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# Designate Documentation

*Release 15.0.3.dev1*

**Designate Developers**

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# CONTENTS

<b>1</b>	<b>Contents</b>	<b>3</b>
1.1	Introduction to Designate	3
1.1.1	What is DNS?	3
1.1.2	Introducing Designate	5
1.1.3	Designate Architecture	6
1.1.4	Using Designate	7
1.2	Installing OpenStack DNS as a Service	8
1.2.1	Manual Designate installation	8
	DNS service overview	8
	Install and configure	8
	Verify operation	21
	Create a Zone	22
	Next steps	24
1.2.2	Quickstart with Kolla	24
1.3	Developer documentation	24
1.3.1	Getting Involved	24
	How to install DNS with DevStack	24
	#openstack-dns IRC channel	30
	Contributing	30
	Task Tracking	31
	Reporting a Bug	31
	Development Environment and Developer Workflow	31
	Coding Standards	31
1.3.2	Architecture	34
	High Level Topology	35
	Designate API	35
	Designate Central	35
	Designate MiniDNS	35
	Designate Worker	36
	Designate Producer	36
	Designate Sink	36
	DNS Backend	36
	Message Queue	36
	Database/Storage	37
1.3.3	Guru Meditation Reports	37
	Structure of a GMR	37
	Generate a GMR	37
	Reference	37
	GMR Example	37

1.3.4	Source Code Documentation	46
	API	46
	Backend	48
	Central	58
	MDNS	65
	Objects	65
	Quota	117
	Sink	118
	Storage	118
1.3.5	Development Environment on Ubuntu	131
	Development Environment	131
1.3.6	OpenStack Integrations	136
	Reverse - FloatingIP	136
	Neutron Designate direct integration	137
	Designate Sink	138
1.3.7	Other modules	138
1.4	User guide	138
	1.4.1 Managing Zones	138
	Managing Zones	138
	Zone Import and Export	142
	Zone Ownership Transfers	148
	Secondary Zones	153
	1.4.2 Working with Recordsets	156
	Managing Records	156
	How To Manage PTR Records	160
	Using DNS with Neutron & Nova	172
1.5	Administration guide	177
	1.5.1 Managing Top Level Domain Names	177
	1.5.2 DNS Server Plugin Documentation	178
	Agent Backend	178
	Akamai v2 Backend	179
	Bind9 Backend	180
	Djbdns Agent backend	181
	gdnssd Agent backend	183
	Infoblox Backend	185
	Knot DNS 2 Agent backend	186
	MSDNS Agent Backend	190
	NS1 Backend	191
	PDNS4 Backend	193
	1.5.3 High Availability Guide	194
	designate-api	194
	designate-central	195
	designate-mdns	196
	designate-worker	197
	designate-producer	197
	designate-sink	198
	1.5.4 DNS Server Pools	199
	Overview	199
	Target vs. Nameserver	200
	Managing Pools	200
	1.5.5 Pool Scheduler	202

	Default Provided Filters . . . . .	203
1.5.6	How To Configure Multiple Pools . . . . .	206
	Pools Configuration . . . . .	206
	Pool Scheduler . . . . .	209
1.5.7	Blacklisting Domain Names . . . . .	210
	Managing Blacklists . . . . .	210
	Using the REST API . . . . .	211
	Regular Expressions . . . . .	211
1.5.8	View and Manage Quotas . . . . .	212
	Viewing Quotas . . . . .	212
	Modifying Quotas . . . . .	213
	Resetting Quotas . . . . .	214
	Available Quotas . . . . .	214
	Default Quotas . . . . .	215
	Project ID Verification . . . . .	215
1.5.9	Designate Policies . . . . .	216
	Enabling Keystone Default Roles and Scoped Tokens . . . . .	216
	Oslo Tools For Policy Management . . . . .	218
	Designate Default Policy Overview . . . . .	218
1.5.10	Config Documentation . . . . .	236
	DEFAULT . . . . .	236
	backend:agent:bind9 . . . . .	247
	backend:agent:denominator . . . . .	248
	backend:agent:djbdns . . . . .	249
	backend:agent:gdnsd . . . . .	249
	backend:agent:knot2 . . . . .	250
	backend:agent:msdns . . . . .	250
	backend:dynect . . . . .	250
	backend:infoblox . . . . .	251
	coordination . . . . .	253
	cors . . . . .	254
	database . . . . .	255
	handler:neutron_floatingip . . . . .	258
	handler:nova_fixed . . . . .	259
	healthcheck . . . . .	260
	heartbeat_emitter . . . . .	261
	keystone . . . . .	261
	keystone_authtoken . . . . .	264
	network_api:neutron . . . . .	269
	oslo_concurrency . . . . .	270
	oslo_messaging_amqp . . . . .	271
	oslo_messaging_kafka . . . . .	278
	oslo_messaging_notifications . . . . .	280
	oslo_messaging_rabbit . . . . .	281
	oslo_middleware . . . . .	287
	oslo_policy . . . . .	288
	oslo_reports . . . . .	290
	producer_task:delayed_notify . . . . .	290
	producer_task:periodic_exists . . . . .	291
	producer_task:periodic_secondary_refresh . . . . .	291
	producer_task:worker_periodic_recovery . . . . .	291

producer_task:zone_purge . . . . .	292
proxy . . . . .	292
service:agent . . . . .	293
service:api . . . . .	294
service:central . . . . .	297
service:mdns . . . . .	299
service:producer . . . . .	300
service:sink . . . . .	301
service:worker . . . . .	302
ssl . . . . .	304
storage:sqlalchemy . . . . .	305
1.5.11 Notifications . . . . .	309
Emitters . . . . .	309
Receivers . . . . .	310
Format . . . . .	310
1.5.12 Production Guidelines . . . . .	311
DNS Zone Squatting . . . . .	311
DNS Cache Poisoning . . . . .	312
1.5.13 Upgrades . . . . .	312
Upgrading to Kilo from Juno . . . . .	313
Upgrading to Mitaka from Liberty . . . . .	313
Upgrading to Newton from Mitaka . . . . .	315
Upgrading to Ocata from Newton . . . . .	317
1.5.14 Troubleshooting . . . . .	318
I have a broken zone . . . . .	318
I have a broken pool . . . . .	318
I deleted a zone but its still in the database . . . . .	318
What ports should be open? . . . . .	318
What network protocol are used? . . . . .	319
What needs access to the Database? . . . . .	319
What needs access to RabbitMQ? . . . . .	319
What needs access to ZooKeeper? . . . . .	319
What needs access to Memcached? . . . . .	319
How do I monitor Designate? . . . . .	319
What are useful metrics to monitor? . . . . .	319
What are useful metrics to review first during an incident? . . . . .	320
1.5.15 Sample configuration files . . . . .	320
policy.yaml . . . . .	320
designate.conf . . . . .	338
1.5.16 DNS Server Driver Support Matrix . . . . .	339
1.6 Designate Configuration Guide . . . . .	344
1.7 Command-Line Interface Reference . . . . .	344
1.7.1 Designate Manage CLI . . . . .	344
designate-manage . . . . .	344
designate-manage pool . . . . .	346
designate-manage database . . . . .	346
1.7.2 Designate Status CLI . . . . .	347
designate-status . . . . .	347
designate-status upgrade . . . . .	347
1.8 Designate Reference . . . . .	348
1.8.1 Designate Glossary . . . . .	348







Designate is a multi-tenant DNSaaS service for OpenStack. It provides a REST API with integrated Keystone authentication. It can be configured to auto-generate records based on Nova and Neutron actions. Designate supports a variety of DNS servers including Bind9 and PowerDNS 4.



## CONTENTS

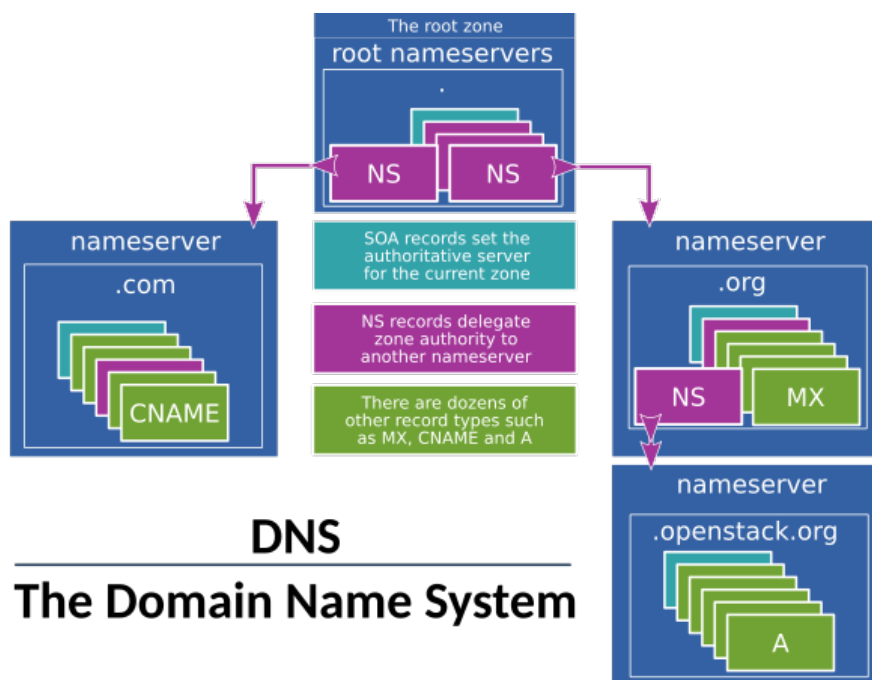
### 1.1 Introduction to Designate

Designate is an Open Source DNS-as-a-Service implementation and a part of the OpenStack ecosystem of services for running clouds. In order to understand what Designate can do and how it works, its necessary to understand some of the basics of DNS.

#### 1.1.1 What is DNS?

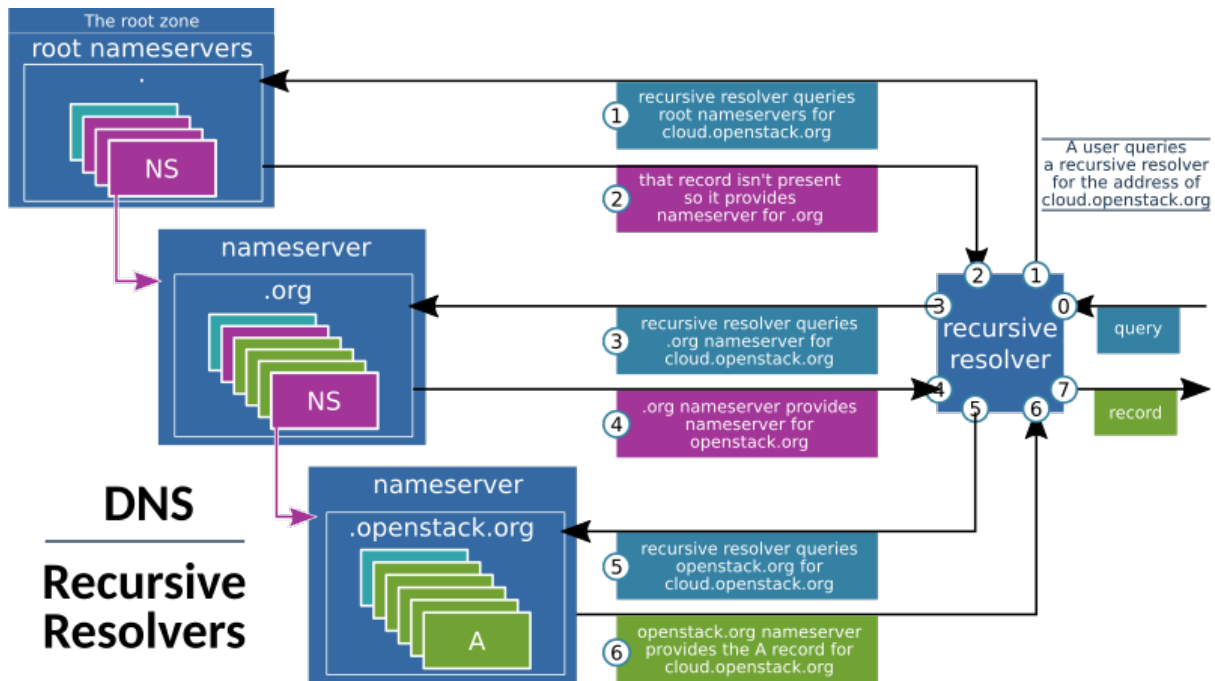
The Domain Name System (DNS) is a system for naming resources connected to a network, and works by storing various types of *record*, such as an IP address associated with a domain name. In practice, this is implemented by *authoritative name servers* which contain these records and *resolvers* which query name servers for records. Names are divided up into a hierarchy of zones, allowing different name servers to be responsible for separate groups of zones by delegating responsibility using records.

The root zone, which is simply `.`, is comprised entirely of records delegating various top level domains (TLDs) to other nameservers. The TLD name servers will contain records for domains within their TLD, such as the `.com` nameserver having an `example.com` record, as well as records that delegate zones to other nameservers, for example `openstack.org` might have their own nameserver so that they can then create `cloud.openstack.org`.



*Resolvers* are often formed in two parts: a *stub* resolver which is often merely a library on a users computer, and a *recursive resolver* that will perform queries against nameservers before returning the result to the user. When searching for a domain, the resolver will start at the end of the domain and work its way back to the beginning.

For example in the diagram below, when searching for cloud.openstack.org, it will start with the root nameserver ., which will reply with the location of the .org nameserver. The resolver can then contact the .org nameserver to get the openstack.org nameserver and from there finally get the cloud.openstack.org record and return it to the user.



In order to make this more efficient, the results are cached on the resolver, so after the first user has requested `cloud.openstack.org`, the resolver can return the cached result for subsequent requests.

**Further reading on DNS and how it works is available here:**

- [https://en.wikipedia.org/wiki/Domain\\_Name\\_System](https://en.wikipedia.org/wiki/Domain_Name_System)

**While the system itself is defined via RFCs such as this:**

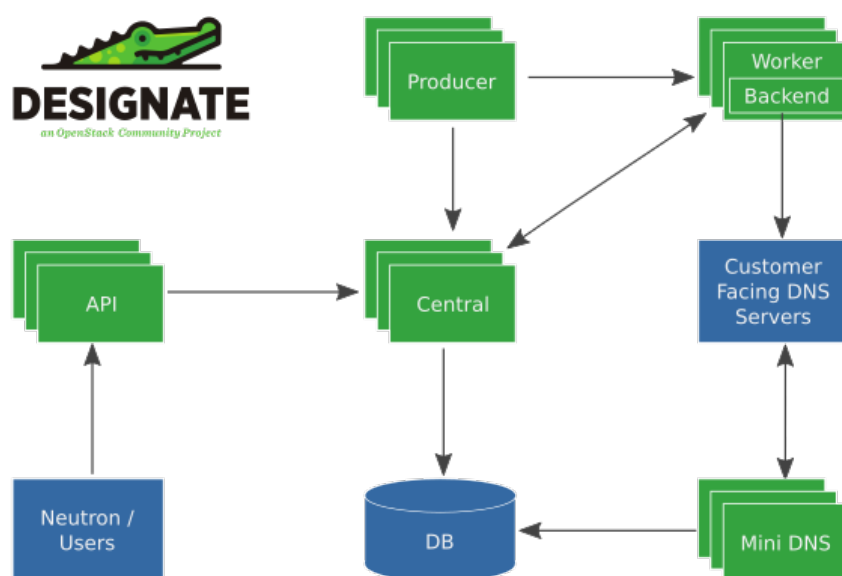
- <https://tools.ietf.org/html/rfc1034>

### 1.1.2 Introducing Designate

Designate is an OpenStack service that allows users and operators to manage DNS records, names and zones via a REST API and can configure existing DNS name servers to contain those records. Designate can also be configured by an operator to integrate with both the OpenStack Network Service (Neutron) and the Compute Service (Nova) so that records are automatically created when floating IPs and compute instances are created respectively, and uses the OpenStack Identity Service (Keystone) for user management. Since there are a multitude of software implementations of the DNS name server, Designate has a pluggable backend that can be configured to manage many of them, most notably BIND9 and PowerDNS.

### 1.1.3 Designate Architecture

Designate is comprised of several different services: the API, Producer, Central, Worker and Mini DNS. It uses an oslo.db compatible database to store state and data, and an oslo.messaging compatible message queue to facilitate communication between services. Multiple copies of all Designate services can be run in tandem to facilitate high availability deployments, with the API process often sitting behind load balancers.



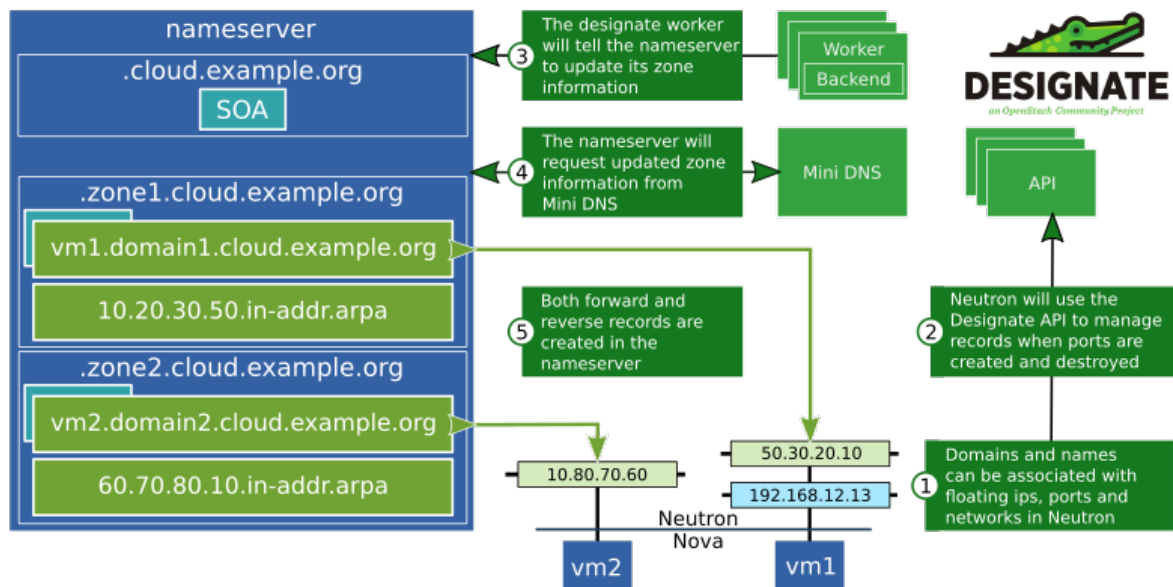
Neutron and other users of Designate only need to be able to access the API server, while administrators should ensure the DNS Nameservers to be configured are able to access Mini DNS from which to request updates.

Below we can see a common deployment scenario:

A user has created two zones in Designate: *zone1.cloud.openstack.org* and *zone2.cloud.openstack.org*. This will result in two new zones being created on the Designate-managed nameserver with SOA records.

The user then created two networks in Neutron: one private network with *zone1.cloud.openstack.org* assigned to it, and one public network with *zone2.cloud.openstack.org*.

They have then created virtual machine *vm1* in Nova, connected to the private network in Neutron and attached to a floating IP, and the virtual machine *vm2* attached directly to the public network. Each of these actions triggers a chain of events that will cause Neutron to request Designate create records on behalf of the user, with the end result being that records are created in the authoritative nameserver mapping the vm names to domains along with PTR records to allow reverse lookups.



More information about configuring Neutron to work with Designate can be found in the Neutron documentation at <https://docs.openstack.org/neutron/latest/admin/config-dns-int-ext-serv.html>

### 1.1.4 Using Designate

Designate provides a REST API and that is commonly used by one of three methods. The most common is to use the OpenStack client, a python command-line tool with commands for interacting with OpenStack services. The documentation for the OpenStack client is available at <https://docs.openstack.org/python-openstackclient/>. The *designate plugin* <https://docs.openstack.org/python-designateclient/latest/> for the OpenStack client needs to be installed as well:

```
pip install python-openstackclient
pip install python-designateclient
```

Another popular way to use Designate is via the OpenStack Dashboard, Horizon. Administrators will need to add the *Designate Horizon plugin* <https://opendev.org/openstack/designate-dashboard> to the dashboard in order to enable Designate features.

Finally, for python developers the aforementioned Designate plugin for the OpenStack client which can be used as a python library. Other languages may have bindings available from one of the third party *SDKs* <https://wiki.openstack.org/wiki/SDKs> for OpenStack.

## 1.2 Installing OpenStack DNS as a Service

### 1.2.1 Manual Designate installation

This chapter assumes a working setup of OpenStack following the [OpenStack Installation Tutorial](#).

#### DNS service overview

The DNS service provides DNS Zone and RecordSet management for OpenStack clouds. The DNS Service includes a REST API, a command-line client, and a Horizon Dashboard plugin.

The DNS service consists of the following components:

**openstack command-line client plugin** A plugin for the OpenStack Client CLI that communicates with the REST API

**designate-api component** An OpenStack-native REST API that processes API requests by sending them to the `designate-central` over Remote Procedure Call (RPC).

**designate-central component** Orchestrates the creation, deletion and update of Zones and RecordSets.

**designate-producer component** Orchestrates periodic tasks that are run by `designate`.

**designate-worker component** Is a generic task runner, that runs both zone create / update and deletes, and periodic tasks, from `designate-producer`

**designate-mdns component** A small DNS Server that is responsible for pushing DNS Zone information to the customer facing DNS Servers. Can also pull in DNS information about DNS Zones hosted outside of the Designate infrastructure

**designate-agent component** A small python daemon that can be used for a limited sub set of DNS Servers Some DNS Servers require commands be run locally, and to do this we use this component.

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**Note:** The majority of the DNS service installs will not need this component.

---

**Customer Facing DNS Servers** Serves DNS requests to end users. They are orchestrated by the `designate-worker`, and the supported list is maintained [here](#).

#### Install and configure

This section describes how to install and configure the DNS service, code-named `designate`, on the controller node.

This section assumes that you already have a working OpenStack environment with at least the Identity service installed.

Note that installation and configuration vary by distribution.



## Install and configure for openSUSE and SUSE Linux Enterprise

This section describes how to install and configure the DNS service for openSUSE Leap 42.2 and SUSE Linux Enterprise Server 12 SP2.

### Prerequisites

Before you install and configure the DNS service, you must create service credentials and API endpoints.

1. Source the admin credentials to gain access to admin-only CLI commands:

```
$ source admin-openrc
```

2. To create the service credentials, complete these steps:

- Create the designate user:

```
$ openstack user create --domain default --password-prompt designate
```

- Add the admin role to the designate user:

```
$ openstack role add --project service --user designate admin
```

- Create the designate service entities:

```
$ openstack service create --name designate --description "DNS" dns
```

3. Create the DNS service API endpoint:

```
$ openstack endpoint create --region RegionOne \
  dns public http://controller:9001/
```

### Install and configure components

**Note:** Default configuration files vary by distribution. You might need to add these sections and options rather than modifying existing sections and options. Also, an ellipsis (...) in the configuration snippets indicates potential default configuration options that you should retain.

1. Install the packages:

```
# zypper install openstack-designate\*
```

2. Create a designate database that is accessible by the designate user. Replace DESIGNATE\_DBPASS with a suitable password:

```
# mysql
MariaDB [(none)]> CREATE DATABASE designate CHARACTER SET utf8 COLLATE_
↪utf8_general_ci;
MariaDB [(none)]> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@
↪'localhost' \
```

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```
IDENTIFIED BY 'DESIGNATE_DBPASS';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@'%' \
IDENTIFIED BY 'DESIGNATE_DBPASS';
```

3. Install the BIND packages:

```
# zypper install bind bind-utils
```

4. Create an RNDC Key:

```
# rndc-confgen -a -k designate -c /etc/designate/rndc.key -r /dev/urandom
```

5. Add the following options in the /etc/named.conf file:

```
...
include "/etc/designate/rndc.key";

options {
    ...
    allow-new-zones yes;
    request-ixfr no;
    listen-on port 53 { 127.0.0.1; };
    recursion no;
    allow-query { 127.0.0.1; };
};

controls {
    inet 127.0.0.1 port 953
        allow { 127.0.0.1; } keys { "designate"; };
};
```

6. Start the DNS service and configure it to start when the system boots:

```
# systemctl enable named

# systemctl start named
```

7. Edit the /etc/designate/designate.conf file and complete the following actions:

- In the [service:api] section, configure auth\_strategy:

```
[service:api]
listen = 0.0.0.0:9001
auth_strategy = keystone
enable_api_v2 = True
enable_api_admin = True
enable_host_header = True
enabled_extensions_admin = quotas, reports
```

- In the [keystone\_authtoken] section, configure the following options:

```
[keystone_authtoken]
auth_type = password
username = designate
password = DESIGNATE_PASS
project_name = service
project_domain_name = Default
user_domain_name = Default
www_authenticate_uri = http://controller:5000/
auth_url = http://controller:5000/
memcached_servers = controller:11211
```

Replace DESIGNATE\_PASS with the password you chose for the designate user in the Identity service.

- In the [DEFAULT] section, configure RabbitMQ message queue access:

```
[DEFAULT]
# ...
transport_url = rabbit://openstack:RABBIT_PASS@controller:5672/
```

Replace RABBIT\_PASS with the password you chose for the openstack account in RabbitMQ.

- In the [storage:sqlalchemy] section, configure database access:

```
[storage:sqlalchemy]
connection = mysql+pymysql://designate:DESIGNATE_DBPASS@controller/
↳ designate
```

Replace DESIGNATE\_DBPASS with the password you chose for the designate database.

- Populate the designate database

```
# su -s /bin/sh -c "designate-manage database sync" designate
```

8. Start the designate central and API services and configure them to start when the system boots:

```
# systemctl start openstack-designate-central openstack-designate-api
# systemctl enable openstack-designate-central openstack-designate-api
```

9. Create a pools.yaml file in /etc/designate/pools.yaml with the following contents:

```
- name: default
  # The name is immutable. There will be no option to change the name.
  ↳ after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default Pool

  attributes: {}

  # List out the NS records for zones hosted within this pool
```

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```

# This should be a record that is created outside of designate, that
# points to the public IP of the controller node.
ns_records:
  - hostname: ns1-1.example.org.
    priority: 1

# List out the nameservers for this pool. These are the actual BIND
↪servers.
# We use these to verify changes have propagated to all nameservers.
nameservers:
  - host: 127.0.0.1
    port: 53

# List out the targets for this pool. For BIND there will be one
# entry for each BIND server, as we have to run rndc command on each
↪server
targets:
  - type: bind9
    description: BIND9 Server 1

# List out the designate-mdns servers from which BIND servers
↪should
# request zone transfers (AXFRs) from.
# This should be the IP of the controller node.
# If you have multiple controllers you can add multiple masters
# by running designate-mdns on them, and adding them here.
masters:
  - host: 127.0.0.1
    port: 5354

# BIND Configuration options
options:
  host: 127.0.0.1
  port: 53
  rndc_host: 127.0.0.1
  rndc_port: 953
  rndc_key_file: /etc/designate/rndc.key

```

10. Update the pools:

```
# su -s /bin/sh -c "designate-manage pool update" designate
```

11. Start the designate and mDNS services and configure them to start when the system boots:

```
# systemctl start openstack-designate-worker openstack-designate-producer
↪openstack-designate-mdns

# systemctl enable openstack-designate-worker openstack-designate-
↪producer openstack-designate-mdns

```

## Install and configure for Red Hat Enterprise Linux and CentOS

This section describes how to install and configure the DNS service for Red Hat Enterprise Linux 7 and CentOS 7.

### Prerequisites

Before you install and configure the DNS service, you must create service credentials and API endpoints.

1. Source the admin credentials to gain access to admin-only CLI commands:

```
$ source admin-openrc
```

2. To create the service credentials, complete these steps:

- Create the designate user:

```
$ openstack user create --domain default --password-prompt designate
```

- Add the admin role to the designate user:

```
$ openstack role add --project service --user designate admin
```

- Create the designate service entities:

```
$ openstack service create --name designate --description "DNS" dns
```

3. Create the DNS service API endpoint:

```
$ openstack endpoint create --region RegionOne \
  dns public http://controller:9001/
```

### Install and configure components

**Note:** Default configuration files vary by distribution. You might need to add these sections and options rather than modifying existing sections and options. Also, an ellipsis (...) in the configuration snippets indicates potential default configuration options that you should retain.

