation, set *delegation\_fee\_steem* to 1 STEEM. *Required VESTS will be calculated automatically.*

---

### Parameters

- **account\_name** (*str*) – (required) new account name
- **json\_meta** (*str*) – Optional meta data for the account
- **owner\_key** (*str*) – Main owner key
- **active\_key** (*str*) – Main active key
- **posting\_key** (*str*) – Main posting key
- **memo\_key** (*str*) – Main memo\_key
- **password** (*str*) – Alternatively to providing keys, one can provide a password from which the keys will be derived
- **additional\_owner\_keys** (*array*) – Additional owner public keys

- **additional\_active\_keys** (*array*) – Additional active public keys
- **additional\_posting\_keys** (*array*) – Additional posting public keys
- **additional\_owner\_accounts** (*array*) – Additional owner account names
- **additional\_active\_accounts** (*array*) – Additional active account names
- **storekeys** (*bool*) – Store new keys in the wallet (default: True)
- **delegation\_fee\_steem** – If set, *creator* pays a fee of this amount, and delegates the rest with VESTS (calculated automatically). Minimum: 1 STEEM. If left to 0 (Default), full fee is paid without VESTS delegation.
- **creator** (*str*) – which account should pay the registration fee (defaults to `default_account`)

Raises **AccountExistsException** – if the account already exists on the blockchain

**custom\_json** (*id, json\_data, required\_auths=[], required\_posting\_auths=[], \*\*kwargs*)

Create a custom json operation

#### Parameters

- **id** (*str*) – identifier for the custom json (max length 32 bytes)
- **json\_data** (*json*) – the json data to put into the custom\_json operation
- **required\_auths** (*list*) – (optional) required auths
- **required\_posting\_auths** (*list*) – (optional) posting auths

**finalizeOp** (*ops, account, permission, \*\*kwargs*)

This method obtains the required private keys if present in the wallet, finalizes the transaction, signs it and broadcasts it

#### Parameters

- **ops** (*operation*) – The operation (or list of operations) to broadcast
- **account** (*operation*) – The account that authorizes the operation
- **permission** (*string*) – The required permission for signing (active, owner, posting)
- **append\_to** (*object*) – This allows to provide an instance of `ProposalsBuilder` (see `steem.new_proposal()`) or `TransactionBuilder` (see `steem.new_tx()`) to specify where to put a specific operation.

---

**Note:** `append_to` is exposed to every method used in the Steem class

---

---

**Note:** If `ops` is a list of operation, they all need to be signable by the same key! Thus, you cannot combine ops that require active permission with ops that require posting permission. Neither can you use different accounts for different operations!

---

---

**Note:** This uses `beem.txbuffer` as instance of `beem.transactionbuilder.TransactionBuilder`. You may want to use your own txbuffer

---

**get\_block\_interval** (*use\_stored\_data=True*)

Returns the block interval in seconds

**get\_blockchain\_version** (*use\_stored\_data=True*)

Returns the blockchain version

**get\_chain\_properties** (*use\_stored\_data=True*)

Return witness elected chain properties

**Properties:::**

```
{ 'account_creation_fee': '30.000 STEEM', 'maximum_block_size': 65536, 'sbd_interest_rate':  
  250  
}
```

**get\_config** (*use\_stored\_data=True, replace\_steemit\_by\_steem=False*)

Returns internal chain configuration.

**Parameters**

- **use\_stored\_data** (*bool*) – If True, the chached value is returned
- **replace\_steemit\_by\_steem** (*bool*) – If True, it replaces all STEEMIT keys by STEEM (only useful on non appbase nodes)

**get\_current\_median\_history** (*use\_stored\_data=True*)

Returns the current median price :param bool use\_stored\_data: if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**get\_default\_nodes** ()

Returns the default nodes

**get\_dynamic\_global\_properties** (*use\_stored\_data=True*)

This call returns the *dynamic global properties*

**Parameters** **use\_stored\_data** (*bool*) – if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**get\_feed\_history** (*use\_stored\_data=True*)

Returns the feed\_history

**Parameters** **use\_stored\_data** (*bool*) – if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**get\_hardfork\_properties** (*use\_stored\_data=True*)

Returns Hardfork and live\_time of the hardfork :param bool use\_stored\_data: if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**get\_median\_price** (*use\_stored\_data=True*)

Returns the current median history price as Price

**get\_network** (*use\_stored\_data=True*)

Identify the network :param bool use\_stored\_data: if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**Returns** Network parameters

**Return type** dict

**get\_reserve\_ratio** (*use\_stored\_data=True*)

This call returns the *reserve ratio*

**Parameters** **use\_stored\_data** (*bool*) – if True, stored data will be returned. If stored data are empty or old, refresh\_data() is used.

**get\_reward\_funds** (*use\_stored\_data=True*)

Get details for a reward fund.



**Parameters** `use_stored_data` (*bool*) – if True, stored data will be returned. If stored data are empty or old, `refresh_data()` is used.

**get\_sbd\_per\_rshares** (*use\_stored\_data=True*)

Returns the current rshares to SBD ratio

**get\_steem\_per\_mvest** (*time\_stamp=None, use\_stored\_data=True*)

Returns the MVEST to STEEM ratio

**Parameters** `time_stamp` (*datetime*) – (optional) if set, return an estimated STEEM per MVEST ratio for the given time stamp. If unset the current ratio is returned (default).

**get\_witness\_schedule** (*use\_stored\_data=True*)

Return witness elected chain properties

**info** (*use\_stored\_data=True*)

Returns the global properties

**is\_connected** ()

Returns if rpc is connected

**move\_current\_node\_to\_front** ()

Returns the default node list, until the first entry is equal to the current working node url

**newWallet** (*pwd*)

Create a new wallet. This method is basically only calls `beem.wallet.create()`.

**Parameters** `pwd` (*str*) – Password to use for the new wallet

**Raises** `beem.exceptions.WalletExists` – if there is already a wallet created

**new\_tx** (*\*args, \*\*kwargs*)

Let's obtain a new txbuffer

**Returns** `int txid` id of the new txbuffer

**post** (*title, body, author=None, permalink=None, reply\_identifier=None, json\_metadata=None, comment\_options=None, community=None, app=None, tags=None, beneficiaries=None, self\_vote=False, \*\*kwargs*)

Create a new post. If this post is intended as a reply/comment, `reply_identifier` needs to be set with the identifier of the parent post/comment (eg. `@author/permlink`). Optionally you can also set `json_metadata`, `comment_options` and upvote the newly created post as an author. Setting category, tags or community will override the values provided in `json_metadata` and/or `comment_options` where appropriate.

**Parameters**

- **title** (*str*) – Title of the post
- **body** (*str*) – Body of the post/comment
- **author** (*str*) – Account are you posting from
- **permalink** (*str*) – Manually set the permalink (defaults to None). If left empty, it will be derived from title automatically.
- **reply\_identifier** (*str*) – Identifier of the parent post/comment (only if this post is a reply/comment).
- **json\_metadata** (*str/dict*) – JSON meta object that can be attached to the post.
- **comment\_options** (*dict*) – JSON options object that can be attached to the post.

Example:

```
comment_options = {
    'max_accepted_payout': '1000000.000 SBD',
    'percent_steem_dollars': 10000,
    'allow_votes': True,
    'allow_curation_rewards': True,
    'extensions': [[0, {
        'beneficiaries': [
            {'account': 'account1', 'weight': 5000},
            {'account': 'account2', 'weight': 5000},
        ]
    }]]
}
```

### Parameters

- **community** (*str*) – (Optional) Name of the community we are posting into. This will also override the community specified in *json\_metadata*.
- **app** (*str*) – (Optional) Name of the app which are used for posting when not set, beem/<version> is used
- **tags** (*str/list*) – (Optional) A list of tags (5 max) to go with the post. This will also override the tags specified in *json\_metadata*. The first tag will be used as a ‘category’. If provided as a string, it should be space separated.
- **beneficiaries** (*list*) – (Optional) A list of beneficiaries for posting reward distribution. This argument overrides beneficiaries as specified in *comment\_options*.

For example, if we would like to split rewards between account1 and account2:

```
beneficiaries = [
    {'account': 'account1', 'weight': 5000},
    {'account': 'account2', 'weight': 5000}
]
```

**Parameters** **self\_vote** (*bool*) – (Optional) Upvote the post as author, right after posting.

### prefix

**refresh\_data** (*force\_refresh=False, data\_refresh\_time\_seconds=None*)

Read and stores steem blockchain parameters If the last data refresh is older than data\_refresh\_time\_seconds, data will be refreshed

### Parameters

- **force\_refresh** (*bool*) – if True, a refresh of the data is enforced
- **data\_refresh\_time\_seconds** (*float*) – set a new minimal refresh time in seconds

**rshares\_to\_sbd** (*rshares, use\_stored\_data=True*)

Calculates the current SBD value of a vote

**rshares\_to\_vote\_pct** (*rshares, steem\_power=None, vests=None, voting\_power=10000, use\_stored\_data=True*)

Obtain the voting percentage for a desired rshares value for a given Steem Power or vesting shares and voting\_power Give either steem\_power or vests, not both. When the output is greater than 10000, the given rshares are too high

Returns the voting participation (100% = 10000)

**Parameters**

- **rshares** (*number*) – desired rshares value
- **steem\_power** (*number*) – Steem Power
- **vests** (*number*) – vesting shares
- **voting\_power** (*int*) – voting power (100% = 10000)

**set\_default\_account** (*account*)  
Set the default account to be used

**set\_default\_nodes** (*nodes*)  
Set the default nodes to be used

**set\_default\_vote\_weight** (*vote\_weight*)  
Set the default vote weight to be used

**set\_password\_storage** (*password\_storage*)  
Set the password storage mode.

When set to “no”, the password has to be provided each time. When set to “environment” the password is taken from the UNLOCK variable

When set to “keyring” the password is taken from the python keyring module. A wallet password can be stored with `python -m keyring set beem wallet password`

**Parameters password\_storage** (*str*) – can be “no”, “keyring” or “environment”

**sign** (*tx=None, wifs=[]*)  
Sign a provided transaction with the provided key(s)

**Parameters**

- **tx** (*dict*) – The transaction to be signed and returned
- **wifs** (*string*) – One or many wif keys to use for signing a transaction. If not present, the keys will be loaded from the wallet as defined in “missing\_signatures” key of the transactions.

**sp\_to\_rshares** (*steem\_power, voting\_power=10000, vote\_pct=10000, use\_stored\_data=True*)  
Obtain the r-shares from Steem power

**Parameters**

- **steem\_power** (*number*) – Steem Power
- **voting\_power** (*int*) – voting power (100% = 10000)
- **vote\_pct** (*int*) – voting percentage (100% = 10000)

**sp\_to\_sbd** (*sp, voting\_power=10000, vote\_pct=10000, use\_stored\_data=True*)  
Obtain the resulting SBD vote value from Steem power :param number steem\_power: Steem Power :param int voting\_power: voting power (100% = 10000) :param int vote\_pct: voting percentage (100% = 10000)

**sp\_to\_vests** (*sp, timestamp=None, use\_stored\_data=True*)  
Converts SP to vests

**Parameters**

- **sp** (*float*) – Steem power to convert
- **timestamp** (*datetime*) – (Optional) Can be used to calculate the conversion rate from the past

**tx()**

Returns the default transaction buffer

**txbuffer**

Returns the currently active tx buffer

**unlock** (\*args, \*\*kwargs)

Unlock the internal wallet

**vests\_to\_rshares** (vests, voting\_power=10000, vote\_pct=10000, use\_stored\_data=True)

Obtain the r-shares from vests

#### Parameters

- **vests** (*number*) – vesting shares
- **voting\_power** (*int*) – voting power (100% = 10000)
- **vote\_pct** (*int*) – voting percentage (100% = 10000)

**vests\_to\_sbd** (vests, voting\_power=10000, vote\_pct=10000, use\_stored\_data=True)

Obtain the resulting SBD vote value from vests :param number vests: vesting shares :param int voting\_power: voting power (100% = 10000) :param int vote\_pct: voting percentage (100% = 10000)

**vests\_to\_sp** (vests, timestamp=None, use\_stored\_data=True)

Converts vests to SP

#### Parameters

- **vests/float vests** (`beem.amount.Amount`) – Vests to convert
- **timestamp** (*int*) – (Optional) Can be used to calculate the conversion rate from the past

**witness\_update** (signing\_key, url, props, account=None, \*\*kwargs)

Creates/updates a witness

#### Parameters

- **signing\_key** (*pubkey*) – Public signing key
- **url** (*str*) – URL
- **props** (*dict*) – Properties
- **account** (*str*) – (optional) witness account name

Properties::

```
{
    "account_creation_fee": x,
    "maximum_block_size": x,
    "sbd_interest_rate": x,
}
```

## beem.nodelist

**class** beem.nodelist.NodeList

Bases: list

Returns a node list

```
from beem.nodelist import NodeList
n = NodeList()
nodes_urls = n.get_nodes()
```

**get\_nodes** (*normal=True, appbase=True, dev=False, testnet=False, wss=True, https=True*)  
Returns nodes as list

#### Parameters

- **normal** (*bool*) – when True, nodes with version 0.19.2 or 0.19.3 are included
- **appbase** (*bool*) – when True, nodes with version 0.19.4 are included
- **dev** (*bool*) – when True, dev nodes with version 0.19.4 are included
- **testnet** (*bool*) – when True, testnet nodes are included

**get\_testnet** ()  
Returns testnet nodes

**update\_nodes** (*steem\_instance=None*)  
Reads metadata from fullnodeupdate

## beem.steemconnect

**class** beem.steemconnect.SteemConnect (*steem\_instance=None, \*args, \*\*kwargs*)  
Bases: object

**Parameters** **scope** (*str*) – comma separated string with scopes login,offline,vote,comment,delete\_comment,comment\_options,custom\_json,claim\_reward\_balance

```
# Run the login_app in examples and login with a account
from beem import Steem
from beem.steemconnect import SteemConnect
from beem.comment import Comment
sc2 = SteemConnect(client_id="beem.app")
steem = Steem(steemconnect=sc2)
steem.wallet.unlock("supersecret-passphrase")
post = Comment("author/permlink", steem_instance=steem)
post.upvote(voter="test") # replace "test" with your account
```

