
storj documentation

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Storj

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Installation

This section covers the [Storj](#) installation.

1.1 pip

```
$ pip install storj
```

1.2 source

The code is available at [github](#).

There are several alternatives for this installation method.

Here we only describe two possibilities:

- you can clone the repository:

```
$ git clone git@github.com:Storj/storj-python-sdk.git
```

- you can go to the [releases](#) tab and pick a [tarball](#) or [zip](#).

For example:

```
$ curl -OL https://github.com/Storj/storj-python-sdk/archive/1.0.0.tar.gz
```

Once you have a copy of the source and have extracted its files, you can install it using:

```
$ python setup.py install
```

command-line

To install the command-line tool do:

```
$ pip install storj[cli]
```

API documentation

This section contains information on a specific function, class, or method.

3.1 storj package

3.1.1 Subpackages

storj.cli package

Module contents

Storj command-line interface package.

3.1.2 Submodules

storj.api module

Storj API module.

ecdsa_to_hex (*ecdsa_key*)

Return hexadecimal string representation of the ECDSA key.

Parameters **ecdsa_key** (*bytes*) – ECDSA key.

Raises `TypeError` – if the ECDSA key is not an array of bytes.

Returns hexadecimal string representation of the ECDSA key.

Return type `str`

storj.configuration module

APP_NAME = 'storj'

(*str*) – the application name.

CFG_EMAIL = 'email'

(*str*) – configuration parameter that holds the Storj account email address.

CFG_PASSWORD = 'password'

(*str*) – configuration parameter that holds the Storj account password.

read_config()

Reads configuration storj client configuration.

Mac OS X (POSIX): ~/.foo-bar

Unix (POSIX): ~/.foo-bar

Win XP (not roaming): C:\Documents and Settings\\Application Data\storj

Win 7 (not roaming): C:\Users\\AppData\Local\storj

Returns storj account credentials (email, password).

Return type (tuple[str, str])

storj.exception module

Storj exception module.

exception StorjBridgeApiError

Bases: `exceptions.Exception`

Generic Storj exception.

storj.http module

Storj HTTP module.

class Client (*email, password*)

Bases: `object`

api_url

str – the Storj API endpoint.

session

email

str – user email address.

password

str – user password.

private_key

public_key

public_key_hex

authenticate (*ecdsa_private_key=None*)

bucket_create (*name, storage=None, transfer=None*)

Create storage bucket.

See [API buckets: POST /buckets](#)

Parameters

- **name** (*str*) – name.
- **storage** (*int*) – storage limit (in GB).
- **transfer** (*int*) – transfer limit (in GB).

Returns bucket.

Return type (`model.Bucket`)

bucket_delete (*bucket_id*)

Destroy a storage bucket.

See [API buckets: DELETE /buckets/{id}](#)

Parameters **bucket_id** (*string*) – unique identifier.

bucket_files (*bucket_id*)

List all the file metadata stored in the bucket.

See [API buckets: GET /buckets/{id}/files](#)

Parameters **bucket_id** (*string*) – unique identifier.

Returns to be changed to model in the future.

Return type (`dict`)

bucket_get (*bucket_id*)

Return the bucket object.

See [API buckets: GET /buckets](#)

Parameters **bucket_id** (*str*) – bucket unique identifier.

Returns bucket.

Return type (`model.Bucket`)

bucket_list ()

List all of the buckets belonging to the user.

See [API buckets: GET /buckets](#)

Returns buckets.

Return type (`generator[model.Bucket]`)

bucket_set_keys (*bucket_id*, *bucket_name*, *keys*)

Update the bucket with the given public keys.

See [API buckets: PATCH /buckets/{bucket_id}](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **bucket_name** (*str*) – bucket name.
- **keys** (*list[str]*) – public keys.

Returns updated bucket information.

Return type (`storj.model.Bucket`)

bucket_set_mirrors (*bucket_id*, *file_id*, *redundancy*)

Establishes a series of mirrors for the given file.

See [API buckets: POST /buckets/{id}/mirrors](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **file_id** (*str*) – file unique identifier.
- **redundancy** (*int*) – number of replicas.

Returns the mirror settings.