1. Install the packages:

```
# yum install openstack-designate\*
```

2. Create a designate database that is accessible by the designate user. Replace DESIGNATE\_DBPASS with a suitable password:

```
# mysql
MariaDB [(none)]> CREATE DATABASE designate CHARACTER SET utf8 COLLATE_
↪utf8_general_ci;
MariaDB [(none)]> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@
↪'localhost' \
```

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```
IDENTIFIED BY 'DESIGNATE_DBPASS';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@'%' \
IDENTIFIED BY 'DESIGNATE_DBPASS';
```

3. Install the BIND packages:

```
# yum install bind bind-utils
```

4. Create an RNDK Key:

```
# rndc-confgen -a -k designate -c /etc/designate/rndc.key -r /dev/urandom
```

5. Add the following options in the /etc/named.conf file:

```
...
include "/etc/designate/rndc.key";

options {
    ...
    allow-new-zones yes;
    request-ixfr no;
    listen-on port 53 { 127.0.0.1; };
    recursion no;
    allow-query { 127.0.0.1; };
};

controls {
    inet 127.0.0.1 port 953
        allow { 127.0.0.1; } keys { "designate"; };
};
```

6. Start the DNS service and configure it to start when the system boots:

```
# systemctl enable named

# systemctl start named
```

7. Edit the /etc/designate/designate.conf file and complete the following actions:

- In the [service:api] section, configure auth\_strategy:

```
[service:api]
listen = 0.0.0.0:9001
auth_strategy = keystone
enable_api_v2 = True
enable_api_admin = True
enable_host_header = True
enabled_extensions_admin = quotas, reports
```

- In the [keystone\_authtoken] section, configure the following options:

```
[keystone_authtoken]
auth_type = password
username = designate
password = DESIGNATE_PASS
project_name = service
project_domain_name = Default
user_domain_name = Default
www_authenticate_uri = http://controller:5000/
auth_url = http://controller:5000/
memcached_servers = controller:11211
```

Replace DESIGNATE\_PASS with the password you chose for the designate user in the Identity service.

- In the [DEFAULT] section, configure RabbitMQ message queue access:

```
[DEFAULT]
# ...
transport_url = rabbit://openstack:RABBIT_PASS@controller:5672/
```

Replace RABBIT\_PASS with the password you chose for the openstack account in RabbitMQ.

- In the [storage:sqlalchemy] section, configure database access:

```
[storage:sqlalchemy]
connection = mysql+pymysql://designate:DESIGNATE_DBPASS@controller/
↳ designate
```

Replace DESIGNATE\_DBPASS with the password you chose for the designate database.

- Populate the designate database

```
# su -s /bin/sh -c "designate-manage database sync" designate
```

8. Start the designate central and API services and configure them to start when the system boots:

```
# systemctl start designate-central designate-api
# systemctl enable designate-central designate-api
```

9. Create a pools.yaml file in /etc/designate/pools.yaml with the following contents:

```
- name: default
  # The name is immutable. There will be no option to change the name.
  ↳ after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default Pool

  attributes: {}

  # List out the NS records for zones hosted within this pool
```

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```

# This should be a record that is created outside of designate, that
# points to the public IP of the controller node.
ns_records:
  - hostname: ns1-1.example.org.
    priority: 1

# List out the nameservers for this pool. These are the actual BIND
↪servers.
# We use these to verify changes have propagated to all nameservers.
nameservers:
  - host: 127.0.0.1
    port: 53

# List out the targets for this pool. For BIND there will be one
# entry for each BIND server, as we have to run rndc command on each
↪server
targets:
  - type: bind9
    description: BIND9 Server 1

# List out the designate-mdns servers from which BIND servers
↪should
# request zone transfers (AXFRs) from.
# This should be the IP of the controller node.
# If you have multiple controllers you can add multiple masters
# by running designate-mdns on them, and adding them here.
masters:
  - host: 127.0.0.1
    port: 5354

# BIND Configuration options
options:
  host: 127.0.0.1
  port: 53
  rndc_host: 127.0.0.1
  rndc_port: 953
  rndc_key_file: /etc/designate/rndc.key

```

## 10. Update the pools:

```
# su -s /bin/sh -c "designate-manage pool update" designate
```

## 11. Start the designate and mDNS services and configure them to start when the system boots:

```
# systemctl start designate-worker designate-producer designate-mdns
# systemctl enable designate-worker designate-producer designate-mdns
```



## Install and configure for Ubuntu

This section describes how to install and configure the DNS service for Ubuntu 16.04 (LTS).

### Prerequisites

Before you install and configure the DNS service, you must create service credentials and API endpoints.

1. Source the `admin` credentials to gain access to admin-only CLI commands:

```
$ source admin-openrc
```

2. To create the service credentials, complete these steps:

- Create the `designate` user:

```
$ openstack user create --domain default --password-prompt designate
```

- Add the `admin` role to the `designate` user:

```
$ openstack role add --project service --user designate admin
```

- Create the `designate` service entities:

```
$ openstack service create --name designate --description "DNS" dns
```

3. Create the DNS service API endpoint:

```
$ openstack endpoint create --region RegionOne \
  dns public http://controller:9001/
```

## Install and configure components

---

**Note:** Default configuration files vary by distribution. You might need to add these sections and options rather than modifying existing sections and options. Also, an ellipsis (...) in the configuration snippets indicates potential default configuration options that you should retain.

---

1. Install the packages:

```
# apt-get install designate
```

2. Create a `designate` database that is accessible by the `designate` user. Replace `DESIGNATE_DBPASS` with a suitable password:

```
# mysql
mysql> CREATE DATABASE designate CHARACTER SET utf8 COLLATE utf8_general_
↵ci;
mysql> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@'localhost' \
IDENTIFIED BY 'DESIGNATE_DBPASS';
```

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```
mysql> GRANT ALL PRIVILEGES ON designate.* TO 'designate'@'%' \
IDENTIFIED BY 'DESIGNATE_DBPASS';
```

3. Install the BIND9 packages:

```
# apt-get install bind9 bind9utils bind9-doc
```

4. Create an RNDC Key:

```
# rndc-confgen -a -k designate -c /etc/designate/rndc.key -r /dev/urandom
```

5. Add the following options in the `/etc/bind/named.conf.options` file:

```
...
include "/etc/designate/rndc.key";

options {
    ...
    allow-new-zones yes;
    request-ixfr no;
    listen-on port 53 { 127.0.0.1; };
    recursion no;
    allow-query { 127.0.0.1; };
};

controls {
    inet 127.0.0.1 port 953
        allow { 127.0.0.1; } keys { "designate"; };
};
```

6. Restart the DNS service:

```
# systemctl restart bind9.service
```

7. Edit the `/etc/designate/designate.conf` file and complete the following actions:

- In the `[service:api]` section, configure `auth_strategy`:

```
[service:api]
listen = 0.0.0.0:9001
auth_strategy = keystone
enable_api_v2 = True
enable_api_admin = True
enable_host_header = True
enabled_extensions_admin = quotas, reports
```

- In the `[keystone_authtoken]` section, configure the following options:

```
[keystone_authtoken]
auth_type = password
username = designate
```

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```
password = DESIGNATE_PASS
project_name = service
project_domain_name = Default
user_domain_name = Default
www_authenticate_uri = http://controller:5000/
auth_url = http://controller:5000/
memcached_servers = controller:11211
```

Replace DESIGNATE\_PASS with the password you chose for the designate user in the Identity service.

- In the [DEFAULT] section, configure RabbitMQ message queue access:

```
[DEFAULT]
# ...
transport_url = rabbit://openstack:RABBIT_PASS@controller:5672/
```

Replace RABBIT\_PASS with the password you chose for the openstack account in RabbitMQ.

- In the [storage:sqlalchemy] section, configure database access:

```
[storage:sqlalchemy]
connection = mysql+pymysql://designate:DESIGNATE_DBPASS@controller/
↳designate
```

Replace DESIGNATE\_DBPASS with the password you chose for the designate database.

- Populate the designate database

```
# su -s /bin/sh -c "designate-manage database sync" designate
```

8. Start the designate central and API services and configure them to start when the system boots:

```
# systemctl start designate-central designate-api
# systemctl enable designate-central designate-api
```

9. Create a pools.yaml file in /etc/designate/pools.yaml with the following contents:

```
- name: default
  # The name is immutable. There will be no option to change the name.
  ↳after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default Pool

  attributes: {}

  # List out the NS records for zones hosted within this pool
  # This should be a record that is created outside of designate, that
  # points to the public IP of the controller node.
```

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```

ns_records:
  - hostname: ns1-1.example.org.
    priority: 1

# List out the nameservers for this pool. These are the actual BIND
↪servers.
# We use these to verify changes have propagated to all nameservers.
nameservers:
  - host: 127.0.0.1
    port: 53

# List out the targets for this pool. For BIND there will be one
# entry for each BIND server, as we have to run rndc command on each
↪server
targets:
  - type: bind9
    description: BIND9 Server 1

# List out the designate-mdns servers from which BIND servers
↪should
# request zone transfers (AXFRs) from.
# This should be the IP of the controller node.
# If you have multiple controllers you can add multiple masters
# by running designate-mdns on them, and adding them here.
masters:
  - host: 127.0.0.1
    port: 5354

# BIND Configuration options
options:
  host: 127.0.0.1
  port: 53
  rndc_host: 127.0.0.1
  rndc_port: 953
  rndc_key_file: /etc/designate/rndc.key

```

10. Update the pools:

```
# su -s /bin/sh -c "designate-manage pool update" designate
```

11. Install Designate Worker, producer and mini-dns

```
# apt install designate-worker designate-producer designate-mdns
```

12. Start the designate and mDNS services and configure them to start when the system boots:

```
# systemctl start designate-worker designate-producer designate-mdns
# systemctl enable designate-worker designate-producer designate-mdns
```

## Verify operation

Verify operation of the DNS service.

---

**Note:** Perform these commands on the controller node.

---

1. Source the admin tenant credentials:

```
$ . admin-openrc
```

2. List service components to verify successful launch and registration of each process:

```
$ ps -aux | grep designate
./usr/bin/python /usr/bin/designate-mdns --config-file /etc/designate/
↪ designate.conf
./usr/bin/python /usr/bin/designate-central --config-file /etc/designate/
↪ designate.conf
./usr/bin/python /usr/bin/designate-agent --config-file /etc/designate/
↪ designate.conf
./usr/bin/python /usr/bin/designate-api --config-file /etc/designate/
↪ designate.conf
./usr/bin/python /usr/bin/designate-worker --config-file /etc/designate/
↪ designate.conf
./usr/bin/python /usr/bin/designate-producer --config-file /etc/
↪ designate/designate.conf

$ openstack dns service list
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
↪-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | hostname |
↪-----+-----+-----+-----+-----+-----+-----+-----+-----+
↪service_name | status | stats | capabilities |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
↪-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 918a8f6e-9e7e-453e-8583-cbafa7ae7f8f | vagrant-ubuntu-trusty-64 |
↪central | UP | - | - |
| 982f78d5-525a-4c36-af26-a09aa39de5d7 | vagrant-ubuntu-trusty-64 | api |
↪ | UP | - | - |
| eda2dc16-ad27-4ee1-b091-bb75b6ceaaffe | vagrant-ubuntu-trusty-64 | mdns |
↪ | UP | - | - |
| 00c5c372-e630-49b1-a6b6-17e3fa4544ea | vagrant-ubuntu-trusty-64 |
↪worker | UP | - | - |
| 8cdaf2e9-accd-4665-8e9e-be26f1ccfe4a | vagrant-ubuntu-trusty-64 |
↪producer | UP | - | - |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
↪-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

---

**Note:** This output should indicate at least one of each of the `central`, `api`, `producer`, `mdns` and `worker` components on the controller node.

This output may differ slightly depending on the distribution.

---

### Create a Zone

In environments that include the DNS service, you can create a DNS Zone.

1. Source the demo credentials to perform the following steps as a non-administrative project:

```
$ . demo-openrc
```

2. Create a DNS Zone called `example.com.`:

```
$ openstack zone create --email dnsmaster@example.com example.com.
+-----+-----+
| Field          | Value                                |
+-----+-----+
| action         | CREATE                               |
| attributes     | {}                                   |
| created_at    | 2016-07-13T14:54:16.000000         |
| description    | None                                 |
| email         | dnsmaster@example.com              |
| id            | 14093115-0f0f-497a-ac69-42235e46c26f |
| masters       |                                       |
| name          | example.com.                        |
| pool_id       | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id    | 656bc359067844fba6005d400f19df76   |
| serial        | 1468421656                          |
| status        | PENDING                             |
| transferred_at | None                                 |
| ttl           | 3600                                 |
| type          | PRIMARY                             |
| updated_at    | None                                 |
| version       | 1                                    |
+-----+-----+
```

3. After a short time, verify successful creation of the DNS Zone:

```
$ openstack zone list
+-----+-----+-----+-----+-----+-----+
↪ | id | name | type |
↪ | serial | status | action |
+-----+-----+-----+-----+-----+-----+
↪ | 14093115-0f0f-497a-ac69-42235e46c26f | example.com. | PRIMARY |
↪ | 1468421656 | ACTIVE | NONE |
+-----+-----+-----+-----+-----+-----+
↪
```

4. You can now create RecordSets in this DNS Zone:

```
$ openstack recordset create --record '10.0.0.1' --type A example.com. www
+-----+-----+
| Field      | Value                                |
+-----+-----+
| action     | CREATE                               |
| created_at | 2016-07-13T14:59:32.000000          |
| description | None                                 |
| id         | 07e6f5af-783e-481f-b8df-5972a6174c94 |
| name       | www.example.com.                   |
| project_id | 656bc359067844fba6005d400f19df76    |
| records    | 10.0.0.1                            |
| status     | PENDING                             |
| ttl        | None                                 |
| type       | A                                    |
| updated_at | None                                 |
| version    | 1                                    |
| zone_id    | 14093115-0f0f-497a-ac69-42235e46c26f |
| zone_name  | example.com.                        |
+-----+-----+
```

#### 5. Delete the DNS Zone:

```
$ openstack zone delete example.com.
+-----+-----+
| Field      | Value                                |
+-----+-----+
| action     | DELETE                               |
| attributes |                                       |
| created_at | 2017-07-12T03:26:25.000000          |
| description | None                                 |
| email      | dnsmaster@example.com              |
| id         | 4a21a893-2c58-4797-82ed-19fcef7c418d |
| masters    |                                       |
| name       | example.com.                        |
| pool_id    | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id | d53f80b5a22b4962a176935eea23f9c4    |
| serial     | 1499830029                          |
| status     | PENDING                             |
| transferred_at | None                                 |
| ttl        | 3600                                 |
| type       | PRIMARY                             |
| updated_at | 2017-07-12T03:27:25.000000          |
| version    | 4                                    |
+-----+-----+
```

### Next steps

Your OpenStack environment now includes the designate service.

To add additional services, see the [OpenStack install guide](#).

To learn more about the designate service, read the *Designate developer documentation*.

### 1.2.2 Quickstart with Kolla

Following the [Designate in Kolla](#) to quickly install and setup Designate.

## 1.3 Developer documentation

In this section, you will find documentation relevant to developing Designate.

Contents:

### 1.3.1 Getting Involved

#### How to install DNS with DevStack

The Designate source code contains a DevStack plugin that allows to deploy an OpenStack installation with the DNS service enabled.

#### Instructions

---

**Note:** If you want to use local sources for development then you should consider using the `contrib/vagrant` folder in the [repository](#).

---

1. Get a clean Ubuntu 20.04 VM (see the [DevStack installation instructions](#) for more details). DevStack takes over. Dont use your desktop!
2. Clone DevStack inside the VM

```
$ git clone https://opendev.org/openstack/devstack.git
```

3. Move to devstack directory

```
$ cd devstack
```

4. Create a `local.conf` config file

```
[[local|localrc]]
# General DevStack Config
# =====
ADMIN_PASSWORD=password
MYSQL_PASSWORD=password
```

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```

RABBIT_PASSWORD=password
SERVICE_PASSWORD=password
SERVICE_TOKEN=password

# IP Address for services to bind to (Should match IP from Vagrantfile)
SERVICE_HOST=192.168.27.100
HOST_IP=$SERVICE_HOST

# Logging
#LOGFILE=/opt/stack/logs/stack.sh.log
VERBOSE=True
LOG_COLOR=True

# Test a Gerrit Review
# DESIGNATE_REPO=https://review.openstack.org/openstack/designate
# DESIGNATE_BRANCH=refs/changes/41/765541/1

# Test a particular branch
# DESIGNATE_REPO=https://opendev.org/openstack/designate.git
# DESIGNATE_BRANCH=stable/stein

# Disable all services except core ones
disable_all_services
enable_service rabbit mysql key

# Enable designate
enable_plugin designate https://opendev.org/openstack/designate

# Designate Devstack Config
# =====
# Enable core Designate services
enable_service designate,designate-central,designate-api,designate-worker,
↵ designate-producer,designate-mdns

# Optional Designate services
#enable_service designate-agent
#enable_service designate-sink

# Backend Driver (e.g. powerdns, bind9. See designate.backend section of
#                               setup.cfg)
#DESIGNATE_BACKEND_DRIVER=bind9

# Agent Backend Driver (Used only when DESIGNATE_BACKEND_DRIVER=agent)
#DESIGNATE_AGENT_BACKEND_DRIVER=fake

# Pool Manager Cache Driver (e.g. noop, memcache, sqlalchemy. See
#                               designate.backend section of setup.cfg)
#DESIGNATE_POOL_MANAGER_CACHE_DRIVER=memcache

```

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```

# mDNS Service DNS Port Number
#DESIGNATE_SERVICE_PORT_MDNS=5354

# Designate Backend Config
# =====
# DynECT Backend
# NOTES:
# - DynECT requires DESIGNATE_SERVICE_PORT_MDNS is set to "53"
# - DESIGNATE_DYNECT_MASTERS must be a Publicly reachable IP, pointed to
↳mDNS
#DESIGNATE_DYNECT_CUSTOMER=
#DESIGNATE_DYNECT_USERNAME=
#DESIGNATE_DYNECT_PASSWORD=
#DESIGNATE_DYNECT_NAMESERVERS=ns1.p13.dynect.net,ns2.p13.dynect.net,ns3.
↳p13.dynect.net,ns4.p13.dynect.net
#DESIGNATE_DYNECT_MASTERS=

# Akamai Backend
#DESIGNATE_AKAMAI_USERNAME=
#DESIGNATE_AKAMAI_PASSWORD=
#DESIGNATE_AKAMAI_NAMESERVERS=a5-64.akam.net,a11-65.akam.net,a13-66.akam.
↳net,a14-64.akam.net,a20-65.akam.net,a22-66.akam.net
#DESIGNATE_AKAMAI_MASTERS=

# Designate D2D Backend
# NOTES:
# - DESIGNATE_D2D_ALSO_NOTIFIES needs to be set to the source mdns.
↳ip:port in
# order for designate to receive the proper NOTIFY
# - DESIGNATE_D2D_* credentials should be setup either to the source.
↳keystone
# or the destination
#DESIGNATE_D2D_MASTERS=
#DESIGNATE_D2D_ALSO_NOTIFIES=
#DESIGNATE_D2D_NAMESERVERS=

# Authentication options
#DESIGNATE_D2D_KS_VERSION=3

#DESIGNATE_D2D_AUTH_URL=
#DESIGNATE_D2D_USERNAME=
#DESIGNATE_D2D_PASSWORD=

# Keystone V2
#DESIGNATE_D2D_TENANT_NAME=${DESIGNATE_D2D_TENANT_NAME:-}
#DESIGNATE_D2D_TENANT_NAME=${DESIGNATE_D2D_TENANT_ID:-}

# Keystone V3
#DESIGNATE_D2D_PROJECT_NAME=

```

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```
#DESIGNATE_D2D_PROJECT_DOMAIN_NAME=  
#DESIGNATE_D2D_USER_DOMAIN_NAME=  
  
# Designate Misc Config  
# =====  
  
# Enable a Notification Driver (e.g. for Ceilometer)  
#DESIGNATE_NOTIFICATION_DRIVER=messaging  
  
# Set Notification topics  
#DESIGNATE_NOTIFICATION_TOPICS=notifications  
  
# Set coordination service URL (e.g. kazoo://localhost/)  
#DESIGNATE_COORDINATION_URL=  
  
# Other Devstack Config  
# =====  
# Optional TLS Proxy  
#enable_service tls-proxy  
  
# Optional Tempest (Recommended)  
enable_service tempest  
  
# Optional Rally  
#enable_plugin rally https://opendev.org/openstack/rally.git master  
  
# Optional Horizon  
#enable_service horizon  
  
# Optional Glance  
#enable_service g-api,g-reg  
  
# Optional Nova  
#enable_service n-api n-cpu n-net n-cond n-sch n-novnc  
  
# Optional Neutron  
#disable_service n-net  
#enable_service q-svc q-agt q-dhcp q-l3 q-meta
```

#### 5. Run DevStack

```
$ ./stack.sh
```

#### 6. See the status of all Designate processes

```
$ sudo systemctl status devstack@designate-*.service
```

See the [Using Systemd in DevStack](#) home page for more options.

7. Querying Logs

```
$ sudo journalctl -f --unit devstack@designate-*.service
```

See the [Querying Logs](#) home page for more options.

8. Load credentials into the shell

```
$ export OS_CLOUD=devstack-admin # For the admin user, admin project
$ export OS_CLOUD=devstack      # For the demo user, demo project
```

9. Try out the openstack client

```
$ openstack zone create --email admin@example.net example.net.
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| action     | CREATE                                   |
| attributes |                                           |
| created_at | 2017-11-15T04:48:40.000000              |
| description | None                                     |
| email      | admin@example.net                       |
| id         | f34f835b-9acc-4930-b6dd-d045c15da78a   |
| masters    |                                           |
| name       | example.net.                             |
| pool_id    | 794ccc2c-d751-44fe-b57f-8894c9f5c842   |
| project_id | 9d0beaef253a4e14bd7025dc30c24f98       |
| serial     | 1510721320                              |
| status     | PENDING                                  |
| transferred_at | None                                     |
| ttl        | 3600                                     |
| type       | PRIMARY                                  |
| updated_at | None                                     |
| version    | 1                                         |
+-----+-----+

$ openstack recordset create --record '127.0.0.1' --type A example.net.
↪www
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| action     | CREATE                                   |
| created_at | 2017-11-15T04:51:27.000000              |
| description | None                                     |
| id         | 7861e600-8d9e-4e13-9ea2-9038a2719b41   |
| name       | www.example.net.                         |
| project_id | 9d0beaef253a4e14bd7025dc30c24f98       |
| records    | 127.0.0.1                                |
| status     | PENDING                                  |
| ttl        | None                                     |
| type       | A                                         |
| updated_at | None                                     |
+-----+-----+
```

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```

| version      | 1 |
| zone_id      | f34f835b-9acc-4930-b6dd-d045c15da78a |
| zone_name    | example.net. |
+-----+-----+
$ openstack recordset list f34f835b-9acc-4930-b6dd-d045c15da78a
+-----+-----+
↪-----+
↪-----+
| id          | name          | type |
↪records          |
↪status | action |
+-----+-----+
↪-----+
↪-----+
| d0630d94-94d8-43fc-93e8-973fbec7531e | example.net. | SOA | ns1.
↪devstack.org. admin.example.net. 1510721487 3510 600 86400 3600 |
↪ACTIVE | NONE |
| 31a313dc-c322-4dc0-ba53-79c039d7f09f | example.net. | NS | ns1.
↪devstack.org. |
↪ACTIVE | NONE |
| 7861e600-8d9e-4e13-9ea2-9038a2719b41 | www.example.net. | A | 127.0.
↪0.1 | ACTIVE|
↪| NONE |
+-----+-----+
↪-----+
↪-----+
$ openstack recordset show f34f835b-9acc-4930-b6dd-d045c15da78a 7861e600-
↪8d9e-4e13-9ea2-9038a2719b41
+-----+-----+
| Field      | Value |
+-----+-----+
| action     | NONE |
| created_at | 2017-11-15T04:51:27.000000 |
| description | None |
| id         | 7861e600-8d9e-4e13-9ea2-9038a2719b41 |
| name       | www.example.net. |
| project_id | 9d0beaef253a4e14bd7025dc30c24f98 |
| records    | 127.0.0.1 |
| status     | ACTIVE |
| ttl       | None |
| type      | A |
| updated_at | None |
| version    | 1 |
| zone_id    | f34f835b-9acc-4930-b6dd-d045c15da78a |
| zone_name  | example.net. |
+-----+-----+

```

10. Verify that the recordset is in DNS

```
$ dig www.example.net @${SERVICE_HOST}

; <<> DiG 9.16.1-Ubuntu <<> www.example.net @192.168.27.100
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 34315
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; COOKIE: f10292dba9100bbf0100000005f749e3586096307a693d0fe (good)
;; QUESTION SECTION:
;www.example.net.                IN      A

;; ANSWER SECTION:
www.example.net.                3600    IN      A      127.0.0.1

;; Query time: 0 msec
;; SERVER: 192.168.27.100#53(192.168.27.100)
;; WHEN: Wed Sep 30 15:03:17 UTC 2020
;; MSG SIZE rcvd: 88
```

where `SERVICE_HOST` is the IP address used in `local.conf`.

### #openstack-dns IRC channel

There is an active IRC channel at <irc://oftc.net/#openstack-dns>, where many of the designate contributors can be found, as well as users from various organisations.

### Contributing

For general information on contributing to OpenStack please see the [contributor guide](#) to get started. It covers all the basics that are common to all OpenStack projects: the accounts you need, the basics of interacting with our Gerrit review system, how we communicate as a community, etc.

We welcome fixes, extensions, documentation, pretty much anything that helps improve Designate, contributing is easy & follows the standard OpenStack [Gerrit workflow](#), if you're looking for something to do, you could always check out the [blueprint](#) & [bug lists](#).

The designate git repo is available at <https://opendev.org/openstack/designate>, though all contributions should be done via the Gerrit review system.

## Task Tracking

We track our tasks in Launchpad

<https://bugs.launchpad.net/designate>

If you're looking for some smaller, easier work item to pick up and get started on, search for the low-hanging-fruit tag.

## Reporting a Bug

You found an issue and want to make sure we are aware of it? You can do so on [Launchpad](#).

## Development Environment and Developer Workflow

Assuming you've already got a working *Development Environment*, here's a quick summary:

Install the git-review package to make life easier, some distros have it as native package, otherwise use pip

```
pip install git-review
```

Branch, work, & submit:

```
# cut a new branch, tracking master
git checkout --track -b bug/id origin/master
# work work work
git add stuff
git commit
# rebase/squash to a single commit before submitting
git rebase -i
# submit
git-review
```

## Coding Standards

Designate uses the OpenStack flake8 coding standards guidelines. These are stricter than pep8, and are run by gerrit on every commit.

You can use tox to check your code locally by running

```
# For just flake8 tests
tox -e flake8
# For tests + flake8
tox
```

### Example DNS Names and IP Space

The IANA has allocated several special purpose domains and IP blocks for use as examples in code and documentation. Where possible, these domains and IP blocks should be preferred. There are some cases where it will not be possible to follow this guidance, for example, there is currently no reserved IDN domain name.

We prefer to use these names and IP blocks to avoid causing any unexpected collateral damage to the rightful owners of the non-reserved names and IP space. For example, publishing an email address in our codebase will more than likely be picked up by spammers, while published URLs etc using non-reserved names or IP space will likely trigger search indexers etc to begin crawling.

### Reserved Domains

Reserved DNS domains are documented here: [IANA Special Use Domain Names](#).

Several common reserved domains:

- [example.com](#).
- [example.net](#).
- [example.org](#).

### Reserved IP Space

Reserved IP space is documented here: [IANA IPv4 Special Registry](#), and [IANA IPv6 Special Registry](#).

Several common reserved IP blocks:

- [192.0.2.0/24](#)
- [198.51.100.0/24](#)
- [203.0.113.0/24](#)
- [2001:db8::/32](#)

### Style Guide

Follow [OpenStack Style Guidelines](#)

### File header

Start new files with the following. Replace where needed:

```
# Copyright <year> <company>
#
# Author: <name> <email addr>
#
# Licensed under the Apache License, Version 2.0 (the "License"); you may
# not use this file except in compliance with the License. You may obtain
```

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```

# a copy of the License at
#
#     http://www.apache.org/licenses/LICENSE-2.0
#
# Unless required by applicable law or agreed to in writing, software
# distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
# WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
# License for the specific language governing permissions and limitations
# under the License.

"""
<package.module>
~~~~~
<Describe what the module should do, especially interactions with
other components and caveats>

<Optional links>
`Specs: Refer to a spec document if relevant`_

`User documentation <FILL_THIS.html>`_ <Refer to files under doc/>
<This is useful to remind developers to keep the docs up to date>
"""

```

Example:

```

Akamai backend. Create and delete zones on Akamai. Blah Blah...

`Specs: Keystone Session <https://opendev.org/openstack/designate-specs/src/
↪branch/master/specs/kilo/switch-to-keystone-session.rst>`_

`User documentation <backend.html>`_

```

When updating a module, please ensure that the related user documentation is updated as well.