Examples for creating steemconnect v2 urls for broadcasting in browser: .. testoutput:

```
from beem import Steem
from beem.account import Account
from beem.steemconnect import SteemConnect
from pprint import pprint
steem = Steem(nobroadcast=True, unsigned=True)
sc2 = SteemConnect(steem_instance=steem)
acc = Account("test", steem_instance=steem)
pprint(sc2.url_from_tx(acc.transfer("test1", 1, "STEEM", "test")))
```

```
'https://v2.steemconnect.com/sign/transfer?from=test&to=test1&amount=1.000+STEEM&
↳memo=test'
```

```
from beem import Steem
from beem.transactionbuilder import TransactionBuilder
from beembase import operations
```

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```
from beem.steemconnect import SteemConnect
from pprint import pprint
stm = Steem()
tx = TransactionBuilder(stem_instance=stm)
op = operations.Transfer(**{"from": 'test',
                           "to": 'test1',
                           "amount": '1.000 STEEM',
                           "memo": 'test'})
tx.appendOps(op)
pprint(sc2.url_from_tx(tx))
```

```
'https://v2.steemconnect.com/sign/transfer?from=test&to=test1&amount=1.000+STEEM&
↳memo=test'
```

**broadcast** (*operations*, *username=None*)

Broadcast a operations

Sample operations:

```
[
  [
    'vote', {
      'voter': 'gandalf',
      'author': 'gtg',
      'permlink': 'steem-pressure-4-need-for-speed',
      'weight': 10000
    }
  ]
]
```

**create\_hot\_sign\_url** (*operation*, *params*, *redirect\_uri=None*)

Creates a link for broadcasting an operation

**Parameters**

- **operation** (*str*) – operation name (e.g.: vote)
- **params** (*dict*) – operation dict params
- **redirect\_uri** (*str*) – Redirects to this uri, when set

**get\_access\_token** (*code*)**get\_login\_url** (*redirect\_uri*, *\*\*kwargs*)

Returns a login url for receiving token from steemconnect

**headers****me** (*username=None*)

Calls the me function from steemconnect

**refresh\_access\_token** (*code*, *scope*)**revoke\_token** (*access\_token*)**set\_access\_token** (*access\_token*)

Is needed for broadcast() and me()

**set\_username** (*username*, *permission='posting'*)

Set a username for the next broadcast() or me operation() The necessary token is fetched from the wallet

**update\_user\_metadata** (*metadata*)

**url\_from\_tx** (*tx*, *redirect\_uri=None*)

Creates a link for broadcasting an operation

#### Parameters

- **tx** (*dict*) – includes the operation, which should be broadcast
- **redirect\_uri** (*str*) – Redirects to this uri, when set

## beem.block

**class** beem.block.**Block** (*block*, *only\_ops=False*, *only\_virtual\_ops=False*, *full=True*, *lazy=False*,  
*steem\_instance=None*)

Bases: *beem.blockchainobject.BlockchainObject*

Read a single block from the chain

#### Parameters

- **block** (*int*) – block number
- **steem\_instance** (*beem.steem.Steem*) – Steem instance
- **lazy** (*bool*) – Use lazy loading
- **only\_ops** (*bool*) – Includes only operations, when set to True (default: False)
- **only\_virtual\_ops** (*bool*) – Includes only virtual operations (default: False)

Instances of this class are dictionaries that come with additional methods (see below) that allow dealing with a block and its corresponding functions.

When *only\_virtual\_ops* is set to True, *only\_ops* is always set to True.

In addition to the block data, the block number is stored as `self["id"]` or `self.identifier`.

```
>>> from beem.block import Block
>>> block = Block(1)
>>> print(block)
<Block 1>
```

---

**Note:** This class comes with its own caching function to reduce the load on the API server. Instances of this class can be refreshed with `Account.refresh()`.

---

#### **block\_num**

Returns the block number

#### **json()**

#### **json\_operations**

Returns all block operations as list, all dates are strings.

#### **json\_transactions**

Returns all transactions as list, all dates are strings.

#### **operations**

Returns all block operations as list

#### **ops\_statistics** (*add\_to\_ops\_stat=None*)

Returns a statistic with the occurrence of the different operation types

**refresh()**

Even though blocks never change, you freshly obtain its contents from an API with this method

**time()**

Return a datetime instance for the timestamp of this block

**transactions**

Returns all transactions as list

**class** beem.block.**BlockHeader** (*block*, *full=True*, *lazy=False*, *steem\_instance=None*)

Bases: *beem.blockchainobject.BlockchainObject*

Read a single block header from the chain

#### Parameters

- **block** (*int*) – block number
- **steem\_instance** (*beem.steem.Steem*) – Steem instance
- **lazy** (*bool*) – Use lazy loading

In addition to the block data, the block number is stored as self[“id”] or self.identifier.

```
>>> from beem.block import BlockHeader
>>> block = BlockHeader(1)
>>> print(block)
<BlockHeader 1>
```

**block\_num**

Returns the block number

**json()**

**refresh()**

Even though blocks never change, you freshly obtain its contents from an API with this method

**time()**

Return a datetime instance for the timestamp of this block

## beem.blockchain

**class** beem.blockchain.**Blockchain** (*steem\_instance=None*, *mode='irreversible'*,  
*max\_block\_wait\_repetition=None*,  
*data\_refresh\_time\_seconds=900*)

Bases: *object*

This class allows to access the blockchain and read data from it

#### Parameters

- **steem\_instance** (*beem.steem.Steem*) – Steem instance
- **mode** (*str*) – (default) Irreversible block (*irreversible*) or actual head block (*head*)
- **max\_block\_wait\_repetition** (*int*) – maximum wait repetition for next block where each repetition is *block\_interval* long (default is 3)

This class let's you deal with blockchain related data and methods. Read blockchain related data:

Read current block and blockchain info



```
print(chain.get_current_block())
print(chain.steem.info())
```

Monitor for new blocks. When `stop` is not set, monitoring will never stop.

```
blocks = []
current_num = chain.get_current_block_num()
for block in chain.blocks(start=current_num - 99, stop=current_num):
    blocks.append(block)
len(blocks)
```

```
100
```

or each operation individually:

```
ops = []
current_num = chain.get_current_block_num()
for operation in chain.ops(start=current_num - 99, stop=current_num):
    ops.append(operation)
```

**awaitTxConfirmation** (*transaction*, *limit=10*)

Returns the transaction as seen by the blockchain after being included into a block :param dict transaction: transaction to wait for :param int limit: (optional) number of blocks to wait for the transaction (default: 10)

---

**Note:** If you want instant confirmation, you need to instantiate class:*beem.blockchain.Blockchain* with `mode="head"`, otherwise, the call will wait until confirmed in an irreversible block.

---



---

**Note:** This method returns once the blockchain has included a transaction with the **same signature**. Even though the signature is not usually used to identify a transaction, it still cannot be forfeited and is derived from the transaction content and thus identifies a transaction uniquely.

---

**block\_time** (*block\_num*)

Returns a datetime of the block with the given block number.

**Parameters** **block\_num** (*int*) – Block number

**block\_timestamp** (*block\_num*)

Returns the timestamp of the block with the given block number as integer.

**Parameters** **block\_num** (*int*) – Block number

**blocks** (*start=None*, *stop=None*, *max\_batch\_size=None*, *threading=False*, *thread\_num=8*, *thread\_limit=1000*, *only\_ops=False*, *only\_virtual\_ops=False*)

Yields blocks starting from *start*.

**Parameters**

- **start** (*int*) – Starting block
- **stop** (*int*) – Stop at this block
- **max\_batch\_size** (*int*) – only for appbase nodes. When not None, batch calls of are used. Cannot be combined with threading
- **threading** (*bool*) – Enables threading. Cannot be combined with batch calls

- **thread\_num** (*int*) – Defines the number of threads, when *threading* is set.
- **thread\_limit** (*int*) – Thread queue size (Default 1000)
- **only\_ops** (*bool*) – Only yield operations (default: False). Cannot be combined with *only\_virtual\_ops=True*.
- **only\_virtual\_ops** (*bool*) – Only yield virtual operations (default: False)

---

**Note:** If you want instant confirmation, you need to instantiate class:*beem.blockchain.Blockchain* with *mode="head"*, otherwise, the call will wait until confirmed in an irreversible block.

---

**get\_all\_accounts** (*start=*"", *stop=*"", *steps=1000.0*, *limit=-1*, *\*\*kwargs*)  
Yields account names between start and stop.

**Parameters**

- **start** (*str*) – Start at this account name
- **stop** (*str*) – Stop at this account name
- **steps** (*int*) – Obtain *steps* ret with a single call from RPC

**get\_current\_block** (*only\_ops=False*, *only\_virtual\_ops=False*)  
This call returns the current block

**Parameters**

- **only\_ops** (*bool*) – Returns block with operations only, when set to True (default: False)
- **only\_virtual\_ops** (*bool*) – Includes only virtual operations (default: False)

---

**Note:** The block number returned depends on the *mode* used when instantiating from this class.

---

**get\_current\_block\_num** ()  
This call returns the current block number

---

**Note:** The block number returned depends on the *mode* used when instantiating from this class.

---

**get\_estimated\_block\_num** (*date*, *estimateForwards=False*, *accurate=True*)  
This call estimates the block number based on a given date

**Parameters** **date** (*datetime*) – block time for which a block number is estimated

---

**Note:** The block number returned depends on the *mode* used when instantiating from this class.

---

**get\_transaction** (*transaction\_id*)  
Returns a transaction from the blockchain

**Parameters** **transaction\_id** (*str*) – transaction\_id

**static hash\_op** (*event*)  
This method generates a hash of blockchain operation.

**is\_irreversible\_mode** ()

**ops** (*start=None, stop=None, only\_virtual\_ops=False, \*\*kwargs*)

Blockchain.ops() is deprecated. Please use Blockchain.stream() instead.

**ops\_statistics** (*start, stop=None, add\_to\_ops\_stat=None, with\_virtual\_ops=True, verbose=False*)

Generates statistics for all operations (including virtual operations) starting from *start*.

#### Parameters

- **start** (*int*) – Starting block
- **stop** (*int*) – Stop at this block, if set to None, the current\_block\_num is taken
- **add\_to\_ops\_stat** (*dict*) – if set, the result is added to add\_to\_ops\_stat
- **verbose** (*bool*) – if True, the current block number and timestamp is printed

This call returns a dict with all possible operations and their occurrence.

**stream** (*opNames=[], raw\_ops=False, \*args, \*\*kwargs*)

Yield specific operations (e.g. comments) only

#### Parameters

- **opNames** (*array*) – List of operations to filter for
- **raw\_ops** (*bool*) – When set to True, it returns the unmodified operations (default: False)
- **start** (*int*) – Start at this block
- **stop** (*int*) – Stop at this block
- **max\_batch\_size** (*int*) – only for appbase nodes. When not None, batch calls of are used. Cannot be combined with threading
- **threading** (*bool*) – Enables threading. Cannot be combined with batch calls
- **thread\_num** (*int*) – Defines the number of threads, when *threading* is set.
- **only\_ops** (*bool*) – Only yield operations (default: False) Cannot be combined with *only\_virtual\_ops=True*
- **only\_virtual\_ops** (*bool*) – Only yield virtual operations (default: False)

The dict output is formatted such that *type* carries the operation type. Timestamp and block\_num are taken from the block the operation was stored in and the other keys depend on the actualy operation.

---

**Note:** If you want instant confirmation, you need to instantiate class: *beem.blockchain.Blockchain* with *mode="head"*, otherwise, the call will wait until confirmed in an irreversible block.

---

output when *raw\_ops=False* is set: .. code-block:: js

```
{ 'type': 'transfer', 'from': 'johngreenfield', 'to': 'thundercurator', 'amount': '0.080
  SBD', 'memo': 'https://steemit.com/lofi/@johngreenfield/lofi-joji-yeah-right',
  '_id': '6d4c5f2d4d8ef1918acae4a8dce34f9da384786', 'timestamp': date-
    time.datetime(2018, 5, 9, 11, 23, 6, tzinfo=<UTC>), 'block_num': 22277588, 'trx_id':
    'cf11b2ac8493c71063ec121b2e8517ab1e0e6bea'
}
```

output when *raw\_ops=True* is set: .. code-block:: js

```
{ 'block_num': 22277588, 'op':
  [
```

```
        'transfer',
        { 'from': 'johngreenfield', 'to': 'thundercurator', 'amount': '0.080 SBD',
          'memo': 'https://steemit.com/lofi/@johngreenfield/lofi-joji-yeah-right'
        }
    ], 'timestamp': datetime.datetime(2018, 5, 9, 11, 23, 6, tzinfo=<UTC>))
}

wait_for_and_get_block (block_number, blocks_waiting_for=None, only_ops=False,
                        only_virtual_ops=False)
    Get the desired block from the chain, if the current head block is smaller (for both head and irreversible)
    then we wait, but a maximum of blocks_waiting_for * max_block_wait_repetition time before failure.
```

#### Parameters

- **block\_number** (*int*) – desired block number
- **blocks\_waiting\_for** (*int*) – difference between *block\_number* and current head and defines how many blocks we are willing to wait, positive int (default: None)
- **only\_ops** (*bool*) – Returns blocks with operations only, when set to True (default: False)
- **only\_virtual\_ops** (*bool*) – Includes only virtual operations (default: False)

```
class beem.blockchain.Pool (thread_count, batch_mode=False, exception_handler=<function default_handler>)
```

Bases: `object`

Pool of threads consuming tasks from a queue

**abort** (*block=False*)

Tell each worker that its done working

**alive** ()

Returns True if any threads are currently running

**done** ()

Returns True if not tasks are left to be completed

**enqueue** (*func*, *\*args*, *\*\*kwargs*)

Add a task to the queue

**idle** ()

Returns True if all threads are waiting for work

**join** ()

Wait for completion of all the tasks in the queue

**results** (*sleep\_time=0*)

Get the set of results that have been processed, repeatedly call until done

**run** (*block=False*)

Start the threads, or restart them if you've aborted

```
class beem.blockchain.Worker (name, queue, results, abort, idle, exception_handler)
```

Bases: `threading.Thread`

Thread executing tasks from a given tasks queue

**run** ()

Thread work loop calling the function with the params

`beem.blockchain.default_handler` (*name, exception, \*args, \*\*kwargs*)

## beem.blockchainobject