Return type (*storj.model.Mirror*)

contact_list (*page=1, address=None, protocol=None, user_agent=None, connected=None*)

Lists contacts.

See [API contacts: GET /contacts](#)

Parameters

- **page** (*str*) – pagination indicator.
- **address** (*str*) – hostname or IP address.
- **protocol** (*str*) – SemVer protocol tag.
- **user_agent** (*str*) – Storj user agent string for farming client.
- **connected** (*bool*) – filter results by connection status.

Returns list of contacts.

Return type (list[*storj.model.Contact*])

contact_lookup (*node_id*)

Lookup for contact information of a node.

See [API contacts: GET /contacts/{nodeID}](#)

Parameters **node_id** (*str*) – node unique identifier.

Returns contact information

Return type (*storj.model.Contact*)

file_download (*bucket_id, file_id*)

file_metadata (*bucket_id, file_id*)

Get file metadata.

See [API buckets: GET /buckets/{id}/files/{file_id}/info](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **file_id** (*str*) – file unique identifier.

Returns file metadata.

Return type (*storj.model.File*)

file_pointers (*bucket_id, file_id, skip=None, limit=None*)

Get list of pointers associated with a file.

See [API buckets: GET /buckets/{id}/files/{file_id}](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **file_id** (*str*) – file unique identifier.
- **skip** (*str*) – pointer index to start the file slice.
- **limit** (*str*) – number of pointers to resolve tokens for.

Returns file pointers.

Return type (generator[*storj.model.FilePointer*])

file_remove (*bucket_id*, *file_id*)

Delete a file pointer from a specified bucket.

See [API buckets: DELETE /buckets/{id}/files/{file_id}](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **file_id** (*str*) – file unique identifier.

file_upload (*bucket_id*, *file*, *frame*)

Upload file.

See [API buckets: POST /buckets/{id}/files](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **file** (*storj.model.File*) – file to be uploaded.
- **frame** (*storj.model.Frame*) – frame used to stage file.

frame_add_shard (*shard*, *frame_id*)

Adds a shard item to the staging frame and negotiates a storage contract.

See [API frames: PUT /frames/{frame_id}](#)

Parameters

- **shard** (*storj.models.Shard*) – the shard.
- **frame_id** (*str*) – the frame unique identifier.

frame_create ()

Creates a file staging frame.

See [API frames: POST /frames](#)

Returns the frame.

Return type (*storj.model.Frame*)

frame_delete (*frame_id*)

Destroys the file staging frame by it's unique ID.

See [API frames: DELETE /frames/{frame_id}](#)

Parameters **frame_id** (*str*) – unique identifier.

frame_get (*frame_id*)

Fetches the file staging frame by it's unique ID.

See [API frame: GET /frames/{frame_id}](#)

Parameters **frame_id** (*str*) – unique identifier.

Returns a frame.

Return type (*storj.model.Frame*)

frame_list ()

Returns all open file staging frames.

See [‘API frame: GET /frames < https://storj.github.io/bridge/#!/frames/get_frames>’](#)

Returns all open file staging frames.

Return type (generator[*storj.model.Frame*])

key_delete (*public_key*)

Removes a public ECDSA keys.

See [API keys: DELETE /keys/{pubkey}](#)

Parameters **public_key** (*str*) – key to be removed.

key_dump ()

key_export ()

key_generate ()

key_import (*private_keyfile_path*, *public_keyfile_path*)

key_list ()

Lists the public ECDSA keys associated with the user.

See [API keys: GET /keys](#)

Returns public keys.

Return type (list[str])

key_register (*public_key*)

Register an ECDSA public key.

See [API keys: POST /keys](#)

Returns public keys.

Return type (list[*storj.model.Key*])

logger = <logging.Logger object>

password

(*str*) – user password

token_create (*bucket_id*, *operation*)

Creates a token for the specified operation.

See [API buckets: POST /buckets/{id}/tokens](#)

Parameters

- **bucket_id** (*str*) – bucket unique identifier.
- **operation** (*str*) – operation.

Returns

...

Return type (dict)

user_activate (*token*)

Activate user.