## Docstrings

Use the Sphinx markup. Here is an example:

```

class MyClass(object):
    """<description>
    mention a function :func:`foo` or a class :class:`Bar`
    """

    def function(self, foo):
        """<describe what the function does>
        :param foo: <description>
        :type foo: <type>

```

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```
:returns: <describe the returned value>
:rtype: <returned type>
:raises: <list raised exceptions>

:Example:

>>> a = b - c
>>> <more Python code>

.. note:: <add a note here>
.. seealso:: <blah>
.. warning:: <use sparingly>
""""
```

## Logging

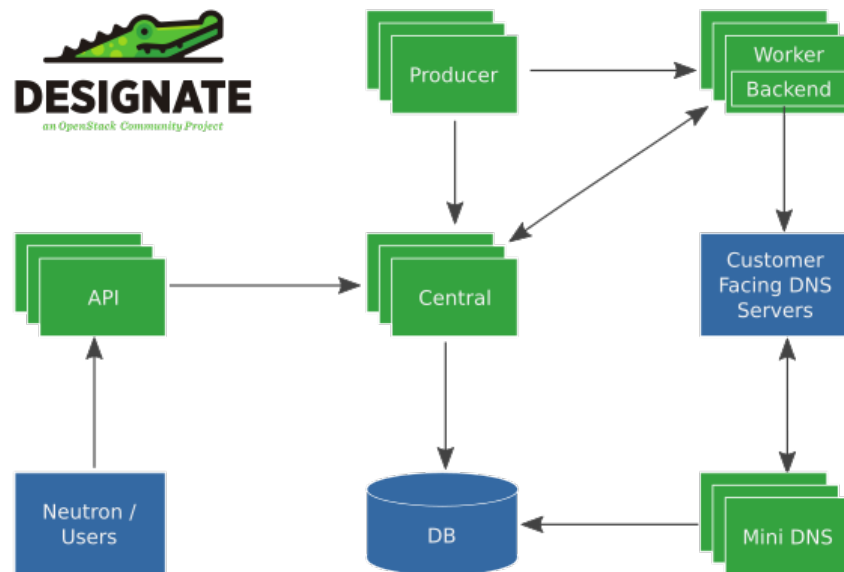
See <https://docs.openstack.org/oslo.i18n/latest/user/guidelines.html>

```
# Do not use "%" string formatting
# No localization for log messages
LOG.debug("... %s", variable)
# Use named interpolation when more than one replacement is done
LOG.info("... %(key)s ...", {'key': 'value', ...})
LOG.warning("... %(key)s", {'key': 'value'})
LOG.error("... %(key)s", {'key': 'value'})
LOG.critical("... %(key)s", {'key': 'value'})
```

### 1.3.2 Architecture

Designate provides multi-tenant DNS as a Service. Designate provides a REST API, applies business logic, persists DNS data to a database, and orchestrates the propagation of the DNS data to configured pools of DNS servers. For a more detailed breakdown of responsibilities and components, see the components below.

## High Level Topology



### Designate API

designate-api provides the standard OpenStack style REST API service, accepting HTTP requests, validating authentication tokens with Keystone and passing them to the *Designate Central* service over AMQP. Multiple versions of the API can be hosted, as well as API extensions, allowing for pluggable extensions to the core API.

Although designate-api is capable of handling HTTPS traffic, its typical to terminate HTTPS elsewhere, for example by placing nginx in front of designate-api or by letting the external facing load balancers terminate HTTPS.

### Designate Central

designate-central is the service that handles RPC requests via the MQ, it coordinates the persistent storage of data and applies business logic to data from the API. Storage is provided via plugins, typically SQLAlchemy, although MongoDB or other storage drivers should be possible.

### Designate MiniDNS

designate-mdns is the service that sends DNS NOTIFY and answers zone transfer (AXFR) requests. This allows Designate to integrate with any DNS server that supports these very standard methods of communicating. designate-mdns also encapsulates all other forms of DNS protocol that Designate performs. For example, sending SOA queries to check that a change is live.

### Designate Worker

designate-worker is a service that manages state of the DNS servers Designate manages, and any other long-running or otherwise complicated piece of work. The worker reads configuration for DNS servers from the Designate database, which is populated via the pools.yaml file. These DNS server backends are loaded into the worker so it understands how to create, update, and delete zones and recordsets on each DNS server. The Worker is fully aware of DNS Server Pools, so a single worker process can manage many pools of DNS servers.

### Designate Producer

designate-producer is a service that handles the invocation of long-running and potentially large jobs. Producer processes start work for an automatically assigned shard of the zones Designate manages. Shards are allocated based on the first three characters of the zone ID (a UUID field). The number of shards under management of a single producer process is equal to the total number of shards divided by the number of producer processes. This means the more producer processes are started, the less work is created at any one time.

The current implemented tasks in producer include emitting dns.zone.exists events for Ceilometer, purging deleted zones from database, polling secondary zones at their refresh intervals, generating delayed NOTIFY transactions, and invoking a periodic recovery of zones in an error state.

### Designate Sink

designate-sink is an optional service which listens for event *Notifications*, such as compute.instance.create.end, handlers are available for Nova and Neutron. Notification events can then be used to trigger record creation & deletion.

The current sink implementations generate simple forward lookup A records, using a format specified in handler-nova configuration. Any field in the event notification can be used to generate a record.

### DNS Backend

Backends are drivers for a particular DNS server. Designate supports multiple backend implementations, PowerDNS, BIND, NSD, DynECT, you are also free to implement your own backend to fit your needs, as well as extensions to provide extra functionality to complement existing backends.

### Message Queue

Designate uses oslo.rpc for messaging between components, therefore it inherits a requirement for a supported messaging bus (such as RabbitMQ, Qpid or ZeroMQ). Typically this means a RabbitMQ setup is dedicated to Designate, but as only a single virtualhost is required for a normal installation, you're free to use other RabbitMQ instances as you see fit.

## Database/Storage

Storage drivers are drivers for a particular SQL/NoSQL server. Designate needs a SQLAlchemy-supported storage engine for the persistent storage of data. The recommended driver is MySQL.

### 1.3.3 Guru Meditation Reports

A Guru Meditation Report (GMR) is generated by the Designate services when service processes receiving SIGUSR2 signal. The report is a general-purpose debug report for developers and system admins which contains the current state of a running Designate service process.

#### Structure of a GMR

**Package** Shows information about the package to which this process belongs, including version information

**Threads** Shows stack traces and thread ids for each of the threads within this process

**Green Threads** Shows stack traces for each of the green threads within this process (green threads dont have thread ids)

**Processes** Shows information about this process, including pid, ppid, uid and process state

**Configuration** Lists all the configuration options currently accessible via the CONF object for the current process

#### Generate a GMR

A GMR can be generated by sending the USR2 signal to any Designate processes.

For example, suppose `designate-central` has pid 15097, `kill -USR2 15097` will trigger a GMR.

If option `logdir` has been set in `designate.conf`, the GMR will be saved in the folder which `logdir` specified. Otherwise, the GMR will be printed to the `stderr`.

#### Reference

For more information about GMR, see [GMR wiki](#).

#### GMR Example

```

=====
====                               Guru Meditation                               ====
=====
|||||
=====
====                               Package                               ====
=====

```

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```

product = OpenStack Designate
vendor = OpenStack Foundation
version = 2015.1
=====
====                               Threads                               ====
=====
-----                            Thread #140098874533632                            -----

/usr/local/lib/python2.7/dist-packages/eventlet/hubs/hub.py:346 in run
`self.wait(sleep_time)`

/usr/local/lib/python2.7/dist-packages/eventlet/hubs/poll.py:85 in wait
`result = self.do_poll(seconds)`

/usr/local/lib/python2.7/dist-packages/eventlet/hubs/epolls.py:62 in do_poll
`return self.poll.poll(seconds)`

=====
====                               Green Threads                               ====
=====
-----                            Green Thread                            -----

/usr/local/lib/python2.7/dist-packages/eventlet/greenthread.py:214 in main
`result = function(*args, **kwargs)`

/opt/stack/designate/designate/openstack/common/service.py:492 in run_service
`done.wait()`

/usr/local/lib/python2.7/dist-packages/eventlet/event.py:121 in wait
`return hubs.get_hub().switch()`

/usr/local/lib/python2.7/dist-packages/eventlet/hubs/hub.py:294 in switch
`return self.greenlet.switch()`

-----                            Green Thread                            -----

/usr/local/lib/python2.7/dist-packages/eventlet/greenthread.py:214 in main
`result = function(*args, **kwargs)`

/usr/local/lib/python2.7/dist-packages/oslo_utils/excutils.py:95 in inner_func
`return infunc(*args, **kwargs)`

/usr/local/lib/python2.7/dist-packages/oslo_messaging/_executors/impl_
↳eventlet.py:96 in _executor_thread
`incoming = self.listener.poll()`

/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/amqpdriver.
↳py:121 in poll
`self.conn.consume(limit=1, timeout=timeout)`

```

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```
/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/impl_rabbit.  
↪py:867 in consume  
    `six.next(it)`  
  
/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/impl_rabbit.  
↪py:782 in iterconsume  
    `yield self.ensure(_error_callback, _consume)`  
  
/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/impl_rabbit.  
↪py:688 in ensure  
    `ret, channel = autoretry_method()`  
  
/usr/local/lib/python2.7/dist-packages/kombu/connection.py:436 in _ensured  
    `return fun(*args, **kwargs)`  
  
/usr/local/lib/python2.7/dist-packages/kombu/connection.py:508 in __call__  
    `return fun(*args, channel=channels[0], **kwargs), channels[0]`  
  
/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/impl_rabbit.  
↪py:675 in execute_method  
    `method()`  
  
/usr/local/lib/python2.7/dist-packages/oslo_messaging/_drivers/impl_rabbit.  
↪py:774 in _consume  
    `return self.connection.drain_events(timeout=poll_timeout)`  
  
/usr/local/lib/python2.7/dist-packages/kombu/connection.py:275 in drain_events  
    `return self.transport.drain_events(self.connection, **kwargs)`  
  
/usr/local/lib/python2.7/dist-packages/kombu/transport/pyamqp.py:91 in drain_  
↪events  
    `return connection.drain_events(**kwargs)`  
  
/usr/local/lib/python2.7/dist-packages/amqp/connection.py:302 in drain_events  
    `chanmap, None, timeout=timeout,`  
  
/usr/local/lib/python2.7/dist-packages/amqp/connection.py:365 in _wait_  
↪multiple  
    `channel, method_sig, args, content = read_timeout(timeout)`  
  
/usr/local/lib/python2.7/dist-packages/amqp/connection.py:336 in read_timeout  
    `return self.method_reader.read_method()`  
  
/usr/local/lib/python2.7/dist-packages/amqp/method_framing.py:186 in read_  
↪method  
    `self._next_method()`  
  
/usr/local/lib/python2.7/dist-packages/amqp/method_framing.py:107 in _next_  
↪method
```

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```
`frame_type, channel, payload = read_frame()`  
  
/usr/local/lib/python2.7/dist-packages/amqp/transport.py:154 in read_frame  
`frame_header = read(7, True)`  
  
/usr/local/lib/python2.7/dist-packages/amqp/transport.py:277 in _read  
`s = recv(n - len(rbuf))`  
  
/usr/local/lib/python2.7/dist-packages/eventlet/greenio/base.py:326 in recv  
`timeout_exc=socket.timeout("timed out"))`  
  
/usr/local/lib/python2.7/dist-packages/eventlet/greenio/base.py:201 in _  
↪trampoline  
`mark_as_closed=self._mark_as_closed)`  
  
/usr/local/lib/python2.7/dist-packages/eventlet/hubs/__init__.py:162 in _  
↪trampoline  
`return hub.switch()`  
  
/usr/local/lib/python2.7/dist-packages/eventlet/hubs/hub.py:294 in switch  
`return self.greenlet.switch()`  
  
----- Green Thread -----  
  
/usr/local/bin/designate-central:10 in <module>  
`sys.exit(main())`  
  
/opt/stack/designate/designate/cmd/central.py:37 in main  
`service.wait()`  
  
/opt/stack/designate/designate/service.py:356 in wait  
`_launcher.wait()`  
  
/opt/stack/designate/designate/openstack/common/service.py:187 in wait  
`status, signo = self._wait_for_exit_or_signal(ready_callback)`  
  
/opt/stack/designate/designate/openstack/common/service.py:170 in _wait_for_  
↪exit_or_signal  
`super(ServiceLauncher, self).wait()`  
  
/opt/stack/designate/designate/openstack/common/service.py:133 in wait  
`self.services.wait()`  
  
/opt/stack/designate/designate/openstack/common/service.py:473 in wait  
`self.tg.wait()`  
  
/opt/stack/designate/designate/openstack/common/threadgroup.py:145 in wait  
`x.wait()`
```

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```

/opt/stack/designate/designate/openstack/common/threadgroup.py:47 in wait
    `return self.thread.wait()`

/usr/local/lib/python2.7/dist-packages/eventlet/greenthread.py:175 in wait
    `return self._exit_event.wait()`

/usr/local/lib/python2.7/dist-packages/eventlet/event.py:121 in wait
    `return hubs.get_hub().switch()`

/usr/local/lib/python2.7/dist-packages/eventlet/hubs/hub.py:294 in switch
    `return self.greenlet.switch()`

```

```

-----                                Green Thread                                -----

```

```
No Traceback!
```

```

=====
====                                Processes                                =====
=====
Process 15097 (under 7312) [ run by: stanzgy (1000), state: running ]

```

```

=====
====                                Configuration                                =====
=====

```

```

backend:agent:bind9:
  query-destination = 127.0.0.1
  rndc-config-file = None
  rndc-host = 127.0.0.1
  rndc-key-file = None
  rndc-port = 953
  zone-file-path = /opt/stack/data/designate/zones

```

```

backend:bind9:
  masters =
    127.0.0.1:5354
  rndc-config-file = None
  rndc-host = 127.0.0.1
  rndc-key-file = None
  rndc-port = 953
  server_ids =

```

```

backend:fake:
  masters =
    127.0.0.1:5354
  server_ids =

```

```

backend:powerdns:
  backend = sqlalchemy

```

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```
connection = ***
connection_debug = 0
connection_trace = False
db_inc_retry_interval = True
db_max_retries = 20
db_max_retry_interval = 10
db_retry_interval = 1
idle_timeout = 3600
masters =
  10.180.64.117:5354
max_overflow = None
max_pool_size = None
max_retries = 10
min_pool_size = 1
mysql_sql_mode = TRADITIONAL
pool_timeout = None
retry_interval = 10
server_ids =
  f26e0b32-736f-4f0a-831b-039a415c481e
slave_connection = ***
sqlite_db = oslo.sqlite
sqlite_synchronous = True
use_db_reconnect = False
```

```
backend:powerdns:f26e0b32-736f-4f0a-831b-039a415c481e:
```

```
backend = None
connection = ***
connection_debug = None
connection_trace = None
db_inc_retry_interval = None
db_max_retries = None
db_max_retry_interval = None
db_retry_interval = None
host = 10.180.64.117
idle_timeout = None
masters = None
max_overflow = None
max_pool_size = None
max_retries = None
min_pool_size = None
mysql_sql_mode = None
pool_timeout = None
port = 53
retry_interval = None
slave_connection = ***
sqlite_db = None
sqlite_synchronous = None
tsig-key = None
use_db_reconnect = None
```

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```

default:
  allowed_remote_exmods =
  backdoor_port = None
  backlog = 4096
  central-topic = central
  config-dir = None
  config-file =
    /etc/designate/designate.conf
  control_exchange = designate
  debug = True
  default-soa-expire = 86400
  default-soa-minimum = 3600
  default-soa-refresh-min = 3500
  default-soa-refresh-max = 3600
  default-soa-retry = 600
  default-ttl = 3600
  default_log_levels =
    amqp=WARN
    amqplib=WARN
    boto=WARN
    eventlet.wsgi.server=WARN
    keystone=INFO
    keystonemiddleware.auth_token=INFO
    oslo.messaging=WARN
    sqlalchemy=WARN
    stevedore=WARN
    suds=INFO
  fatal_deprecations = False
  host = cns-dev2
  instance_format = [instance: %(uuid)s]
  instance_uuid_format = [instance: %(uuid)s]
  log-config-append = None
  log-date-format = %Y-%m-%d %H:%M:%S
  log-dir = /opt/stack/logs/designate
  log-file = None
  log-format = None
  logging_context_format_string = %(asctime)s.%(msecs)03d %(color)s
↪ %(levelname)s %(name)s [[01;36m%(request_id)s [00;36m%(user)s %(tenant)s
↪ %(color)s] [01;35m%(instance)s%(color)s%(message)s[00m
  logging_debug_format_suffix = [00;33mfrom (pid=%(process)d) %(funcName)s
↪ %(pathname)s:%(lineno)d[00m
  logging_default_format_string = %(asctime)s.%(msecs)03d %(color)s
↪ %(levelname)s %(name)s [[00;36m-%(color)s] [01;35m%(instance)s%(color)s
↪ %(message)s[00m
  logging_exception_prefix = %(color)s%(asctime)s.%(msecs)03d TRACE %(name)s.
↪ [01;35m%(instance)s[00m
  mdns-topic = mdns
  network_api = neutron

```

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```
notification_driver =
notification_topics =
    notifications
policy_default_rule = default
policy_dirs =
    policy.d
policy_file = /etc/designate/policy.yaml
pool-manager-topic = pool_manager
publish_errors = False
pybasedir = /opt/stack/designate
quota-domain-records = 500
quota-domain-recordsets = 500
quota-domains = 10
quota-driver = storage
quota-recordset-records = 20
root-helper = sudo designate-rootwrap /etc/designate/rootwrap.conf
rpc_backend = rabbit
rpc_thread_pool_size = 64
state-path = /opt/stack/data/designate
syslog-log-facility = LOG_USER
tcp_keepidle = 600
transport_url = None
use-syslog = False
use-syslog-rfc-format = False
use_stderr = True
verbose = True

network_api:neutron:
    admin_password = ***
    admin_tenant_name = None
    admin_username = None
    auth_strategy = keystone
    auth_url = None
    ca_certificates_file = None
    endpoint_type = publicURL
    endpoints = None
    insecure = False
    timeout = 30

oslo_concurrency:
    disable_process_locking = False
    lock_path = None

oslo_messaging_rabbit:
    amqp_auto_delete = False
    amqp_durable_queues = False
    fake_rabbit = False
    kombu_reconnect_delay = 1.0
    kombu_ssl_ca_certs =
```

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```
kombu_ssl_certfile =
kombu_ssl_keyfile =
kombu_ssl_version =
rabbit_ha_queues = False
rabbit_host = localhost
rabbit_hosts =
    127.0.0.1
rabbit_login_method = AMQPPLAIN
rabbit_max_retries = 0
rabbit_password = ***
rabbit_port = 5672
rabbit_retry_backoff = 2
rabbit_retry_interval = 1
rabbit_use_ssl = False
rabbit_userid = stackrabbit
rabbit_virtual_host = /
rpc_conn_pool_size = 30
```

proxy:

```
http_proxy = None
https_proxy = None
no_proxy =
```

service:central:

```
default_pool_id = 794ccc2c-d751-44fe-b57f-8894c9f5c842
enabled-notification-handlers =
managed_resource_email = hostmaster@example.com
managed_resource_tenant_id = None
max_domain_name_len = 255
max_recordset_name_len = 255
min_ttl = None
storage-driver = sqlalchemy
workers = None
```

service:pool\_manager:

```
backends =
    powerdns
cache-driver = sqlalchemy
enable-recovery-timer = True
enable-sync-timer = True
periodic-recovery-interval = 120
periodic-sync-interval = 300
periodic-sync-seconds = None
poll-delay = 1
poll-max-retries = 3
poll-retry-interval = 2
poll-timeout = 30
pool-id = 794ccc2c-d751-44fe-b57f-8894c9f5c842
threshold-percentage = 100
```

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```
workers = None

ssl:
  ca_file = None
  cert_file = None
  key_file = None

storage:sqlalchemy:
  backend = sqlalchemy
  connection = ***
  connection_debug = 0
  connection_trace = False
  db_inc_retry_interval = True
  db_max_retries = 20
  db_max_retry_interval = 10
  db_retry_interval = 1
  idle_timeout = 3600
  max_overflow = None
  max_pool_size = None
  max_retries = 10
  min_pool_size = 1
  mysql_sql_mode = TRADITIONAL
  pool_timeout = None
  retry_interval = 10
  slave_connection = ***
  sqlite_db = oslo.sqlite
  sqlite_synchronous = True
  use_db_reconnect = False
```

## 1.3.4 Source Code Documentation

### API

#### API Middleware

```
class designate.api.middleware.APIv2ValidationErrorMiddleware(application)
```

Bases: oslo\_middleware.base.Middleware

```
class designate.api.middleware.ContextMiddleware(application, conf=None)
```

Bases: oslo\_middleware.base.Middleware

```
make_context(request, *args, **kwargs)
```

```
class designate.api.middleware.FaultWrapperMiddleware(application)
```

Bases: oslo\_middleware.base.Middleware

```
class designate.api.middleware.KeystoneContextMiddleware(application)
```

Bases: *designate.api.middleware.ContextMiddleware*

**process\_request**(*request*)

Called on each request.

If this returns None, the next application down the stack will be executed. If it returns a response then that response will be returned and execution will stop here.

**class** `designate.api.middleware.MaintenanceMiddleware`(*application*)

Bases: `oslo_middleware.base.Middleware`

**process\_request**(*request*)

Called on each request.

If this returns None, the next application down the stack will be executed. If it returns a response then that response will be returned and execution will stop here.

**class** `designate.api.middleware.NoAuthContextMiddleware`(*application*)

Bases: `designate.api.middleware.ContextMiddleware`

**process\_request**(*request*)

Called on each request.

If this returns None, the next application down the stack will be executed. If it returns a response then that response will be returned and execution will stop here.

**class** `designate.api.middleware.NormalizeURIMiddleware`(*application*, *conf=None*)

Bases: `oslo_middleware.base.Middleware`

**class** `designate.api.middleware.TestContextMiddleware`(*application*, *tenant\_id=None*,  
*user\_id=None*)

Bases: `designate.api.middleware.ContextMiddleware`

**process\_request**(*request*)

Called on each request.

If this returns None, the next application down the stack will be executed. If it returns a response then that response will be returned and execution will stop here.

`designate.api.middleware.auth_pipeline_factory`(*loader*, *global\_conf*, *\*\*local\_conf*)

A paste pipeline replica that keys off of `auth_strategy`.

Code nabbed from `cinder`.

## API Service

**class** `designate.api.service.Service`

Bases: `designate.service.WSGIService`

**property** `service_name`

**start**()

Start a service.

**stop**(*graceful=True*)

Stop a service.

Parameters **graceful** indicates whether to wait for all threads to finish or terminate them instantly

property **wsgi\_application**

## Backend

### Backend Base

**class** `designate.backend.base.Backend(target)`

Bases: `designate.plugin.DriverPlugin`

Base class for backend implementations

**abstract** `create_zone(context, zone)`

Create a DNS zone.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

**abstract** `delete_zone(context, zone)`

Delete a DNS zone.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

`update_zone(context, zone)`

Update a DNS zone.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

### Backend Bind9

Bind 9 backend. Create and delete zones by executing rndc

**class** `designate.backend.impl_bind9.Bind9Backend(target)`

Bases: `designate.backend.base.Backend`

`create_zone(context, zone)`

Create a new Zone by executin rndc, then notify mDNS Do not raise exceptions if the zone already exists.

`delete_zone(context, zone)`

Delete a new Zone by executin rndc Do not raise exceptions if the zone does not exist.



**get\_zone**(*context, zone*)

Returns True if zone exists and False if not

**update\_zone**(*context, zone*)

Update a DNS zone.

This will execute a rndc modzone if the zone already exists but masters might need to be refreshed. Or, will create the zone if it does not exist.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

## Backend Designate

**class** designate.backend.impl\_designate.**DesignateBackend**(*target*)

Bases: *designate.backend.base.Backend*

Support for Designate to Designate using Secondary zones.

**property client**

**create\_zone**(*context, zone*)

Create a DNS zone.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

**delete\_zone**(*context, zone*)

Delete a DNS zone.

#### Parameters

- **context** Security context information.
- **zone** the DNS zone.

## Backend Dynect

**class** designate.backend.impl\_dynect.**DynClient**(*customer\_name, user\_name, password, endpoint='https://api.dynect.net:443', api\_version='3.5.6', headers=None, verify=True, retries=1, timeout=10, timings=False, pool\_maxsize=10, pool\_connections=10*)

Bases: **object**

DynECT service client.

<https://help.dynect.net/rest/>

**delete**(\*args, \*\*kwargs)

**get**(\*args, \*\*kwargs)

**get\_timings**()

**login**()

**logout**()

**patch**(\*args, \*\*kwargs)

**poll\_response**(response)

The API might return a job nr in the response in case of a async response: <https://github.com/fog/fog/issues/575>

**post**(\*args, \*\*kwargs)

**put**(\*args, \*\*kwargs)

**request**(method, url, retries=2, \*\*kwargs)

**reset\_timings**()

**exception** designate.backend.impl\_dynect.**DynClientAuthError**(data=None, job\_id=None, msgs=None, http\_status=None, url=None, method=None, details=None)

Bases: [designate.backend.impl\\_dynect.DynClientError](#)

**exception** designate.backend.impl\_dynect.**DynClientError**(data=None, job\_id=None, msgs=None, http\_status=None, url=None, method=None, details=None)

Bases: designate.exceptions.Backend

The base exception class for all HTTP exceptions.

**static from\_response**(response, details=None)

**exception** designate.backend.impl\_dynect.**DynClientOperationBlocked**(\*args, \*\*kwargs)

Bases: designate.exceptions.BadRequest, [designate.backend.impl\\_dynect.DynClientError](#)

**error\_type** = 'operation\_blocked'

**class** designate.backend.impl\_dynect.**DynECTBackend**(target)

Bases: [designate.backend.base.Backend](#)

Support for DynECT as a secondary DNS.

**create\_zone**(*context, zone*)

Create a DNS zone.

**Parameters**

- **context** Security context information.
- **zone** the DNS zone.

**delete\_zone**(*context, zone*)

Delete a DNS zone.

**Parameters**

- **context** Security context information.
- **zone** the DNS zone.

**get\_client**()

**exception** `designate.backend.impl_dynect.DynTimeoutError`

Bases: `designate.exceptions.Backend`

A job timedout.

**error\_code** = 408

**error\_type** = 'dyn\_timeout'

## Backend Infoblox

**class** `designate.backend.impl_infoblox.InfobloxBackend(*args, **kwargs)`

Bases: `designate.backend.base.Backend`

Provides a Designate Backend for Infoblox

**create\_zone**(*context, zone*)

Create a DNS zone.

**Parameters**

- **context** Security context information.
- **zone** the DNS zone.

**delete\_zone**(*context, zone*)

Delete a DNS zone.

**Parameters**

- **context** Security context information.
- **zone** the DNS zone.

## Backend Nsd4

**class** designate.backend.impl\_nsd4.**NSD4Backend**(*target*)

Bases: *designate.backend.base.Backend*

**NSDCT\_VERSION** = 'NSDCT1'

**create\_zone**(*context, zone*)

Create a DNS zone.

### Parameters

- **context** Security context information.
- **zone** the DNS zone.

**delete\_zone**(*context, zone*)

Delete a DNS zone.

### Parameters

- **context** Security context information.
- **zone** the DNS zone.

## Backend Fake

**class** designate.backend.impl\_fake.**FakeBackend**(*target*)

Bases: *designate.backend.base.Backend*

**create\_zone**(*context, zone*)

Create a DNS zone.

### Parameters

- **context** Security context information.
- **zone** the DNS zone.

**delete\_zone**(*context, zone*)

Delete a DNS zone.

### Parameters

- **context** Security context information.
- **zone** the DNS zone.

## Backend PowerDNS 4

**class** designate.backend.impl\_pdns4.PDNS4Backend(*target*)

Bases: *designate.backend.base.Backend*

**create\_zone**(*context, zone*)

Create a DNS zone

**delete\_zone**(*context, zone*)

Delete a DNS zone

## Agent Backend KnotDNS

### backend.agent\_backend.impl\_knot2

Knot DNS agent backend

Create, update, delete zones locally on a Knot DNS resolver using the knotc utility.

Supported Knot versions: >= 2.1, < 3

[Knot DNS 2 User documentation](#)

**Warning:** Untested, do not use in production.

---

**Note:** If the backend is killed during a configuration transaction it might be required to manually abort the transaction with *sudo knotc conf-abort*

---

Configured in [[service:agent:knot2](#)]

**class** designate.backend.agent\_backend.impl\_knot2.Knot2Backend(*\*a, \*\*kw*)

Bases: *designate.backend.agent\_backend.base.AgentBackend*

**\_\_abstractmethods\_\_** = frozenset({})

**\_\_backend\_status\_\_** = 'untested'

**\_\_init\_\_**(*\*a, \*\*kw*)

Configure the backend

**\_\_module\_\_** = 'designate.backend.agent\_backend.impl\_knot2'

**\_\_plugin\_name\_\_** = 'knot2'

**\_abc\_impl** = <\_abc\_data object>

**\_execute\_knotc**(*\*knotc\_args, \*\*kw*)

Run the Knot client and check the output

#### Parameters

- **expected\_output** (*str*) expected output (default: OK)

- **expected\_error** (*str*) expected alternative output, will be logged as `info()`. Default: not set.

**\_lock\_name** = 'knot2.lock'

**\_modify\_zone**(*\*knotc\_args, \*\*kw*)

Create or delete a zone while locking, and within a Knot transaction. Knot supports only one config transaction at a time.

**Raises** exceptions.Backend

**\_start\_minidns\_to\_knot\_axfr**(*zone\_name*)

Instruct Knot to request an AXFR from MiniDNS. No need to lock or enter a configuration transaction.

**create\_zone**(*zone*)

Create a new Zone by executing `knotc` Do not raise exceptions if the zone already exists.

**Parameters** **zone** (*raw pythondns Zone*) zone to be created

**delete\_zone**(*zone\_name*)

Delete a new Zone by executing `knotc` Do not raise exceptions if the zone does not exist.

**Parameters** **zone\_name** (*str*) zone name

**find\_zone\_serial**(*zone\_name*)

Get serial from a zone by running `knotc`

**Returns** serial (int or None)

**Raises** exceptions.Backend

**start**()

Start the backend

**update\_zone**(*zone*)

Instruct Knot DNS to perform AXFR from MiniDNS

**Parameters** **zone** (*raw pythondns Zone*) zone to be created

## Agent Backend `gdnsd`

### `backend.agent_backend.impl_gdnsd`

`gdnsd` agent backend

Create, update, delete zones locally on a `gdnsd` resolver using the `gdnsd` utility.

