

Wallet Module

This module provides the functionality to control the account.

Private Key

Class for wrapping `SigningKey` that is used for signature creation and public key derivation.

`generate(path)`

This function generates new private key with random mnemonic phrase.

info If path is not given, default to Band's HD prefix 494 and all other indexes being zeroes. Parameter

- path
-
- optional: HD path that follows the BIP32 standard.

Return

- Tuple[str,]
- : Tuple of mnemonic phrase and `PrivateKey`
- instance.

Example

```
from pyband . wallet import PrivateKey
```

```
mnemonic , priv = PrivateKey . generate ( path = "m/44'/494'/0'/0/3" )
```

`from_mnemonic(word, path)`

This function creates a `PrivateKey` instance from a given mnemonic phrase and a HD derivation path.

info If path is not given, default to Band's HD prefix 494 and all other indexes being zeroes. Parameter

- words
-
- : Mnemonic phrase for recovers a private key.
- path
-
- (optional): HD path that follows the BIP32 standard.

Return

-
- : `PrivateKey`
- object.

Example

```
from pyband . wallet import PrivateKey
```

priv

```
PrivateKey . from_mnemonic ( "test mnemonic" )
```

`from_hex(priv)`

This function creates a `PrivateKey` instance from a given hex that represents a signing key.

Parameter

- priv
-
- : Hex representation of signing key.

Return

-
- : `PrivateKey`
- object.

Example

```
from pyband . wallet import PrivateKey
```

priv

```
PrivateKey . from_hex ( "2442b724db7189468f16accc0fc505f0609817eb129e13702e696d8b84609ea9" )
```

`to_hex`

This function returns a hex representation of a signing key.

Return

-
- : A hex representation of signing key.

Example

```
from pyband . wallet import PrivateKey
```

priv

`PrivateKey . from_mnemonic ("test mnemonic") print (priv . to_hex ())` Result

2cb2e2d3582cebf0664d9cda0b89c5d478ae12fac19a6f4ed9c10a7406a19615

to_public_key

This function returns a `PublicKey` that is associated with this private key.

Return

-
- : `APublicKey`
- that can be used to verify the signatures made with this `PrivateKey`
- .

Example

```
from pyband . wallet import PrivateKey
```

priv

`PrivateKey . from_mnemonic ("test mnemonic") print (priv . to_public_key () . to_hex ())` Result

02b2b0d35cb1c6d3923813c64e46a82d29e12d03288f438b9d3cf232d9a22bcb83

sign(msg)

This function returns a signature of the associated private key. The message is signed by using the edcsa `sign_deterministic` function.

Parameter

- msg
-
- : Message that will be hashed and signed.

Return

-
- : A signature of this private key over the given message.

Example

```
from pyband . wallet import PrivateKey
```

priv

`PrivateKey . from_mnemonic ("test mnemonic") print (priv . sign (b"test message") . hex ())` Result

4bbc9a7ea54b47b11c67a4074e8d9bca068cb64c788f67342c4033b1b6f0553e1bc63cdf9bc2fb6e89c1e965c1e0f0712a51c250627282309cd2fccf1470f4f6

Public Key

Class for wrapping `VerifyKey` that is used for signature verification.

from_acc_bech32(bech)

This function creates a `PublicKey` instance from bech32-encoded with account public key prefix `bandpub` .

Parameter

- bech
-
- : A bech32-encoded with account public key prefix.

Return

- `PublicKey`
- : `APublicKey`
- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import PublicKey

public_key

PublicKey . from_acc_bech32 ("bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualpkk05txs5q6mw8s9v")

from_val_bech32(bech)

This function creates aPublicKey instance from bech32-encoded with validator public key prefixbandvaloperpub .

Parameter

- bech
-
- : A bech32-encoded with validator public key prefix.

Return

- PublicKey
- : APublicKey
- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import PublicKey

public_key

PublicKey . from_val_bech32 ("bandvaloperpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualpkk05txs5q69gsm29")

from_cons_bech32(bech)

This function creates aPublicKey instance from a bech32-encoded with validator consensus public key prefixbandvalconspub .

Parameter

- bech
-
- : A bech32-encoded with validator consensus public key prefix.

Return

- PublicKey
- : APublicKey
- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import PublicKey

public_key

PublicKey . from_cons_bech32 ("bandvalconspub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualpkk05txs5q6r8ytws")

to_hex

This function returns a hex representation of the verified key.

Return

-
- : A hex representationof the verified key.

Example

from pyband . wallet import PublicKey

public_key

PublicKey . from_acc_bech32 ("bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualpkk05txs5q6mw8s9v") print (public_key . to_hex ()) Result

0351e98e1be097250f2ff4188c0aace0a716e69a992cd77f9dfe436b3e8b34280d

to_public_key_proto()

This function returns a public key in type protobuf.

Return

-
- : A public key of type protobuf (SECP256k1).

to_acc_bech32

This function returns bech32-encoded with account public key prefixbandpub .

Return

-
- : A bech32-encoded with account public key prefix.