See [API users: GET /activations/{token}](#)

Parameters **token** (*str*) – activation token.

user_activation_email (*email*, *token*)

Send user activation email.

See [API users: POST /activations/{token}](#)

Parameters

- **email** (*str*) – user’s email address.
- **token** (*str*) – activation token.

user_create (*email*, *password*)

Create a new user with Storj bridge.

See [API users: POST /users](#)

Parameters

- **email** (*str*) – user’s email address.
- **password** (*str*) – user’s password.

user_deactivate (*token*)

Discard activation token.

See [API users: GET /activations/{token}](#)

Parameters **token** (*str*) – activation token.

user_delete (*email*)

Delete user account.

See [API users: DELETE /users/{email}](#)

Parameters **email** (*str*) – user’s email address.

user_reset_password (*email*)

Request a password reset.

See [API users: PATCH /users/{email}](#)

Parameters **email** (*str*) – user’s email address.

user_reset_password_confirmation (*token*)

Confirm a password reset request.

See [API users: GET /resets/{token}](#)

Parameters **token** (*str*) – password reset token.

storj.metadata module

Storj metadata module.

storj.model module

Storj model module.

class **Bucket** (*id=None*, *name=None*, *status=None*, *user=None*, *created=None*, *storage=None*, *transfer=None*, *pubkeys=None*, *publicPermissions=None*, *encryptionKey=None*)

Bases: `steenzout.object.Object`

Storage bucket.

A bucket is a logical grouping of files which the user can assign permissions and limits to.

id
str – unique identifier.

name
str – name.

status
str – bucket status (Active, ...).

user
str – user email address.

created
`datetime.datetime` – time when the bucket was created.

storage
int – storage limit (in GB).

transfer
int – transfer limit (in GB).

pubkeys

delete()

class Contact (*address=None, port=None, nodeID=None, lastSeen=None, protocol=None, userAgent=None*)

Bases: `steenzout.object.Object`

Contact.

address
str – hostname or IP address.

port
str – .

nodeID
str – node unique identifier.

lastSeen
str – .

protocol
str – SemVer protocol tag.

userAgent
str

lastSeen

class File (*bucket=None, hash=None, mimetype=None, filename=None, size=None, id=None, frame=None*)

Bases: `steenzout.object.Object`

bucket
bucket unique identifier.

hash

mimetype

filename

frame
`storj.model.Frame` – file frame.

size
shard_manager
content_type
delete()
download()
name

class FilePointer (*hash=None, token=None, operation=None, channel=None*)

Bases: `steenzout.object.Object`

File pointer.

Parameters

- **hash** (*str*) –
- **token** (*str*) – token unique identifier.
- **operation** (*str*) –
- **channel** (*str*) –

hash
str

token
storj.model.Token – token.

operation
str

channel
str

class Frame (*id=None, created=None, shards=None, locked=None, user=None, size=None*)

Bases: `steenzout.object.Object`

File staging frame.

id
str – unique identifier.

created
`datetime.datetime` – time when the bucket was created.

shards
`list[Shard]` – shards that compose this frame.

class KeyPair (*pkey=None, secret=None*)

Bases: `object`

ECDSA key pair.

Parameters

- **pkey** (*str*) – hexadecimal representation of the private key (secret exponent).
- **secret** (*str*) – master password.

keypair
`pycoin.key.Key.Key` – BIP0032-style hierarchical wallet.

Raises *NotImplementedError* when – a randomness source is not found.

address

(*)* – base58 encoded bitcoin address version of the nodeID.

node_id

(*str*) – NodeID derived from the public key (RIPEMD160 hash of public key).

private_key

(*str*) – private key.

public_key

(*str*) – public key.

class Keyring

Bases: `steenzout.object.Object`

export_keyring (*password, salt, user_pass*)

generate (*)*

import_keyring (*filepath*)

class MerkleTree (*leaves, prehashed=True*)

Bases: `steenzout.object.Object`

Simple merkle hash tree. Nodes are stored as strings in rows. Row 0 is the root node, row 1 is its children, row 2 is their children, etc

Arguments

leaves (*list[str]/types.generator[str]*): leaves of the tree, as hex digests

leaves

list[str] – leaves of the tree, as hex digests

depth

int – the number of levels in the tree

count

int – the number of nodes in the tree

rows

list[list[str]] – the levels of the tree

depth

Calculates the depth of the tree.