Supported Knot versions:  $\geq 2.1$ ,  $< 3$

[User documentation](#)

<b>Warning:</b> Untested, do not use in production.
---

**Note:** If the backend is killed during a configuration transaction it might be required to manually abort the transaction with `sudo gdnssd conf-abort`

---

Configured in [service:agent:gdnssd]

```
class designate.backend.agent_backend.impl_gdnssd.GdnssdBackend(*a, **kw)
    Bases: designate.backend.agent_backend.base.AgentBackend
    __abstractmethods__ = frozenset({})
    __backend_status__ = 'experimental'
    __init__(*a, **kw)
        Configure the backend
    __module__ = 'designate.backend.agent_backend.impl_gdnssd'
    __plugin_name__ = 'gdnssd'
    _abc_impl = <_abc_data object>
    _check_conf()
        Run gdnssd to check its configuration
    _check_dirs(*dirname)
        Check if directories are writable
    _generate_zone_filename(zone_name)
        Generate a filename for a zone file / is traslated into @ Non-valid characters are translated
        into NNN where NNN is a decimal integer in the range 0 - 255 The filename is lowercase
        Returns valid filename (string)
    _write_zone_file(zone)
        Create or update a zone file atomically. The zone file is written to a unique temp file and then
        renamed
    create_zone(**kw)
        Create a DNS zone
    delete_zone(**kw)
        Delete a DNS zone
    find_zone_serial(zone_name)
        Query the local resolver for a zone Times out after SOA_QUERY_TIMEOUT
    start()
        Start the backend, check gdnssd configuration
        Raises exception.Backend on invalid configuration
    update_zone(**kw)
        Update a DNS zone
designate.backend.agent_backend.impl_gdnssd.filter_exceptions(fn)
```

## Agent Backend Djbdns

### backend.agent\_backend.impl\_djbdns

Djbdns DNS agent backend

Create, update, delete zones locally on a Djbdns DNS resolver using the axfr-get utility.

[Djbdns User documentation](#)

**Warning:** Untested, do not use in production.

Configured in [[service:agent:djbdns](#)]

**Requires rootwrap (or equivalent sudo privileges) to execute:**

- tcpclient
- axfr-get
- tinydns-data

```
class designate.backend.agent_backend.impl_djbdns.DjbdnsBackend(*a, **kw)
```

```
    Bases: designate.backend.agent_backend.base.AgentBackend
```

```
    __abstractmethods__ = frozenset({})
```

```
    __backend_status__ = 'experimental'
```

```
    __init__(*a, **kw)
```

```
        Configure the backend
```

```
    __module__ = 'designate.backend.agent_backend.impl_djbdns'
```

```
    __plugin_name__ = 'djbdns'
```

```
    _abc_impl = <_abc_data object>
```

```
    static _check_dirs(*dirnames)
```

```
        Check if directories are writable
```

```
    static _concatenate_zone_datafiles(data_fn, path_glob)
```

```
        Concatenate all zone datafiles into data
```

```
    _perform_axfr_from_minidns(zone_name)
```

```
        Instruct axfr-get to request an AXFR from MiniDNS.
```

```
            Raises exceptions.Backend on error
```

```
    _rebuild_data_cdb()
```

```
        Rebuild data.cdb file from zone datafiles Requires global lock
```

```
        On zone creation, axfr-get creates datafiles atomically by doing rename. On zone deletion, os.remove deletes the file atomically Globbing and reading the datafiles can be done without locking on them. The data and data.cdb files are written into a unique temp directory
```



**create\_zone**(\*\*kw)

Create a DNS zone

**delete\_zone**(\*\*kw)

Delete a DNS zone

**find\_zone\_serial**(zone\_name)

Query the local resolver for a zone Times out after SOA\_QUERY\_TIMEOUT

**start**()

Start the backend

**update\_zone**(\*\*kw)

Update a DNS zone

designate.backend.agent\_backend.impl\_djbdns.**filter\_exceptions**(fn)

### Agent Backend MSDNS

**class** designate.backend.agent\_backend.impl\_msdns.**MSDNSBackend**(agent\_service)

Bases: designate.backend.agent\_backend.base.AgentBackend

**\_\_abstractmethods\_\_** = frozenset({})

**\_\_backend\_status\_\_** = 'experimental'

**\_\_init\_\_**(agent\_service)

Configure the backend

**\_\_module\_\_** = 'designate.backend.agent\_backend.impl\_msdns'

**\_\_plugin\_name\_\_** = 'msdns'

**\_abc\_impl** = <\_abc\_data object>

**create\_zone**(zone)

Create a new DNS Zone

**delete\_zone**(zone\_name)

Delete a DNS Zone Do not raise exception if the zone does not exist.

**find\_zone\_serial**(zone\_name)

Return the zones serial

**start**()

Start the backend

**update\_zone**(zone)

Instruct MSDNS to request an AXFR from MiniDNS.

## Central

### Central RPC API

**class** designate.central.rpcapi.**CentralAPI**(*topic=None*)

Bases: object

Client side of the central RPC API.

API version history:

1.0 - Initial version 1.1 - Add new finder methods 1.2 - Add get\_tenant and get\_tenants  
1.3 - Add get\_absolute\_limits 2.0 - Renamed most get\_resources to find\_resources 2.1  
- Add quota methods 3.0 - RecordSet Changes 3.1 - Add floating ip ptr methods 3.2  
- TLD Api changes 3.3 - Add methods for blacklisted domains 4.0 - Create methods  
now accept designate objects 4.1 - Add methods for server pools 4.2 - Add methods  
for pool manager integration 4.3 - Added Zone Transfer Methods 5.0 - Remove dead  
server code 5.1 - Add xfr\_zone 5.2 - Add Zone Import methods 5.3 - Add Zone Export  
method 5.4 - Add asynchronous Zone Export methods 5.5 - Add deleted zone purging  
task 5.6 - Changed purge\_zones function args 6.0 - Renamed domains to zones 6.1 -  
Add ServiceStatus methods 6.2 - Changed find\_recordsets method args 6.3 - Changed  
update\_status method args 6.4 - Removed unused record and diagnostic methods 6.5 -  
Removed additional unused methods

**LOGGING\_BLACKLIST** = ['update\_service\_status']

**RPC\_API\_VERSION** = '6.5'

**count\_report**(*context, criterion=None*)

**create\_blacklist**(*context, blacklist*)

**create\_pool**(*context, pool*)

**create\_recordset**(*context, zone\_id, recordset*)

**create\_tld**(*context, tld*)

**create\_tsigkey**(*context, tsigkey*)

**create\_zone**(*context, zone*)

**create\_zone\_export**(*context, zone\_id*)

**create\_zone\_import**(*context, request\_body*)

**create\_zone\_transfer\_accept**(*context, zone\_transfer\_accept*)

**create\_zone\_transfer\_request**(*context, zone\_transfer\_request*)

**delete\_blacklist**(*context, blacklist\_id*)

**delete\_pool**(*context, pool\_id*)

**delete\_recordset**(*context, zone\_id, recordset\_id, increment\_serial=True*)

**delete\_tld**(*context, tld\_id*)

**delete\_tsigkey**(*context, tsigkey\_id*)

**delete\_zone**(*context, zone\_id*)

**delete\_zone\_export**(*context, zone\_export\_id*)

**delete\_zone\_import**(*context, zone\_import\_id*)

**delete\_zone\_transfer\_request**(*context, zone\_transfer\_request\_id*)

**export\_zone**(*context, zone\_id*)

**find\_blacklists**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_pool**(*context, criterion=None*)

**find\_pools**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_records**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_recordset**(*context, criterion=None*)

**find\_recordsets**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None, force\_index=False*)

**find\_service\_status**(*context, criterion=None*)

**find\_service\_statuses**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_tenants**(*context*)

**find\_tlds**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_tsigkeys**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_exports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_imports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_transfer\_accepts**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_transfer\_requests**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zones**(*context*, *criterion=None*, *marker=None*, *limit=None*, *sort\_key=None*,  
*sort\_dir=None*)

**get\_absolute\_limits**(*context*)

**get\_blacklist**(*context*, *blacklist\_id*)

**get\_floatingip**(*context*, *region*, *floatingip\_id*)

**classmethod get\_instance**()

The `rpc.get_client()` which is called upon the API object initialization will cause a assertion error if the `designate.rpc.TRANSPORT` isnt setup by `rpc.init()` before.

This fixes that by creating the `rpcapi` when demanded.

**get\_pool**(*context*, *pool\_id*)

**get\_quotas**(*context*, *tenant\_id*)

**get\_recordset**(*context*, *zone\_id*, *recordset\_id*)

**get\_tenant**(*context*, *tenant\_id*)

**get\_tld**(*context*, *tld\_id*)

**get\_tsigkey**(*context*, *tsigkey\_id*)

**get\_zone**(*context*, *zone\_id*)

**get\_zone\_export**(*context*, *zone\_export\_id*)

**get\_zone\_import**(*context*, *zone\_import\_id*)

**get\_zone\_ns\_records**(*context*, *zone\_id*)

**get\_zone\_transfer\_accept**(*context*, *zone\_transfer\_accept\_id*)

**get\_zone\_transfer\_request**(*context*, *zone\_transfer\_request\_id*)

**list\_floatingips**(*context*)

**purge\_zones**(*context*, *criterion*, *limit=None*)

**reset\_quotas**(*context*, *tenant\_id*)

**set\_quota**(*context*, *tenant\_id*, *resource*, *hard\_limit*)

**update\_blacklist**(*context*, *blacklist*)

**update\_floatingip**(*context*, *region*, *floatingip\_id*, *values*)

**update\_pool**(*context*, *pool*)

**update\_recordset**(*context*, *recordset*, *increment\_serial=True*)

**update\_service\_status**(*context*, *service\_status*)

**update\_status**(*context*, *zone\_id*, *status*, *serial*, *action=None*)

```
update_tld(context, tld)  
update_tsigkey(context, tsigkey)  
update_zone(context, zone, increment_serial=True)  
update_zone_export(context, zone_export)  
update_zone_import(context, zone_import)  
update_zone_transfer_request(context, zone_transfer_request)  
xfr_zone(context, zone_id)
```

```
designate.central.rpcapi.reset()
```

## Central Service

```
class designate.central.service.Service  
    Bases: designate.service.RPCService  
    RPC_API_VERSION = '6.5'  
  
    count_records(context, criterion=None)  
    count_recordsets(context, criterion=None)  
    count_report(context, criterion=None)  
    count_tenants(context)  
    count_zones(context, criterion=None)  
    create_blacklist(context, blacklist)  
    create_pool(context, pool)  
    create_recordset(context, zone_id, recordset, increment_serial=True)  
    create_tld(context, tld)  
    create_tsigkey(context, tsigkey)  
    create_zone(context, zone)  
        Create zone: perform checks and then call _create_zone()  
    create_zone_export(context, zone_id)  
    create_zone_import(context, request_body)  
    create_zone_transfer_accept(context, zone_transfer_accept)  
    create_zone_transfer_request(context, zone_transfer_request)  
    delete_blacklist(context, blacklist_id)  
    delete_pool(context, pool_id)
```

**delete\_recordset**(*context, zone\_id, recordset\_id, increment\_serial=True*)

**delete\_tld**(*context, tld\_id*)

**delete\_tsigkey**(*context, tsigkey\_id*)

**delete\_zone**(*context, zone\_id*)

Delete or abandon a zone On abandon, delete the zone from the DB immediately. Otherwise, set action to DELETE and status to PENDING and poke Pool Managers delete\_zone to update the resolvers. PM will then poke back to set action to NONE and status to DELETED

**delete\_zone\_export**(*context, zone\_export\_id*)

**delete\_zone\_import**(*context, zone\_import\_id*)

**delete\_zone\_transfer\_request**(*context, zone\_transfer\_request\_id*)

**export\_zone**(*context, zone\_id*)

**find\_blacklists**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_pool**(*context, criterion=None*)

**find\_pools**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_records**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_recordset**(*context, criterion=None*)

**find\_recordsets**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None, force\_index=False*)

**find\_service\_status**(*context, criterion=None*)

**find\_service\_statuses**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

List service statuses.

**find\_tenants**(*context*)

**find\_tlds**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_tsigkeys**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_exports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_imports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

**find\_zone\_transfer\_accepts**(*context*, *criterion=None*, *marker=None*, *limit=None*,  
*sort\_key=None*, *sort\_dir=None*)

**find\_zone\_transfer\_requests**(*context*, *criterion=None*, *marker=None*, *limit=None*,  
*sort\_key=None*, *sort\_dir=None*)

**find\_zones**(*context*, *criterion=None*, *marker=None*, *limit=None*, *sort\_key=None*,  
*sort\_dir=None*)

List existing zones including the ones flagged for deletion.

**get\_absolute\_limits**(*context*)

**get\_blacklist**(*context*, *blacklist\_id*)

**get\_floatingip**(*context*, *region*, *floatingip\_id*)

Get Floating IP PTR

**get\_pool**(*context*, *pool\_id*)

**get\_quotas**(*context*, *tenant\_id*)

**get\_recordset**(*context*, *zone\_id*, *recordset\_id*)

**get\_tenant**(*context*, *tenant\_id*)

**get\_tld**(*context*, *tld\_id*)

**get\_tsigkey**(*context*, *tsigkey\_id*)

**get\_zone**(*context*, *zone\_id*)

Get a zone, even if flagged for deletion

**get\_zone\_export**(*context*, *zone\_export\_id*)

**get\_zone\_import**(*context*, *zone\_import\_id*)

**get\_zone\_ns\_records**(*context*, *zone\_id=None*, *criterion=None*)

**get\_zone\_transfer\_accept**(*context*, *zone\_transfer\_accept\_id*)

**get\_zone\_transfer\_request**(*context*, *zone\_transfer\_request\_id*)

**list\_floatingips**(*context*)

List Floating IPs PTR

A) **We have service\_catalog in the context and do a lookup using the** token pr Neutron  
in the SC

B) We lookup FIPs using the configured values for this deployment.

**purge\_zones**(*context*, *criterion*, *limit=None*)

Purge deleted zones. :returns: number of purged zones

**property quota**

**reset\_quotas**(*context*, *tenant\_id*)

**property scheduler**

**property service\_name**

**set\_quota**(*context, tenant\_id, resource, hard\_limit*)

**start**()

Start a service.

**stop**(*graceful=True*)

Stop a service.

**Parameters graceful** indicates whether to wait for all threads to finish or terminate them instantly

**property storage**

**target** = <Target version=6.5>

**update\_blacklist**(*context, blacklist*)

**update\_floatingip**(*context, region, floatingip\_id, values*)

We strictly see if values[ptrdname] is str or None and set / unset the requested FloatingIPs PTR record based on that.

**update\_pool**(*context, pool*)

**update\_recordset**(*context, recordset, increment\_serial=True*)

**update\_service\_status**(*context, service\_status*)

**update\_status**(*context, zone\_id, status, serial, action=None*)

**Parameters**

- **context** Security context information.
- **zone\_id** The ID of the designate zone.
- **status** The status, SUCCESS or ERROR.
- **serial** The consensus serial number for the zone.
- **action** The action, CREATE, UPDATE, DELETE or NONE.

**Returns** updated zone

**update\_tld**(*context, tld*)

**update\_tsigkey**(*context, tsigkey*)

**update\_zone**(*context, zone, increment\_serial=True*)

Update zone. Perform checks and then call `_update_zone()`

**Returns** updated zone

**update\_zone\_export**(*context, zone\_export*)

**update\_zone\_import**(*context, zone\_import*)

**update\_zone\_transfer\_request**(*context, zone\_transfer\_request*)



```
property worker_api
xfr_zone(context, zone_id)
```

## MDNS

### MDNS Handler

```
class designate.mdns.handler.RequestHandler(storage, tg)
    Bases: object
    property worker_api
```

### MDNS Service

```
class designate.mdns.service.Service
    Bases: designate.service.Service
    property dns_application
    property service_name
    start()
        Start a service.
    stop(graceful=True)
        Stop a service.
        Parameters graceful indicates whether to wait for all threads to finish or terminate them instantly
    property storage
```

## Objects

### Objects Base

```
class designate.objects.base.AttributeListObjectMixin(*args, **kwargs)
    Bases: designate.objects.base.ListObjectMixin
    Mixin class for Attribute objects.
    Attribute objects are ListObjects, whos memembers have a key and value property, which should be exposed on the list itself as list.<key>.
    classmethod from_dict(_dict)
    get(key, default=None)
    to_dict()
```

```
class designate.objects.base.DesignateObject(*args, **kwargs)
    Bases: oslo_versionedobjects.base.VersionedObject
    OBJ_PROJECT_NAMESPACE = 'designate'
    OBJ_SERIAL_NAMESPACE = 'designate_object'
    STRING_KEYS = []
    classmethod from_dict(_dict)
    classmethod from_list(_list)
    classmethod from_primitive(primitive, context=None)
    property is_valid
        Returns True if the Object is valid.
    nested_sort(key, value)
        This function ensure that change fields list is sorted. :param key: :param value: :return:
    obj_attr_is_set(name)
        Return True or False depending of if a particular attribute has had an attributes value explicitly
        set.
    classmethod obj_cls_from_name(name)
    property obj_context
    property obj_fields
    obj_get_original_value(field)
        Returns the original value of a field.
    classmethod obj_get_schema()
    obj_reset_changes(fields=None, recursive=False)
        Reset the list of fields that have been changed.

        Parameters

- fields List of fields to reset, or all if None.
- recursive Call obj_reset_changes(recursive=True) on any sub-objects
            within the list of fields being reset.


        This is NOT revert to previous values.

        Specifying fields on recursive resets will only be honored at the top level. Everything below
        the top will reset all.

    save(context)
        Save the changed fields back to the store.

        This is optional for subclasses, but is presented here in the base class for consistency among
        those that do.

    to_dict()
        Convert the object to a simple dictionary.
```

**to\_primitive()**

**update(values)**

Update a objects fields with the supplied key/value pairs

**validate()**

**class** designate.objects.base.**DesignateRegistry**(\*args, \*\*kwargs)

Bases: oslo\_versionedobjects.base.VersionedObjectRegistry

**registration\_hook(cls, index)**

**class** designate.objects.base.**ListObjectMixin**(\*args, \*\*kwargs)

Bases: oslo\_versionedobjects.base.ObjectListBase

**LIST\_ITEM\_TYPE**

alias of *designate.objects.base.DesignateObject*

**append(value)**

Append a value to the list

**count(value)**

List count of value occurrences

**extend(values)**

Extend the list by appending all the items in the given list

**classmethod from\_list(\_list)**

**index(value)**

List index of value

**insert(index, value)**

Insert a value into the list at the given index

**pop(index)**

Pop a value from the list

**remove(value)**

Remove a value from the list

**to\_list()**

**class** designate.objects.base.**PagedListObjectMixin**

Bases: object

Mixin class for List objects.

This adds fields that would populate API metadata for collections.

```
fields = {'total_count': Integer(default=<class  
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

**class** designate.objects.base.**PersistentObjectMixin**

Bases: object

Mixin class for Persistent objects.

This adds the fields that we use in common for all persistent objects.

```
fields = {'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

**class** designate.objects.base.SoftDeleteObjectMixin

Bases: object

Mixin class for Soft-Deleted objects.

This adds the fields that we use in common for all soft-deleted objects.

```
fields = {'deleted': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'deleted_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

designate.objects.base.get\_dict\_attr(*klass*, *attr*)

## Objects Backlist

**class** designate.objects.blacklist.Blacklist(\*args, \*\*kwargs)

Bases: oslo\_versionedobjects.base.VersionedObjectDictCompat, *designate.objects.base.PersistentObjectMixin*, *designate.objects.base.DesignateObject*

STRING\_KEYS = ['id', 'pattern']

property created\_at

property description

```
fields = {'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'pattern': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

property id

property pattern

property updated\_at

property version

**class** designate.objects.blacklist.**BlacklistList**(\*args, \*\*kwargs)

Bases: *designate.objects.base.ListObjectMixin*, *designate.objects.base.DesignateObject*

**LIST\_ITEM\_TYPE**

alias of *designate.objects.blacklist.Blacklist*

**fields** = {'objects': List(default=<class 'oslo\_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}

property objects

## Objects Zone

**class** designate.objects.zone.**Zone**(\*args, \*\*kwargs)

Bases: *designate.objects.base.DesignateObject*, *oslo\_versionedobjects.base.VersionedObjectDictCompat*, *designate.objects.base.PersistentObjectMixin*, *designate.objects.base.SoftDeleteObjectMixin*

**STRING\_KEYS** = ['id', 'type', 'name', 'pool\_id', 'serial', 'action', 'status']

property action

property attributes

property created\_at

property delayed\_notify

property deleted

property deleted\_at

property description

property email

property expire

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'attributes': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'delayed_notify': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'deleted': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'deleted_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'email': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'expire': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'masters': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'minimum': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'name':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'parent_zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'pool_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordsets': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'refresh': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'retry': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED', 'SUCCESS', 'NO_ZONE']), 'tenant_id':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'transferred_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'ttl':
Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'type':
Enum(default=<class 'oslo_versionedobjects.fields.UnspecifiedDefault'>,
nullable=True, valid_values=['SECONDARY', 'PRIMARY']), 'updated_at':
DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'70 'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`get_master_by_ip(host)`

Utility to get the master by its ip for this zone.

`property id`

`property masters`

`property minimum`

`property name`

`property parent_zone_id`

`property pool_id`

`property recordsets`

`property refresh`

`property retry`

`property serial`

`property shard`

`property status`

`property tenant_id`

`property transferred_at`

`property ttl`

`property type`

`property updated_at`

`validate()`

`property version`

**class** `designate.objects.zone.ZoneList(*args, **kwargs)`

Bases: `designate.objects.base.ListObjectMixin`, `designate.objects.base.DesignateObject`, `designate.objects.base.PagedListObjectMixin`

**LIST\_ITEM\_TYPE**

alias of `designate.objects.zone.Zone`

```
fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'total_count': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`property objects`

`property total_count`

## Objects Pool

```
class designate.objects.pool.Pool(*args, **kwargs)
```

```
    Bases: oslo_versionedobjects.base.VersionedObjectDictCompat, designate.objects.base.PersistentObjectMixin, designate.objects.base.DesignateObject
```

```
    STRING_KEYS = ['id', 'name']
```

```
    property also_notifies
```

```
    property attributes
```

```
    property created_at
```

```
    property description
```

```
    fields = {'also_notifies': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'attributes': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'name':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'nameservers': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'ns_records': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'provisioner': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'targets': Object(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

```
    property id
```

```
    property name
```

```
    property nameservers
```

```
    property ns_records
```

```
    property provisioner
```



property targets  
 property tenant\_id  
 property updated\_at  
 property version

```
class designate.objects.pool.PoolList(*args, **kwargs)
    Bases: designate.objects.base.ListObjectMixin, designate.objects.base.
    DesignateObject
    LIST_ITEM_TYPE
        alias of designate.objects.pool.Pool
    fields = {'objects': List(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects Quota

```
class designate.objects.quota.Quota(*args, **kwargs)
    Bases: oslo_versionedobjects.base.VersionedObjectDictCompat, designate.
    objects.base.PersistentObjectMixin, designate.objects.base.DesignateObject
    STRING_KEYS = ['resource', 'tenant_id', 'hard_limit']
    property created_at
    fields = {'created_at': DateTime(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
    'hard_limit': Integer(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
    UUID(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
    'resource': Enum(default=<class 'oslo_versionedobjects.fields.
    UnspecifiedDefault'>, nullable=True, valid_values=['api_export_size',
    'recordset_records', 'zone_records', 'zone_recordsets', 'zones']),
    'tenant_id': Any(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
    'updated_at': DateTime(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
    'version': Integer(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
    property hard_limit
    property id
    property resource
```

property tenant\_id

property updated\_at

property version

**class** designate.objects.quota.QuotaList(\*args, \*\*kwargs)

Bases: *designate.objects.base.ListObjectMixin*, *designate.objects.base.DesignateObject*

**LIST\_ITEM\_TYPE**

alias of *designate.objects.quota.Quota*

**fields** = {'objects': List(default=<class 'oslo\_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}

**classmethod** from\_dict(\_dict)

property objects

**to\_dict()**

Convert the object to a simple dictionary.

## Objects Record

**class** designate.objects.record.Record(\*args, \*\*kwargs)

Bases: *designate.objects.base.DesignateObject*, *designate.objects.base.PersistentObjectMixin*, *oslo\_versionedobjects.base.VersionedObjectDictCompat*

**STRING\_KEYS** = ['id', 'recordset\_id', 'data']

property action

property created\_at

property data

property description

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>,nullable=True,valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>,nullable=True,valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True)}

classmethod get_recordset_schema_changes()

property hash

property id

property managed

```

property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

**class** designate.objects.record.**RecordList**(\*args, \*\*kwargs)

Bases: *designate.objects.base.ListObjectMixin*, *designate.objects.base.DesignateObject*

**LIST\_ITEM\_TYPE**

alias of *designate.objects.record.Record*

**fields** = {'objects': List(default=<class 'oslo\_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}

property objects

## Objects Recordset

**class** designate.objects.recordset.**RecordSet**(\*args, \*\*kwargs)

Bases: *designate.objects.base.DesignateObject*, *oslo\_versionedobjects.base.VersionedObjectDictCompat*, *designate.objects.base.PersistentObjectMixin*

**STRING\_KEYS** = ['id', 'type', 'name', 'zone\_id']

property action

property created\_at

property description

```

fields = {'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'name':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'records': PolymorphicObject(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'ttl':
Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'type':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'zone_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True)}

```

property id

property managed

property name

property records

property shard

property status

property tenant\_id

property ttl

property type

property updated\_at

validate()

property version

property zone\_id

property zone\_name

```
class designate.objects.recordset.RecordSetList(*args, **kwargs)
    Bases: designate.objects.base.ListObjectMixin, designate.objects.base.
    DesignateObject, designate.objects.base.PagedListObjectMixin

    LIST_ITEM_TYPE
        alias of designate.objects.recordset.RecordSet

    fields = {'objects': List(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
    'total_count': Integer(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

    property objects

    property total_count
```

## Objects Server

```
class designate.objects.server.Server(*args, **kwargs)
    Bases: oslo_versionedobjects.base.VersionedObjectDictCompat, designate.
    objects.base.PersistentObjectMixin, designate.objects.base.DesignateObject

    STRING_KEYS = ['id', 'name']

    property created_at

    fields = {'created_at': DateTime(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
    UUID(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'name':
    String(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
    'updated_at': DateTime(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
    'version': Integer(default=<class
    'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

    property id

    property name

    property updated_at

    property version

class designate.objects.server.ServerList(*args, **kwargs)
    Bases: designate.objects.base.ListObjectMixin, designate.objects.base.
    DesignateObject

    LIST_ITEM_TYPE
        alias of designate.objects.server.Server
```

```
fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
```

property objects

## Objects Tenant

```
class designate.objects.tenant.Tenant(*args, **kwargs)
```

Bases: *designate.objects.base.DesignateObject*, *oslo\_versionedobjects.base.VersionedObjectDictCompat*

```
STRING_KEYS = ['id']
```

```
fields = {'id': Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_count': Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zones': Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

property id

property zone\_count

property zones

```
class designate.objects.tenant.TenantList(*args, **kwargs)
```

Bases: *designate.objects.base.ListObjectMixin*, *designate.objects.base.DesignateObject*

```
LIST_ITEM_TYPE
```

alias of *designate.objects.tenant.Tenant*

```
fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
```

property objects

## Objects TLD

```
class designate.objects.tld.Tld(*args, **kwargs)
```

Bases: *oslo\_versionedobjects.base.VersionedObjectDictCompat*, *designate.objects.base.PersistentObjectMixin*, *designate.objects.base.DesignateObject*

```
STRING_KEYS = ['id', 'name']
```

property created\_at

property description

```
fields = {'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'name':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

property id

property name

property updated\_at

property version

```
class designate.objects.tld.TldList(*args, **kwargs)
```

Bases: [designate.objects.base.ListObjectMixin](#), [designate.objects.base.DesignateObject](#)

LIST\_ITEM\_TYPE

alias of [designate.objects.tld.Tld](#)

```
fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
```

property objects

## Objects TSigKey

```
class designate.objects.tsigkey.TsigKey(*args, **kwargs)
```

Bases: [oslo\\_versionedobjects.base.VersionedObjectDictCompat](#), [designate.objects.base.PersistentObjectMixin](#), [designate.objects.base.DesignateObject](#)

```
STRING_KEYS = ['id', 'name', 'algorithm', 'scope', 'resource_id']
```

property algorithm

property created\_at



```

fields = {'algorithm': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=False, valid_values=['hmac-md5', 'hmac-sha1',
'hmac-sha224', 'hmac-sha256', 'hmac-sha384', 'hmac-sha512']),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'name':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'scope': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=False, valid_values=['POOL', 'ZONE']),
'secret': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

property id

property name

property resource\_id

property scope

property secret

property updated\_at

property version

```
class designate.objects.tsigkey.TsigKeyList(*args, **kwargs)
```

Bases: *designate.objects.base.ListObjectMixin*, *designate.objects.base.DesignateObject*

LIST\_ITEM\_TYPE

alias of *designate.objects.tsigkey.TsigKey*