```
class beem.blockchainobject.BlockchainObject (data,          klass=None,          space_id=1,  
                                              object_id=None,          lazy=False,  
                                              use_cache=True,          id_item=None,  
                                              steem_instance=None, *args, **kwargs)
```

Bases: dict

`cache()`

`static clear_cache()`

`clear_cache_from_expired_items()`

`get_cache_auto_clean()`

`get_cache_expiration()`

`getcache(id)`

`iscached(id)`

`items()` → a set-like object providing a view on D's items

`json()`

`set_cache_auto_clean(auto_clean)`

`set_cache_expiration(expiration)`

`space_id = 1`

`test_valid_objectid(i)`

`testid(id)`

`type_id = None`

`type_ids = []`

```
class beem.blockchainobject.ObjectCache (initial_data={},          default_expiration=10,  
                                          auto_clean=True)
```

Bases: dict

`clear_expired_items()`

`get(k[, d])` → D[k] if k in D, else d. d defaults to None.

## beem.comment

```
class beem.comment.Comment (authorperm, full=True, lazy=False, steem_instance=None)
```

Bases: `beem.blockchainobject.BlockchainObject`

Read data about a Comment/Post in the chain

### Parameters

- **authorperm** (*str*) – identifier to post/comment in the form of @author/permlink
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

```
>>> from beem.comment import Comment
>>> from beem.account import Account
>>> acc = Account("gtg")
>>> authorperm = acc.get_blog(limit=1)[0]["authorperm"]
>>> c = Comment(authorperm)
>>> postdate = c["created"]
>>> postdate_str = c.json()["created"]
```

**author**

**authorperm**

**body**

**category**

**curation\_penalty\_compensation\_SBD()**

Returns The required post payout amount after 30 minutes which will compensate the curation penalty, if voting earlier than 30 minutes

**delete** (*account=None, identifier=None*)

Delete an existing post/comment

**Parameters**

- **account** (*str*) – (optional) Account to use for deletion. If *account* is not defined, the *default\_account* will be taken or a *ValueError* will be raised.
- **identifier** (*str*) – (optional) Identifier for the post to delete. Takes the form *@author/permlink*. By default the current post will be used.

**Note: a post/comment can only be deleted as long as it has no replies and no positive rshares on it.**

**downvote** (*weight=-100, voter=None*)

Downvote the post

**Parameters**

- **weight** (*float*) – (optional) Weight for posting (-100.0 - +100.0) defaults to -100.0
- **voter** (*str*) – (optional) Voting account

**edit** (*body, meta=None, replace=False*)

Edit an existing post

**Parameters**

- **body** (*str*) – Body of the reply
- **meta** (*json*) – JSON meta object that can be attached to the post. (optional)
- **replace** (*bool*) – Instead of calculating a *diff*, replace the post entirely (defaults to *False*)

**estimate\_curation\_SBD** (*vote\_value\_SBD, estimated\_value\_SBD=None*)

Estimates curation reward

**Parameters**

- **vote\_value\_SBD** (*float*) – The vote value in SBD for which the curation should be calculated

- **estimated\_value\_SBD** (*float*) – When set, this value is used for calculate the curation. When not set, the current post value is used.

**get\_author\_rewards** ()

Returns the author rewards.

Example::

```
{
  'pending_rewards': True,
  'payout_SP': 0.912 STEEM,
  'payout_SBD': 3.583 SBD,
  'total_payout_SBD': 7.166 SBD
}
```

**get\_beneficiaries\_pct** ()

Returns the sum of all post beneficiaries in percentage

**get\_curation\_penalty** (*vote\_time=None*)

If post is less than 30 minutes old, it will incur a curation reward penalty.

**Parameters** **vote\_time** (*datetime*) – A vote time can be given and the curation penalty is calculated regarding the given time (default is None) When set to None, the current date is used.

**Returns** Float number between 0 and 1 (0.0 -> no penalty, 1.0 -> 100 % curation penalty)

**Return type** float

**get\_curation\_rewards** (*pending\_payout\_SBD=False, pending\_payout\_value=None*)

Returns the curation rewards.

**Parameters**

- **pending\_payout\_SBD** (*bool*) – If True, the rewards are returned in SBD and not in STEEM (default is False)
- **pending\_payout\_value** (*float/str*) – When not None this value instead of the current value is used for calculating the rewards

*pending\_rewards* is True when the post is younger than 7 days. *unclaimed\_rewards* is the amount of curation\_rewards that goes to the author (self-vote or votes within the first 30 minutes). *active\_votes* contains all voter with their curation reward.

Example::

```
{
  'pending_rewards': True, 'unclaimed_rewards': 0.245 STEEM,
  'active_votes': {
    'leprechaun': 0.006 STEEM, 'timcliff': 0.186 STEEM,
    'st3llar': 0.000 STEEM, 'crockon': 0.015 STEEM, 'feedyourminnows': 0.
→003 STEEM,
    'isnochys': 0.003 STEEM, 'loshcat': 0.001 STEEM, 'greenorange': 0.
→000 STEEM,
    'qustodian': 0.123 STEEM, 'jppphotography': 0.002 STEEM, 'thinkingmind
→': 0.001 STEEM,
    'oups': 0.006 STEEM, 'mattockfs': 0.001 STEEM, 'holger80': 0.003_
→STEEM, 'michaelizer': 0.004 STEEM,
    'flugschwein': 0.010 STEEM, 'ulissessabeque': 0.000 STEEM, 'hakancelik
→': 0.002 STEEM, 'sbi2': 0.008 STEEM,
    'zcool': 0.000 STEEM, 'steemhq': 0.002 STEEM, 'rowdiya': 0.000 STEEM,
→ 'qurator-tier-1-2': 0.012 STEEM
```

(continues on next page)

(continued from previous page)

```
}  
}
```

**get\_reblogged\_by** (*identifier=None*)  
Shows in which blogs this post appears

**get\_replies** (*raw\_data=False, identifier=None*)  
Returns all content replies

**Parameters** **raw\_data** (*bool*) – When set to False, the replies will be returned as Comment class objects

**get\_rewards** ()  
Returns the total\_payout, author\_payout and the curator payout in SBD. When the payout is still pending, the estimated payout is given out.

Example::

```
{  
    'total_payout': 9.956 SBD,  
    'author_payout': 7.166 SBD,  
    'curator_payout': 2.790 SBD  
}
```

**get\_vote\_with\_curation** (*voter=None, raw\_data=False, pending\_payout\_value=None*)  
Returns vote for voter. Returns None, if the voter cannot be found in *active\_votes*.

**Parameters**

- **voter** (*str*) – Voter for which the vote should be returned
- **raw\_data** (*bool*) – If True, the raw data are returned
- **pending\_payout\_SBD** (*float/str*) – When not None this value instead of the current value is used for calculating the rewards

**get\_votes** (*raw\_data=False*)  
Returns all votes as ActiveVotes object

**id**

**is\_comment** ()  
Returns True if post is a comment

**is\_main\_post** ()  
Returns True if main post, and False if this is a comment (reply).

**is\_pending** ()  
Return if the payout is pending (the post/comment is younger than 7 days)

**json** ()

**json\_metadata**

**parent\_author**

**parent\_permalink**

**permalink**

**refresh** ()



**reply** (*body*, *title*="", *author*="", *meta*=None)

Reply to an existing post

#### Parameters

- **body** (*str*) – Body of the reply
- **title** (*str*) – Title of the reply post
- **author** (*str*) – Author of reply (optional) if not provided `default_user` will be used, if present, else a `ValueError` will be raised.
- **meta** (*json*) – JSON meta object that can be attached to the post. (optional)

**resteeem** (*identifier*=None, *account*=None)

Resteem a post

#### Parameters

- **identifier** (*str*) – post identifier (@<account>/<permlink>)
- **account** (*str*) – (optional) the account to allow access to (defaults to `default_account`)

**reward**

Return the estimated total SBD reward.

**time\_elapsed** ()

Return a `timedelta` on how old the post is.

**title**

**type\_id** = 8

**upvote** (*weight*=100, *voter*=None)

Upvote the post

#### Parameters

- **weight** (*float*) – (optional) Weight for posting (-100.0 - +100.0) defaults to +100.0
- **voter** (*str*) – (optional) Voting account

**vote** (*weight*, *account*=None, *identifier*=None, *\*\*kwargs*)

Vote for a post

#### Parameters

- **weight** (*float*) – Voting weight. Range: -100.0 - +100.0.
- **account** (*str*) – (optional) Account to use for voting. If account is not defined, the `default_account` will be used or a `ValueError` will be raised
- **identifier** (*str*) – Identifier for the post to vote. Takes the form @author/permlink.

**class** beem.comment.RecentByPath (*path*='promoted', *category*=None, *lazy*=False, *full*=True, *steem\_instance*=None)

Bases: list

Obtain a list of votes for an account

#### Parameters

- **account** (*str*) – Account name
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

```
class beem.comment.RecentReplies (author, skip_own=True, lazy=False, full=True,
                                steem_instance=None)
```

Bases: list

Obtain a list of recent replies

**Parameters**

- **author** (*str*) – author
- **skip\_own** (*bool*) – (optional) Skip replies of the author to him/herself. Default: True
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

## beem.discussions

```
class beem.discussions.Comment_discussions_by_payout (discussion_query,
                                                       steem_instance=None)
```

Bases: list

Get comment\_discussions\_by\_payout

**Parameters**

- **beem.discussions.Query** – discussion\_query
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Discussions_by_active (discussion_query, steem_instance=None)
```

Bases: list

get\_discussions\_by\_active

:param str discussion\_query :param steem steem\_instance: Steem() instance to use when accessing a RPC

```
class beem.discussions.Discussions_by_blog (discussion_query, steem_instance=None)
```

Bases: list

Get discussions by blog

**Parameters**

- **beem.discussions.Query** – discussion\_query, tag must be set to a username
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Discussions_by_cashout (discussion_query,
                                                steem_instance=None)
```

Bases: list

Get discussions\_by\_cashout. This query seems to be broken at the moment. The output is always empty.

**Parameters**

- **beem.discussions.Query** – discussion\_query
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Discussions_by_children (discussion_query,
                                                steem_instance=None)
```

Bases: list

Get discussions by children

**Parameters**

- **beem.discussions.Query** – discussion\_query
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Discussions_by_comments(discussion_query,
                                                steem_instance=None)
    Bases: list
    Get discussions by comments
    Parameters
        • beem.discussions.Query – discussion_query
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_created(discussion_query,
                                                steem_instance=None)
    Bases: list
    Get discussions_by_created
    Parameters
        • beem.discussions.Query – discussion_query
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_feed(discussion_query, steem_instance=None)
    Bases: list
    Get discussions by feed
    Parameters
        • beem.discussions.Query – discussion_query, tag must be set to a username
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_hot(discussion_query, steem_instance=None)
    Bases: list
    Get discussions by hot
    Parameters
        • beem.discussions.Query – discussion_query
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_promoted(discussion_query,
                                                steem_instance=None)
    Bases: list
    Get discussions by promoted
    Parameters
        • beem.discussions.Query – discussion_query
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_trending(discussion_query,
                                                steem_instance=None)
    Bases: list
    Get Discussions by trending
    Parameters
        • beem.discussions.Query – discussion_query
        • steem_instance (beem.steem.Steem) – Steem instance

class beem.discussions.Discussions_by_votes(discussion_query, steem_instance=None)
    Bases: list
```

Get discussions\_by\_votes

**Parameters**

- **beem.discussions.Query** – discussion\_query
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Post_discussions_by_payout (discussion_query,  
                                                    steem_instance=None)
```

Bases: list

Get post\_discussions\_by\_payout

**Parameters**

- **beem.discussions.Query** – discussion\_query
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

```
class beem.discussions.Query (limit=0,    tag="",    truncate_body=0,    filter_tags=[],    se-  
                                lect_authors=[],    select_tags=[],    start_author=None,  
                                start_permlink=None,    parent_author=None,    par-  
                                ent_permlink=None)
```

Bases: dict

Query to be used for all discussion queries

**Parameters**

- **limit** (*int*) – limits the number of posts
- **tag** (*str*) – tag query
- **truncate\_body** (*int*) –
- **filter\_tags** (*array*) –
- **select\_authors** (*array*) –
- **select\_tags** (*array*) –
- **start\_author** (*str*) –
- **start\_permlink** (*str*) –
- **parent\_author** (*str*) –
- **parent\_permlink** (*str*) –

```
from beem.discussions import Query  
query = Query(limit=10, tag="steemit")
```

## beem.exceptions

**exception** *beem.exceptions.AccountDoesNotExistException*

Bases: Exception

The account does not exist

**exception** *beem.exceptions.AccountExistsException*

Bases: Exception

The requested account already exists

**exception** `beem.exceptions.AssetDoesNotExistsException`

Bases: `Exception`

The asset does not exist

**exception** `beem.exceptions.BatchedCallsNotSupported`

Bases: `Exception`

Batch calls do not work

**exception** `beem.exceptions.BlockDoesNotExistsException`

Bases: `Exception`

The block does not exist

**exception** `beem.exceptions.BlockWaitTimeExceeded`

Bases: `Exception`

Wait time for new block exceeded

**exception** `beem.exceptions.ContentDoesNotExistsException`

Bases: `Exception`

The content does not exist

**exception** `beem.exceptions.InsufficientAuthorityError`

Bases: `Exception`

The transaction requires signature of a higher authority

**exception** `beem.exceptions.InvalidAssetException`

Bases: `Exception`

An invalid asset has been provided

**exception** `beem.exceptions.InvalidMemoKeyException`

Bases: `Exception`

Memo key in message is invalid

**exception** `beem.exceptions.InvalidMessageSignature`

Bases: `Exception`

The message signature does not fit the message

**exception** `beem.exceptions.InvalidWifError`

Bases: `Exception`

The provided private Key has an invalid format

**exception** `beem.exceptions.MissingKeyError`

Bases: `Exception`

A required key couldn't be found in the wallet

**exception** `beem.exceptions.NoWalletException`

Bases: `Exception`

No Wallet could be found, please use `steem.wallet.create()` to create a new wallet

**exception** `beem.exceptions.NoWriteAccess`

Bases: `Exception`

Cannot store to sqlite3 database due to missing write access

**exception** `beem.exceptions.OfflineHasNoRPCEException`

Bases: `Exception`

When in offline mode, we don't have RPC

**exception** `beem.exceptions.RPCConnectionRequired`

Bases: `Exception`

An RPC connection is required

**exception** `beem.exceptions.VestingBalanceDoesNotExistsException`

Bases: `Exception`

Vesting Balance does not exist

**exception** `beem.exceptions.VoteDoesNotExistsException`

Bases: `Exception`

The vote does not exist

**exception** `beem.exceptions.VotingInvalidOnArchivedPost`

Bases: `Exception`

The transaction requires signature of a higher authority

**exception** `beem.exceptions.WalletExists`

Bases: `Exception`

A wallet has already been created and requires a password to be unlocked by means of `steem.wallet.unlock()`.

