
pynetbox Documentation

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class pynetbox.core.endpoint.**Endpoint** (*api, app, name, model=None*)

Represent actions available on endpoints in the Netbox API.

Takes *name* and *app* passed from `App()` and builds the correct url to make queries to and the proper `Response` object to return results in.

Parameters

- **api** (*obj*) – Takes `Api` created at instantiation.
- **app** (*obj*) – Takes `App`.
- **name** (*str*) – Name of endpoint passed to `App()`.
- **model** (*obj, optional*) – Custom model for given app.

Note: In order to call NetBox endpoints with dashes in their names you should convert the dash to an underscore. (E.g. querying the `ip-addresses` endpoint is done with `nb.ipam.ip_addresses.all()`.)

all ()

Queries the 'ListView' of a given endpoint.

Returns all objects from an endpoint.

Returns List of `Record` objects.

Examples

```
>>> nb.dcim.devices.all()
[test1-a3-oobsw2, test1-a3-oobsw3, test1-a3-oobsw4]
>>>
```

choices ()

Returns all choices from the endpoint.

The returned dict is also saved in the endpoint object (in `_choices` attribute) so that later calls will return the same data without recurring requests to NetBox. When using `.choices()` in long-running applications, consider restarting them whenever NetBox is upgraded, to prevent using stale choices data.

Returns Dict containing the available choices.

Example (from NetBox 2.8.x)

```
>>> from pprint import pprint
>>> pprint(nb.ipam.ip_addresses.choices())
{'role': [{'display_name': 'Loopback', 'value': 'loopback'},
          {'display_name': 'Secondary', 'value': 'secondary'},
          {'display_name': 'Anycast', 'value': 'anycast'},
          {'display_name': 'VIP', 'value': 'vip'},
          {'display_name': 'VRRP', 'value': 'vrrp'},
          {'display_name': 'HSRP', 'value': 'hsrp'},
          {'display_name': 'GLBP', 'value': 'glbp'},
          {'display_name': 'CARP', 'value': 'carp'}],
 'status': [{'display_name': 'Active', 'value': 'active'},
            {'display_name': 'Reserved', 'value': 'reserved'},
            {'display_name': 'Deprecated', 'value': 'deprecated'},
            {'display_name': 'DHCP', 'value': 'dhcp'}]}
```

count (**args, **kwargs*)

Returns the count of objects in a query.

Takes named arguments that match the usable filters on a given endpoint. If an argument is passed then it's used as a freeform search argument if the endpoint supports it. If no arguments are passed the count for all objects on an endpoint are returned.

Parameters

- ***args** (*str, optional*) – Freeform search string that's accepted on given endpoint.
- ****kwargs** (*str, optional*) – Any search argument the endpoint accepts can be added as a keyword arg.

Returns Integer with count of objects returns by query.

Examples

To return a count of objects matching a named argument filter.

```
>>> nb.dcim.devices.count(site='tst1')
5827
>>>
```

To return a count of objects on an entire endpoint.

```
>>> nb.dcim.devices.count()
87382
>>>
```

create (*args, **kwargs)

Creates an object on an endpoint.

Allows for the creation of new objects on an endpoint. Named arguments are converted to json properties, and a single object is created. NetBox's bulk creation capabilities can be used by passing a list of dictionaries as the first argument.

Parameters

- ***args** (*list*) – A list of dictionaries containing the properties of the objects to be created.
- ****kwargs** (*str*) – key/value strings representing properties on a json object.

Returns A list or single *Record* object depending on whether a bulk creation was requested.

Examples

Creating an object on the *devices* endpoint you can lookup a *device_role*'s name with:

```
>>> netbox.dcim.devices.create(
...     name='test',
...     device_role=1,
... )
>>>
```

Use bulk creation by passing a list of dictionaries:

```
>>> nb.dcim.devices.create([
...     {
...         "name": "test1-core3",
...         "device_role": 3,
...         "site": 1,
...         "device_type": 1,
...         "status": 1
...     }
... ])
>>>
```

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```

...     },
...     {
...         "name": "test1-core4",
...         "device_role": 3,
...         "site": 1,
...         "device_type": 1,
...         "status": 1
...     }
... ])
```

filter (*args, **kwargs)

Queries the 'ListView' of a given endpoint.

Takes named arguments that match the usable filters on a given endpoint. If an argument is passed then it's used as a freeform search argument if the endpoint supports it.

Parameters

- **args** (*str*, *optional*) – Freeform search string that's accepted on given endpoint.
- **kwargs** (*str*, *optional*) – Any search argument the endpoint accepts can be added as a keyword arg.

Returns A list of *Record* objects.**Examples**

To return a list of objects matching a named argument filter.