```

fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}

```

property objects

## Objects A Record

**class** designate.objects.rrdata\_a.A(\*args, \*\*kwargs)

Bases: *designate.objects.record.Record*

A Resource Record Type Defined in: RFC1035

**RECORD\_TYPE** = 1

**property** action

**property** address

**property** created\_at

**property** data

**property** description

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'address': IPV4Address(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

`from_string(value)`

property hash

property id

property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrddata_a.AList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrddata_a.A
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects AAAA Record

```
class designate.objects.rrddata_aaaa.AAAA(*args, **kwargs)
    Bases: designate.objects.record.Record
    AAAA Resource Record Type Defined in: RFC3596
    RECORD_TYPE = 28
    property action
    property address
```

property created\_at

property data

property description

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'address': IPV6Address(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`from_string(value)`  
`property hash`  
`property id`  
`property managed`  
`property managed_extra`  
`property managed_plugin_name`  
`property managed_plugin_type`  
`property managed_resource_id`  
`property managed_resource_region`  
`property managed_resource_type`  
`property managed_tenant_id`  
`property recordset_id`  
`property serial`  
`property shard`  
`property status`  
`property tenant_id`  
`property updated_at`  
`property version`  
`property zone_id`

`class designate.objects.rrddata_aaaa.AAAAList(*args, **kwargs)`

Bases: `designate.objects.record.RecordList`

`LIST_ITEM_TYPE`

alias of `designate.objects.rrddata_aaaa.AAAA`

`fields = {'objects': List(default=<class 'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}`

`property objects`

## Objects CNAME Record

**class** designate.objects.rrdata\_cname.**CNAME**(\*args, \*\*kwargs)

Bases: *designate.objects.record.Record*

CNAME Resource Record Type Defined in: RFC1035

**RECORD\_TYPE** = 5

**property** action

**property** cname

**property** created\_at

**property** data

**property** description

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'cname': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`from_string(value)`

property hash

property id



property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrdata_cname.CNAMEList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_cname.CNAME
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

### Objects MX Record

```
class designate.objects.rrdata_mx.MX(*args, **kwargs)
    Bases: designate.objects.record.Record
    MX Resource Record Type Defined in: RFC1035
    RECORD_TYPE = 15
    property action
    property created_at
```

property data

property description

property exchange

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'exchange': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'hash': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'priority': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

`from_string(value)`

property hash

property id  
property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property priority  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrdata_mx.MXList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_mx.MX
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects NS Record

```
class designate.objects.rrdata_ns.NS(*args, **kwargs)
    Bases: designate.objects.record.Record
    NS Resource Record Type Defined in: RFC1035
    RECORD_TYPE = 2
```

property action

property created\_at

property data

property description

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'nsdname': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

```
from_string(value)
```

```
classmethod get_recordset_schema_changes()
```

```
property hash
```

property id  
property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property nsdname  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrdata_ns.NSList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_ns.NS
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

### Objects PTR Record

```
class designate.objects.rrdata_ptr.PTR(*args, **kwargs)
    Bases: designate.objects.record.Record
    PTR Resource Record Type Defined in: RFC1035
    RECORD_TYPE = 12
```

property action

property created\_at

property data

property description



```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>,nullable=True,valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'ptrdname': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>,nullable=True,valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>,nullable=True)}

```

`from_string(value)`

property hash

property id

property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property ptrdname  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrdata_ptr.PTRLList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_ptr.PTR
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects SOA Record

```
class designate.objects.rrdata_soa.SOA(*args, **kwargs)
    Bases: designate.objects.record.Record
    SOA Resource Record Type Defined in: RFC1035
    RECORD_TYPE = 6
    property action
```

property created\_at

property data

property description

property expire

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'expire': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'hash': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'minimum': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'mname': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'refresh': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'retry': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'rname': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`from_string(value)`

`property hash`

`property id`

`property managed`

`property managed_extra`

`property managed_plugin_name`

`property managed_plugin_type`

`property managed_resource_id`

`property managed_resource_region`

`property managed_resource_type`

`property managed_tenant_id`

`property minimum`

`property mname`

`property recordset_id`

`property refresh`

`property retry`

`property rname`

`property serial`

`property shard`

`property status`

`property tenant_id`

`property updated_at`

`property version`

`property zone_id`

```
class designate.objects.rrdata_soa.SOAList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_soa.SOA
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects SPF Record

**class** designate.objects.rrdata\_spf.**SPF**(\*args, \*\*kwargs)

Bases: *designate.objects.record.Record*

SPF Resource Record Type Defined in: RFC4408

**RECORD\_TYPE** = 99

**property** action

**property** created\_at

**property** data

**property** description

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'txt_data': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

from\_string(*value*)

property hash

property id

property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property txt\_data  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrddata_spf.SPFList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrddata_spf.SPF
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects SRV Record

```
class designate.objects.rrddata_srv.SRV(*args, **kwargs)
    Bases: designate.objects.record.Record
    SRV Resource Record Type Defined in: RFC2782
    RECORD_TYPE = 33
    property action
```



property created\_at

property data

property description

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'port':
Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'priority': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'target': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'weight': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```

`from_string(value)`

`classmethod get_recordset_schema_changes()`

property hash

property id

property managed

property managed\_extra

property managed\_plugin\_name

property managed\_plugin\_type

property managed\_resource\_id

property managed\_resource\_region

property managed\_resource\_type

property managed\_tenant\_id

property port

property priority

property recordset\_id

property serial

property shard

property status

property target

property tenant\_id

property updated\_at

property version

property weight

property zone\_id

```
class designate.objects.rrddata_srv.SRVList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrddata_srv.SRV
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects TXT Record

**class** designate.objects.rrdata\_txt.**TXT**(\*args, \*\*kwargs)

Bases: *designate.objects.record.Record*

TXT Resource Record Type Defined in: RFC1035

**RECORD\_TYPE** = 16

**property** action

**property** created\_at

**property** data

**property** description

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'hash':
String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'txt_data': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

`from_string(value)`

property hash

property id

property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property txt\_data  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrdata_txt.TXTList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrdata_txt.TXT
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

### Objects SSHFP Record

```
class designate.objects.rrdata_sshfp.SSHFP(*args, **kwargs)
    Bases: designate.objects.record.Record
    SSHFP Resource Record Type Defined in: RFC4255
    RECORD_TYPE = 44
    property action
```

property algorithm

property created\_at

property data

property description

```
fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'algorithm': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'fingerprint': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'fp_type': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'hash': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}
```



property fingerprint  
property fp\_type  
from\_string(*value*)  
property hash  
property id  
property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property recordset\_id  
property serial  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

```
class designate.objects.rrddata_sshfp.SSHFPList(*args, **kwargs)
    Bases: designate.objects.record.RecordList
    LIST_ITEM_TYPE
        alias of designate.objects.rrddata_sshfp.SSHFP
    fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
    property objects
```

## Objects NAPTR Record

**class** designate.objects.rrdata\_naptr.**NAPTR**(\*args, \*\*kwargs)

Bases: *designate.objects.record.Record*

NAPTR Resource Record Type Defined in: RFC2915

**RECORD\_TYPE** = 35

**property** action

**property** created\_at

**property** data

**property** description

```

fields = {'action': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['CREATE', 'DELETE',
'UPDATE', 'NONE']), 'created_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'data':
Any(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'description': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'flags': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'hash': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True), 'id':
UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed': Boolean(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_extra': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_name': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_plugin_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_region': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_resource_type': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'managed_tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'order': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'preference': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'recordset_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'regexp': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'replacement': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'serial': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'service': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False),
'shard': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'status': Enum(default=<class 'oslo_versionedobjects.fields.
UnspecifiedDefault'>, nullable=True, valid_values=['ACTIVE', 'PENDING',
'ERROR', 'DELETED']), 'tenant_id': String(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'updated_at': DateTime(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'version': Integer(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True),
'zone_id': UUID(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=True)}

```

property flags  
from\_string(*value*)  
property hash  
property id  
property managed  
property managed\_extra  
property managed\_plugin\_name  
property managed\_plugin\_type  
property managed\_resource\_id  
property managed\_resource\_region  
property managed\_resource\_type  
property managed\_tenant\_id  
property order  
property preference  
property recordset\_id  
property regexp  
property replacement  
property serial  
property service  
property shard  
property status  
property tenant\_id  
property updated\_at  
property version  
property zone\_id

**class** designate.objects.rrddata\_naptr.NAPTRList(\*args, \*\*kwargs)  
Bases: *designate.objects.record.RecordList*  
**LIST\_ITEM\_TYPE**  
alias of *designate.objects.rrddata\_naptr.NAPTR*

```
fields = {'objects': List(default=<class
'oslo_versionedobjects.fields.UnspecifiedDefault'>, nullable=False)}
```

property objects

## Objects CAA Record

members

undoc-members

show-inheritance

## Objects CERT Record

members

undoc-members

show-inheritance

## Quota

### Quota Base

**class** designate.quota.base.Quota

Bases: designate.plugin.DriverPlugin

Base class for quota plugins

**get\_default\_quotas**(context)

**get\_quota**(context, tenant\_id, resource)

**get\_quotas**(context, tenant\_id)

**limit\_check**(context, tenant\_id, \*\*values)

**reset\_quotas**(context, tenant\_id)

**set\_quota**(context, tenant\_id, resource, hard\_limit)

### Quota Storage

**class** designate.quota.impl\_storage.StorageQuota

Bases: *designate.quota.base.Quota*

**get\_quota**(context, tenant\_id, resource)

**reset\_quotas**(context, tenant\_id)

**set\_quota**(context, tenant\_id, resource, hard\_limit)

## Sink

### Sink Service

**class** `designate.sink.service.Service`

Bases: `designate.service.Service`

**info**(*context, publisher\_id, event\_type, payload, metadata*)

Processes an incoming notification, offering each extension the opportunity to handle it.

**property** `service_name`

**start**()

Start a service.

**stop**(*graceful=True*)

Stop a service.

**Parameters** `graceful` indicates whether to wait for all threads to finish or terminate them instantly

## Storage

### Storage Base

**class** `designate.storage.base.Storage`

Bases: `designate.plugin.DriverPlugin`

Base class for storage plugins

**abstract** `count_records`(*context, criterion=None*)

Count records

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract** `count_recordsets`(*context, criterion=None*)

Count recordsets

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract** `count_tenants`(*context*)

Count tenants

**Parameters** `context` RPC Context.

**abstract** `count_zones`(*context, criterion=None*)

Count zones

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract create\_blacklist**(*context, blacklist*)

Create a Blacklist.

**Parameters**

- **context** RPC Context.
- **blacklist** Blacklist object with the values to be created.

**abstract create\_pool**(*context, pool*)

Create a Pool.

**Parameters**

- **context** RPC Context.
- **pool** Pool object with the values to be created.

**abstract create\_pool\_attribute**(*context, pool\_id, pool\_attribute*)

Create a PoolAttribute.

**Parameters**

- **context** RPC Context.
- **pool\_id** The ID of the pool to which the attribute belongs.
- **pool\_attribute** PoolAttribute object with the values created.

**abstract create\_quota**(*context, quota*)

Create a Quota.

**Parameters**

- **context** RPC Context.
- **quota** Quota object with the values to be created.

**abstract create\_record**(*context, zone\_id, recordset\_id, record*)

Create a record on a given Zone ID

**Parameters**

- **context** RPC Context.
- **zone\_id** Zone ID to create the record in.
- **recordset\_id** RecordSet ID to create the record in.
- **record** Record object with the values to be created.

**abstract create\_recordset**(*context, zone\_id, recordset*)

Create a recordset on a given Zone ID

**Parameters**

- **context** RPC Context.
- **zone\_id** Zone ID to create the recordset in.
- **recordset** RecordSet object with the values to be created.

**abstract create\_tld**(*context, tld*)

Create a TLD.

**Parameters**

- **context** RPC Context.
- **tld** Tld object with the values to be created.

**abstract create\_tsigkey**(*context, tsigkey*)

Create a TSIG Key.

**Parameters**

- **context** RPC Context.
- **tsigkey** TsigKey object with the values to be created.

**abstract create\_zone**(*context, zone*)

Create a new Zone.

**Parameters**

- **context** RPC Context.
- **zone** Zone object with the values to be created.

**abstract create\_zone\_export**(*context, zone\_export*)

Create a Zone Export.

**Parameters**

- **context** RPC Context.
- **zone\_export** Zone Export object with the values to be created.

**abstract create\_zone\_import**(*context, zone\_import*)

Create a Zone Import.

**Parameters**

- **context** RPC Context.
- **zone\_import** Zone Import object with the values to be created.

**abstract delete\_blacklist**(*context, blacklist\_id*)

Delete a Blacklist via ID.

**Parameters**

- **context** RPC Context.
- **blacklist\_id** Delete a Blacklist via ID

**abstract delete\_pool**(*context, pool\_id*)

Delete the pool with the matching id

**Parameters**

- **context** RPC Context.
- **pool\_id** The ID of the pool to be deleted



**abstract delete\_pool\_attribute**(*context, pool\_attribute\_id*)

Delete the pool with the matching id

**Parameters**

- **context** RPC Context.
- **pool\_attribute\_id** The ID of the PoolAttribute to be deleted

**abstract delete\_quota**(*context, quota\_id*)

Delete a Quota via ID.

**Parameters**

- **context** RPC Context.
- **quota\_id** Delete a Quota via ID

**abstract delete\_record**(*context, record\_id*)

Delete a record

**Parameters**

- **context** RPC Context.
- **record\_id** Record ID to delete

**abstract delete\_recordset**(*context, recordset\_id*)

Delete a recordset

**Parameters**

- **context** RPC Context.
- **recordset\_id** RecordSet ID to delete

**abstract delete\_tld**(*context, tld\_id*)

Delete a TLD via ID.

**Parameters**

- **context** RPC Context.
- **tld\_id** Delete a TLD via ID

**abstract delete\_tsigkey**(*context, tsigkey\_id*)

Delete a TSIG Key via ID.

**Parameters**

- **context** RPC Context.
- **tsigkey\_id** Delete a TSIG Key via ID

**abstract delete\_zone**(*context, zone\_id*)

Delete a Zone

**Parameters**

- **context** RPC Context.
- **zone\_id** Zone ID to delete.

**abstract delete\_zone\_export**(*context, zone\_export\_id*)

Delete a Zone Export via ID.

**Parameters**

- **context** RPC Context.
- **zone\_export\_id** Delete a Zone Export via ID

**abstract delete\_zone\_import**(*context, zone\_import\_id*)

Delete a Zone Import via ID.

**Parameters**

- **context** RPC Context.
- **zone\_import\_id** Delete a Zone Import via ID

**abstract find\_blacklist**(*context, criterion*)

Find a single Blacklist.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_blacklists**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find Blacklists

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using **sort\_key**.

**abstract find\_pool**(*context, criterion*)

Find a single Pool.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_pool\_attribute**(*context, criterion*)

Find a single PoolAttribute

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_pool\_attributes**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find all PoolAttributes

**Parameters**

- **context** RPC Context
- **criterion** Criteria by which to filter
- **marker** Resource ID used by paging. The next page will start at the next resource after the marker
- **limit** Integer limit of objects on the page
- **sort\_key** Key used to sort the returned list
- **sort\_dir** Directions to sort after using sort\_key

**abstract find\_pools**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find all Pools

**Parameters**

- **context** RPC Context.
- **criterion** Criteria by which to filter
- **marker** Resource ID used by paging. The next page will start at the next resource after the marker
- **limit** Integer limit of objects on the page
- **sort\_key** Key used to sort the returned list
- **sort\_dir** Directions to sort after using sort\_key

**abstract find\_quota**(*context, criterion*)

Find a single Quota.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_quotas**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find Quotas

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_record**(*context, criterion*)

Find a single Record.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_records**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find Records.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_recordset**(*context, criterion*)

Find a single RecordSet.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_recordsets**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None, force\_index=False*)

Find RecordSets.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_recordsets\_axfr**(*context, criterion=None*)

Find RecordSets.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_service\_status**(*context, criterion*)

Find a single Service Status.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_service\_statuses**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Retrieve status for services

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_tenants**(*context*)

Find all Tenants.

**Parameters context** RPC Context.

**abstract find\_tld**(*context, criterion*)

Find a single TLD.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_tlds**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find TLDs

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_tsigkeys**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find TSIG Keys.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using `sort_key`.

**abstract find\_zone**(*context, criterion*)

Find a single Zone.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_zone\_export**(*context, criterion*)

Find a single Zone Export.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_zone\_exports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find Zone Exports

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using `sort_key`.

**abstract find\_zone\_import**(*context, criterion*)

Find a single Zone Import.

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.

**abstract find\_zone\_imports**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find Zone Imports

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract find\_zones**(*context, criterion=None, marker=None, limit=None, sort\_key=None, sort\_dir=None*)

Find zones

**Parameters**

- **context** RPC Context.
- **criterion** Criteria to filter by.
- **marker** Resource ID from which after the requested page will start after
- **limit** Integer limit of objects of the page size after the marker
- **sort\_key** Key from which to sort after.
- **sort\_dir** Direction to sort after using sort\_key.

**abstract get\_blacklist**(*context, blacklist\_id*)

Get a Blacklist via ID.

**Parameters**

- **context** RPC Context.
- **blacklist\_id** Blacklist ID to get.

**abstract get\_pool**(*context, pool\_id*)

Get a Pool via the id

**Parameters**

- **context** RPC Context.
- **pool\_id** The ID of the pool to get

**abstract get\_pool\_attribute**(*context, pool\_attribute\_id*)

Get a PoolAttribute via the ID

**Parameters**

- **context** RPC Context.
- **pool\_attribute\_id** The ID of the PoolAttribute to get

**abstract get\_quota**(*context, quota\_id*)

Get a Quota via ID.

**Parameters**

- **context** RPC Context.
- **quota\_id** Quota ID to get.

**abstract** `get_record(context, record_id)`

Get a record via ID

**Parameters**

- **context** RPC Context.
- **record\_id** Record ID to get

**abstract** `get_recordset(context, recordset_id)`

Get a recordset via ID

**Parameters**

- **context** RPC Context.
- **recordset\_id** RecordSet ID to get

**abstract** `get_tenant(context, tenant_id)`

Get all Tenants.

**Parameters**

- **context** RPC Context.
- **tenant\_id** ID of the Tenant.

**abstract** `get_tld(context, tld_id)`

Get a TLD via ID.

**Parameters**

- **context** RPC Context.
- **tld\_id** TLD ID to get.

**abstract** `get_tsigkey(context, tsigkey_id)`

Get a TSIG Key via ID.

**Parameters**

- **context** RPC Context.
- **tsigkey\_id** Server ID to get.

**abstract** `get_zone(context, zone_id)`

Get a Zone via its ID.

**Parameters**

- **context** RPC Context.
- **zone\_id** ID of the Zone.

**abstract** `get_zone_export(context, zone_export_id)`

Get a Zone Export via ID.

**Parameters**

- **context** RPC Context.
- **zone\_export\_id** Zone Export ID to get.



**abstract get\_zone\_import**(*context, zone\_import\_id*)

Get a Zone Import via ID.

**Parameters**

- **context** RPC Context.
- **zone\_import\_id** Zone Import ID to get.

**abstract purge\_zone**(*context, zone*)

Purge a Zone

**Parameters**

- **context** RPC Context.
- **zone** Zone to delete.

**abstract update\_blacklist**(*context, blacklist*)

Update a Blacklist

**Parameters**

- **context** RPC Context.
- **blacklist** Blacklist to update.

**abstract update\_pool**(*context, pool*)

Update the specified pool

**Parameters**

- **context** RPC Context.
- **pool** Pool to update.

**abstract update\_pool\_attribute**(*context, pool\_attribute*)

Update the specified pool

**Parameters**

- **context** RPC Context.
- **pool\_attribute** PoolAttribute to update

**abstract update\_quota**(*context, quota*)

Update a Quota

**Parameters**

- **context** RPC Context.
- **quota** Quota to update.

**abstract update\_record**(*context, record*)

Update a record

**Parameters**

- **context** RPC Context.
- **record** Record to update

**abstract update\_recordset**(*context, recordset*)

Update a recordset

**Parameters**

- **context** RPC Context.
- **recordset** RecordSet to update

**abstract update\_service\_status**(*context, service\_status*)

Update the Service status for a service.

**Parameters**

- **context** RPC Context.
- **service\_status** Set the status for a service.

**abstract update\_tld**(*context, tld*)

Update a TLD

**Parameters**

- **context** RPC Context.
- **tld** TLD to update.

**abstract update\_tsigkey**(*context, tsigkey*)

Update a TSIG Key

**Parameters**

- **context** RPC Context.
- **tsigkey** TSIG Keyto update.

**abstract update\_zone**(*context, zone*)

Update a Zone

**Parameters**

- **context** RPC Context.
- **zone** Zone object.

**abstract update\_zone\_export**(*context, zone\_export*)

Update a Zone Export

**Parameters**

- **context** RPC Context.
- **zone\_export** Zone Export to update.

**abstract update\_zone\_import**(*context, zone\_import*)

Update a Zone Import

**Parameters**

- **context** RPC Context.
- **zone\_import** Zone Import to update.

### 1.3.5 Development Environment on Ubuntu

Designate is comprised of four main components *Designate API*, *Designate Central*, *designate-mdns*, and *designate-pool-manager*, supported by a few standard open source components. For more information see *Architecture*.

There are many different options for customizing Designate, and two of these options have a major impact on the installation process:

- The storage backend used (SQLite or MySQL)
- The DNS backend used (PowerDNS or BIND9)

This guide will walk you through setting up a typical development environment for Designate, using BIND9 as the DNS backend and MySQL as the storage backend. For a more complete discussion on installation & configuration options, please see *Architecture*.

For this guide you will need access to an Ubuntu Server (16.04).

## Development Environment

### Installing Designate

1. Install system package dependencies (Ubuntu)

```
$ sudo apt update
$ sudo apt install python-pip python-virtualenv libssl-dev libffi-dev git
$ sudo apt build-dep python-lxml
```

2. Clone the Designate repo

```
$ mkdir openstack
$ cd openstack
$ git clone https://opendev.org/openstack/designate.git
$ cd designate
```

3. Setup a virtualenv

---

**Note:** This step is necessary to allow the installation of an up-to-date pip, independent of the version packaged for Ubuntu. it is also useful in isolating the remainder of Designates dependencies from the rest of the system.

---

```
$ virtualenv .venv
$ . .venv/bin/activate
```

4. Install an up-to-date pip

```
$ pip install -U pip
```

5. Install Designate and its dependencies

```
$ pip install -e .
```

6. Change directories to the etc/designate folder.

---

**Note:** Everything from here on out should take place in or below your etc/designate folder

---

```
$ cd etc/designate
```

7. Create Designates config files by copying the sample config files

```
$ cp -a rootwrap.conf.sample rootwrap.conf
```

8. Make the directory for Designates state files

```
$ mkdir -p ../../state
```

### Configuring Designate

Refer to *Designate Configuration Guide* for a sample configuration options.

### Installing RabbitMQ

Install the RabbitMQ package

```
$ sudo apt install rabbitmq-server
```

Create a user:

```
$ sudo rabbitmqctl add_user designate designate
```

Give the user access to the / vhost:

```
$ sudo rabbitmqctl set_permissions -p "/" designate ".*" ".*" ".*"
```

### Installing MySQL

Install the MySQL server package

```
$ sudo apt install mysql-server
```

If you do not have MySQL previously installed, you will be prompted to change the root password. By default, the MySQL root password for Designate is password. You can:

- Change the root password to password
- If you want your own password, edit the designate.conf file and change any instance of `mysql+pymysql://root:password@127.0.0.1/designate?charset=utf8` to `mysql+pymysql://root:YOUR_PASSWORD@127.0.0.1/designate?charset=utf8`

You can change your MySQL password anytime with the following command:

```
$ mysqladmin -u root -p password NEW_PASSWORD
Enter password <enter your old password>
```

Create the Designate tables

```
$ mysql -u root -p
Enter password: <enter your password here>

mysql> CREATE DATABASE `designate` CHARACTER SET utf8 COLLATE utf8_general_ci;
mysql> exit;
```

Install additional packages

```
$ sudo apt install libmysqlclient-dev
$ pip install pymysql
```

## Installing BIND9

Install the DNS server, BIND9

```
$ sudo apt install bind9
```

Update the BIND9 Configuration

```
$ sudo editor /etc/bind/named.conf.options
```

Change the corresponding lines in the config file:

```
options {
    directory "/var/cache/bind";
    dnssec-validation auto;
    auth-nxdomain no; # conform to RFC1035
    listen-on-v6 { any; };
    allow-new-zones yes;
    request-ixfr no;
    recursion no;
};
```

Disable AppArmor for BIND9

```
$ sudo touch /etc/apparmor.d/disable/usr.sbin.named
$ sudo systemctl reload apparmor
```

Restart BIND9:

```
$ sudo systemctl restart bind9
```

## Create and Import pools.yaml File

Create the pools.yaml file

```
$ editor pools.yaml
```

Copy or mirror the configuration from this sample file here:

```
- name: default
  # The name is immutable. There will be no option to change the name after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default BIND9 Pool

  attributes: {}

  # List out the NS records for zones hosted within this pool
  ns_records:
    - hostname: ns1-1.example.org.
      priority: 1

  # List out the nameservers for this pool. These are the actual BIND servers.
  # We use these to verify changes have propagated to all nameservers.
  nameservers:
    - host: 127.0.0.1
      port: 53

  # List out the targets for this pool. For BIND, most often, there will be 
↳one
  # entry for each BIND server.
  targets:
    - type: bind9
      description: BIND9 Server 1

  # List out the designate-mdns servers from which BIND servers should
  # request zone transfers (AXFRs) from.
  masters:
    - host: 127.0.0.1
      port: 5354

  # BIND Configuration options
  options:
    host: 127.0.0.1
    port: 53
    rndc_host: 127.0.0.1
    rndc_port: 953
    rndc_key_file: /etc/bind/rndc.key

  # Optional list of additional IP/Port's for which designate-mdns will send
  # DNS NOTIFY packets to
  # also_notifies:
```

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(continued from previous page)

```
# - host: 192.0.2.4  
#   port: 53
```

### Initialize the Database

Sync the Designate database.

```
$ designate-manage database sync
```

### Start the Central Service

Start the central service.

```
$ designate-central
```

You'll now be seeing the log from the central service.

### Initialize Pools Information

Import the pools.yaml file into Designate. It is important that `designate-central` is started before invoking this command

```
$ designate-manage pool update --file pools.yaml
```

### Start the other Services

Open up some new ssh windows and log in to your server (or open some new screen/tmux sessions).

```
$ cd openstack/designate  
$ . .venv/bin/activate
```

Start the other services

```
$ designate-api  
$ designate-mdns  
$ designate-worker  
$ designate-producer
```

You'll now be seeing the logs from the other services.

### Exercising the API

**Note:** If you have a firewall enabled, make sure to open port 53, as well as Designate's default port (9001).

---

Using a web browser, curl statement, or a REST client, calls can be made to the Designate API. You can find the various API calls on the [api-ref](#) document.

For example:

```
$ curl 127.0.0.1:9001/v2/zones -H 'Content-Type: application/json' --data '{
  "name": "example.com.",
  "email": "example@example.com"
}'

{"status": "PENDING",.....
$ curl 127.0.0.1:9001/v2/zones
{"zones": [{"status": "ACTIVE",.....
```

The ACTIVE status shows that the zone propagated. So you should be able to perform a DNS query and see it:

```
$ dig @127.0.0.1 example.com SOA +short
ns1-1.example.org. example.example.com. 1487884120 3531 600 86400 3600
```

You can find the IP Address of your server by running

```
ip addr show eth0 | grep "inet\b" | awk '{print $2}' | cut -d/ -f1
```

If you have Keystone set up, you can use it by configuring the `[keystone_auth_token]` section and changing the `auth_strategy = keystone` in the `service:api` section. This will make it easier to use clients like the `openstack` CLI that expect Keystone.

### 1.3.6 OpenStack Integrations

This page overviews integrations with other services like Neutron and others to make use of Designate more convenient.

#### Reverse - FloatingIP

The FloatingIP PTR feature of Designate relies on information of the FloatingIP which is in a different service than Designate itself. It can be in any service as long as there is a plugin for it that can be loaded via the configuration setting called `network_api`.

- Controller, views and schemas in the V2 API
- RPC Client towards Central used by the API and Sink



- Logic in Central to make it convenient for setting, unsetting, listing and getting FloatingIP PTR records compared to the Records themselves which would be more work. (This is outlined in code docstrings for the specific methods.)
- Sink handlers for the various backend to help us be more consistent.

## Record invalidation

Happens mainly happens via comparing a Tenants FloatingIPs towards the list we have of Records which are of a certain plugin type and with the use of a Sink handler that listens for incoming events from the various services.

## Configuring Neutron

Configuring the FloatingIP feature is really simple:

```
[network_api:neutron]
endpoints = RegionOne|http://localhost:9696
endpoint_type = publicURL
timeout = 30
# This is optional - if these credentials are not provided designate will
# use the users context and auth token to query neutron
#admin_username = designate
#admin_password = designate
#admin_tenant_name = designate
auth_url = http://localhost:35357/v2.0
insecure = False
auth_strategy = keystone
ca_certificates_file = /etc/path/to/ca.pem
```

Note that using `admin_user`, `admin_password` and `admin_tenant_name` is optional, if not present well piggyback on the `context.auth_token` passed in by the API.

---

**Note:** If `endpoints` is not configured and theres no service catalog is present in the context passed by the API to Central the request will fail in a `NoEndpoint` exception.

---

## Neutron Designate direct integration

Neutron supports creating DNS Recordsets as neutron ports are created, and pushing that information into designate.

The configuration for this is in the [Networking Guide](#)

### Designate Sink

*Designate Sink* is a component of designate that can listen to the event stream of other openstack services and perform actions based on them.

### 1.3.7 Other modules

## 1.4 User guide

In this section, you will find documentation relevant for using Designate.

Contents:

### 1.4.1 Managing Zones

#### Managing Zones

In the Domain Name System, *zones* are used to break up the namespace into more easily managed pieces. For example, within the root zone `.` there are zones for each of the top level domains such as `.org.` and `.com.` and responsibility for each of those zones could lie with a different organisation. Within those zones, there are then delegations to other zones, such as `example.org.` or `example.com.` which might again be managed by a different organisation and/or set of nameservers. This forms a hierarchy of responsibility, with the higher levels being mainly composed of delegations to lower levels.

#### Zones in Designate

Zones in Designate model the ownership concept from DNS itself, where any given zone can only be owned by a single tenant. However, while DNS is able to support a hierarchy of zones, there is no support for delegating subzones to another tenant, and one tenant cannot create zones that lie within the zone of another tenant.

The creation of a zone in Designate also creates two recordsets automatically: an SOA record and an NS record. By default these records cannot be modified without the admin role.

#### Zones vs Top Level Domains

While top level domains are considered zones from a DNS perspective, in Designate they are often not managed as a zone, and instead have their own TLD type that allows any tenant to create zones within that TLD and restricts tenants from creating zones that arent within a managed TLD. If no TLDs are being managed within Designate, tenants can create any zone aside from the root zone and top level domains.

## Creating a zone

Creating a zone requires only the name of the zone and an email address of the party responsible for the zone.