Returns tree depth.

Return type (*int*)

get_level (*depth*)

Returns the tree row at the specified depth

get_root (*)*

Return the root of the tree

leaves

(*list[str]/types.generator[str]*) – leaves of the tree.

class Mirror (*hash=None, mirrors=None, status=None*)

Bases: `steenzout.object.Object`

Mirror or file replica settings.

```

hash
    str

mirrors
    int – number of file replicas.

status
    str – current file replica status.

class Shard (id=None, hash=None, size=None, index=None, challenges=None, tree=None, exclude=None)
    Bases: steenzout.object.Object

    Shard.

    id
        str – unique identifier.

    hash
        str – hash of the data.

    size
        long – size of the shard in bytes.

    index
        int – numeric index of the shard in the frame.

    challenges
        list[str] – list of challenge numbers

    tree
        list[str] – audit merkle tree

    exclude
        list[str] – list of farmer nodeIDs to exclude

    add_challenge (challenge)
        Append challenge.

        Parameters challenge (str) – .

    add_tree (tree)
        Append tree.

    all ()

    get_private_record ()

    get_public_record ()

class ShardManager (filepath, shard_size, nchallenges=12)
    Bases: steenzout.object.Object

    File shard manager.

    filepath
        str – path to the file.

    index
        int – number of shards for the given file.

    nchallenges
        int – number of challenges to be generated.

    shard_size
        int/long – split file in chunks of this size.

```

shards

list[*Shard*] – list of shards

filepath

(*str*) – path to the file.

static hash (*data*)

Returns ripemd160 of sha256 of a string as a string of hex.

Parameters **data** (*str*) – content to be digested.

Returns the ripemd160 of sha256 digest.

Return type (*str*)

class Token (*token=None, bucket=None, operation=None, expires=None, encryptionKey=None*)

Bases: `steenzout.object.Object`

Token.

Parameters

- **token** (*str*) – token unique identifier.
- **bucket** (*str*) – bucket unique identifier.
- **()** (*operation*) –
- **expires** (*str*) – expiration date, in the RFC3339 format.
- **encryptionKey** (*str*) –

id

str – token unique identifier.

bucket

storj.model.Bucket – bucket.

operation

str

expires

datetime.datetime – expiration date, in UTC.

encryptionKey

str

storj.web_socket module

Storj web socket module.

class Client (*pointer, file_contents*)

Bases: `ws4py.client.threadedclient.WebSocketClient`

Web socket client.

json

generator[*storj.model.FilePointer*] – file pointers.

closed (*code, reason=None*)

opened ()

received_message (*m*)

3.1.3 Module contents

Storj package.

class BucketKeyManager (*bucket, authorized_public_keys*)

bucket

add (*key*)

all ()

clear ()

remove (*key*)

class BucketManager

Bases: `abc.ABCMeta`

Class to manage buckets.

static all ()

static create (*name, storage_limit=None, transfer_limit=None*)

Create bucket.

Parameters

- **name** (*str*) – .
- **()** (*transfer_limit*) – .
- **()** – .

static delete (*bucket_id*)

Remove bucket.

Parameters **bucket_id** (*int*) – bucket unique identifier.

static get (*bucket_id*)

class FileManager (*bucket_id*)

all ()

delete (*bucket_id, file_id*)

download (*file_id*)

upload (*file, frame*)

class TokenManager (*bucket_id*)

Bucket token manager.

bucket_id

int – bucket unique identifier.

create (*operation*)

Creates a token.

Parameters **operation** (*str*) – operation (PUSH or PULL).

class UserKeyManager

Bases: `abc.ABCMeta`

static add (*key*)

static all ()

static clear ()

static remove (*key*)

generate_new_key_pair ()

Generate a new key pair.

Returns

tuple(ecdsa.keys.SigningKey, ecdsa.keys.VerifyingKey):

key pair (private, public).

get_client ()

Returns a pre-configured Storj HTTP client.

Returns Storj HTTP client.

Return type (*storj.http.Client*)

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