```
>>> nb.dcim.devices.filter(role='leaf-switch')
[test1-a3-tor1b, test1-a3-tor1c, test1-a3-tor1d, test1-a3-tor2a]
>>>
```

Using a freeform query along with a named argument.

```
>>> nb.dcim.devices.filter('a3', role='leaf-switch')
[test1-a3-tor1b, test1-a3-tor1c, test1-a3-tor1d, test1-a3-tor2a]
>>>
```

Chaining multiple named arguments.

```
>>> nb.dcim.devices.filter(role='leaf-switch', status=True)
[test1-leaf2]
>>>
```

Passing a list as a named argument adds multiple filters of the same value.

```
>>> nb.dcim.devices.filter(role=['leaf-switch', 'spine-switch'])
[test1-a3-spine1, test1-a3-spine2, test1-a3-leaf1]
>>>
```

get (*args, **kwargs)

Queries the DetailsView of a given endpoint.

Parameters

- **key** (*int*, *optional*) – id for the item to be retrieved.
- **kwargs** (*str*, *optional*) – Accepts the same keyword args as filter(). Any search argument the endpoint accepts can be added as a keyword arg.

Returns A single *Record* object or None

Raises **ValueError** – if kwarg search return more than one value.

Examples

Referencing with a kwarg that only returns one value.

```
>>> nb.dcim.devices.get(name='test1-a3-tor1b')
test1-a3-tor1b
>>>
```

Referencing with an id.

```
>>> nb.dcim.devices.get(1)
test1-edg1
>>>
```

class `pynetbox.core.endpoint.DetailEndpoint` (*parent_obj, name, custom_return=None*)

Enables read/write Operations on detail endpoints.

Endpoints like `available-ips` that are detail routes off traditional endpoints are handled with this class.

create (*data=None*)

The write operation for a detail endpoint.

Creates objects on a detail endpoint in NetBox.

Parameters **data** (*dict/list, optional*) – A dictionary containing the key/value pair of the items you're creating on the parent object. Defaults to empty dict which will create a single item with default values.

Returns A dictionary or list of dictionaries its created in NetBox.

list (***kwargs*)

The view operation for a detail endpoint

Returns the response from NetBox for a detail endpoint.

Args ****kwargs** key/value pairs that get converted into url parameters when passed to the endpoint. E.g. `.list(method='get_facts')` would be converted to `.../?method=get_facts`.

Returns A dictionary or list of dictionaries retrieved from NetBox.

class `pynetbox.core.response.Record` (*values, api, endpoint*)

Create python objects from netbox API responses.

Creates an object from a NetBox response passed as *values*. Nested dicts that represent other endpoints are also turned into Record objects. All fields are then assigned to the object's attributes. If a missing attr is requested (e.g. requesting a field that's only present on a full response on a Record made from a nested response) the pynetbox will make a request for the full object and return the requested value.

Examples

Default representation of the object is usually its name

```
>>> x = nb.dcim.devices.get(1)
>>> x
test1-switch1
>>>
```

Querying a string field.

```
>>> x = nb.dcim.devices.get(1)
>>> x.serial
'ABC123'
>>>
```

Querying a field on a nested object.

```
>>> x = nb.dcim.devices.get(1)
>>> x.device_type.model
'QFX5100-24Q'
>>>
```

Casting the object as a dictionary.