```
$ openstack zone create --email dnsmaster@example.com example.com.
+-----+-----+-----+-----+
| Field          | Value                                     |
+-----+-----+-----+-----+
| action         | CREATE                                   |
| attributes     | {}                                       |
| created_at    | 2016-07-13T14:54:16.000000            |
| description    | None                                     |
| email         | dnsmaster@example.com                 |
| id            | 14093115-0f0f-497a-ac69-42235e46c26f |
| masters       |                                         |
| name          | example.com.                           |
| pool_id       | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id    | 656bc359067844fba6005d400f19df76     |
| serial        | 1468421656                             |
| status        | PENDING                                 |
| transferred_at | None                                     |
| ttl           | 3600                                    |
| type          | PRIMARY                                 |
| updated_at    | None                                     |
| version       | 1                                       |
+-----+-----+-----+-----+
```

Note that the state is PENDING. Designate has received the request to create the zone, but may not have completed it yet. After a short time, verify successful creation of the DNS Zone:

```
$ openstack zone list
+-----+-----+-----+-----+
↪ | id | name | type |
↪ | serial | status | action |
+-----+-----+-----+-----+
↪ | 14093115-0f0f-497a-ac69-42235e46c26f | example.com. | PRIMARY |
↪ | 1468421656 | ACTIVE | NONE |
+-----+-----+-----+-----+
↪
```

There will now be two recordsets visible in the zone:

```
$ openstack recordset list example.com.
+-----+-----+-----+-----+
↪ | id | name | type |
↪ | records |
↪ | status | action |
+-----+-----+-----+-----+
(continues on next page)
```

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```
+-----+-----+-----+-----+
↪-----+-----+
↪-----+-----+
| 269cf8d2-c498-49a8-aef9-01e81d078313 | example.com. | SOA | ns1.
↪devstack.org. admin.example.com. 1618291836 3509 600 86400 3600 |↪
↪ACTIVE | NONE |
| 31b50023-88b2-4011-b31b-474fa25a8e39 | example.com. | NS | ns1.
↪devstack.org. |↪
↪ACTIVE | NONE |
+-----+-----+-----+-----+
↪-----+-----+
↪-----+-----+
```

The values for refresh, retry, minimum and expire on the SOA record are set by the Designate operator. The TTL, however, can be modified by users via the zone:

```
$ openstack zone set example.com. --ttl 3000
+-----+-----+-----+-----+
| Field | Value |
+-----+-----+-----+-----+
| action | UPDATE |
| attributes | |
| created_at | 2021-04-13T05:30:36.000000 |
| description | None |
| email | admin@example.com |
| id | b9861a55-0e50-4896-8ab9-25d8c4494f64 |
| masters | |
| name | example.com. |
| pool_id | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id | 9d69e3a004aa40c581f00d7bb7763e0a |
| serial | 1618545015 |
| status | PENDING |
| transferred_at | None |
| ttl | 3000 |
| type | PRIMARY |
| updated_at | 2021-04-16T03:50:15.000000 |
| version | 11 |
+-----+-----+-----+-----+
```

The dig tool can be used to query one of the backend nameservers to confirm the result. In this example, there is a DNS server at 192.168.122.186 managed by designate as part of the default pool.

```
$ dig @192.168.122.186 example.com.
; <<>> DiG 9.11.20-RedHat-9.11.20-5.el8_3.1 <<>> @192.168.122.186↪
↪example.com.
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 63663
```

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```
;; flags: qr aa rd; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; COOKIE: 970f584e4cb93505eaf46f526079097ac959da76062f1d0a (good)
;; QUESTION SECTION:
;example.com.                IN      A

;; AUTHORITY SECTION:
example.com.                 3000    IN      SOA     ns1.devstack.org.
↪admin.example.com. 1618545015 3509 600 86400 3600

;; Query time: 0 msec
;; SERVER: 192.168.122.186#53(192.168.122.186)
;; WHEN: Fri Apr 16 03:50:18 UTC 2021
;; MSG SIZE rcvd: 126
```

In the **AUTHORITY** section, the numeric value between the name and *IN* is the TTL, which has updated to the new value of 3000.

## Deleting a zone

A zone can be deleted using either its name or ID:

```
$ openstack zone delete example.com.
+-----+-----+
| Field          | Value                                |
+-----+-----+
| action         | DELETE                               |
| attributes     |                                       |
| created_at    | 2021-04-13T05:30:36.000000          |
| description    | None                                  |
| email         | admin@example.com                   |
| id            | b9861a55-0e50-4896-8ab9-25d8c4494f64 |
| masters       |                                       |
| name          | example.com.                         |
| pool_id       | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id    | 9d69e3a004aa40c581f00d7bb7763e0a   |
| serial        | 1618545024                           |
| status        | PENDING                              |
| transferred_at | None                                  |
| ttl           | 3000                                  |
| type          | PRIMARY                              |
| updated_at    | 2021-04-16T10:18:05.000000          |
| version       | 15                                    |
+-----+-----+
```

Any records present in the zone are also deleted and will no longer resolve.

## Zone Import and Export

### Overview

Zones can be imported into and serialised out of Designate using the zone import and export APIs. Using the `zone file format` along with these APIs you can both create zones and recordsets in batches and export zone data from Designate easily.

### Exporting Zones

You can export a zone file from Designate using the `zone export create` subcommand on an existing zone, and subsequently access the exported zone file using `zone export showfile`.

For example, use `openstack recordset list` to view the records for a zone youd like to export:

```
$ openstack recordset list example.org.
```

id	name	type	records	status	action
b4dfef36-c4ae-4399-9493-6e6997099356	example.org.	NS	ns1.	ACTIVE	
e9e3b31f-8aef-465f-9380-e3380191f8bd	example.org. admin.example.org. 1624414033 3583 600 86400 3600	SOA	ns1.	ACTIVE	
09407eaa-1fac-4257-b9e1-11d693bc1eae	www.example.org.	A	192.0.2.2	ACTIVE	NONE
			192.0.2.1		

Using the `openstack zone export create` command, export `example.org.`:

```
$ openstack zone export create example.org.
```

Field	Value
created_at	2021-06-23T02:01:30.000000
id	e75aef2c-b562-4cd9-a426-4a73f6cb82be
location	None
message	None
project_id	cf5a8f5cc5834d2dacd1d54cd0a354b7
status	PENDING
updated_at	None
version	1
zone_id	d8f81db6-937b-4388-bfb3-ba620e6c09fb

You can access the contents of the zone file using `zone export showfile`. Using the `-f value` parameter will print the contents of the zone file without any tabulation, which can be useful if you want to modify the exported zone file locally and then import it back into Designate to update the zone.

```
$ openstack zone export showfile e75aef2c-b562-4cd9-a426-4a73f6cb82be -f value
$ORIGIN example.org.
$TTL 3600

example.org.  IN NS ns1.example.org.
example.org.  IN SOA ns1.example.org. admin.example.org. 1624414033 3583 600
↪86400 3600

www.example.org.  IN A 192.0.2.2
www.example.org.  IN A 192.0.2.1
```

By default, the zone export file will be created on demand as it is accessed and as a result the contents of the zone export file will be updated as you add new recordsets to the zone:

```
$ openstack recordset create example.org. test --type A --record 192.0.2.100
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| action     | CREATE                                   |
| created_at | 2021-06-23T02:35:06.000000              |
| description | None                                     |
| id         | aa27ccd8-77b1-41df-a3ed-2129259b334a    |
| name       | test.example.org.                       |
| project_id | cf5a8f5cc5834d2dacd1d54cd0a354b7        |
| records    | 192.0.2.100                             |
| status     | PENDING                                  |
| ttl        | None                                     |
| type       | A                                         |
| updated_at | None                                     |
| version    | 1                                         |
| zone_id    | d8f81db6-937b-4388-bfb3-ba620e6c09fb    |
| zone_name  | example.org.                             |
+-----+-----+
$ openstack zone export showfile e75aef2c-b562-4cd9-a426-4a73f6cb82be -f value
$ORIGIN example.org.
$TTL 3600

example.org.  IN NS ns1.example.org.
example.org.  IN SOA ns1.example.org. admin.example.org. 1624415706 3583 600
↪86400 3600

www.example.org.  IN A 192.0.2.2
www.example.org.  IN A 192.0.2.1
test.example.org. IN A 192.0.2.100
```

## Zone Export Internals

The zone export resource created does not contain the zone file data, instead it holds the location of that data as Designate can be configured by the operator to store zone exports in external services. By default, the location of the zone export file is internal to Designate and uses the Designate protocol *designate://*. In this case, zone file data will be generated on demand when *zone export showfile* is used. You can view the location URI of the zone file data using *zone export show*:

```
$ openstack zone export show e75aef2c-b562-4cd9-a426-4a73f6cb82be
+-----+
| Field      | Value                                                                 |
+-----+-----+
| created_at | 2021-06-23T02:01:30.000000                                          |
| id         | e75aef2c-b562-4cd9-a426-4a73f6cb82be                              |
| location    | designate://v2/zones/tasks/exports/e75aef2c-b562-4cd9-a426-4a73f6cb82be/export |
| message     | None                                                                  |
| project_id  | cf5a8f5cc5834d2dacd1d54cd0a354b7                                    |
| status      | COMPLETE                                                            |
| updated_at  | 2021-06-23T02:01:30.000000                                          |
| version     | 2                                                                    |
| zone_id     | d8f81db6-937b-4388-bfb3-ba620e6c09fb                              |
+-----+-----+
```

## Zone Import

You can import a zone and all of its recordsets by putting them all into a file that uses the *zone file format* and calling *openstack zone import create*:

```
$ cat zone_file
$ORIGIN example.org.
$TTL 3600

example.org. IN NS ns1.example.org.
example.org. IN SOA ns1.example.org. admin.example.org. 1624415706 3583 600
86400 3600
www.example.org. IN A 192.0.2.2
```

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```

www.example.org.  IN A 192.0.2.1
test.example.org. IN A 192.0.2.100

$ openstack zone import create zone_file
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| created_at | 2021-06-24T03:39:58.000000              |
| id         | 6140580d-c72a-4f07-82ab-908da979a9a3    |
| message    | None                                      |
| project_id | cf5a8f5cc5834d2dacd1d54cd0a354b7       |
| status     | PENDING                                  |
| updated_at | None                                      |
| version    | 1                                         |
| zone_id    | None                                      |
+-----+-----+

```

You can now view the zone in Designate:

```

$ openstack recordset list example.org.
+-----+-----+-----+-----+-----+-----+
↪+-----+-----+-----+-----+-----+-----+
↪+
↪ | id                | name                | type | records |
↪ |                  |                    |      | status  | action
↪ |                  |                    |      |         |
+-----+-----+-----+-----+-----+-----+
↪+-----+-----+-----+-----+-----+-----+
↪+
↪ | 3d9e96c2-da27-4c5b-9b2b-c1b44a58c1e5 | www.example.org. | A    | 192.0.2.2 |
↪ |                  |                    |      | ACTIVE    | NONE
↪ |                  |                    |      |           |
↪ |                  |                    |      | 192.0.2.1 |
↪ |                  |                    |      |           |
↪ | 541bac15-18da-411f-a8e5-8ccec65ae1f | example.org.     | SOA  | ns1.
↪ example.org. admin.example.org. 1624415706 3541 600 86400 3600 | ACTIVE |
↪ NONE |
↪ | a643b088-6052-49c0-81f7-6ade6682d9a3 | example.org.     | NS   | ns1.
↪ example.org.                    | ACTIVE |
↪ NONE |
↪ | f97274f1-e062-4f59-8ec0-11bccd830547 | test.example.org. | A    | 192.0.2.
↪ 100                               | ACTIVE | NONE
↪ |
+-----+-----+-----+-----+-----+-----+
↪+-----+-----+-----+-----+-----+-----+
↪+

```

You cannot use zone imports to update a zone or create records in a zone that already exists. Importing a zone that already exists will result in an error and no records will be created or modified.

```

$ echo "new.example.org. IN A 192.0.2.101" >> zone_file
$ openstack zone import create zone_file
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| created_at | 2021-06-24T03:40:28.000000             |
| id         | 50516762-23ec-4bf3-a065-530171c5d0fb  |
| message    | None                                     |
| project_id | cf5a8f5cc5834d2dacd1d54cd0a354b7     |
| status     | PENDING                                 |
| updated_at | None                                     |
| version    | 1                                       |
| zone_id    | None                                     |
+-----+-----+
$ openstack zone import show 50516762-23ec-4bf3-a065-530171c5d0fb
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| created_at | 2021-06-24T03:40:28.000000             |
| id         | 50516762-23ec-4bf3-a065-530171c5d0fb  |
| message    | An undefined error occurred.           |
| project_id | cf5a8f5cc5834d2dacd1d54cd0a354b7     |
| status     | ERROR                                   |
| updated_at | 2021-06-24T03:40:28.000000             |
| version    | 2                                       |
| zone_id    | None                                     |
+-----+-----+
$ openstack recordset list example.org.
+-----+-----+
↪
↪+
| id          | name          | type | records |
↪          |              |     | status  | action
↪          |              |     |         |
+-----+-----+
↪
↪+
| 3d9e96c2-da27-4c5b-9b2b-c1b44a58c1e5 | www.example.org. | A    | 192.0.2.2.
↪          |                 |     | ACTIVE | NONE
↪          |                 |     |         |
|          |                 |     |         | 192.0.2.1.
↪          |                 |     |         |
↪          |                 |     |         |
| 541bac15-18da-411f-a8e5-8cceb65ae1f | example.org.    | SOA  | ns1.
↪example.org. admin.example.org. 1624415706 3541 600 86400 3600 | ACTIVE |
↪NONE |
| a643b088-6052-49c0-81f7-6ade6682d9a3 | example.org.    | NS   | ns1.
↪example.org.                    | ACTIVE |
↪NONE |
| f97274f1-e062-4f59-8ec0-11bccd830547 | test.example.org. | A    | 192.0.2.
↪100
↪          |

```

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```

+-----+-----+-----+-----+
↪-----+-----+-----+-----+
↪+

```

You must set the zone TTL using a TTL statement in the zone tile. The SOA record created for the zone will not always match the values in the zone file as some values are dependent on Designate configuration options:

- The *MNAME* is set using the zones assigned pool information.
- The refresh value is set randomly between the `default_soa_refresh_min` and `default_soa_refresh_max` configuration values.
- The minimum value is set to the `soa_default_minimum` configuration value.

The NS record for the zone is generated based on the pool the zone has been assigned. Other NS records are imported without modification.

For example, the following zone file uses *test.example.org.* as its nameserver, and provides its own values for the zone TTL, refresh, minimum and expire. The refresh and minimum values will be discarded on import and the nameserver changed to the pools nameserver at *ns1.example.org.:*

```

$ cat zone_file
$ORIGIN example.org.
$TTL 3000

example.org.  IN NS test.example.org.
example.org.  IN SOA test.example.org. admin.example.org. 1624415706 9000 5000
↪86000 5000
www.example.org.  IN A 192.0.2.2
test.example.org.  IN NS test.example.org.
$ openstack zone import create zone_file
+-----+-----+-----+-----+
| Field      | Value                                     |
+-----+-----+-----+-----+
| created_at | 2021-06-25T07:07:41.000000              |
| id         | ccd0af00-aa5f-43e0-a57d-67cfa2f3738e    |
| message    | None                                      |
| project_id | cf5a8f5cc5834d2dacd1d54cd0a354b7       |
| status     | PENDING                                  |
| updated_at | None                                      |
| version    | 1                                         |
| zone_id    | None                                      |
+-----+-----+-----+-----+
$ openstack recordset list example.org.
+-----+-----+-----+-----+
↪-----+-----+-----+-----+
↪+
| id          | name                                     | type | records |
↪          | status | action
↪+-----+-----+-----+-----+
↪-----+-----+-----+-----+

```

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```

| 35143297-5268-4bc9-80bb-9d2d12c609e0 | example.org. | SOA | ns1.
↪example.org. admin.example.org. 1624415706 3582 500 86000 3600 | ACTIVE |
↪NONE |
| 3532dee3-effc-4aac-b5c4-90b6e2ad20e0 | test.example.org. | NS | test.
↪example.org. | ACTIVE |
↪NONE |
| bef04729-f49e-4920-83b6-2ef9b620fa9d | example.org. | NS | ns1.
↪example.org. | ACTIVE |
↪NONE |
| c290d79a-6583-4666-a6f7-d4b967f67d79 | www.example.org. | A | 192.0.2.2
↪ | ACTIVE | NONE
↪ |
+-----+-----+-----+-----+
↪-----+-----+-----+-----+
↪+

```

### Zone Ownership Transfers

Designate allows you to transfer ownership of zones between projects. For example, the engineering team project may want to transfer the ownership of the wow.example.com. zone from the engineering project to the marketing teams project.

This can be accomplished without cloud administrator intervention using the zone transfer features in Designate. Both the sending and receiving project must agree to the transfer by using the zone transfer process.

### Zone Transfer Requests

#### Creating a Zone Transfer Request

To create a zone transfer offer we create a zone transfer request in Designate. You can optionally provide a target project ID in the request to lock the transfer to a specific project. When using a target project ID, no other project will be allowed to accept the zone transfer. If you do not provide a target project ID, any project that has the transfer request ID and key can receive the zone transfer.

---

**Note:** The target project ID must be provided as the ID and not the project name.

---

To transfer the zone wow.example.com. to project 1d12e87fad0d437286c2873b36a12316 you would run:

```

$ openstack zone transfer request create --target-project-id
↪1d12e87fad0d437286c2873b36a12316 wow.example.com.

+-----+-----+-----+-----+
| Field          | Value                                     |
+-----+-----+-----+-----+
| created_at     | 2022-05-26T22:06:39.000000              |

```

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description	None	
id	63cab5e5-65fa-4480-b26c-c16c267c44b2	
key	BIFJIQWH	
links	{'self': 'http://127.0.0.1:60053/v2/zones/tasks/tra	
	nsfer_requests/63cab5e5-65fa-4480-b26c-c16c267c44b2	
	'}	
project_id	6265985fc493465db6a978b318a01996	
status	ACTIVE	
target_project_id	1d12e87fad0d437286c2873b36a12316	
updated_at	None	
zone_id	962f08b4-b671-4096-bf24-8908c9d4af0c	
zone_name	wow.example.com.	
+-----+	+-----+	+-----+

You will then provide the ID and key to a member of the receiving project.

### Displaying a Zone Transfer Request

To display the zone transfer request we created in the previous section you would run:

```
$ openstack zone transfer request show 63cab5e5-65fa-4480-b26c-c16c267c44b2
```

+-----+	+-----+	+-----+
Field	Value	
+-----+	+-----+	+-----+
created_at	2022-05-26T22:06:39.000000	
description	None	
id	63cab5e5-65fa-4480-b26c-c16c267c44b2	
key	BIFJIQWH	
links	{'self': 'http://127.0.0.1:60053/v2/zones/tasks/tra	
	nsfer_requests/63cab5e5-65fa-4480-b26c-c16c267c44b2	
	'}	
project_id	6265985fc493465db6a978b318a01996	
status	ACTIVE	
target_project_id	1d12e87fad0d437286c2873b36a12316	
updated_at	None	
zone_id	962f08b4-b671-4096-bf24-8908c9d4af0c	
zone_name	wow.example.com.	
+-----+	+-----+	+-----+

## Listing Zone Transfer Requests

You can list all of the existing zone transfer requests by using the *openstack zone transfer request list* command:

```
$ openstack zone transfer request list
```

id	zone_id	zone_name	project_id	target_project_id	status
63cab5e5-65fa-4480-b26c-c16c267c44b2	962f08b4	wow.examp	6265985fc4	1d12e87fad0d43728	ACTIVE
-65fa-4480-b26c-c16c267c44b2	-b671-40	le.com.	93465db6a9	6c2873b36a12316	
80-b26c-c16c267c44b2	96-bf24-		78b318a019		
c16c267c44b2	8908c9d4		96		
44b2	af0c				

## Updating a Zone Transfer Request

Designate allows you to update a limited set of fields on zone transfer requests, such as the description and target project ID.

To add a description the zone transfer request we created above, you would run the following command:

```
$ openstack zone transfer request set --description "wow zone transfer" 63cab5e5-65fa-4480-b26c-c16c267c44b2
```

Field	Value
created_at	2022-05-26T22:06:39.000000
description	wow zone transfer
id	63cab5e5-65fa-4480-b26c-c16c267c44b2
key	BIFJIQWH
links	{'self': 'http://127.0.0.1:60053/v2/zones/tasks/transfer_requests/63cab5e5-65fa-4480-b26c-c16c267c44b2'}
project_id	6265985fc493465db6a978b318a01996
status	ACTIVE
target_project_id	1d12e87fad0d437286c2873b36a12316
updated_at	2022-05-27T20:52:08.000000

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zone_id	962f08b4-b671-4096-bf24-8908c9d4af0c	
zone_name	wow.example.com.	
+-----+-----+-----+		

## Deleting a Zone Transfer Request

If you would like to cancel a zone transfer you can delete the zone transfer request using the *openstack zone transfer request delete* command:

```
$ openstack zone transfer request delete 63cab5e5-65fa-4480-b26c-c16c267c44b2
```

There is no output from the zone transfer request delete command.

## Zone Transfer Accepts

### Accepting a Zone Transfer Request

Once you have the zone transfer request ID and key, you can create a *zone transfer accept* to finish the zone transfer.

An example of accepting the zone transfer we created in the *Zone Transfer Requests* section:

```
$ openstack zone transfer accept request --transfer-id 63cab5e5-65fa-4480-
↪b26c-c16c267c44b2 --key BIFJIQWH
```

Field	Value
created_at	2022-05-27T21:37:43.000000
id	a4c4f872-c98c-411b-a787-58ed0e2dce11
key	BIFJIQWH
links	{'self': 'http://127.0.0.1:60053/v2/zones/ta sks/transfer_accepts/a4c4f872-c98c-411b-a787 -58ed0e2dce11', 'zone': 'http://127.0.0.1:60 053/v2/zones/962f08b4-b671-4096-bf24-8908c9d 4af0c'}
project_id	1d12e87fad0d437286c2873b36a12316
status	COMPLETE
updated_at	2022-05-27T21:37:43.000000
zone_id	962f08b4-b671-4096-bf24-8908c9d4af0c
zone_transfer_request_id	63cab5e5-65fa-4480-b26c-c16c267c44b2

## Displaying a Zone Transfer Accept

To check the status of your zone transfer accept, you can use the `openstack zone transfer accept` command:

```
$ openstack zone transfer accept show a4c4f872-c98c-411b-a787-58ed0e2dce11
```

Field	Value
created_at	2022-05-27T21:37:43.000000
id	a4c4f872-c98c-411b-a787-58ed0e2dce11
key	None
links	{'self': 'http://127.0.0.1:60053/v2/zones/ta sks/transfer_accepts/a4c4f872-c98c-411b-a787 -58ed0e2dce11', 'zone': 'http://127.0.0.1:60 053/v2/zones/962f08b4-b671-4096-bf24-8908c9d 4af0c'}
project_id	1d12e87fad0d437286c2873b36a12316
status	COMPLETE
updated_at	2022-05-27T21:37:43.000000
zone_id	962f08b4-b671-4096-bf24-8908c9d4af0c
zone_transfer_request_id	63cab5e5-65fa-4480-b26c-c16c267c44b2

## Listing Zone Transfer Accepts

Designate can provide a list of existing zone transfer accept records using the `openstack zone transfer accept list` command:

**Note:** By default, only users with the admin role can list zone transfer accept records.

```
$ openstack zone transfer accept list
```

id	zone_id	project_id	zone_transfer_request_id	status
a4c4f872-c9	962f08b4-b6	1d12e87fad0	63cab5e5-65fa-4480-b26c-	COMPLETE
8c-411b-a78	71-4096-bf2	d437286c287	c16c267c44b2	
7-58ed0e2dc	4-8908c9d4a	3b36a12316		
e11	f0c			

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---

## Secondary Zones

The Designate v2 API introduced functionality that allows Designate to act as a DNS slave, rather than a master for a zone. This is accomplished by completing a zone transfer (AXFR) from a DNS server managed outside of Designate.

## RecordSets / Records

Changes to secondary zones are managed outside of Designate. Users must make the changes they wish, and prompt a fresh zone transfer (AXFR) into Designate to make those changes live on any DNS servers Designate manages.

## Setup

To add a secondary zone to Designate, there must be a DNS master for the zone, to which Designate can act as a slave. For this guide, we assume that you have already set this up.

The remaining Designate set up will be similar to a non-secondary zone setup. You'll need a primary DNS server for Designate to manage and transfer secondary zones to.

In our examples we'll use the following values:

*Name* - example.com.

*Masters* - 192.168.27.100

## Setup - example NSD4

Skip this section if you have a master already to use.

---

**Note:** For this it is assumed that you are running on Ubuntu.

---

## Install

For some reason there's a bug with the nsd package so it doesn't create the user that it needs for the installation. So we'll create that before installing the package.

```
$ sudo apt-get install nsd
```

## Configure

```
$ sudo zcat /usr/share/doc/nsd/examples/nsd.conf.sample.gz >/tmp/nsd.conf
$ sudo mv /tmp/nsd.conf /etc/nsd/nsd.conf
```

Add the following to `/etc/nsd/nsd.conf`

---

**Note:** If you're wondering why we set `notify` to `192.168.27.100:5354` it's because MDNS runs on 5354 by default.

---

```
$ sudo vi /etc/nsd/nsd.conf
```

Add the contents:

```
pattern:
  name: "mdns"
  zonefile: "%s.zone"
  notify: 192.168.27.100@5354 NOKEY
  provide-xfr: 192.168.27.100 NOKEY
  allow-axfr-fallback: yes
```

## Add a zone file

Create a new *Zone* in NSD called `example.com`.

`/etc/nsd/example.com.zone`

```
$ sudo vi /etc/nsd/example.com.zone
```

And add the contents:

```
$TTL 1800 ;minimum ttl
example.com.      IN      SOA      ns1.example.com. admin.example.net. (
                    2014111301      ;serial
                    3600              ;refresh
                    600               ;retry
                    180000            ;expire
                    600               ;negative ttl
                    )

                    TXT              "v=spf1 +a +mx ~all"
                    SPF              "v=spf1 +a +mx ~all"

                    NS               ns1.example.com.
                    NS               ns2.example.com.
                    NS               ns3.example.com.

                    MX               0 mail1.example.com.
```

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	MX	5	mail2.example.com.
	MX	10	mail3.example.com.
	A		10.0.0.1
	A		10.0.0.2
	A		10.0.0.3
ns1	A		172.16.28.100
ns2	A		172.16.28.101
ns3	A		172.16.28.103
mail1	A		10.0.10.1
mail2	A		10.0.10.2
mail3	A		10.0.10.3
google	CNAME		google.com.

## Restart NSD

```
$ sudo service nsd restart
```

Check that its working

```
$ sudo nsd-control status
```

Activate the zone in NSD

```
$ sudo nsd-control addzone example.com mdns
```

## Creating the Zone

When you create a domain in Designate there are two possible initial actions:

- Domain is created but transfer fails if its not available yet in master, then typically the initial transfer will be done once the master sends first NOTIFY.
- Domain is created and transfers straight away.

In both cases the interaction between your master and Designate is handled by the MDNS instance at the Designate side.