**exception** `beem.exceptions.WalletLocked`

Bases: `Exception`

Wallet is locked

**exception** `beem.exceptions.WitnessDoesNotExistsException`

Bases: `Exception`

The witness does not exist

**exception** `beem.exceptions.WrongMasterPasswordException`

Bases: `Exception`

The password provided could not properly unlock the wallet

**exception** `beem.exceptions.WrongMemoKey`

Bases: `Exception`

The memo provided is not equal the one on the blockchain

## beem.instance

**class** `beem.instance.SharedInstance`

Bases: `object`

Singelton for the Steem Instance

**config** = {}

**instance** = None

`beem.instance.clear_cache()`

Clear Caches

`beem.instance.set_shared_config(config)`

This allows to set a config that will be used when calling `shared_steem_instance` and allows to define the configuration without requiring to actually create an instance

`beem.instance.set_shared_steem_instance(steem_instance)`

This method allows us to override default steem instance for all users of `SharedInstance.instance`.

**Parameters** `steem_instance` (`beem.steem.Steem`) – Steem instance

`beem.instance.shared_steem_instance()`

This method will initialize `SharedInstance.instance` and return it. The purpose of this method is to have offer single default steem instance that can be reused by multiple classes.

```
from beem.account import Account
from beem.instance import shared_steem_instance

account = Account("test")
# is equivalent with
account = Account("test", steem_instance=shared_steem_instance())
```

## beem.market

**class** `beem.market.Market` (*base=None, quote=None, steem\_instance=None*)

Bases: dict

This class allows to easily access Markets on the blockchain for trading, etc.

**Parameters**

- **steem\_instance** (`beem.steem.Steem`) – Steem instance
- **base** (`beem.asset.Asset`) – Base asset
- **quote** (`beem.asset.Asset`) – Quote asset

**Returns** Blockchain Market

**Return type** dictionary with overloaded methods

Instances of this class are dictionaries that come with additional methods (see below) that allow dealing with a market and its corresponding functions.

This class tries to identify **two** assets as provided in the parameters in one of the following forms:

- base and quote are valid assets (according to `beem.asset.Asset`)
- base:quote separated with :
- base/quote separated with /
- base-quote separated with -

---

**Note:** Throughout this library, the quote symbol will be presented first (e.g. STEEM:SBD with STEEM being the quote), while the base only refers to a secondary asset for a trade. This means, if you call `beem.market.Market.sell()` or `beem.market.Market.buy()`, you will sell/buy **only quote** and obtain/pay **only base**.

---

**accountopenorders** (*account=None, raw\_data=False*)

Returns open Orders

**Parameters**

- **account** (`steem.account.Account`) – Account name or instance of Account to show orders for in this market

- **raw\_data** (*bool*) – (optional) returns raw data if set True, or a list of Order() instances if False (defaults to False)

**static btc\_usd\_ticker** (*verbose=False*)

Returns the BTC/USD price from bitfinex, gdax, kraken, okcoin and bitstamp. The mean price is weighted by the exchange volume.

**buy** (*price, amount, expiration=None, killfill=False, account=None, orderid=None, returnOrderId=False*)  
Places a buy order in a given market

#### Parameters

- **price** (*float*) – price denoted in base/quote
- **amount** (*number*) – Amount of quote to buy
- **expiration** (*number*) – (optional) expiration time of the order in seconds (defaults to 7 days)
- **killfill** (*bool*) – flag that indicates if the order shall be killed if it is not filled (defaults to False)
- **account** (*string*) – Account name that executes that order
- **returnOrderId** (*string*) – If set to “head” or “irreversible” the call will wait for the tx to appear in the head/irreversible block and add the key “orderid” to the tx output

Prices/Rates are denoted in ‘base’, i.e. the SBD\_STEEM market is priced in STEEM per SBD.

**Example:** in the SBD\_STEEM market, a price of 300 means a SBD is worth 300 STEEM

---

**Note:** All prices returned are in the **reversed** orientation as the market. I.e. in the STEEM/SBD market, prices are SBD per STEEM. That way you can multiply prices with *1.05* to get a +5%.

---

**Warning:** Since buy orders are placed as limit-sell orders for the base asset, you may end up obtaining more of the buy asset than you placed the order for. Example:

- You place an order to buy 10 SBD for 100 STEEM/SBD
- This means that you actually place a sell order for 1000 STEEM in order to obtain **at least** 10 SBD
- If an order on the market exists that sells SBD for cheaper, you will end up with more than 10 SBD

**cancel** (*orderNumbers, account=None, \*\*kwargs*)

Cancels an order you have placed in a given market. Requires only the “orderNumbers”.

**Parameters orderNumbers** (*int/list*) – A single order number or a list of order numbers

**get\_string** (*separator=':'*)

Return a formatted string that identifies the market, e.g. STEEM:SBD

**Parameters separator** (*str*) – The separator of the assets (defaults to :)

**market\_history** (*bucket\_seconds=300, start\_age=3600, end\_age=0, raw\_data=False*)

Return the market history (filled orders).



**Parameters**

- **bucket\_seconds** (*int*) – Bucket size in seconds (see *returnMarketHistoryBuckets()*)
- **start\_age** (*int*) – Age (in seconds) of the start of the window (default: 1h/3600)
- **end\_age** (*int*) – Age (in seconds) of the end of the window (default: now/0)
- **raw\_data** (*bool*) – (optional) returns raw data if set True

**Example:**

```
{
  'close_sbd': 2493387,
  'close_steem': 7743431,
  'high_sbd': 1943872,
  'high_steem': 5999610,
  'id': '7.1.5252',
  'low_sbd': 534928,
  'low_steem': 1661266,
  'open': '2016-07-08T11:25:00',
  'open_sbd': 534928,
  'open_steem': 1661266,
  'sbd_volume': 9714435,
  'seconds': 300,
  'steem_volume': 30088443
}
```

**market\_history\_buckets()****orderbook** (*limit=25, raw\_data=False*)

Returns the order book for SBD/STEEM market. :param int limit: Limit the amount of orders (default: 25)

**Sample output (raw\_data=False):**

```
{
  'asks': [
    380.510 STEEM 460.291 SBD @ 1.209669 SBD/STEEM,
    53.785 STEEM 65.063 SBD @ 1.209687 SBD/STEEM
  ],
  'bids': [
    0.292 STEEM 0.353 SBD @ 1.208904 SBD/STEEM,
    8.498 STEEM 10.262 SBD @ 1.207578 SBD/STEEM
  ],
  'asks_date': [
    datetime.datetime(2018, 4, 30, 21, 7, 24, tzinfo=<UTC>),
    datetime.datetime(2018, 4, 30, 18, 12, 18, tzinfo=<UTC>)
  ],
  'bids_date': [
    datetime.datetime(2018, 4, 30, 21, 1, 21, tzinfo=<UTC>),
    datetime.datetime(2018, 4, 30, 20, 38, 21, tzinfo=<UTC>)
  ]
}
```

**Sample output (raw\_data=True):**

```
{
  'asks': [
    {
      'order_price': {'base': '8.000 STEEM', 'quote': '9.618 SBD'},
      'real_price': '1.202250000000000004',
      'steem': 4565,
      'sbd': 5488,
      'created': '2018-04-30T21:12:45'
    }
  ],
  'bids': [
    {
      'order_price': {'base': '10.000 SBD', 'quote': '8.333 STEEM'}
      ↪,
      'real_price': '1.20004800192007677',
      'steem': 8333,
      'sbd': 10000,
      'created': '2018-04-30T20:29:33'
    }
  ]
}
```

---

**Note:** Each bid is an instance of class:*beem.price.Order* and thus carries the keys *base*, *quote* and *price*. From those you can obtain the actual amounts for sale

---

**recent\_trades** (*limit=25, raw\_data=False*)

Returns the order book for a given market. You may also specify “all” to get the orderbooks of all markets.

#### Parameters

- **limit** (*int*) – Limit the amount of orders (default: 25)
- **raw\_data** (*bool*) – when False, FilledOrder objects will be returned

Sample output (*raw\_data=False*):

```
[
  (2018-04-30 21:00:54+00:00) 0.267 STEEM 0.323 SBD @ 1.209738 ↪
  ↪SBD/STEEM,
  (2018-04-30 20:59:30+00:00) 0.131 STEEM 0.159 SBD @ 1.213740 ↪
  ↪SBD/STEEM,
  (2018-04-30 20:55:45+00:00) 0.093 STEEM 0.113 SBD @ 1.215054 ↪
  ↪SBD/STEEM,
  (2018-04-30 20:55:30+00:00) 26.501 STEEM 32.058 SBD @ 1.209690 ↪
  ↪SBD/STEEM,
  (2018-04-30 20:55:18+00:00) 2.108 STEEM 2.550 SBD @ 1.209677 ↪
  ↪SBD/STEEM,
]
```

Sample output (*raw\_data=True*):

```
[
  {'date': '2018-04-30T21:02:45', 'current_pays': '0.235 SBD',
  ↪'open_pays': '0.194 STEEM'},
  {'date': '2018-04-30T21:02:03', 'current_pays': '24.494 SBD',
  ↪'open_pays': '20.248 STEEM'},
  {'date': '2018-04-30T20:48:30', 'current_pays': '175.464 STEEM',
  ↪'open_pays': '211.955 SBD'},
  (continues on next page)
```

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```

    {'date': '2018-04-30T20:48:30', 'current_pays': '0.999 STEEM',
    ↪ 'open_pays': '1.207 SBD'},
    {'date': '2018-04-30T20:47:54', 'current_pays': '0.273 SBD',
    ↪ 'open_pays': '0.225 STEEM'},
  ]

```

---

**Note:** Each bid is an instance of class:*steem.price.Order* and thus carries the keys *base*, *quote* and *price*. From those you can obtain the actual amounts for sale

---

**sell** (*price*, *amount*, *expiration=None*, *killfill=False*, *account=None*, *orderid=None*, *returnOrderId=False*)

Places a sell order in a given market

#### Parameters

- **price** (*float*) – price denoted in base/quote
- **amount** (*number*) – Amount of quote to sell
- **expiration** (*number*) – (optional) expiration time of the order in seconds (defaults to 7 days)
- **killfill** (*bool*) – flag that indicates if the order shall be killed if it is not filled (defaults to False)
- **account** (*string*) – Account name that executes that order
- **returnOrderId** (*string*) – If set to “head” or “irreversible” the call will wait for the tx to appear in the head/irreversible block and add the key “orderid” to the tx output

Prices/Rates are denoted in ‘base’, i.e. the SBD\_STEEM market is priced in STEEM per SBD.

**Example:** in the SBD\_STEEM market, a price of 300 means a SBD is worth 300 STEEM

---

**Note:** All prices returned are in the **reversed** orientation as the market. I.e. in the STEEM/SBD market, prices are SBD per STEEM. That way you can multiply prices with *1.05* to get a +5%.

---

**static steem\_btc\_ticker** ()

Returns the STEEM/BTC price from bittrex, binance, huobi and upbit. The mean price is weighted by the exchange volume.

**steem\_usd\_implied** ()

Returns the current STEEM/USD market price

**ticker** (*raw\_data=False*)

Returns the ticker for all markets.

Output Parameters:

- **latest**: Price of the order last filled
- **lowest\_ask**: Price of the lowest ask
- **highest\_bid**: Price of the highest bid
- **sbd\_volume**: Volume of SBD
- **steem\_volume**: Volume of STEEM

- `percent_change`: 24h change percentage (in %)

---

**Note:** Market is STEEM:SBD and prices are SBD per STEEM!

---

Sample Output:

```
{
  'highest_bid': 0.30100226633322913,
  'latest': 0.0,
  'lowest_ask': 0.3249636958897082,
  'percent_change': 0.0,
  'sbd_volume': 108329611.0,
  'steem_volume': 355094043.0
}
```

**trade\_history** (*start=None, stop=None, intervall=None, limit=25, raw\_data=False*)

Returns the trade history for the internal market

This function allows to fetch a fixed number of trades at fixed intervall times to reduce the call duration time. E.g. it is possible to receive the trades from the last 7 days, by fetching 100 trades each 6 hours.

When intervall is set to None, all trades are recieved between start and stop. This can take a while.

#### Parameters

- **start** (*datetime*) – Start date
- **stop** (*datetime*) – Stop date
- **intervall** (*timedelta*) – Defines the intervall
- **limit** (*int*) – Defines how many trades are fetched at each intervall point
- **raw\_data** (*bool*) – when True, the raw data are returned

**trades** (*limit=100, start=None, stop=None, raw\_data=False*)

Returns your trade history for a given market.

#### Parameters

- **limit** (*int*) – Limit the amount of orders (default: 100)
- **start** (*datetime*) – start time
- **stop** (*datetime*) – stop time

**volume24h** (*raw\_data=False*)

Returns the 24-hour volume for all markets, plus totals for primary currencies.

Sample output:

```
{
  "STEEM": 361666.63617,
  "SBD": 1087.0
}
```

## beem.memo

**class** beem.memo.**Memo** (*from\_account=None, to\_account=None, steem\_instance=None*)

Bases: object

Deals with Memos that are attached to a transfer

#### Parameters

- **from\_account** (`beem.account.Account`) – Account that has sent the memo
- **to\_account** (`beem.account.Account`) – Account that has received the memo
- **steem\_instance** (`beem.steem.Steem`) – Steem instance

A memo is encrypted with a shared secret derived from a private key of the sender and a public key of the receiver. Due to the underlying mathematics, the same shared secret can be derived by the private key of the receiver and the public key of the sender. The encrypted message is perturbed by a nonce that is part of the transmitted message.