```
>>> from pprint import pprint
>>> pprint(dict(x))
```

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```
{'asset_tag': None,
 'cluster': None,
 'comments': '',
 'config_context': {},
 'created': '2018-04-01',
 'custom_fields': {},
 'device_role': {'id': 1,
                 'name': 'Test Switch',
                 'slug': 'test-switch',
                 'url': 'http://localhost:8000/api/dcim/device-roles/1/'},
 'device_type': {...},
 'display_name': 'test1-switch1',
 'face': {'label': 'Rear', 'value': 1},
 'id': 1,
 'name': 'test1-switch1',
 'parent_device': None,
 'platform': {...},
 'position': 1,
 'primary_ip': {'address': '192.0.2.1/24',
                'family': 4,
                'id': 1,
                'url': 'http://localhost:8000/api/ipam/ip-addresses/1/'},
 'primary_ip4': {...},
 'primary_ip6': None,
 'rack': {'display_name': 'Test Rack',
          'id': 1,
          'name': 'Test Rack',
          'url': 'http://localhost:8000/api/dcim/racks/1/'},
 'serial': 'ABC123',
 'site': {'id': 1,
          'name': 'TEST',
          'slug': 'TEST',
          'url': 'http://localhost:8000/api/dcim/sites/1/'},
 'status': {'label': 'Active', 'value': 1},
 'tags': [],
 'tenant': None,
 'vc_position': None,
 'vc_priority': None,
 'virtual_chassis': None}
>>>
```

Iterating over a Record object.

```
>>> for i in x:
...     print(i)
...
('id', 1)
('name', 'test1-switch1')
('display_name', 'test1-switch1')
>>>
```

delete()

Deletes an existing object.

Returns True if DELETE operation was successful.

Example

```
>>> x = nb.dcim.devices.get(name='test1-a3-tor1b')
>>> x.delete()
True
>>>
```

full_details()

Queries the hyperlinked endpoint if 'url' is defined.

This method will populate the attributes from the detail endpoint when it's called. Sets the class-level *has_details* attribute when it's called to prevent being called more than once.

Returns True

save()

Saves changes to an existing object.

Takes a diff between the objects current state and its state at init and sends them as a dictionary to `Request.patch()`.

Returns True if PATCH request was successful.

Example

```
>>> x = nb.dcim.devices.get(name='test1-a3-tor1b')
>>> x.serial
u''
>>> x.serial = '1234'
>>> x.save()
True
>>>
```

serialize (*nested=False, init=False*)

Serializes an object

Pulls all the attributes in an object and creates a dict that can be turned into the json that netbox is expecting.

If an attribute's value is a `Record` type it's replaced with the `id` field of that object.

Note: Using this to get a dictionary representation of the record is discouraged. It's probably better to cast to `dict()` instead. See `Record` docstring for example.

Returns dict.

update (*data*)

Update an object with a dictionary.

Accepts a dict and uses it to update the record and call `save()`. For nested and choice fields you'd pass an int the same as if you were modifying the attribute and calling `save()`.

Parameters *data* (*dict*) – Dictionary containing the k/v to update the record object with.

Returns True if PATCH request was successful.

Example

```
>>> x = nb.dcim.devices.get(1)
>>> x.update({
...     "name": "test-switch2",
...     "serial": "ABC321",
```

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```
... })  
True
```

class pynetbox.core.query.**RequestError** (*message*)
Basic Request Exception

More detailed exception that returns the original requests object for inspection. Along with some attributes with specific details from the requests object. If return is json we decode and add it to the message.

Example

```
>>> try:
...     nb.dcim.devices.create(name="destined-for-failure")
... except pynetbox.RequestError as e:
...     print(e.error)
```

class pynetbox.core.query.**ContentError** (*message*)
Content Exception

If the API URL does not point to a valid NetBox API, the server may return a valid response code, but the content is not json. This exception is raised in those cases.

class pynetbox.core.query.**AllocationError** (*message*)
Allocation Exception

Used with available-ips/available-prefixes when there is no room for allocation and NetBox returns 204 No Content.

class pynetbox.models.ipam.Prefixes (*values, api, endpoint*)

available_ips

Represents the available-ips detail endpoint.

Returns a DetailEndpoint object that is the interface for viewing and creating IP addresses inside a prefix.

Returns *DetailEndpoint*

Examples

```
>>> prefix = nb.ipam.prefixes.get(24)
>>> prefix.available_ips.list()
[{'vrf': None, 'family': 4, 'address': '10.1.1.49/30'}...]
```

To create a single IP:

```
>>> prefix = nb.ipam.prefixes.get(24)
>>> prefix.available_ips.create()
{'status': 1, 'description': '', 'nat_inside': None...}
```

To create multiple IPs:

```
>>> prefix = nb.ipam.prefixes.get(24)
>>> create = prefix.available_ips.create([{} for i in range(2)])
>>> len(create)
2
```

available_prefixes

Represents the available-prefixes detail endpoint.

Returns a DetailEndpoint object that is the interface for viewing and creating prefixes inside a parent prefix.

Very similar to available_ips(), except that dict (or list of dicts) passed to .create() needs to have a prefix_length key/value specified.

Returns *DetailEndpoint*

Examples

```
>>> prefix.available_prefixes.list()
[{'u'prefix': u'10.1.1.44/30', u'vrf': None, u'family': 4}]
```

Creating a single child prefix:

```
>>> prefix = nb.ipam.prefixes.get(1)
>>> new_prefix = prefix.available_prefixes.create(
...     {'prefix_length': 29}
... )
>>> new_prefix['prefix']
u'10.1.1.56/29'
```


CHAPTER 4

TL;DR

Instantiate the *Api*. Use the methods available on *Endpoint* to return *Record* objects.


```
class pynetbox.core.api.Api (url, token=None, private_key=None, private_key_file=None, threading=False)
```

The API object is the point of entry to pynetbox.

After instantiating the `Api()` with the appropriate named arguments you can specify which app and endpoint you wish to interact with.

Valid attributes currently are:

- `dcim`
- `ipam`
- `circuits`
- `secrets`
- `tenancy`
- `extras`
- `virtualization`

Calling any of these attributes will return `App` which exposes endpoints as attributes.

Additional Attributes:

- **`http_session(requests.Session)`:** Override the default session with your own. This is used to control a number of HTTP behaviors such as SSL verification, custom headers, retries, and timeouts. See [custom sessions](#) for more info.

Parameters

- **`url`** (*str*) – The base URL to the instance of NetBox you wish to connect to.
- **`token`** (*str*) – Your NetBox token.
- **`private_key_file`** (*str, optional*) – The path to your private key file.
- **`private_key`** (*str, optional*) – Your private key.

- **threading** (*bool, optional*) – Set to True to use threading in `.all()` and `.filter()` requests.

Raises

- **ValueError** – If `private_key` and `private_key_file` are both specified.
- **AttributeError** – If app doesn't exist.

Examples

```
>>> import pynetbox
>>> nb = pynetbox.api(
...     'http://localhost:8000',
...     private_key_file='/path/to/private-key.pem',
...     token='d6f4e314a5b5fefed164995169f28ae32d987704f'
... )
>>> nb.dcim.devices.all()
```

`openapi()`

Returns the OpenAPI spec.

Quick helper function to pull down the entire OpenAPI spec.

Returns dict

Example

```
>>> import pynetbox
>>> nb = pynetbox.api(
...     'http://localhost:8000',
...     private_key_file='/path/to/private-key.pem',
...     token='d6f4e314a5b5fefed164995169f28ae32d987704f'
... )
>>> nb.openapi()
{...}
>>>
```

`version`

Gets the API version of NetBox.

Can be used to check the NetBox API version if there are version-dependent features or syntaxes in the API.

Returns Version number as a string.

Example

```
>>> import pynetbox
>>> nb = pynetbox.api(
...     'http://localhost:8000',
...     private_key_file='/path/to/private-key.pem',
...     token='d6f4e314a5b5fefed164995169f28ae32d987704f'
... )
>>> nb.version
'2.6'
>>>
```

class `pynetbox.core.app.App` (*api, name*)

Represents apps in NetBox.

Calls to attributes are returned as `Endpoint` objects.

Returns `Endpoint` matching requested attribute.

Raises `RequestError` if requested endpoint doesn't exist.

choices ()

Returns `_choices` response from App

Note: This method is deprecated and only works with NetBox version 2.7.x or older. The `choices()` method in `Endpoint` is compatible with all NetBox versions.

Returns Raw response from NetBox's `_choices` endpoint.

custom_choices ()

Returns `_custom_field_choices` response from app

Returns Raw response from NetBox's `_custom_field_choices` endpoint.

Raises `RequestError` if called for an invalid endpoint.

Example

```
>>> nb.extras.custom_choices()
{'Testfield1': {'Testvalue2': 2, 'Testvalue1': 1},
 'Testfield2': {'Othervalue2': 4, 'Othervalue1': 3}}
```


CHAPTER 7

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