Definition of values:

- *email* set to the value of the *managed\_resource\_email* option in the *central* section of the Designate configuration.
- *transferred\_at* is **null** and *version* is **1** since the zone has not transferred yet.

```
$ openstack zone create --type secondary --masters 192.168.27.100 example.com.
```

## 1.4.2 Working with Recordsets

### Managing Records

While zones are used to break up the DNS namespace into a hierarchy, resource records, or simply records, are used to store data within the namespace. Each record has a

- **Name:** the string that indicates its location in the DNS namespace.
- **Type:** the set of [letter codes](#) that identify the records usage. For example A for an address record or CNAME for a canonical name record.
- **Class:** the set of letter codes that specify the namespace for the record. Typically, this is IN for internet, though other namespaces do exist.
- **TTL:** the duration in seconds that the record remains valid.
- **Rdata:** the data for the record, such as an IP address for an A type record or another record name for a CNAME type record.

### Recordsets in Designate

DNS records in Designate are managed using Recordsets, which represent one or more DNS records with the same *Name* and *Type*, but potentially different data. For example, a recordset named `www.example.com`, with a type of A, that contains the data `192.0.2.1` and `192.0.2.2` might reflect two web servers hosting `www.example.com` located at those two IP addresses.

You must create Recordsets within a zone. If you delete a zone that contains recordsets, those recordsets within the zone are also deleted.

### Creating a recordset

By default, any user can create Recordsets in zones that their project owns. In this example, a user has created a zone named `example.org..`

Recordsets are created using the `openstack recordset create` command and require a zone, a name, a type, and data for the record. To recreate the earlier example using the OpenStack client with the Designate plugin, the user would run:

```
$ openstack recordset create --type A --record 192.0.2.1 example.org.
↪ www
+-----+-----+
| Field      | Value                                |
+-----+-----+
| action     | CREATE                               |
| created_at | 2021-05-03T03:13:46.000000          |
| description | None                                 |
| id         | 549c3e83-443f-474b-b467-6bcd7cb9f37d |
| name       | www.example.org.                   |
| project_id | c85fdb96041438fa0cad2dc7909d3f5    |
| records    | 192.0.2.1                          |
| status     | PENDING                             |
+-----+-----+
```

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ttl	None	
type	A	
updated_at	None	
version	1	
zone_id	077460ef-34db-486a-8d59-c9564dc3a3a9	
zone_name	example.org.	
+-----+	+-----+	+-----+

As the final argument `www` is not a fully qualified domain name (FQDN) it is prepended to the zone name. You can achieve the same result using the FQDN, `www.example.org.`. Note that the trailing `.` is required when using the FQDN. Omitting it results in the name, `"www.example.org.example.org."`.

You can supply the `--record` argument multiple times to create multiple records within the recordset. A typical use for this is [Round-robin DNS](#).

```
$ openstack recordset create --type A --record 192.0.2.1 --record
↪ 192.0.2.2 example.org. web
```

+-----+	+-----+	+-----+
Field	Value	
+-----+	+-----+	+-----+
action	CREATE	
created_at	2021-05-03T03:26:43.000000	
description	None	
id	9e0fba43-ca67-44ed-b9d9-fc1242920319	
name	web.example.org.	
project_id	c85fdb96041438fa0cad2dc7909d3f5	
records	192.0.2.1	
	192.0.2.2	
status	PENDING	
ttl	None	
type	A	
updated_at	None	
version	1	
zone_id	077460ef-34db-486a-8d59-c9564dc3a3a9	
zone_name	example.org.	
+-----+	+-----+	+-----+

You can view the recordsets for a zone using the `openstack recordset list` command:

```
$ openstack recordset list example.org.
```

+-----+	+-----+	+-----+	+-----+	+-----+
↪	-----			
↪	+-----+			
id	name	type		↪
↪ records				↪
↪   status	action			
+-----+	+-----+	+-----+	+-----+	+-----+
↪	-----			
↪	+-----+			
3bebbd03-07d7-4274-a784-39c32a2be8c6	example.org.	SOA		↪
↪ ns1.example.net. admin.example.org. 16200 12616 3599 600 86400 3600				↪
↪   ACTIVE	NONE			

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```

| 7d34e4d3-a2f1-4af0-831c-ba52a8312c6a | example.org.      | NS   |
↪ ns1.example.net.                      |
↪ | ACTIVE | NONE   |
| 9e0fba43-ca67-44ed-b9d9-fc1242920319 | web.example.org.  | A    |
↪ 192.0.2.1                             |
↪ | ACTIVE | NONE   |
|                                     |
↪ 192.0.2.2                             |
↪ |                                     |
| 549c3e83-443f-474b-b467-6bcd7cb9f37d | www.example.org. | A    |
↪ 192.0.2.1                             |
↪ | ACTIVE | NONE   |
+-----+-----+-----+-----+
↪
↪ +-----+-----+-----+-----+

```

The SOA and NS records for the zone are also visible here, but cannot be modified.

The authoritative nameserver for the zone is listed as the record data for the NS type record of the zone, which in this example is `ns1.example.net`.. To verify this you can query the nameserver using `dig` for the NS type:

```

$ dig @ns1.example.net example.org. -t NS +short
ns1.devstack.org.

```

You can also verify the A recordsets. You dont need the `-t` option because it is the default:

```

$ dig @ns1.example.net web.example.org. +short
192.0.2.2
192.0.2.1
$ dig @ns1.example.net www.example.org. +short
192.0.2.1

```

If you want to construct a TXT record that exceeds the 255-octet maximum length of a character-string, it has to be split into multiple strings as defined in RFC7208 section 3.3. For example, "`v=DKIM1; . ... firstsecond string...`" can become "`v=DKIM1; .... first`" "`second string...`". If you provide a record data with less than 255 characters, it will be treated as a single character-string and validated for empty spaces outside quotes and unescaped double quotation marks as in RFC1035 section 5.1.

For example, to create a TXT record made of one string of 410 characters you can split it into 2 to like this:

```

$ openstack recordset create --type TXT --record '"210 characters_
↪ string" "200 characters string"' example.org. _domainkey

```

## Updating a recordset

You can modify a recordset by using the `openstack recordset set` command. When updating a recordset by name, you must use the FQDN. As with most OpenStack commands, you can also use recordset ID. For example, to update the recordset `www.example.org.` to contain two records, you could use the following:

```
$ openstack recordset set example.org. www.example.org. --record 192.
↪0.2.1 --record 192.0.2.2
```

Field	Value
action	UPDATE
created_at	2021-05-03T03:30:16.000000
description	None
id	549c3e83-443f-474b-b467-6bcd7cb9f37d
name	www.example.org.
project_id	c85fdb96041438fa0cad2dc7909d3f5
records	192.0.2.2
	192.0.2.1
status	PENDING
ttl	None
type	A
updated_at	2021-05-03T03:44:16.000000
version	5
zone_id	077460ef-34db-486a-8d59-c9564dc3a3a9
zone_name	example.org.

## Deleting a recordset

You can use the `openstack recordset delete` command to remove recordsets using the zone and either the FQDN or the recordset ID.

```
$ openstack recordset delete example.org. web.example.org.
```

Field	Value
action	DELETE
created_at	2021-05-03T03:47:00.000000
description	None
id	5ab3418f-5377-47eb-b967-9e9ff7f3c26b
name	web.example.org.
project_id	c85fdb96041438fa0cad2dc7909d3f5
records	192.0.2.1
	192.0.2.2
status	PENDING
ttl	None
type	A

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updated_at	2021-05-03T03:47:13.000000	
version	2	
zone_id	077460ef-34db-486a-8d59-c9564dc3a3a9	
zone_name	example.org.	
+-----+	+-----+	+-----+

## How To Manage PTR Records

### PTR Record Basics

*PTR* records provide a reverse mapping from a single IP or set of IP addresses to a fully qualified domain name (FQDN). For example,

```
$ dig -x 192.0.2.12 +short
example.org.
```

The way this works in the DNS system is through the *in-addr.arpa.* zone. For example

```
$ dig example.org +short
192.0.2.12
$ dig -x 192.0.2.12
; <<>> DiG 9.9.5-3ubuntu0.1-Ubuntu <<>> -x 192.0.2.12
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 3431
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4000
;; QUESTION SECTION:
;12.2.0.192.in-addr.arpa. IN PTR example.org.

;; AUTHORITY SECTION:
12.2.0.192.in-addr.arpa. 3600 IN NS ns1.example.org.

;; Query time: 40 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Fri Feb 20 19:05:44 UTC 2015
;; MSG SIZE rcvd: 119
```

In the question section we see the address being requested from the DNS system as *12.2.0.192.in-addr.arpa.* As you can see, the IP address has been reversed in order to function similarly to a domain name where the more specific elements come first. The reversed IP address is then added to the *in-addr.arpa.* domain, at which point the DNS system can perform a simple look up to find any *PTR* records that describe what domain name, if any, maps to that IP.



## Create a PTR Record in Designate

To create a *PTR* record in Designate we need a *in-addr.arpa.* zone that will receive the actual *PTR* record

### Using the V2 API and the OpenStack CLI

To begin lets create a zone that we want to return when we do our reverse lookup.

```
POST /v2/zones HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "name": "example.org.",
  "email": "admin@example.org",
  "ttl": 3600,
  "description": "A great example zone"
}
```

Here is the JSON response describing the new zone.

```
HTTP/1.1 202 Accepted
Location: http://127.0.0.1:9001/v2/zones/251fbde4-6eb8-44e6-bc48-e095f1763a1f
Content-Length: 476
Content-Type: application/json; charset=UTF-8
X-Openstack-Request-Id: req-bfcd0723-624c-4ec2-bbd5-99e985efe8db
Date: Tue, 02 Jun 2020 17:24:10 GMT
Connection: keep-alive

{
  "id": "251fbde4-6eb8-44e6-bc48-e095f1763a1f",
  "pool_id": "794ccc2c-d751-44fe-b57f-8894c9f5c842",
  "project_id": "123d51544df443e790b8e95cce52c285",
  "name": "example.org.",
  "email": "admin@example.org",
  "description": "A great example zone",
  "ttl": 3600,
  "serial": 1591118650,
  "status": "PENDING",
  "action": "CREATE",
  "version": 1,
  "attributes": {},
  "type": "PRIMARY",
  "masters": [],
  "created_at": "2020-06-02T17:24:10.000000",
  "updated_at": null,
  "transferred_at": null,
  "links": {
    "self": "http://127.0.0.1:9001/v2/zones/251fbde4-6eb8-44e6-bc48-
↵e095f1763a1f"
```

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```
}
}
```

Using the CLI:

```
$ openstack zone create --email admin@example.org \
  --description "A great example zone" --ttl 3600 example.org.
```

```
+-----+-----+
| Field          | Value                                |
+-----+-----+
| action         | CREATE                               |
| attributes     |                                       |
| created_at     | 2020-06-02T17:24:10.000000          |
| description    | A great example zone                |
| email          | admin@example.org                   |
| id             | 251fbde4-6eb8-44e6-bc48-e095f1763a1f |
| masters        |                                       |
| name           | example.org.                         |
| pool_id        | 794ccc2c-d751-44fe-b57f-8894c9f5c842 |
| project_id     | 123d51544df443e790b8e95cce52c285    |
| serial         | 1591118650                           |
| status         | PENDING                              |
| transferred_at | None                                  |
| ttl            | 3600                                  |
| type           | PRIMARY                              |
| updated_at     | None                                  |
| version        | 1                                     |
+-----+-----+
```

**Note:** The *status* is *PENDING*. If we make a *GET* request to the *self* field in the zone, it will most likely have been processed and updated to *ACTIVE*.

Now that we have a zone we would like to use for our reverse DNS lookup, we need to add an *in-addr.arpa* zone that includes the IP address we want to look up.

Lets configure *192.0.2.11* to return our *example.org*. domain name when we do a reverse look up.

```
POST /v2/zones HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "name": "11.2.0.192.in-addr.arpa.",
  "email": "admin@example.org",
  "ttl": 3600,
  "description": "A in-addr.arpa. zone for reverse lookups"
}
```

As you can see, in the *name* field weve reversed our IP address and used that as a subdomain in the *in-addr.arpa*. zone.

Here is the response.

```
HTTP/1.1 202 Accepted
Location: http://127.0.0.1:9001/v2/zones/f5546034-b27e-4326-bf9d-c53ed879f7fa
Content-Length: 512
Content-Type: application/json; charset=UTF-8
X-Openstack-Request-Id: req-4e691123-045e-4f8e-ae50-b5eabb5af3fa
Date: Tue, 02 Jun 2020 17:32:46
Connection: keep-alive

{
  "id": "f5546034-b27e-4326-bf9d-c53ed879f7fa",
  "pool_id": "794ccc2c-d751-44fe-b57f-8894c9f5c842",
  "project_id": "123d51544df443e790b8e95cce52c285",
  "name": "11.2.0.192.in-addr.arpa.",
  "email": "admin@example.org",
  "description": "A in-addr.arpa. zone for reverse lookups",
  "ttl": 3600,
  "serial": 1591119166,
  "status": "PENDING",
  "action": "CREATE",
  "version": 1,
  "attributes": {},
  "type": "PRIMARY",
  "masters": [],
  "created_at": "2020-06-02T17:32:47.000000",
  "updated_at": null,
  "transferred_at": null,
  "links": {
    "self": "http://127.0.0.1:9001/v2/zones/f5546034-b27e-4326-bf9d-
    ↪c53ed879f7fa"
  }
}
```

Using the CLI:

```
$ openstack zone create --email admin@example.org \
  --ttl 3600 --description "A in-addr.arpa. zone for reverse lookups" \
  11.2.0.192.in-addr.arpa.
```

Field	Value
action	CREATE
attributes	
created_at	2020-06-02T17:32:47.000000
description	A in-addr.arpa. zone for reverse lookups
email	admin@example.org
id	f5546034-b27e-4326-bf9d-c53ed879f7fa
masters	
name	11.2.0.192.in-addr.arpa.
pool_id	794ccc2c-d751-44fe-b57f-8894c9f5c842

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project_id	123d51544df443e790b8e95cce52c285	
serial	1591119166	
status	PENDING	
transferred_at	None	
ttl	3600	
type	PRIMARY	
updated_at	None	
version	1	
+-----+	+-----+	+-----+

Now that we have our *in-addr.arpa.* zone, we add a new *PTR* record to the zone.

```
POST /v2/zones/f5546034-b27e-4326-bf9d-c53ed879f7fa/recordsets HTTP/1.1
Content-Type: application/json
Accept: application/json

{
  "name": "11.2.0.192.in-addr.arpa.",
  "type": "PTR",
  "records": [
    "example.org."
  ],
  "ttl": 3600,
  "description": "A PTR recordset"
}
```

Here is the response.

```
HTTP/1.1 202 Accepted
Location: http://127.0.0.1:9001/v2/zones/f5546034-b27e-4326-bf9d-c53ed879f7fa/
→recordsets/ca604f72-83e6-421f-bf1c-bb4dc1df994a
Content-Length: 573
Content-Type: application/json; charset=UTF-8
X-Openstack-Request-Id: req-5b7044d0-591a-445a-839f-1403b1455824
Date: Tue, 02 Jun 2020 19:55:50 GMT
Connection: keep-alive

{
  "id": "ca604f72-83e6-421f-bf1c-bb4dc1df994a",
  "zone_id": "f5546034-b27e-4326-bf9d-c53ed879f7fa",
  "project_id": "123d51544df443e790b8e95cce52c285",
  "name": "11.2.0.192.in-addr.arpa.",
  "zone_name": "11.2.0.192.in-addr.arpa.",
  "type": "PTR",
  "records": [
    "example.org."
  ],
  "description": "A PTR recordset",
  "ttl": 3600,
  "status": "PENDING",
```

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```

"action": "CREATE",
"version": 1,
"created_at": "2020-06-02T19:55:50.000000",
"updated_at": null,
"links": {
  "self": "http://127.0.0.1:9001/v2/zones/f5546034-b27e-4326-bf9d-
↪c53ed879f7fa/recordsets/ca604f72-83e6-421f-bf1c-bb4dc1df994a"
}
}

```

With the CLI:

```

$ openstack recordset create --record example.org. --type PTR \
  --ttl 3600 --description "A PTR recordset" \
  11.2.0.192.in-addr.arpa. 11.2.0.192.in-addr.arpa.
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| action     | CREATE                                   |
| created_at | 2020-06-02T19:55:50.000000             |
| description | A PTR recordset                         |
| id         | ca604f72-83e6-421f-bf1c-bb4dc1df994a  |
| name       | 11.2.0.192.in-addr.arpa.               |
| project_id | 123d51544df443e790b8e95cce52c285      |
| records    | example.org.                            |
| status     | PENDING                                 |
| ttl        | 3600                                     |
| type       | PTR                                      |
| updated_at | None                                     |
| version    | 1                                        |
| zone_id    | f5546034-b27e-4326-bf9d-c53ed879f7fa  |
| zone_name  | 11.2.0.192.in-addr.arpa.               |
+-----+-----+

```

We should now have a correct *PTR* record assigned in our nameserver that we can test.

Lets test it out!

```

$ dig @localhost -x 192.0.2.11

; <<>> DiG 9.9.5-3ubuntu0.1-Ubuntu <<>> @localhost -x 192.0.2.11
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 32832
;; flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1
;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096

```

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serial	1591276055	
↪		
status	PENDING	
↪		
transferred_at	None	
↪		
ttl	3600	
↪		
type	PRIMARY	
↪		
updated_at	None	
↪		
version	1	
↪		
+-----+		
↪	-----+	

And add the *PTR* record

```
$ openstack recordset create --record example.org. --type PTR \
  --ttl 3600 --description "A PTR recordset" \
  1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa. \
  ↪ \
  1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa.
+-----+
↪-----+
| Field      | Value
↪          |
+-----+
↪-----+
| action     | CREATE
↪          |
| created_at | 2020-06-04T13:10:30.000000
↪          |
| description | A PTR recordset
↪          |
| id         | 246c5cbb-315d-437d-a52f-bf0a0cfa91a0
↪          |
| name       | 1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa.
↪          |
| project_id | 123d51544df443e790b8e95cce52c285
↪          |
| records    | example.org.
↪          |
| status     | PENDING
↪          |
| ttl       | 3600
↪          |
| type      | PTR
↪          |
↪-----+
```

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```

| updated_at | None |
↪
| version    | 1    |
↪
| zone_id    | 9c8f30a1-6d9d-4f40-9fac-ab8abfb24fba |
↪
| zone_name  | 1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa. |
↪-----+
↪-----+

```

Now we can do a reverse lookup with

```

$ dig @localhost -x fd00::2:11

; <<>> DiG 9.11.3-1ubuntu1.12-Ubuntu <<>> @10.5.0.32 -x fd00::2:11
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 50892
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; COOKIE: 812dd247d36b98504b6d12485ed8f44bd7ae0a902343c348 (good)
;; QUESTION SECTION:
;1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa. IN
↪PTR

;; ANSWER SECTION:
1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa.
↪3600 IN PTR example.org.

;; AUTHORITY SECTION:
1.1.0.0.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.d.f.ip6.arpa.
↪3600 IN NS ns1.example.org.

;; Query time: 1 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Thu Jun 04 13:16:59 UTC 2020
;; MSG SIZE rcvd: 197

```



## Advanced Usage

You can add many *PTR* records to a larger subnet by using a more broadly defined *in-addr.arpa.* zone. For example, if we wanted to ensure *any* IP in a subnet resolves to a specific domain we would add a wildcard DNS record to this zone.

```
POST /v2/zones HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "name": "2.0.192.in-addr.arpa.",
  "type": "PRIMARY",
  "email": "admin@example.org",
  "ttl": 3600,
  "description": "A more broadly defined in-addr.arpa. zone for reverse_
↳lookups"
}
```

With the CLI:

```
$ openstack zone create --email admin@example.org --ttl 3600 \
  --description "A more broadly defined in-addr.arpa. zone for reverse_
↳lookups" \
  2.0.192.in-addr.arpa.
```

Field	Value
action	CREATE
attributes	
created_at	2020-06-02T20:07:11.000000
description	A more broadly defined in-addr.arpa. zone for reverse_ ↳lookups
email	admin@example.org
id	e9fd0ced-1d3e-43fa-b9aa-6d4b7a73988d
masters	
name	2.0.192.in-addr.arpa.
pool_id	794ccc2c-d751-44fe-b57f-8894c9f5c842
project_id	123d51544df443e790b8e95cce52c285

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serial	1591128431	
↪		
status	PENDING	
↪		
transferred_at	None	
↪		
ttl	3600	
↪		
type	PRIMARY	
↪		
updated_at	None	
↪		
version	1	
↪		
+-----+		
↪---+		

We then could use the corresponding domain to create a *PTR* record for a specific IP.

```
POST /v2/zones/e9fd0ced-1d3e-43fa-b9aa-6d4b7a73988d/recordsets HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "name": "3.2.0.192.in-addr.arpa.",
  "type": "PTR"
  "ttl": 3600,
  "records": [
    "cats.example.com."
  ]
}
```

With the CLI:

```
$ openstack recordset create --record cats.example.org. --type PTR \
  --ttl 3600 2.0.192.in-addr.arpa. 3.2.0.192.in-addr.arpa.

+-----+
| Field      | Value                                     |
+-----+
| action     | CREATE                                   |
| created_at | 2020-06-02T20:10:54.000000              |
| description | None                                     |
| id        | c843729b-7aaf-4f99-a40a-d9bf70edf271   |
| name      | 3.2.0.192.in-addr.arpa.                |
| project_id | 123d51544df443e790b8e95cce52c285       |
| records   | cats.example.org.                       |
| status    | PENDING                                  |
| ttl      | 3600                                     |
| type     | PTR                                      |
| updated_at | None                                     |
+-----+
```

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```
| version      | 1 |
| zone_id     | e9fd0ced-1d3e-43fa-b9aa-6d4b7a73988d |
| zone_name   | 2.0.192.in-addr.arpa. |
+-----+-----+
```

Or with a wildcard DNS record:

```
$ openstack recordset create --record example.org. --type PTR \
  --ttl 3600 2.0.192.in-addr.arpa. *.2.0.192.in-addr.arpa.
```

```
+-----+-----+
| Field      | Value |
+-----+-----+
| action     | CREATE |
| created_at | 2020-06-04T12:22:45.000000 |
| description | None |
| id        | 4fa96619-a1f8-4409-ba5f-fa904db4c97c |
| name      | *.2.0.192.in-addr.arpa. |
| project_id | 123d51544df443e790b8e95cce52c285 |
| records   | example.org. |
| status    | PENDING |
| ttl      | 3600 |
| type     | PTR |
| updated_at | None |
| version  | 1 |
| zone_id  | e9fd0ced-1d3e-43fa-b9aa-6d4b7a73988d |
| zone_name | 2.0.192.in-addr.arpa. |
+-----+-----+
```

When we do our reverse look, we should see *cats.example.com*.

```
$ dig @localhost -x 192.0.2.3 +short
cats.example.com.
```

When we query any other IP address in *192.0.2.0/24* we get

```
$ dig @10.5.0.32 -x 192.0.2.10 +short
example.org.
```

Success!

You can further specify *in-addr.arpa.* zones to chunks of IP addresses by using Classless *in-addr.arpa.* Delegation. See [RFC 2317](#) for more information.

---

**Note:** The naming scheme of [RFC 2317](#) is currently not supported and names such as *24/0.2.0.192.in-addr.arpa.* which include a */* lead to an error. The suggested workaround is to use *-* instead of */*. For more details please see <https://bugs.launchpad.net/designate/+bug/1880583>.

---

**Note:** In BIND9, when creating a new *PTR* we could skip the zone name. For example, if the zone is *2.0.192.in-addr.arpa.*, using *12* for the record name ends up as *12.2.0.192.in-addr.arpa.*. In Designate,

the name of a record **MUST** be a complete host name.

---

### Using DNS with Neutron & Nova

Neutron can be integrated with Designate to provide automatic *recordset* creation for ports and, by proxy, Nova server instances. This section will describe how you can use this integration to have Designate DNS *recordsets* created for Neutron ports and Nova instances at creation time.

### Neutron DNS Extensions

DNS integration in Neutron is optional and an extension must be enabled in the Neutron configuration file, by a cloud administrator, for DNS names to be assigned automatically to Neutron and Nova resources. You can check if a DNS integration extension is enabled by querying the [Neutron extensions API](#):

```
$ openstack extension list --network -f value -c Alias | grep dns-integration
dns-integration
```

One of these extensions must be enabled to allow Neutron and, via Neutron, Nova to automatically create DNS *recordsets* in Designate:

- dns-integration
- dns-domain-ports (includes dns-integration)
- subnet-dns-publish-fixed-ip (includes dns-integration and dns-domain-ports)
- dns-integration-domain-keywords (includes all others)

### dns-integration

When the *dns-integration* extension is enabled the following DNS attributes will be available via Neutron:

Resource	dns_name	dns_domain
Ports	Yes	No
Networks	No	Yes
Floating IPs	Yes	Yes

### dns-domain-ports

In addition, if the *dns-domain-ports* extension is enabled in Neutron, ports can be created with a `dns_domain` specified. This `dns_domain` will take precedence over the `dns_domain` setting for the network. You can check if the *dns-domain-ports* extension is enabled by querying the [Neutron extensions API](#):

```
$ openstack extension list --network -f value -c Alias | grep dns-domain-ports
dns-domain-ports
```

With the *dns-domain-ports* extension is enabled the following DNS settings will be available via Neutron:

Resource	dns_name	dns_domain
Ports	Yes	Yes
Networks	No	Yes
Floating IPs	Yes	Yes

Both of these extensions impose a set of criteria for when DNS *recordsets* will be created in Designate.

- A *dns\_domain* must be specified either on the network, port, or floating IP. If both the network and the port or floating IP specify a *dns\_domain*, the *dns\_domain* specified on the port or floating IP will take precedent over the *dns\_domain* provided on the network.
- The network must not have the *router:external* field set to True.
- The network type must be one of: FLAT, VLAN, GRE, VXLAN, or GENEVE.
- For VLAN, GRE, VXLAN, or GENEVE networks, the segmentation ID must be outside the ranges configured in the Neutron *ml2\_config* file. For example, with VXLAN networks, the range setting is `[ml2_type_vxlan] vni_ranges`.
- The *zone* for the *dns\_domain* must already exist in Designate and the project ID creating the Nova instance, port, or floating IP must have permission to create *recordsets* in the *zone*.

These restrictions typically mean that a special network will need to be created by an administrator that will allow *recordsets* to be created in Designate.

If these criteria are not all met, Neutron will create a DNS assignment in the Neutron internal resolvers using the default *dns\_domain* specified in the Neutron configuration file. The current default domain is `openstacklocal..`

**Warning:** If the user creating the Nova instance, port, or floating IP does not have permission to create *recordsets* in the *zone* or the *zone* does not exist in Designate, Neutron will create the port with the *dns\_assignment* field populated using the *dns\_domain* provided, but no *recordset* will be created in Designate. Neutron will log the error Error publishing port data in external DNS service..

### subnet-dns-publish-fixed-ip

A third Neutron extension is available called *subnet-dns-publish-fixed-ip*. This extension includes the capabilities of the *dns-domain-ports* extension, but removes the restrictions if the *subnet\_dns\_publish\_fixed\_ip* property is set to True.

### dns-integration-domain-keywords

The fourth Neutron extension, including the capabilities of the *subnet-dns-publish-fixed-ip* extension, is called *dns-integration-domain-keywords*. It allows the use of keywords in the *dns\_domain* that will be replaced when a port is created. Valid keywords are: <project\_id>, <project\_name>, <user\_id>, and <user\_name>.

---

**Note:** For more information on enabling DNS integration in Neutron, see the [Neutron Networking Guide](#).

---

### DNS for Nova Server Instances

DNS integration with Neutron allows you to automatically create a DNS *recordset* for Nova instances. When Nova requests the Neutron port to be created for the new instance, Neutron will attempt to create a DNS *recordset* for the port in Designate.

As an example, we will create a new Nova instance with the DNS name of server.example.org registered in Designate.

---

**Note:** This example is for user created networks. DNS records can be automatically created for Nova server instances on networks created by a cloud administrator if they meet the [Neutron criteria](#).

---

#### Steps:

1. Check that the *subnet-dns-publish-fixed-ip* Neutron extension is enabled.
2. Create the *zone* example.org. in Designate.
3. Create a network, providing the *dns\_domain* of example.org., that we will use for the Nova instance.
4. Create a subnet on the network with *dns\_publish\_fixed\_ip* set to True.
5. Create the Nova instance, with name server and a NIC on the network.
6. Verify the DNS *recordset* was created in the Designate *zone*.

---

**Note:** The DNS domain must always be a *Fully Qualified Domain Name* (FQDN), meaning it will always end with a period.

---

#### CLI Commands:

```
$ openstack extension list --network -f value -c Alias | grep subnet-dns-
↪publish-fixed-ip
$ openstack zone create --email example@example.org example.org.
$ openstack network create --dns-domain example.org. example-net
$ openstack subnet create --allocation-pool start=192.0.2.10,end=192.0.2.200 -
↪-network example-net --subnet-range 192.0.2.0/24 --dns-publish-fixed-ip↪
↪example-subnet
$ openstack server create --image cirros-0.5.2-x86_64-disk --flavor 1 --nic↪
↪net-id=example-net server
$ openstack recordset list --type A example.org.
```

id	name	type	records	status	action
7b8d1be6-1b23	server.example.org.	A	192.0.2.44	ACTIVE	NONE
-478a-94d5-60					
b876dca2c8					

## DNS for Neutron Ports

DNS integration with Neutron allows you to automatically create a DNS *recordset* for Neutron ports.

As an example, we will create a new Neutron port with the DNS name of example-port.example.org registered in Designate.

---

**Note:** This example is for user created networks. DNS records can be automatically created for Neutron ports on networks created by a cloud administrator if they meet the [Neutron criteria](#).

---

### Steps:

1. Check that the *subnet-dns-publish-fixed-ip* Neutron extension is enabled.
2. Create the *zone* example.org. in Designate.
3. Create a network, providing the *dns\_domain* of example.org., that we will use for the Neutron port.
4. Create a subnet on the network with *dns\_publish\_fixed\_ip* set to True.
5. Create the Neutron port specifying the *dns\_name* of example-port for the port.
6. Verify the DNS *recordset* was created in the Designate *zone*.

---

**Note:** The DNS domain must always be a *Fully Qualified Domain Name* (FQDN), meaning it will always end with a period.

---

### CLI Commands:





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```

+-----+-----+-----+-----+-----+
↪-----+
| id          | name          | type | records      | status |
↪action |
+-----+-----+-----+-----+-----+
↪-----+
| e1eca823-169d | example-fip.example.org. | A    | 192.0.2.106 | ACTIVE |
↪NONE |
| -4d0a-975e-91 |                |      |              |        |
↪ |
| a9907ec0c1    |                |      |              |        |
↪ |
+-----+-----+-----+-----+-----+
↪-----+

```

## 1.5 Administration guide

In this section, you will find documentation relevant for administering and operating Designate.