```
from beem.memo import Memo
m = Memo("steemu", "wallet.xeroc")
m.steem.wallet.unlock("secret")
enc = (m.encrypt("foobar"))
print(enc)
>> {'nonce': '17329630356955254641', 'message': '8563e2bb2976e0217806d642901a2855
↪ '}
print(m.decrypt(enc))
>> foobar
```

To decrypt a memo, simply use

```
from beem.memo import Memo
m = Memo()
m.steem.wallet.unlock("secret")
print(m.decrypt(op_data["memo"]))
```

if `op_data` being the payload of a transfer operation.

#### Memo Keys

In Steem, memos are AES-256 encrypted with a shared secret between sender and receiver. It is derived from the memo private key of the sender and the memo public key of the receiver.

In order for the receiver to decode the memo, the shared secret has to be derived from the receiver's private key and the senders public key.

The memo public key is part of the account and can be retrieved with the `get_account` call:

```
get_account <accountname>
{
  [...]
  "options": {
    "memo_key": "GPH5TPTziKkLexhVKsQKtSpo4bAv5RnB8oXcG4sMHEwCcTf3r7dqE",
    [...]
  },
  [...]
}
```

while the memo private key can be dumped with `dump_private_keys`

#### Memo Message

The take the following form:

```
{
  "from": "GPH5mgup8evDqMnT86L7scVebRYDC2fwAWmygPEUL43LjstQegYCC",
```

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```
"to": "GPH5Ar4j53kFWuEZQ9XhxbAja4YXMPJ2EnUg5QcrdeMFYUNMMNJbe",
"nonce": "13043867485137706821",
"message": "d55524c37320920844ca83bb20c8d008"
}
```

The fields *from* and *to* contain the memo public key of sender and receiver. The *nonce* is a random integer that is used for the seed of the AES encryption of the message.

#### Encrypting a memo

The high level memo class makes use of the beem wallet to obtain keys for the corresponding accounts.

```
from beem.memo import Memo
from beem.account import Account

memoObj = Memo(
    from_account=Account(from_account),
    to_account=Account(to_account)
)
encrypted_memo = memoObj.encrypt(memo)
```

#### Decoding of a received memo

```
from getpass import getpass
from beem.block import Block
from beem.memo import Memo

# Obtain a transfer from the blockchain
block = Block(23755086)
transaction = block["transactions"][3]
op = transaction["operations"][0]
op_id = op[0]
op_data = op[1]

# block
# transactions
# operation
# operation type
# operation payload

# Instantiate Memo for decoding
memo = Memo()

# Unlock wallet
memo.unlock_wallet(getpass())

# Decode memo
# Raises exception if required keys not available in the wallet
print(memo.decrypt(op_data["transfer"]))
```

#### **decrypt** (memo)

Decrypt a memo

**Parameters** `memo` (*str*) – encrypted memo message

**Returns** encrypted memo

**Return type** `str`

#### **encrypt** (memo, *bts\_encrypt=False*)

Encrypt a memo

**Parameters** `memo` (*str*) – clear text memo message

**Returns** encrypted memo

**Return type** str

**unlock\_wallet** (\*args, \*\*kwargs)  
Unlock the library internal wallet

## beem.message

**class** beem.message.**Message** (message, steem\_instance=None)

Bases: object

**sign** (account=None, \*\*kwargs)  
Sign a message with an account's memo key

**Parameters** **account** (str) – (optional) the account that owns the bet (defaults to default\_account)

**Returns** the signed message encapsulated in a known format

**verify** (\*\*kwargs)  
Verify a message with an account's memo key

**Parameters** **account** (str) – (optional) the account that owns the bet (defaults to default\_account)

**Returns** True if the message is verified successfully

**Raises** InvalidMessageSignature if the signature is not ok

## beem.notify

**class** beem.notify.**Notify** (on\_block=None, only\_block\_id=False, steem\_instance=None, keep\_alive=25)

Bases: events.events.Events

Notifications on Blockchain events.

This modules allows you to be notified of events taking place on the blockchain.

**Parameters**

- **on\_block** (fnt) – Callback that will be called for each block received
- **steem\_instance** (beem.steem.Steem) – Steem instance

**Example**

```
from pprint import pprint
from beem.notify import Notify

notify = Notify(
    on_block=print,
)
notify.listen()
```

**close** ()  
Cleanly close the Notify instance

**listen** ()  
This call initiates the listening/notification process. It behaves similar to `run_forever()`.

**process\_block** (message)

**reset\_subscriptions** (*accounts=[]*)  
Change the subscriptions of a running Notify instance

## beem.price

**class** beem.price.FilledOrder (*order, steem\_instance=None, \*\*kwargs*)

Bases: *beem.price.Price*

This class inherits *beem.price.Price* but has the base and quote Amounts not only be used to represent the price (as a ratio of base and quote) but instead has those amounts represent the amounts of an actually filled order!

**Parameters** *steem\_instance* (*beem.steem.Steem*) – Steem instance

---

**Note:** Instances of this class come with an additional *date* key that shows when the order has been filled!

---

*json* ()

**class** beem.price.Order (*base, quote=None, steem\_instance=None, \*\*kwargs*)

Bases: *beem.price.Price*

This class inherits *beem.price.Price* but has the base and quote Amounts not only be used to represent the price (as a ratio of base and quote) but instead has those amounts represent the amounts of an actual order!

**Parameters** *steem\_instance* (*beem.steem.Steem*) – Steem instance

---

**Note:** If an order is marked as deleted, it will carry the ‘deleted’ key which is set to *True* and all other data be *None*.

---

**class** beem.price.Price (*price=None, base=None, quote=None, base\_asset=None, steem\_instance=None*)

Bases: *dict*

This class deals with all sorts of prices of any pair of assets to simplify dealing with the tuple:

*(quote, base)*

each being an instance of *beem.amount.Amount*. The amount themselves define the price.

---

**Note:** The price (floating) is derived as *base/quote*

---

### Parameters

- **args** (*list*) – Allows to deal with different representations of a price
- **base** (*beem.asset.Asset*) – Base asset
- **quote** (*beem.asset.Asset*) – Quote asset
- **steem\_instance** (*beem.steem.Steem*) – Steem instance

**Returns** All data required to represent a price

**Return type** *dict*

Way to obtain a proper instance:

- *args* is a str with a price and two assets
- *args* can be a floating number and *base* and *quote* being instances of *beem.asset.Asset*
- *args* can be a floating number and *base* and *quote* being instances of *str*



- args can be dict with keys price, base, and quote (*graphene balances*)
- args can be dict with keys base and quote
- args can be dict with key receives (filled orders)
- args being a list of [quote, base] both being instances of *beem.amount.Amount*
- args being a list of [quote, base] both being instances of str (amount symbol)
- base and quote being instances of *beem.asset.Amount*

This allows instantiations like:

- `Price("0.315 SBD/STEEM")`
- `Price(0.315, base="SBD", quote="STEEM")`
- `Price(0.315, base=Asset("SBD"), quote=Asset("STEEM"))`
- `Price({"base": {"amount": 1, "asset_id": "SBD"}, "quote": {"amount": 10, "asset_id": "SBD"}})`
- `Price(quote="10 STEEM", base="1 SBD")`
- `Price("10 STEEM", "1 SBD")`
- `Price(Amount("10 STEEM"), Amount("1 SBD"))`
- `Price(1.0, "SBD/STEEM")`

Instances of this class can be used in regular mathematical expressions (+-\*/%) such as:

```
>>> from beem.price import Price
>>> Price("0.3314 SBD/STEEM") * 2
0.662804 SBD/STEEM
>>> Price(0.3314, "SBD", "STEEM")
0.331402 SBD/STEEM
```

#### **as\_base** (base)

Returns the price instance so that the base asset is base.

Note: This makes a copy of the object!

```
>>> from beem.price import Price
>>> Price("0.3314 SBD/STEEM").as_base("STEEM")
3.017483 STEEM/SBD
```

#### **as\_quote** (quote)

Returns the price instance so that the quote asset is quote.

Note: This makes a copy of the object!

```
>>> from beem.price import Price
>>> Price("0.3314 SBD/STEEM").as_quote("SBD")
3.017483 STEEM/SBD
```

**copy** () → a shallow copy of D

#### **invert** ()

Invert the price (e.g. go from SBD/STEEM into STEEM/SBD)

```
>>> from beem.price import Price
>>> Price("0.3314 SBD/STEEM").invert()
3.017483 STEEM/SBD
```

#### **json** ()

#### **market**

Open the corresponding market

**Returns** Instance of *beem.market.Market* for the corresponding pair of assets.

#### **symbols** ()

## beem.storage

**class** beem.storage.Configuration

Bases: *beem.storage.DataDir*

This is the configuration storage that stores key/value pairs in the *config* table of the SQLite3 database.

**checkBackup** ()

Backup the SQL database every 7 days

**config\_defaults** = {'client\_id': '', 'hot\_sign\_redirect\_uri': None, 'node': ['wss://

**create\_table** ()

Create the new table in the SQLite database

**delete** (key)

Delete a key from the configuration store

**exists\_table** ()

Check if the database table exists

**get** (key, default=None)

Return the key if exists or a default value

**items** ()

**odelist** = [{'url': 'https://api.steemit.com', 'type': 'appbase', 'version': '0.19.

Default configuration

**nodes** = ['wss://steemd.pevo.science', 'wss://rpc.buildteam.io', 'wss://steemd.privex.i

**class** beem.storage.DataDir

Bases: object

This class ensures that the user's data is stored in its OS preotected user directory:

**OSX:**

- *~/Library/Application Support/<AppName>*

**Windows:**

- *C:\Documents and Settings<User>Application Data\Local Settings<AppAuthor><AppName>*
- *C:\Documents and Settings<User>Application Data<AppAuthor><AppName>*

**Linux:**

- *~/local/share/<AppName>*

Furthermore, it offers an interface to generated backups in the *backups/* directory every now and then.

**appauthor** = 'beem'

**appname** = 'beem'

**clean\_data** ()

Delete files older than 70 days

**data\_dir** = '/home/docs/.local/share/beem'

**mkdir\_p** ()

Ensure that the directory in which the data is stored exists

**recover\_with\_latest\_backup** (backupdir='backups')

Replace database with latest backup

**refreshBackup** ()

Make a new backup

```
sqlDataBaseFile = '/home/docs/.local/share/beem/beem.sqlite'
```

```
sqlite3_backup(backupdir)
    Create timestamped database copy
```

```
sqlite3_copy(src, dst)
    Copy sql file from src to dst
```

```
storageDatabase = 'beem.sqlite'
```

```
class beem.storage.Key
```

Bases: *beem.storage.DataDir*

This is the key storage that stores the public key and the (possibly encrypted) private key in the *keys* table in the SQLite3 database.

```
add(wif, pub)
```

Add a new public/private key pair (correspondence has to be checked elsewhere!)

#### Parameters

- **pub** (*str*) – Public key
- **wif** (*str*) – Private key

```
create_table()
    Create the new table in the SQLite database
```

```
delete(pub)
    Delete the key identified as pub
```

Parameters **pub** (*str*) – Public key

```
exists_table()
    Check if the database table exists
```

```
getPrivateKeyForPublicKey(pub)
```

Returns the (possibly encrypted) private key that corresponds to a public key

Parameters **pub** (*str*) – Public key

The encryption scheme is BIP38

```
getPublicKeys()
    Returns the public keys stored in the database
```

```
updateWif(pub, wif)
    Change the wif to a pubkey
```

#### Parameters

- **pub** (*str*) – Public key
- **wif** (*str*) – Private key

```
wipe(sure=False)
    Purge the entire wallet. No keys will survive this!
```

```
class beem.storage.MasterPassword(password)
    Bases: object
```

The keys are encrypted with a Masterpassword that is stored in the configurationStore. It has a checksum to verify correctness of the password

```
changePassword (newpassword)  
    Change the password  
  
config_key = 'encrypted_master_password'  
    This key identifies the encrypted master password stored in the conifration  
  
decryptEncryptedMaster ()  
    Decrypt the encrypted masterpassword  
  
decrypted_master = ''  
  
deriveChecksum (s)  
    Derive the checksum  
  
getEncryptedMaster ()  
    Obtain the encrypted masterkey  
  
newMaster ()  
    Generate a new random masterpassword  
  
password = ''  
  
saveEncrytpedMaster ()  
    Store the encrypted master password in the configuration store  
  
static wipe (sure=False)  
    Remove all keys from configStorage
```

```
class beem.storage.Token
```

Bases: *beem.storage.DataDir*

This is the token storage that stores the public username and the (possibly encrypted) token in the *token* table in the SQLite3 database.

```
add (name, token)
```

**Add a new public/private token pair (correspondence has to be checked elsewhere!)**

#### Parameters

- **name** (*str*) – Public name
- **token** (*str*) – Private token

```
create_table ()
```

Create the new table in the SQLite database

```
delete (name)
```

Delete the key identified as *name*

**Parameters** **name** (*str*) – Public name

```
exists_table ()
```

Check if the database table exists

```
getPublicNames ()
```

Returns the public names stored in the database

```
getTokenForPublicName (name)
```

**Returns the (possibly encrypted) private token that** corresponds to a public name

**Parameters** **pub** (*str*) – Public name

The encryption scheme is BIP38

**updateToken** (*name*, *token*)

Change the token to a name

#### Parameters

- **name** (*str*) – Public name
- **token** (*str*) – Private token

**wipe** (*sure=False*)

Purge the entire wallet. No keys will survive this!