Example

```
from pyband . wallet import PublicKey
```

public_key

```
PublicKey . from_acc_bech32 ( "bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6mw8s9v" ) print ( public_key . to_acc_bech32 ( ) ) Result
```

```
bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6mw8s9v
```

to_val_bech32

This function returns a bech32-encoded with validator public key prefixbandvaloperpub .

Return

-
- : A bech32-encoded with validator public key prefix.

Example

```
from pyband . wallet import PublicKey
```

public_key

```
PublicKey . from_acc_bech32 ( "bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6mw8s9v" ) print ( public_key . to_val_bech32 ( ) ) Result
```

```
bandvaloperpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q69gsm29
```

to_cons_bech32

This function returns a bech32-encoded with validator consensus public key prefixbandvalconspub .

Return

-
- : A bech32-encoded with validator consensus public key prefix.

Example

```
from pyband . wallet import PublicKey
```

public_key

```
PublicKey . from_acc_bech32 ( "bandpub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6mw8s9v" ) print ( public_key . to_cons_bech32 ( ) ) Result
```

```
bandvalconspub1addwnpepqdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6r8ytws
```

to_address

This function returns anAddress instance from this public key.

Return

-
- : AnAddress
- instance

Example

```
from pyband . wallet import PublicKey
```

public_key

PublicKey . from_acc_bech32 ("bandpub1addwnpepdg7nrsmuztj2re07svgcz4vuzn3de56nykdwlualepkk05txs5q6mw8s9v") print (public_key . to_address () . to_hex ()) Result

8bb66ae5bb7e5ce1035557cf1c77430b987683d2

verify(msg, sig)

This function is used to verify a signature made from the given message.

Parameter

- msg
-
- : A data signed by the signature, will be hashed using sha256 function.
- sig
- <bytes
- : An encoded signature

Return

-
- : True, if the verification success.

Exception

Type Description BadSignatureError If the signature is invalid or malformed Example

from pyband . wallet import PrivateKey

priv

PrivateKey . from_mnemonic ("test mnemonic") public_key = priv . to_public_key () msg =

b"test message" sig = priv . sign (msg) print (public_key . verify (msg , sig)) Result

True

Address

Class for wrappingAddress .

from_acc_bech32(bech)

This function creates anAddress instance from the given bech32-encoded with account prefixband .

Parameter

- bech
-
- : A bech32-encoded with account prefix.

Return

-
- : AnAddress
- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import Address

address

Address . from_acc_bech32 ("band13eznuehmqzd3r84fkxu8wklxl22r2qfmtlth8c")

from_val_bech32(bech)

This function creates an Address instance from the given bech32-encoded with validator prefixbandvaloper .

Parameter

- bech
-
- : A bech32-encoded with validator prefix.

Return

-
- : AnAddress

- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import Address

address

Address . from_val_bech32 ("bandvaloper13eznuehmqzd3r84fkxu8wklxl22r2qfm8f05zn")

from_cons_bech32(bech)

This function creates an Address instance from the given bech32-encoded with validator consensus prefixbandvalcons .

Parameter

- bech
-
- : A bech32-encoded with validator consensus prefix.

Return

-
- : AnAddress
- instance

Exception

Type Description ValueError Invalid bech32 prefix Example

from pyband . wallet import Address

address

Address . from_cons_bech32 ("bandvalcons13eznuehmqzd3r84fkxu8wklxl22r2qfmn6ugwj")

to_hex

This function returns a hex representation ofAddress .

Return

-
- : A hex representation ofAddress
- .

Example

from pyband . wallet import Address

address

Address . from_acc_bech32 ("band13eznuehmqzd3r84fkxu8wklxl22r2qfmtlth8c") print (address . to_hex ()) Result

8e453e66fb009b119ea9b1b8775be6fa9435013b

to_acc_bech32

This function returns a bech32-encoded with account prefix bandband .

Return

-
- : A bech32-encoded with account prefix.

Example

from pyband . wallet import Address

address

Address . from_acc_bech32 ("band13eznuehmqzd3r84fkxu8wklxl22r2qfmtlth8c") print (address . to_acc_bech32 ()) Result

band13eznuehmqzd3r84fkxu8wklxl22r2qfmtlth8c

to_val_bech32

This function returns a bech32-encoded with validator prefixbandvaloper .

Return

-
- : A bech32-encoded with account prefix.

Example

from pyband . wallet import Address

address

```
Address . from_acc_bech32 ( "band13eznuehmqzd3r84fkxu8wklxl22r2qfmltth8c" ) print ( address . to_val_bech32 ( ) )
bandvaloper13eznuehmqzd3r84fkxu8wklxl22r2qfm8f05zn
```

to_cons_bech32

This function returns a bech32-encoded with validator consensus prefixbandvalcons .

Return

-
- : A bech32-encoded with account prefix.

Example

from pyband . wallet import Address

address

```
Address . from_acc_bech32 ( "band13eznuehmqzd3r84fkxu8wklxl22r2qfmltth8c" ) print ( address . to_cons_bech32 ( ) ) Result
bandvalcons13eznuehmqzd3r84fkxu8wklxl22r2qfmn6ugwj Previous Transaction Module Next Getting Started
```