## beem.transactionbuilder

**class** beem.transactionbuilder.TransactionBuilder (*tx={}*, *steem\_instance=None*,  
\*\**kwargs*)

Bases: dict

This class simplifies the creation of transactions by adding operations and signers. To build your own transactions and sign them

#### Parameters

- **tx** (*dict*) – transaction (Optional). If not set, the new transaction is created.
- **expiration** (*int*) – Delay in seconds until transactions are supposed to expire (*optional*) (default is 30)
- **steem\_instance** (*Steem*) – If not set, shared\_steem\_instance() is used

```
from beem.transactionbuilder import TransactionBuilder
from beembase.operations import Transfer
from beem import Steem
wif = "5KQwrPbwdL6PhXujxW37FSSQZ1JiwsST4cqQzDeyXtP79zkvFD3"
stm = Steem(nobroadcast=True, keys={'active': wif})
tx = TransactionBuilder(steem_instance=stm)
transfer = {"from": "test", "to": "test1", "amount": "1 STEEM", "memo": ""}
tx.appendOps(Transfer(transfer))
tx.appendSigner("test", "active") # or tx.appendWif(wif)
signed_tx = tx.sign()
broadcast_tx = tx.broadcast()
```

**addSigningInformation** (*account*, *permission*, *reconstruct\_tx=False*)

This is a private method that adds side information to a unsigned/partial transaction in order to simplify later signing (e.g. for multisig or coldstorage)

Not needed when “appendWif” was already or is going to be used

FIXME: Does not work with owner keys!

**Parameters** **reconstruct\_tx** (*bool*) – when set to False and tx is already constructed, it will not be reconstructed and already added signatures remain

**appendMissingSignatures** ()

Store which accounts/keys are supposed to sign the transaction

This method is used for an offline-signer!

**appendOps** (*ops*, *append\_to=None*)

Append op(s) to the transaction builder

**Parameters** **ops** (*list*) – One or a list of operations

**appendSigner** (*account, permission*)

Try to obtain the wif key from the wallet by telling which account and permission is supposed to sign the transaction. It is possible to add more than one signer.

**appendWif** (*wif*)

Add a wif that should be used for signing of the transaction.

**Parameters** **wif** (*string*) – One wif key to use for signing a transaction.

**broadcast** (*max\_block\_age=-1*)

Broadcast a transaction to the steem network. Returns the signed transaction and clears itself after broadcast. Clears itself when broadcast was not successful.

**Parameters** **max\_block\_age** (*int*) – parameter only used for appbase ready nodes

**clear** ()

Clear the transaction builder and start from scratch

**clearWifs** ()

Clear all stored wifs

**constructTx** ()

Construct the actual transaction and store it in the class's dict store

**get\_parent** ()

TransactionBuilders don't have parents, they are their own parent

**get\_potential\_signatures** ()

Returns public key from signature

**get\_required\_signatures** (*available\_keys=[]*)

Returns public key from signature

**get\_transaction\_hex** ()

Returns a hex value of the transaction

**is\_empty** ()

Check if ops is empty

**json** ()

Show the transaction as plain json

**list\_operations** ()

List all ops

**set\_expiration** (*p*)

Set expiration date

**sign** (*reconstruct\_tx=True*)

Sign a provided transaction with the provided key(s). One or many wif keys to use for signing a transaction. The wif keys can be provided by "appendWif" or the signer can be defined "appendSigner". The wif keys from all signer that are defined by "appendSigner" will be loaded from the wallet.

**Parameters** **reconstruct\_tx** (*bool*) – when set to False and tx is already constructed, it will not be reconstructed and already added signatures remain

**verify\_authority** ()

Verify the authority of the signed transaction

**beem.utils**

`beem.utils.addTzInfo(t, timezone='UTC')`

Returns a datetime object with tzinfo added

`beem.utils.assets_from_string(text)`

Correctly split a string containing an asset pair.

Splits the string into two assets with the separator being on of the following: :, /, or -.

`beem.utils.construct_authorperm(*args)`

Create a post identifier from comment/post object or arguments. Examples:

```
>>> from beem.utils import construct_authorperm
>>> print(construct_authorperm('username', 'permlink'))
@username/permlink
>>> print(construct_authorperm({'author': 'username', 'permlink':
→ 'permlink'}))
@username/permlink
```

`beem.utils.construct_authorpermvoter(*args)`

Create a vote identifier from vote object or arguments. Examples:

```
>>> from beem.utils import construct_authorpermvoter
>>> print(construct_authorpermvoter('username', 'permlink', 'voter'))
@username/permlink|voter
>>> print(construct_authorpermvoter({'author': 'username', 'permlink':
→ 'permlink', 'voter': 'voter'}))
@username/permlink|voter
```

`beem.utils.derive_permlink(title, parent_permlink=None, parent_author=None)`

`beem.utils.findall_patch_hunks(body=None)`

`beem.utils.formatTime(t)`

Properly Format Time for permlinks

`beem.utils.formatTimeFromNow(secs=0)`

Properly Format Time that is x seconds in the future

**Parameters** `secs` (*int*) – Seconds to go in the future ( $x > 0$ ) or the past ( $x < 0$ )

**Returns** Properly formatted time for Graphene (%Y-%m-%dT%H:%M:%S)

**Return type** str

`beem.utils.formatTimeString(t)`

Properly Format Time for permlinks

`beem.utils.formatTimedelta(td)`

Format timedelta to String

`beem.utils.make_patch(a, b, n=3)`

`beem.utils.parse_time(block_time)`

Take a string representation of time from the blockchain, and parse it into datetime object.

`beem.utils.remove_from_dict(obj, keys=[], keep_keys=True)`

Prune a class or dictionary of all but keys (keep\_keys=True). Prune a class or dictionary of specified keys.(keep\_keys=False).

`beem.utils.reputation_to_score(rep)`

Converts the account reputation value into the reputation score

`beem.utils.resolve_authorperm(identifier)`

Correctly split a string containing an authorperm.

Splits the string into author and perm link with the following separator: `/`.

`beem.utils.resolve_authorpermvoter(identifier)`

Correctly split a string containing an authorpermvoter.

Splits the string into author and perm link with the following separator: `/` and `|`.

`beem.utils.resolve_root_identifier(url)`

`beem.utils.sanitize_permalink(perm link)`

## beem.vote

**class** `beem.vote.AccountVotes` (*account*, *start=None*, *stop=None*, *lazy=False*, *full=False*, *steem\_instance=None*)

Bases: `beem.vote.VotesObject`

Obtain a list of votes for an account Lists the last 100+ votes on the given account.

### Parameters

- **account** (*str*) – Account name
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

**class** `beem.vote.ActiveVotes` (*authorperm*, *lazy=False*, *full=False*, *steem\_instance=None*)

Bases: `beem.vote.VotesObject`

Obtain a list of votes for a post

### Parameters

- **authorperm** (*str*) – authorperm link
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

**class** `beem.vote.Vote` (*voter*, *authorperm=None*, *full=False*, *lazy=False*, *steem\_instance=None*)

Bases: `beem.blockchainobject.BlockchainObject`

Read data about a Vote in the chain

### Parameters

- **authorperm** (*str*) – perm link to post/comment
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

```
>>> from beem.vote import Vote
>>> v = Vote("@gtg/steem-pressure-4-need-for-speed|gandalf")
```

**authorperm**

**json()**

**percent**

**refresh()**

**rep**

**reputation**

**rshares**

**sbd**



```

time
type_id = 11
votee
voter
weight
class beem.vote.VotesObject
    Bases: list
    get_list (var='voter', voter=None, votee=None, start=None, stop=None, start_percent=None,
              stop_percent=None, sort_key='time', reverse=True)
    get_sorted_list (sort_key='time', reverse=True)
    printAsTable (voter=None, votee=None, start=None, stop=None, start_percent=None,
                  stop_percent=None, sort_key='time', reverse=True, allow_refresh=True, re-
                  turn_str=False, **kwargs)
    print_stats (return_str=False, **kwargs)

```

## beem.wallet

```

class beem.wallet.Wallet (steem_instance=None, *args, **kwargs)
    Bases: object

```

The wallet is meant to maintain access to private keys for your accounts. It either uses manually provided private keys or uses a SQLite database managed by storage.py.

### Parameters

- **rpc** (*SteemNodeRPC*) – RPC connection to a Steem node
- **keys** (*array, dict, string*) – Predefine the wif keys to shortcut the wallet database

Three wallet operation modes are possible:

- **Wallet Database:** Here, beem loads the keys from the locally stored wallet SQLite database (see `storage.py`). To use this mode, simply call `Steem()` without the `keys` parameter
- **Providing Keys:** Here, you can provide the keys for your accounts manually. All you need to do is add the wif keys for the accounts you want to use as a simple array using the `keys` parameter to `Steem()`.
- **Force keys:** This more is for advanced users and requires that you know what you are doing. Here, the `keys` parameter is a dictionary that overwrite the `active`, `owner`, `posting` or `memo` keys for any account. This mode is only used for *foreign* signatures!

A new wallet can be created by using:

```

from beem import Steem
steem = Steem()
steem.wallet.wipe(True)
steem.wallet.create("supersecret-passphrase")

```

This will raise an exception if you already have a wallet installed.

The wallet can be unlocked for signing using

```

from beem import Steem
steem = Steem()
steem.wallet.unlock("supersecret-passphrase")

```

A private key can be added by using the `steem.wallet.Wallet.addPrivateKey()` method that is available **after** unlocking the wallet with the correct passphrase:

```
from beem import Steem
steem = Steem()
steem.wallet.unlock("supersecret-passphrase")
steem.wallet.addPrivateKey("5xxxxxxxxxxxxxxxxxxxxxx")
```

---

**Note:** The private key has to be either in hexadecimal or in wallet import format (wif) (starting with a 5).

---

#### **MasterPassword = None**

##### **addPrivateKey** (*wif*)

Add a private key to the wallet database

**Parameters** **wif** (*str*) – Private key

##### **addToken** (*name*, *token*)

##### **changePassphrase** (*new\_pwd*)

Change the passphrase for the wallet database

##### **clear\_local\_keys** ()

Clear all manually provided keys

##### **clear\_local\_token** ()

Clear all manually provided token

#### **configStorage = None**

##### **create** (*pwd*)

Alias for newWallet()

##### **created** ()

Do we have a wallet database already?

##### **decrypt\_token** (*enc token*)

decrypt a wif key

##### **decrypt\_wif** (*encwif*)

decrypt a wif key

##### **deriveChecksum** (*s*)

Derive the checksum

##### **encrypt\_token** (*token*)

Encrypt a token key

##### **encrypt\_wif** (*wif*)

Encrypt a wif key

##### **getAccount** (*pub*)

Get the account data for a public key (first account found for this public key)

##### **getAccountFromPrivateKey** (*wif*)

Obtain account name from private key

##### **getAccountFromPublicKey** (*pub*)

Obtain the first account name from public key

##### **getAccounts** ()

Return all accounts installed in the wallet database

**getAccountsFromPublicKey** (*pub*)

Obtain all accounts associated with a public key

**getActiveKeyForAccount** (*name*)

Obtain owner Active Key for an account from the wallet database

**getActiveKeysForAccount** (*name*)

Obtain list of all owner Active Keys for an account from the wallet database

**getAllAccounts** (*pub*)

Get the account data for a public key (all accounts found for this public key)

**getKeyForAccount** (*name*, *key\_type*)

Obtain *key\_type* Private Key for an account from the wallet database

#### Parameters

- **name** (*str*) – Account name
- **key\_type** (*str*) – key type, has to be one of “owner”, “active”, “posting” or “memo”

**getKeyType** (*account*, *pub*)

Get key type

**getKeysForAccount** (*name*, *key\_type*)

Obtain a List of *key\_type* Private Keys for an account from the wallet database

#### Parameters

- **name** (*str*) – Account name
- **key\_type** (*str*) – key type, has to be one of “owner”, “active”, “posting” or “memo”

**getMemoKeyForAccount** (*name*)

Obtain owner Memo Key for an account from the wallet database

**getOwnerKeyForAccount** (*name*)

Obtain owner Private Key for an account from the wallet database

**getOwnerKeysForAccount** (*name*)

Obtain list of all owner Private Keys for an account from the wallet database

**getPostingKeyForAccount** (*name*)

Obtain owner Posting Key for an account from the wallet database

**getPostingKeysForAccount** (*name*)

Obtain list of all owner Posting Keys for an account from the wallet database

**getPrivateKeyForPublicKey** (*pub*)

Obtain the private key for a given public key

#### Parameters **pub** (*str*) – Public Key

**getPublicKeys** ()

Return all installed public keys

**getPublicNames** ()

Return all installed public token

**getTokenForAccountName** (*name*)

Obtain the private token for a given public name

#### Parameters **name** (*str*) – Public name

**keyMap** = {}  
**keyStorage** = None  
**keys** = {}  
**lock**()  
    Lock the wallet database  
**locked**()  
    Is the wallet database locked?  
**masterpassword** = None  
**newWallet**(*pwd*)  
    Create a new wallet database  
**prefix**  
**removeAccount**(*account*)  
    Remove all keys associated with a given account  
        **Parameters** **account** (*str*) – name of account to be removed  
**removePrivateKeyFromPublicKey**(*pub*)  
    Remove a key from the wallet database  
        **Parameters** **pub** (*str*) – Public key  
**removeTokenFromPublicKeyName**(*name*)  
    Remove a token from the wallet database  
        **Parameters** **name** (*str*) – token to be removed  
**rpc**  
**setKeys**(*loadkeys*)  
    This method is strictly only for in memory keys that are passed to Wallet/Steem with the `keys` argument  
**setToken**(*loadtoken*)  
    This method is strictly only for in memory token that are passed to Wallet/Steem with the `token` argument  
**token** = {}  
**tokenStorage** = None  
**tryUnlockFromEnv**()  
    Try to fetch the unlock password from UNLOCK environment variable and keyring when no password is given.  
**unlock**(*pwd=None*)  
    Unlock the wallet database  
**unlocked**()  
    Is the wallet database unlocked?  
**wipe**(*sure=False*)  
    Purge all data in wallet database

## beem.witness

```
class beem.witness.ListWitnesses(from_account="", limit=100, lazy=False, full=False,  
                                steem_instance=None)  
    Bases: beem.witness.WitnessesObject
```

List witnesses ranked by name

#### Parameters

- **from\_account** (*str*) – Witness name from which the lists starts (default = “”)
- **limit** (*int*) – Limits the number of shown witnesses (default = 100)
- **steem\_instance** (*steem*) – Steem() instance to use when accesing a RPC

```
>>> from beem.witness import ListWitnesses
>>> ListWitnesses(from_account="gtg", limit=100)
<ListWitnesses gtg>
```

**class** beem.witness.**Witness** (*owner, full=False, lazy=False, steem\_instance=None*)

Bases: *beem.blockchainobject.BlockchainObject*

Read data about a witness in the chain

#### Parameters

- **account\_name** (*str*) – Name of the witness
- **steem\_instance** (*steem*) – Steem() instance to use when accesing a RPC

```
>>> from beem.witness import Witness
>>> Witness("gtg")
<Witness gtg>
```

**account**

**feed\_publish** (*base, quote='1.000 STEEM', account=None*)

Publish a feed price as a witness. :param float base: USD Price of STEEM in SBD (implied price) :param float quote: (optional) Quote Price. Should be 1.000, unless we are adjusting the feed to support the peg. :param str account: (optional) the source account for the transfer if not self["owner"]

**is\_active**

**json()**

**refresh()**

**type\_id** = 3

**update** (*signing\_key, url, props, account=None*)

Update witness

#### Parameters

- **signing\_key** (*pubkey*) – Signing key
- **url** (*str*) – URL
- **props** (*dict*) – Properties
- **account** (*str*) – (optional) witness account name

Properties::

```
{
    "account_creation_fee": x,
    "maximum_block_size": x,
    "sbd_interest_rate": x,
}
```

**class** beem.witness.Witnesses (*lazy=False, full=True, steem\_instance=None*)

Bases: *beem.witness.WitnessesObject*

Obtain a list of **active** witnesses and the current schedule

**Parameters** *steem\_instance* (*steem*) – Steem() instance to use when accessing a RPC

```
>>> from beem.witness import Witnesses
>>> Witnesses()
<Witnesses >
```

**class** beem.witness.WitnessesObject

Bases: list

**get\_votes\_sum**()

**printAsTable** (*sort\_key='votes', reverse=True, return\_str=False, \*\*kwargs*)

**class** beem.witness.WitnessesRankedByVote (*from\_account="", limit=100, lazy=False, full=False, steem\_instance=None*)

Bases: *beem.witness.WitnessesObject*

Obtain a list of witnesses ranked by Vote

**Parameters**

- **from\_account** (*str*) – Witness name from which the lists starts (default = “”)
- **limit** (*int*) – Limits the number of shown witnesses (default = 100)
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

```
>>> from beem.witness import WitnessesRankedByVote
>>> WitnessesRankedByVote(limit=100)
<WitnessesRankedByVote >
```

**class** beem.witness.WitnessesVotedByAccount (*account, lazy=False, full=True, steem\_instance=None*)

Bases: *beem.witness.WitnessesObject*

Obtain a list of witnesses which have been voted by an account

**Parameters**

- **account** (*str*) – Account name
- **steem\_instance** (*steem*) – Steem() instance to use when accessing a RPC

```
>>> from beem.witness import WitnessesVotedByAccount
>>> WitnessesVotedByAccount("gtg")
<WitnessesVotedByAccount gtg>
```

## 3.6.2 beemapi Modules

### beemapi.steemnodeRPC

**class** beemapi.steemnodeRPC.SteemNodeRPC (*\*args, \*\*kwargs*)

Bases: *beemapi.graphenerpc.GrapheneRPC*

This class allows to call API methods exposed by the witness node via websockets / rpc-json.

**Parameters**

- **urls** (*str*) – Either a single Websocket/Http URL, or a list of URLs

- **user** (*str*) – Username for Authentication
- **password** (*str*) – Password for Authentication
- **num\_retries** (*int*) – Try x times to num\_retries to a node on disconnect, -1 for indefinitely
- **num\_retries\_call** (*int*) – Repeat num\_retries\_call times a rpc call on node error (default is 5)
- **timeout** (*int*) – Timeout setting for https nodes (default is 60)
- **use\_condenser** (*bool*) – Use the old condenser\_api rpc protocol on nodes with version 0.19.4 or higher. The settings has no effect on nodes with version of 0.19.3 or lower.

**get\_account** (*name*, *\*\*kwargs*)

Get full account details from account name

**Parameters** **name** (*str*) – Account name

**rpcexec** (*payload*)

Execute a call by sending the payload. It makes use of the GrapheneRPC library. In here, we mostly deal with Steem specific error handling

**Parameters** **payload** (*json*) – Payload data

**Raises**

- **ValueError** – if the server does not respond in proper JSON format
- **RPCError** – if the server returns an error

**set\_next\_node\_on\_empty\_reply** (*next\_node\_on\_empty\_reply=True*)

Switch to next node on empty reply for the next rpc call

## beemapi.exceptions

**exception** beemapi.exceptions.**ApiNotSupported**

Bases: [beemapi.exceptions.RPCError](#)

**exception** beemapi.exceptions.**CallRetriesReached**

Bases: Exception

CallRetriesReached Exception. Only for internal use

**exception** beemapi.exceptions.**InvalidEndpointUrl**

Bases: Exception

**exception** beemapi.exceptions.**MissingRequiredActiveAuthority**

Bases: [beemapi.exceptions.RPCError](#)

**exception** beemapi.exceptions.**NoAccessApi**

Bases: [beemapi.exceptions.RPCError](#)

**exception** beemapi.exceptions.**NoApiWithName**

Bases: [beemapi.exceptions.RPCError](#)

**exception** beemapi.exceptions.**NoMethodWithName**

Bases: [beemapi.exceptions.RPCError](#)

**exception** beemapi.exceptions.**NumRetriesReached**

Bases: Exception

NumRetriesReached Exception.

**exception** `beemapi.exceptions.RPCConnection`

Bases: `Exception`

`RPCConnection` Exception.

**exception** `beemapi.exceptions.RPCError`

Bases: `Exception`

`RPCError` Exception.

**exception** `beemapi.exceptions.RPCErrorDoRetry`

Bases: `Exception`

`RPCErrorDoRetry` Exception.

**exception** `beemapi.exceptions.TimeoutException`

Bases: `Exception`

**exception** `beemapi.exceptions.UnauthorizedError`

Bases: `Exception`

`UnauthorizedError` Exception.

**exception** `beemapi.exceptions.UnhandledRPCError`

Bases: `beemapi.exceptions.RPCError`

**exception** `beemapi.exceptions.UnkownKey`

Bases: `beemapi.exceptions.RPCError`

**exception** `beemapi.exceptions.UnnecessarySignatureDetected`

Bases: `Exception`

**exception** `beemapi.exceptions.WorkingNodeMissing`

Bases: `Exception`

`beemapi.exceptions.decodeRPCErrorMsg(e)`

Helper function to decode the raised Exception and give it a python Exception class

## beemapi.websocket

This class allows subscribe to push notifications from the Steem node.

```
from pprint import pprint
from beemapi.websocket import SteemWebsocket

ws = SteemWebsocket(
    "wss://gtg.steem.house:8090",
    accounts=["test"],
    on_block=print,
)

ws.run_forever()
```

**class** `beemapi.websocket.SteemWebsocket` (*urls*, *user*="", *password*="", *only\_block\_id*=False, *on\_block*=None, *keep\_alive*=25, *num\_retries*=-1, *timeout*=60, *\*args*, *\*\*kwargs*)

Create a websocket connection and request push notifications

### Parameters

- **urls** (*str*) – Either a single Websocket URL, or a list of URLs
- **user** (*str*) – Username for Authentication



- **password** (*str*) – Password for Authentication
- **keep\_alive** (*int*) – seconds between a ping to the backend (defaults to 25seconds)

After instantiating this class, you can add event slots for:

- **on\_block**

which will be called accordingly with the notification message received from the Steem node:

```
ws = SteemWebsocket (
    "wss://gtg.steem.house:8090",
)
ws.on_block += print
ws.run_forever()
```

**\_\_SteemWebsocket\_\_set\_subscriptions()**

set subscriptions on `on_block` function

**\_\_events\_\_** = ['on\_block']

**\_\_getattr\_\_** (*name*)

Map all methods to RPC calls and pass through the arguments

**\_\_init\_\_** (*urls*, *user*="", *password*="", *only\_block\_id*=False, *on\_block*=None, *keep\_alive*=25, *num\_retries*=-1, *timeout*=60, *\*args*, *\*\*kwargs*)

Initialize self. See help(type(self)) for accurate signature.

**\_\_module\_\_** = 'beemapi.websocket'

**\_ping** ()

Send `keep_alive` request

**cancel\_subscriptions** ()

cancel\_all\_subscriptions removed from api

**close** ()

Closes the websocket connection and waits for the ping thread to close

**get\_request\_id** ()

Generates next request id

**on\_close** (*ws*)

Called when websocket connection is closed

**on\_error** (*ws*, *error*)

Called on websocket errors

**on\_message** (*ws*, *reply*, *\*args*)

This method is called by the websocket connection on every message that is received. If we receive a notice, we hand over post-processing and signalling of events to `process_notice`.

**on\_open** (*ws*)

This method will be called once the websocket connection is established. It will

- login,
- register to the database api, and
- subscribe to the objects defined if there is a callback/slot available for callbacks

**process\_block** (*data*)

This method is called on notices that need processing. Here, we call the `on_block` slot.

**reset\_subscriptions** (*accounts*=[])

Reset subscriptions

**rpcexec** (*payload*)

Execute a call by sending the payload.

**Parameters** **payload** (*json*) – Payload data

**Raises**

- **ValueError** – if the server does not respond in proper JSON format
- **RPCError** – if the server returns an error

**run\_forever** ()

This method is used to run the websocket app continuously. It will execute callbacks as defined and try to stay connected with the provided APIs

**stop** ()

Stop running Websocket

## beemapi.node

**class** beemapi.node.**Node** (*url*)

Bases: object

**class** beemapi.node.**Nodes** (*urls, num\_retries, num\_retries\_call*)

Bases: list

Stores Node URLs and error counts

**error\_cnt**

**error\_cnt\_call**

**increase\_error\_cnt** ()

Increase node error count for current node

**increase\_error\_cnt\_call** ()

Increase call error count for current node

**next** ()

**node**

**num\_retries\_call\_reached**

**reset\_error\_cnt** ()

Set node error count for current node to zero

**reset\_error\_cnt\_call** ()

Set call error count for current node to zero

**sleep\_and\_check\_retries** (*errorMsg=None, sleep=True, call\_retry=False, showMsg=True*)

Sleep and check if num\_retries is reached

**url**

**working\_nodes\_count**

## beemapi.graphenerpc

---

**Note:** This is a low level class that can be used in combination with GrapheneClient

---

This class allows to call API methods exposed by the witness node via websockets. It does **not** support notifications and is not run asynchronously.

graphennewsrpc.

**class** beemapi.graphenrpc.GrapheneRPC (*urls, user=None, password=None, \*\*kwargs*)  
Bases: object

This class allows to call API methods synchronously, without callbacks.

It logs warnings and errors.

#### Parameters

- **urls** (*str*) – Either a single WebSocket/Http URL, or a list of URLs
- **user** (*str*) – Username for Authentication
- **password** (*str*) – Password for Authentication
- **num\_retries** (*int*) – Try x times to num\_retries to a node on disconnect, -1 for indefinitely
- **num\_retries\_call** (*int*) – Repeat num\_retries\_call times a rpc call on node error (default is 5)
- **timeout** (*int*) – Timeout setting for https nodes (default is 60)
- **autoconnect** (*bool*) – When set to false, connection is performed on the first rpc call (default is True)
- **use\_condenser** (*bool*) – Use the old condenser\_api rpc protocol on nodes with version 0.19.4 or higher. The settings has no effect on nodes with version of 0.19.3 or lower.

Available APIs:

- database
- network\_node
- network\_broadcast

Usage:

```
from beemapi.graphenrpc import GrapheneRPC
ws = GrapheneRPC("wss://steemd.pevo.science", "", "")
print(ws.get_account_count())

ws = GrapheneRPC("https://api.steemit.com", "", "")
print(ws.get_account_count())
```

---

**Note:** This class allows to call methods available via websocket. If you want to use the notification subsystem, please use GrapheneWebSocket instead.

---

**error\_cnt**

**error\_cnt\_call**

**get\_network** (*props=None*)

Identify the connected network. This call returns a dictionary with keys chain\_id, core\_symbol and prefix

**get\_request\_id** ()

Get request id.

**get\_use\_appbase** ()

Returns True if appbase ready and appbase calls are set

**is\_appbase\_ready** ()

Check if node is appbase ready

**next** ()

Switches to the next node url

**num\_retries**

**num\_retries\_call**

**request\_send** (*payload*)

**rpcclose** ()

Close Websocket

**rpconnect** (*next\_url=True*)

Connect to next url in a loop.

**rpcexec** (*payload*)

Execute a call by sending the payload.

**Parameters** **payload** (*json*) – Payload data

**Raises**

- **ValueError** – if the server does not respond in proper JSON format
- **RPCEError** – if the server returns an error

**rpclogin** (*user, password*)

Login into Websocket

**ws\_send** (*payload*)

**class** beemapi.graphenerpc.**SessionInstance**

Bases: object

Singelton for the Session Instance

**instance** = None

beemapi.graphenerpc.**create\_ws\_instance** (*use\_ssl=True, enable\_multithread=True*)

Get websocket instance

beemapi.graphenerpc.**set\_session\_instance** (*instance*)

Set session instance

beemapi.graphenerpc.**shared\_session\_instance** ()

Get session instance

### 3.6.3 beembase Modules

#### beembase.memo

beembase.memo.**decode\_memo** (*priv, message*)

Decode a message with a shared secret between Alice and Bob

**Parameters**

- **priv** (*PrivateKey*) – Private Key (of Bob)
- **message** (*base58encoded*) – Encrypted Memo message

**Returns** Decrypted message

**Return type** str

**Raises** `ValueError` – if message cannot be decoded as valid UTF-8 string

`beembase.memo.decode_memo_bts(priv, pub, nonce, message)`

Decode a message with a shared secret between Alice and Bob

**Parameters**

- **priv** (`PrivateKey`) – Private Key (of Bob)
- **pub** (`PublicKey`) – Public Key (of Alice)
- **nonce** (`int`) – Nonce used for Encryption
- **message** (`bytes`) – Encrypted Memo message

**Returns** Decrypted message

**Return type** str

**Raises** `ValueError` – if message cannot be decoded as valid UTF-8 string

`beembase.memo.encode_memo(priv, pub, nonce, message, **kwargs)`

Encode a message with a shared secret between Alice and Bob

**Parameters**

- **priv** (`PrivateKey`) – Private Key (of Alice)
- **pub** (`PublicKey`) – Public Key (of Bob)
- **nonce** (`int`) – Random nonce
- **message** (`str`) – Memo message

**Returns** Encrypted message

**Return type** hex

`beembase.memo.encode_memo_bts(priv, pub, nonce, message)`

Encode a message with a shared secret between Alice and Bob

**Parameters**

- **priv** (`PrivateKey`) – Private Key (of Alice)
- **pub** (`PublicKey`) – Public Key (of Bob)
- **nonce** (`int`) – Random nonce
- **message** (`str`) – Memo message

**Returns** Encrypted message

**Return type** hex

`beembase.memo.get_shared_secret(priv, pub)`

Derive the share secret between `priv` and `pub`

**Parameters**

- **priv** (`Base58`) – Private Key
- **pub** (`Base58`) – Public Key

**Returns** Shared secret

**Return type** hex

The shared secret is generated such that:

```
Pub(Alice) * Priv(Bob) = Pub(Bob) * Priv(Alice)
```

`beembase.memo.init_aes(shared_secret, nonce)`

Initialize AES instance

**Parameters**

- **shared\_secret** (*hex*) – Shared Secret to use as encryption key
- **nonce** (*int*) – Random nonce

**Returns** AES instance and checksum of the encryption key

**Return type** length 2 tuple

`beembase.memo.init_aes_bts(shared_secret, nonce)`

Initialize AES instance

**Parameters**

- **shared\_secret** (*hex*) – Shared Secret to use as encryption key
- **nonce** (*int*) – Random nonce

**Returns** AES instance

**Return type** AES

## beembase.objects

**class** `beembase.objects.Amount(d)`

Bases: `object`

**class** `beembase.objects.Beneficiaries(*args, **kwargs)`

Bases: `beemgraphenebase.objects.GrapheneObject`

**class** `beembase.objects.Beneficiary(*args, **kwargs)`

Bases: `beemgraphenebase.objects.GrapheneObject`

**class** `beembase.objects.CommentOptionExtensions(o)`

Bases: `beemgraphenebase.types.Static_variant`

Serialize Comment Payout Beneficiaries.

**Parameters** **beneficiaries** (*list*) – A `static_variant` containing beneficiaries.

Example:

```
[0,
 { 'beneficiaries': [
   { 'account': 'furon', 'weight': 10000 }
 ] }
]
```

**class** `beembase.objects.ExchangeRate(*args, **kwargs)`

Bases: `beemgraphenebase.objects.GrapheneObject`

**class** `beembase.objects.Extension(d)`

Bases: `beemgraphenebase.types.Array`

**class** `beembase.objects.Memo(*args, **kwargs)`

Bases: `beemgraphenebase.objects.GrapheneObject`

**class** `beembase.objects.Operation(*args, **kwargs)`

Bases: `beemgraphenebase.objects.Operation`



**Parameters**

- **wifkeys** (*array*) – Array of wif keys
- **chain** (*str*) – identifier for the chain

**verify** (*pubkeys=[]*, *chain='STEEM'*, *recover\_parameter=False*)

Returned pubkeys have to be checked if they are existing

**beembase.transactions**

`beembase.transactions.getBlockParams(ws)`

Auxiliary method to obtain `ref_block_num` and `ref_block_prefix`. Requires a websocket connection to a witness node!

### 3.6.4 beemgraphenebase Modules

**beemgraphenebase.account**

**class** `beemgraphenebase.account.Address` (*address=None*, *pubkey=None*, *prefix='STM'*)

Bases: `object`

Address class

This class serves as an address representation for Public Keys.

**Parameters**

- **address** (*str*) – Base58 encoded address (defaults to `None`)
- **pubkey** (*str*) – Base58 encoded pubkey (defaults to `None`)
- **prefix** (*str*) – Network prefix (defaults to `STM`)

Example:

```
Address("STMfN9r6VYzBK8EKtMewfNbfiGCr56pHDBFi")
```

**derive256address\_with\_version** (*version=56*)

Derive address using RIPEMD160 (SHA256 (x) ) and adding version + checksum

**derivesha256address** ()

Derive address using RIPEMD160 (SHA256 (x) )

**derivesha512address** ()

Derive address using RIPEMD160 (SHA512 (x) )

**get\_public\_key** ()

Returns the pubkey

**class** `beemgraphenebase.account.BrainKey` (*brainkey=None*, *sequence=0*)

Bases: `object`

Brainkey implementation similar to the graphene-ui web-wallet.

**Parameters**

- **brainkey** (*str*) – Brain Key
- **sequence** (*int*) – Sequence number for consecutive keys



Keys in Graphene are derived from a seed brain key which is a string of 16 words out of a predefined dictionary with 49744 words. It is a simple single-chain key derivation scheme that is not compatible with BIP44 but easy to use.

Given the brain key, a private key is derived as:

```
privkey = SHA256(SHA512(brainkey + " " + sequence))
```

Incrementing the sequence number yields a new key that can be regenerated given the brain key.

**get\_blind\_private()**

Derive private key from the brain key (and no sequence number)

**get\_brainkey()**

Return brain key of this instance

**get\_private()**

Derive private key from the brain key and the current sequence number

**get\_private\_key()**

**get\_public()**

**get\_public\_key()**

**next\_sequence()**

Increment the sequence number by 1

**normalize(brainkey)**

Correct formatting with single whitespace syntax and no trailing space

**suggest()**

Suggest a new random brain key. Randomness is provided by the operating system using `os.urandom()`.

**class** `beemgraphenebase.account.PasswordKey(account, password, role='active', prefix='STM')`

Bases: `object`

This class derives a private key given the account name, the role and a password. It leverages the technology of Brainkeys and allows people to have a secure private key by providing a passphrase only.

**get\_private()**

Derive private key from the brain key and the current sequence number

**get\_private\_key()**

**get\_public()**

**get\_public\_key()**

**class** `beemgraphenebase.account.PrivateKey(wif=None, prefix='STM')`

Bases: `beemgraphenebase.account.PublicKey`

Derives the compressed and uncompressed public keys and constructs two instances of `PublicKey`:

**Parameters**

- **wif** (*str*) – Base58check-encoded wif key
- **prefix** (*str*) – Network prefix (defaults to STM)

Example::

```
PrivateKey("5HqUkGuo62BfcJU5vNhTXKJR XuUi9QSE6jp8C3uBJ2BVHtB8WSd")
```

Compressed vs. Uncompressed:

- `PrivateKey("w-i-f").pubkey`: Instance of `PublicKey` using compressed key.
- `PrivateKey("w-i-f").pubkey.address`: Instance of `Address` using compressed key.
- `PrivateKey("w-i-f").uncompressed`: Instance of `PublicKey` using uncompressed key.
- `PrivateKey("w-i-f").uncompressed.address`: Instance of `Address` using uncompressed key.

`child(offset256)`

Derive new private key from this key and a sha256 “offset”

`compressedpubkey()`

Derive uncompressed public key

`derive_from_seed(offset)`

Derive private key using “generate\_from\_seed” method. Here, the key itself serves as a *seed*, and *offset* is expected to be a sha256 digest.

`derive_private_key(sequence)`

Derive new private key from this private key and an arbitrary sequence number

`get_public_key()`

Returns the pubkey

`get_secret()`

Get sha256 digest of the wif key.

**class** `beemgraphenebase.account.PublicKey(pk, prefix='STM')`

Bases: `beemgraphenebase.account.Address`

This class deals with Public Keys and inherits `Address`.

#### Parameters

- **pk** (*str*) – Base58 encoded public key
- **prefix** (*str*) – Network prefix (defaults to STM)

Example::

```
PublicKey("STM6UtYWWs3rkZGV8JA86qrgkG6tyFksgECefKE1MiH4HkLD8PFGL")
```

---

**Note:** By default, graphene-based networks deal with **compressed** public keys. If an **uncompressed** key is required, the method `unCompressed` can be used:

```
PublicKey("xxxxx").unCompressed()
```

---

`compressed()`

Derive compressed public key

`get_public_key()`

Returns the pubkey

`point()`

Return the point for the public key

`unCompressed()`

Derive uncompressed key

## beemgraphenebase.base58

**class** `beemgraphenebase.base58.Base58(data, prefix='GPH')`

Bases: `object`

## Base58 base class

This class serves as an abstraction layer to deal with base58 encoded strings and their corresponding hex and binary representation throughout the library.

### Parameters

- **data** (*hex, wif, bip38 encrypted wif, base58 string*) – Data to initialize object, e.g. pubkey data, address data, ...
- **prefix** (*str*) – Prefix to use for Address/PubKey strings (defaults to GPH)

**Returns** Base58 object initialized with data

**Return type** *Base58*

**Raises** **ValueError** – if data cannot be decoded

- **bytes** (*Base58*): Returns the raw data
- **str** (*Base58*): Returns the readable Base58CheckEncoded data.
- **repr** (*Base58*): Gives the hex representation of the data.
- **format** (*Base58, \_format*) **Formats the instance according to \_format:**
  - "btc": prefixed with 0x80. Yields a valid btc address
  - "wif": prefixed with 0x00. Yields a valid wif key
  - "bts": prefixed with BTS
  - etc.

```
beemgraphenebase.base58.b58decode(v)
beemgraphenebase.base58.b58encode(v)
beemgraphenebase.base58.base58CheckDecode(s)
beemgraphenebase.base58.base58CheckEncode(version, payload)
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beemgraphenebase.base58.base58encode(hexstring)
beemgraphenebase.base58.doublesha256(s)
beemgraphenebase.base58.gphBase58CheckDecode(s)
beemgraphenebase.base58.gphBase58CheckEncode(s)
beemgraphenebase.base58.log = <logging.Logger object>
    Default Prefix
beemgraphenebase.base58.ripemd160(s)
```

## beemgraphenebase.bip38

**exception** beemgraphenebase.bip38.SaltException

Bases: Exception

beemgraphenebase.bip38.decrypt(*encrypted\_privkey, passphrase*)

BIP0038 non-ec-multiply decryption. Returns WIF privkey.

### Parameters

- **encrypted\_privkey** (*Base58*) – Private key
- **passphrase** (*str*) – UTF-8 encoded passphrase for decryption

**Returns** BIP0038 non-ec-multiply decrypted key

**Return type** *Base58*

**Raises** *SaltException* – if checksum verification failed (e.g. wrong password)

`beemgraphenebase.bip38.encrypt(privkey, passphrase)`

BIP0038 non-ec-multiply encryption. Returns BIP0038 encrypted privkey.

**Parameters**

- **privkey** (*Base58*) – Private key
- **passphrase** (*str*) – UTF-8 encoded passphrase for encryption

**Returns** BIP0038 non-ec-multiply encrypted wif key

**Return type** *Base58*

## beemgraphenebase.ecdasig

## beemgraphenebase.objects

**class** `beemgraphenebase.objects.GrapheneObject` (*data=None*)

Bases: `object`

Core abstraction class

This class is used for any JSON reflected object in Graphene.

- `instance.__json__()`: encodes data into json format
- `bytes(instance)`: encodes data into wire format
- `str(instance)`: dumps json object as string

`json()`

`toJson()`

**class** `beemgraphenebase.objects.Operation` (*op*)

Bases: `object`

`getOperationNameForId(i)`

Convert an operation id into the corresponding string

`operations()`

`beemgraphenebase.objects.isArgsThisClass(self, args)`

## beemgraphenebase.objecttypes

`beemgraphenebase.objecttypes.object_type = {'OBJECT_TYPE_COUNT': 3, 'account': 2, 'base':`

`Object types for object ids`

## beemgraphenebase.operations

`beemgraphenebase.operationids.operations = {'demooperation': 0}`

Operation ids

## beemgraphenebase.signedtransactions

**class** beemgraphenebase.signedtransactions.**Signed\_Transaction** (\*args, \*\*kwargs)

Bases: *beemgraphenebase.objects.GrapheneObject*

Create a signed transaction and offer method to create the signature

### Parameters

- **refNum** (*num*) – parameter ref\_block\_num (see *getBlockParams*)
- **refPrefix** (*num*) – parameter ref\_block\_prefix (see *getBlockParams*)
- **expiration** (*str*) – expiration date
- **operations** (*Array*) – array of operations

**derSigToHexSig** (*s*)

Format DER to HEX signature

**deriveDigest** (*chain*)

**getChainParams** (*chain*)

**getKnownChains** ()

**getOperationKlass** ()

**id**

The transaction id of this transaction

**sign** (*wifkeys*, *chain=None*)

Sign the transaction with the provided private keys.

### Parameters

- **wifkeys** (*array*) – Array of wif keys
- **chain** (*str*) – identifier for the chain

**verify** (*pubkeys=[]*, *chain=None*, *recover\_parameter=False*)

Returned pubkeys have to be checked if they are existing

## 3.7 Contributing to beem

We welcome your contributions to our project.

### 3.7.1 Repository

The repository of beem is currently located at:

<https://github.com/holgern/beem>

### 3.7.2 Flow

This project makes heavy use of [git flow](#). If you are not familiar with it, then the most important thing for your to understand is that:

pull requests need to be made against the develop branch

### 3.7.3 How to Contribute

0. Familiarize yourself with *contributing on github* <<https://guides.github.com/activities/contributing-to-open-source/>>
1. Fork or branch from the master.
2. Create commits following the commit style
3. Start a pull request to the master branch
4. Wait for a @holger80 or another member to review

### 3.7.4 Issues

Feel free to submit issues and enhancement requests.

### 3.7.5 Contributing

Please refer to each project’s style guidelines and guidelines for submitting patches and additions. In general, we follow the “fork-and-pull” Git workflow.

1. **Fork** the repo on GitHub
2. **Clone** the project to your own machine
3. **Commit** changes to your own branch
4. **Push** your work back up to your fork
5. Submit a **Pull request** so that we can review your changes

NOTE: Be sure to merge the latest from “upstream” before making a pull request!

### 3.7.6 Copyright and Licensing

This library is open sources under the MIT license. We require your to release your code under that license as well.

## 3.8 Support and Questions

Help and discussion channel for beem can be found here:

- <https://discord.gg/4HM592V>

## 3.9 Indices and Tables

- [genindex](#)
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## CHAPTER 4

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