Contents:

### 1.5.1 Managing Top Level Domain Names

[System Administrators](#) can use top level domains (TLDs) to restrict the domains under which users can create zones. While in the Domain Name System the term TLD refers specifically to the set of domains that lie directly below the root, such as `.org`, in Designate a TLD can be any domain.

For example, if you want to require that users create zones ending in `.org.`, this can be achieved by creating a single `.org` TLD:

```

$ openstack tld create --name org
+-----+-----+-----+-----+-----+
| Field      | Value                                     |
+-----+-----+-----+-----+-----+
| created_at | 2021-06-10T05:20:16.000000              |
| description | None                                     |
| id         | 9fd0a12d-511e-4024-bf76-6ec2e3e71edd    |
| name       | org                                       |
| updated_at | None                                     |
+-----+-----+-----+-----+-----+

```

---

**Note:** When using the `openstack tld` command, ensure that the FQDN that you enter has no trailing dot (*example.net.*).

---

If you now attempt to create a zone that does not lie within the `.org` TLD, it will fail:

```
$ openstack zone create --email admin@test.net test.net.  
Invalid TLD
```

TLDs are much like an allowlist: if there are many TLDs then the zone must exist within one of the TLDs. If no TLDs have been created in Designate, then users can create any zone. Unlike the blacklists feature, TLDs do not have a policy that allows privileged users to create zones outside the allowed TLDs.

You can modify the values for a TLD using the *set* command. You can use either the name or the ID to specify which TLD to set:

```
$ openstack tld set org --name example.net  
+-----+-----+  
| Field      | Value |  
+-----+-----+  
| created_at | 2021-06-10T05:20:16.000000 |  
| description | |  
| id         | 9fd0a12d-511e-4024-bf76-6ec2e3e71edd |  
| name       | example.net |  
| updated_at | 2021-06-10T07:09:45.000000 |  
+-----+-----+
```

You can delete a TLD by providing either the ID or the current name:

```
$ openstack tld delete org
```

This command has no output when completed successfully.

## 1.5.2 DNS Server Plugin Documentation

Contents:

### Agent Backend

This page documents using the various Agent backends, and its accompanying service, *designate-agent*. This backend uses an extension of the DNS protocol itself to send management requests to the remote agent processes, where the requests will be actioned.

The *rpc* traffic between *designate* and the *agent* is both unauthenticated and unencrypted. Do not run this traffic over unsecured networks.

### Designate Configuration

For each *designate-agent* running, add a target to the *pools.yaml* configuration file, using the following template:

```
targets:  
  - type: agent  
    description: Agent Server 1
```

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```

# List out the designate-mdns servers from which Agent servers
↳should
# request zone transfers (AXFRs) from.
masters:
  - host: 192.0.2.1
    port: 5354

# Agent Configuration options, this should be this targets
# designate-agent service's host and port.
options:
  host: 192.0.2.2
  port: 5358

```

Then update the designate pools database using the designate-manage pool command - see *designate-manage pool* for further details on the designate-manage pool command:

```
$ designate-manage pool update
```

## Akamai v2 Backend

This page documents using the Akamai v2 backend. The backend uses the FastDNS V2 API to create and delete zones remotely.

## Designate Configuration

Example configuration required: One section for each pool target

```

- name: default-akamai-v2
  # The name is immutable. There will be no option to change the
  ↳name after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Akamai v2

  attributes: {}

  # List out the NS records for zones hosted within this pool
  ns_records:
    - hostname: ns1-1.example.org.
      priority: 1

  # List out the nameservers for this pool. These are the actual
  ↳Akamai servers.
  # We use these to verify changes have propagated to all
  ↳nameservers.
  nameservers:
    - host: 192.0.2.2
      port: 53

```

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```

# List out the targets for this pool. For Akamai, most often,
↪there will be
# one entry for each Akamai server.
targets:
- type: akamai_v2
  description: Akamai v2 server

# List out the designate-mdns servers from which Akamai
↪servers should
# request zone transfers (AXFRs) from.
masters:
- host: 192.0.2.1
  port: 5354

options:
  host: 192.0.2.2
  port: 53
  akamai_host: 192.0.2.2
  akamai_client_token: client_token_string
  akamai_access_token: access_token_string
  akamai_client_secret: client_secret_string
  akamai_contract_id: contract_id
  akamai_gid: group_id

```

Then update the pools in designate - see *designate-manage pool* for further details on the designate-manage pool command

```
$ designate-manage pool update
```

## Bind9 Backend

This page documents using the Bind 9 backend. The backend uses the rndc utility to create and delete zones remotely.

The traffic between rndc and Bind is authenticated with a key.

## Designate Configuration

Example configuration required for Bind9 operation. One section for each pool target

```

targets:
- type: bind9
  description: BIND9 Server 1

# List out the designate-mdns servers from which BIND servers
↪should
# request zone transfers (AXFRs) from.

```

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```

masters:
  - host: 192.0.2.1
    port: 5354

# BIND Configuration options
options:
  host: 192.0.2.2
  port: 53
  rndc_host: 192.0.2.2
  rndc_port: 953
  rndc_key_file: /etc/designate/rndc.key

```

The key and config files are relative to the host running Designate (and can be different from the hosts running Bind)

Then update the pools in designate - see *designate-manage pool* for further details on the designate-manage pool command

```
$ designate-manage pool update
```

## Bind9 Configuration

Ensure Bind can access the /etc/bind/rndc.conf and /etc/bind/rndc.key files and receive rndc traffic from Designate.

Enable rndc addzone/delzone functionality by editing named.conf.options or named.conf and add this line under options

```
allow-new-zones yes;
```

Example configuration of /etc/bind/rndc.key

```
key "rndc-key" {
  algorithm hmac-md5;
  secret "<b64-encoded string>";
};
```

## Djbdns Agent backend

### Djbdns User documentation

This page documents the Agent backend for djbdns.

The agent runs on the same host as the [tinydns](#) resolver. It receives DNS messages from Mini DNS using private DNS OPCODEs and classes and creates or deletes zones in the data.cdb file using [axfr-get](#) and [tinydns-data](#)

## Setting up Djbdns on Ubuntu Trusty

Assuming no DNS resolver is already installed, run as root:

```
set -u
datadir=/var/lib/djbdns
ug_name=djbdns
tinydns_ipaddr=127.0.0.1

[[ -d $datadir ]] && echo "$datadir already exists" && exit 1
set -e
apt-get update
apt-get install dbndns daemontools
if ! getent passwd $ug_name >/dev/null; then
    adduser --quiet --system --group --no-create-home --home /nonexistent $ug_
    ↪name
fi
tinydns-conf $ug_name $ug_name $datadir $tinydns_ipaddr
cd $datadir/root
tinydns-data data
chown -Rv $ug_name:$ug_name $datadir
```

Setup the a Systemd service or, alternatively, an initfile to start TinyDNS.

In the contrib/djbdns directory there are example files for both.

```
systemctl daemon-reload
service tinydns start
service tinydns status
```

If needed, create the rootwrap filters, as root:

```
cat > /etc/designate/rootwrap.d/djbdns.filters <<EOF
# cmd-name: filter-name, raw-command, user, args
[Filters]
tcpclient: CommandFilter, /usr/bin/tcpclient, root
axfr-get: CommandFilter, /usr/bin/axfr-get, root
EOF

# Check the filter:
sudo /usr/local/bin/designate-rootwrap /etc/designate/rootwrap.conf tcpclient_
↪-h
sudo /usr/local/bin/designate-rootwrap /etc/designate/rootwrap.conf axfr-get -
↪h
```

Configure the service.agent and backend.agent.djbdns sections in /etc/designate/designate.conf

Look in designate.conf.example for examples.

Create an agent pool:

```
# Fetch the existing pool(s) if needed or start from scratch
designate-manage pool generate_file --file /tmp/pool.yaml
```

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```
# Edit the file (see below) and reload it as:
designate-manage pool update --file /tmp/pool.yaml
```

The targets section in pool.yaml should look like:

```
targets:
- description: gdnssd agent
  masters:
  - host: <MiniDNS IP addr>
    port: 5354
  options: {}
  options:
  - host: <Agent IP addr>
    port: 5358
  type: agent
```

## Testing

Create new zones and records. Monitor the agent logfile and the contents of the TinyDNS datadir. The data.cdb file should be receiving updates.

```
openstack zone create --email example@example.org example.org.
openstack recordset create example.org. --type A foo --records 1.2.3.4
dig example.org @<tinydns_ipaddr> SOA
dig foo.example.org @<tinydns_ipaddr> A
```

## Developer documentation

### Devstack testbed

Follow [Setting up Djbdns on Ubuntu Trusty](#)

Configure Tinydns to do AXFR from MiniDNS on 192.168.121.131

### gdnssd Agent backend

### User documentation

This page documents the Agent backend for [gdnssd](#).

The agent runs on the same host as the resolver. It receives DNS messages from Mini DNS using private DNS OPCODEs and classes and creates/updates/deletes zones on gdnssd using zone files under the gdnssd configuration directory.

The backend supports gdnssd from version 2.0

[gdnssd documentation](#)

### Setting up gdnssd on Ubuntu Vivid

Run as root:

```
apt-get update
apt-get install gdnssd
```

### Configuring gdnssd

Assuming gdnssd has been freshly installed on the system, run as root:

```
# Monitor syslog during the next steps
tail -f /var/log/syslog

# config check should be successful
/usr/sbin/gdnssd checkconf

# Start the daemon if needed
service gdnssd status
service gdnssd start

# gdnssd should be listening on TCP and UDP ports
netstat -lnptu | grep '/gdnssd'

# Test the daemon: it should respond with "gdnssd"
dig @127.0.0.1 CH TXT +short
```

Configure the `service.agent` and `backend.agent.gdnssd` sections in `/etc/designate/designate.conf`

Look in `designate.conf.example` for more complete examples

```
[service:agent]
backend_driver = gdnssd
# Place here the MiniDNS ipaddr and port (not the agent itself)
masters = 192.168.27.100:5354

[backend:agent:gdnssd]
#gdnssd_cmd_name = gdnssd
#confdir_path = /etc/gdnssd
#query_destination = 127.0.0.1
```

Ensure that the zones directory under `confdir_path` (default `/etc/gdnssd`) is readable and writable by the system user running the Designate Agent

Create an agent pool:

```
# Fetch the existing pool(s) if needed
designate-manage pool generate_file --file /tmp/pool.yaml
# Edit the file (see below) and reload it as:
designate-manage pool update --file /tmp/pool.yaml
```

The targets section in `pool.yaml` should look like:



```

targets:
- description: gdnssd agent
  masters:
  - host: <MiniDNS IP addr>
    port: 5354
  options: {}
  options:
  - host: <Agent IP addr>
    port: 5358
  type: agent

```

Start the Designate Agent. You should see log messages similar to:

```

2016-05-03 15:13:38.193 INFO designate.backend.agent_backend.impl_gdnssd [-]
↳gdnssd command: 'gdnssd'
2016-05-03 15:13:38.193 INFO designate.backend.agent_backend.impl_gdnssd [-]
↳gdnssd conf directory: '/etc/gdnssd'
2016-05-03 15:13:38.194 INFO designate.backend.agent_backend.impl_gdnssd [-]
↳Resolvers: ['127.0.0.1']

```

## Infoblox Backend

Provides an integration between Designate and Infoblox grids.

### Features

The Infoblox Designate backend allows an Infoblox grid to be used for serving zones controlled by OpenStack Designate.

The Infoblox backend may be setup to map a specific Designate pool to a single DNS view, or it may be setup to map individual tenants to per-tenant DNS views.

### Infoblox Configuration

- Create a user for use by Designate.
- Set up one or more nameserver groups to be used to serve Designate zones.
  - Set the Designate mDNS servers as external primaries
  - Add a grid member as a grid secondary; select the Lead Secondary option for this member
  - Add additional grid secondaries as desired

### Designate Backend Configuration

- Designate may be configured to talk to any number of grid API service points (GM or Cloud appliance).
  - Setup a pool for each combination of DNS view and nameserver group you wish to manage.
  - Setup a pool target for each API service point that Designate should talk to.
    - \* A single Designate pool should point to only one API service point in any single grid. That is, do not point a pool at more than one API service point in the same grid.
    - \* It is OK to point a pool at multiple grids, just not to multiple service points on the same grid.
    - \* You may specify the DNS view and nameserver group on a per-target basis.
- The `[infoblox:backend]` stanza in the designate configuration file can be used to set default values for the grid connectivity and other information.
- These values can be overridden on a per-target basis with the options element of the target configuration.
- Set the mDNS port to 53 in the `[service:mdns]` stanza.
- Designate always puts any servers associated with the pool as NS records for the domain. So, if you wish for any Infoblox nameservers to be listed in NS records, they must be added via Designate.

### Multi-tenant Configuration

When configured with `multi_tenant = True` in the `designate.conf` file, the DNS view will be chosen as follows:

- A search will be made for a network view with the EA TenantID, with the value of the OpenStack `tenant_id`.
- If found, then DNS view used will be `<dns_view>.<network_view>`, where `<dns_view>` is the value specified in `designate.conf`, and `<network_view>` is the name of the view found in the search.
- If no such network view is found, then a network view will be created with the name `<network_view>.<tenant_id>`, where `<network_view>` is the value specified in `designate.conf`. This network view will be tagged with the TenantID EA.
- If the DNS view does not exist (in either case above), then it will be created.

### Knot DNS 2 Agent backend

#### Knot DNS 2 User documentation

This page documents the Agent backend for [Knot DNS](#).

The agent runs on the same host as the resolver. It receives DNS messages from Mini DNS using private DNS OPCODEs and classes and creates or deletes zones on Knot using the `knotc` tool. It also instructs Knot to request AXFR from MiniDNS when a zone is created or updated.

Support matrix:

- 2.0 and older: not supported
- 2.2.0: affected by a bug

Knot DNS documentation

## Configuring Knot DNS

Assuming Knot has been freshly installed on the system, run as root:

```
# Monitor syslog during the next steps
tail -f /var/log/syslog

# Start the daemon, ensure it's running
service knot start
netstat -npltu | grep knotd

# Create the config database
knotc conf-init

# Edit /etc/default/knot
# Set the variable:
# KNOTD_ARGS="-C /var/lib/knot/confdb"

# Restart
service knot restart

# Check if the deamon is still running from the conf file in /etc/knot/
ps axuw | grep knotd

# if so, apply this workaround for bug
# https://gitlab.labs.nic.cz/labs/knot/issues/455
( cd /etc/default/ && ln -s knot knotd )
service knot restart
ps axuw | grep knotd

# Ensure the confdb is present
test -f /var/lib/knot/confdb/data.mdb && echo OK

# Create the configuration
# Populate the variable with the MiniDNS ipaddr:
MINIDNS_IPADDR=

knotc conf-begin
knotc conf-set server.listen 0.0.0.0@53
# To listen on IPv6 as well, also run this:
# knotc conf-set server.listen '::@53'
knotc conf-set remote[minidns]
knotc conf-set remote[minidns].address $MINIDNS_IPADDR@5354
knotc conf-set template[default]
knotc conf-set template[default].master minidns
```

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```

knotc conf-set template[default].acl acl_minidns
knotc conf-set template[default].semantic-checks on
knotc conf-set zone[example.com]
knotc conf-set log.any info
knotc conf-set log.target syslog
knotc conf-set acl[acl_minidns]
knotc conf-set acl[acl_minidns].address $MINIDNS_IPADDR
knotc conf-set acl[acl_minidns].action notify
# Review the changes and commit
knotc conf-diff
knotc conf-commit

# Optionally check and back up the conf
knotc conf-check
knotc conf-export knot.conf.bak && cat knot.conf.bak

# Ensure the zone survives a restart
service knot restart
knotc zone-status example.com

# Test Knot: this should return the version
dig @127.0.0.1 version.server CH TXT

```

If needed, create a rootwrap filter, as root:

```

cat > /etc/designate/rootwrap.d/knot2.filters <<EOF
# cmd-name: filter-name, raw-command, user, args
[Filters]
knotc: CommandFilter, /usr/sbin/knotc, root
EOF

# Check the filter:
sudo /usr/local/bin/designate-rootwrap /etc/designate/rootwrap.conf knotc_
↪status

```

Configure the service.agent and backend.agent.knot2 sections in /etc/designate/designate.conf

Look in designate.conf.example for examples

Create an agent pool:

```

# Fetch the existing pool(s) if needed or start from scratch
designate-manage pool generate_file --file /tmp/pool.yaml
# Edit the file (see below) and reload it as:
designate-manage pool update --file /tmp/pool.yaml

```

The targets section in pool.yaml should look like:

```

targets:
- description: knot2 agent
  masters:

```

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```
- host: <MiniDNS IP addr>
  port: 5354
options: {}
options:
- host: <Agent IP addr>
  port: 5358
type: agent
```

## Developer documentation

### Devstack testbed

Follow Setting up Knot DNS on Ubuntu Trusty

Configure Knot to slave from MiniDNS on 192.168.121.131

Knotd configuration example (sudo knotc conf-export <filename>):

```
# Configuration export (Knot DNS 2.1.1)

server:
  listen: "0.0.0.0@53"

log:
- target: "syslog"
  any: "debug"

acl:
- id: "acl_minidns"
  address: [ "192.168.121.131" ]
  action: [ "notify" ]

remote:
- id: "minidns"
  address: "192.168.121.131@5354"

template:
- id: "default"
  master: "minidns"
  acl: "acl_minidns"
  semantic-checks: "on"
```

### MSDNS Agent Backend

#### MSDNS User Documentation

This page documents using the MSDNS Agent backend.

The agent runs on the Windows host where the Microsoft DNS Server feature is installed. It receives DNS messages from Mini DNS using private DNS OPCODEs and classes and creates or deletes zones using WMI calls.

It also instructs MSDNS to request AXFR from MiniDNS when a zone is created or updated.

[Microsoft DNS documentation for managing DNS zones](#)

#### Setting up the Microsoft DNS server on Windows Server

The DNS Server role can be installed on the system by following the documentation available here: [How to install the DNS Server role](#)

#### Configuring MSDNS

Assuming the DNS Server role has been installed on the system, follow the next steps to complete the configuration.

These steps are for the Windows host which will run the designate agent. Make sure that Python 2.7 or Python 3.4 is installed on the system already.

To install Designate, clone the repository from <https://github.com/openstack/designate> and do a pip install. Example:

```
git clone https://github.com/openstack/designate
pip install .\designate
```

After that, we need to configure the Designate Agent. Inside the github repository, there is a folder named etc/designate which can be used as default configuration.

Copy the folder somewhere else, for this example we will copy it to C:\etc\designate Inside the configuration folder, make a copy of designate.conf.sample and rename the copy to designate.conf Example:

```
copy C:\\etc\\designate\\designate.conf.sample C:\\etc\\designate\\designate.
↪conf
```

Configure the service.agent and backend.agent.msdns sections in C:\etc\designate\designate.conf

Look in C:\etc\designate\designate.conf.example for more complete examples.

```
[service:agent]
backend_driver = msdns
# Place here the MiniDNS ipaddr and port (no the agent itself)
masters = <MiniDNS IP addr>:53
```

Ensure that policy\_file under the [default] section is set:

```
policy_file = C:\\etc\\designate\\policy.yaml
```

Start the designate agent using (Python 2.7 was installed in the default location C:\Python27):

```
C:\\Python27\\Scripts\\designate-agent.exe --config-file 'C:\\etc\\designate\\
↪designate.conf'
```

You should see log messages similar to:

```
2016-06-22 02:00:47.177 3436 INFO designate.backend.agent_backend.impl_msdns_
↪[-] Started msdns backend
2016-06-22 02:00:47.177 3436 INFO designate.service [-] _handle_tcp thread_
↪started
2016-06-22 02:00:47.177 3436 INFO designate.service [-] _handle_udp thread_
↪started
```

The following steps are for the system running the Designate controller.

Make sure to set the mDNS port to 53 in the [service:mdns] section. MS DNS does not support Masters that are on any port other than 53.

Create an agent pool:

```
# Fetch the existing pool(s) if needed or start from scratch
designate-manage pool generate_file --file /tmp/pool.yaml
# Edit the file (see below) and reload it as:
designate-manage pool update --file /tmp/pool.yaml
```

The targets section in pool.yaml should look like:

```
targets:
- description: Microsoft DNS agent
  masters:
  - host: <MiniDNS IP addr>
    port: 53
  options: {}
  options:
  - host: <Agent IP addr>
    port: 5358
  type: agent
```

## NS1 Backend

### NS1 Configuration

1. Configure the NS1 Backend using this sample target snippet

```
targets:
- type: ns1
  description: NS1 DNS Server
```

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```

# List out the designate-mdns servers from which NS1 servers should
# request zone transfers (AXFRs) from.
masters:
  - host: 192.0.2.1
    port: 5354

# NS1 Configuration options
options:
  #NS1 XFR container ip and port
  host: 192.0.2.2
  port: 5302
  #NS1 API endpoint IP address or name (Core container). Enter only base_
↪address or name.
  #Plugin will generate full api address, e.g. https://192.0.2.2/v1/
↪zones/<zone name>
  api_endpoint: 192.0.2.2
  #NS1 API key
  api_token: changeme
  # If a tsigkey is needed, uncomment the line below and insert the key_
↪name, algorithm and value
  # NOTE: TSIG key has to be set manually
  #tsigkey_name: testkey
  #tsigkey_hash: hmac-sha512
  #tsigkey_value: 4EJz00m4ZWe005HjLiXRedJbSnCUx5Dt+4wVYsBweG5HKAV6cqSVJ/
↪oem/6mLgDNFALLP3Jg0npbg1SkP7RMDg==

```

2. Then update the pools in designate

```
$ designate-manage pool update
```

See *designate-manage pool* for further details on the `designate-manage pool` command, and *DNS Server Pools* for information about the yml file syntax

## TSIG Key Configuration

In some cases a deployer may need to use tsig keys to sign AXFR (zone transfer) requests. As NS1 does not support a per host key setup, this needs to be set on a per zone basis, on creation.

To do this, generate a tsigkey using any of available utilities (e.g. `tsig-keygen`):

```

$ tsig-keygen -a hmac-sha512 testkey
key "testkey" {
  algorithm hmac-sha512;
  secret
↪"vQbMI3u5QGUyRu6FWRm16eL0F0df00mVJjWKCTg4mIMNnba0g2PLrV+0G92WcTfJrgqZ20a4hv3RWDICKCcJhw==
↪";
};

```

Then insert it into Designate. Make sure the pool id is correct (the `--resource-id` below.)



```
openstack tsigkey create --name testkey --algorithm hmac-sha512 --secret_
↪4EJz00m4ZWe005HjLiXRedJbSnCUx5Dt+4wVYsBweG5HKAV6cqSVJ/oem/
↪6mLgDNFAlLP3Jg0npbg1SkP7RMDg== --scope POOL --resource-id 794ccc2c-d751-
↪44fe-b57f-8894c9f5c842
```

Then add it to the `pools.yaml` file as shown in the example.

## PDNS4 Backend

### PDNS4 Configuration

The version PowerDNS in Ubuntu Xenial is `pdns4`. This has a different DB schema, and is incompatible with the legacy PowerDNS driver. In PDNS 4 the API was marked stable, and this is what we will use.

You will need to configure PowerDNS, and its database before performing these steps.

You will need to use a database backend for PowerDNSs API to function.

See [PowerDNS Docs](#) for details.

1. Enable the API in the `pdns.conf` file.

```
webserver=yes
api=yes
api-key=changeme
```

2. Configure the PowerDNS Backend using this sample target snippet

```
targets:
- type: pdns4
  description: PowerDNS4 DNS Server

  # List out the designate-mdns servers from which PowerDNS servers should
  # request zone transfers (AXFRs) from.
  masters:
  - host: 192.0.2.1
    port: 5354

  # PowerDNS Configuration options
  options:
  host: 192.0.2.1
  port: 53
  api_endpoint: http://127.0.0.1:8081
  api_token: changeme
  api_ca_cert: /etc/ssl/certs/ca-certificates.crt
  # If a tsigkey is needed, uncomment the line below and insert the name
  # tsigkey_name: <keyname>
```

3. Then update the pools in designate

```
$ designate-manage pool update
```

See *designate-manage pool* for further details on the `designate-manage pool` command, and *DNS Server Pools* for information about the `yaml` file syntax

### TSIG Key Configuration

---

**Note:** This is only available in PowerDNS 4.2 or newer

---

In some cases a deployer may need to use tsig keys to sign AXFR (zone transfer) requests. As `pdnsd` does not support a per host key setup, this needs to be set on a per zone basis, on creation.

To do this, generate a tsigkey on the PowerDNS Server:

```
$ pdnsutil generate-tsig-key <keyname> hmac-sha512
Create new TSIG key keyname hmac-sha512
↳ 4EJz00m4ZWe005HjLiXRedJbSnCUx5Dt+4wVYsBweG5HKAV6cqSVJ/oem/
↳ 6mLgDNFAlLP3Jg0npbg1SkP7RMDg==
```

Then insert it into Designate. Make sure the pool id is correct (the `--resource-id` below.)

```
openstack tsigkey create --name <keyname> --algorithm hmac-sha512 --secret
↳ 4EJz00m4ZWe005HjLiXRedJbSnCUx5Dt+4wVYsBweG5HKAV6cqSVJ/oem/
↳ 6mLgDNFAlLP3Jg0npbg1SkP7RMDg== --scope POOL --resource-id 794ccc2c-d751-
↳ 44fe-b57f-8894c9f5c842
```

Then add it to the `pools.yaml` file as shown in the example. The ID used is the name of the key in the PowerDNS server.

For a list of drivers and the status of each drivers testing please go to *DNS Server Driver Support Matrix*

### 1.5.3 High Availability Guide

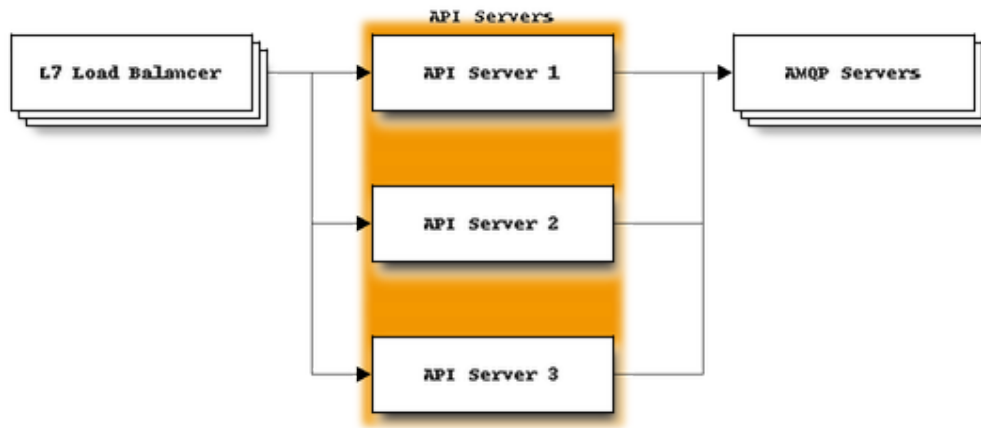
Designate supports running all of its components services in active-active HA modes.

Some services require some extra setup to ensure that they can work in active-active, and the services are listed below.

#### designate-api

##### Needs Access to:

- AMQP



## Notes

To run multiple *designate-api* services, you should run the services behind a load balancer.

When behind the load balancer, you may need to set the following:

```
[service:api]
api_base_uri = http://<load balancer URI>/
enable_host_header = True
```

Or the following:

```
[oslo_middleware]
enable_proxy_headers_parsing = true
```

And then the load balancer to set appropriate headers (e.g. enable *mod\_proxy* in apache.)

## designate-central

### Needs Access to:

- AMQP
- Database



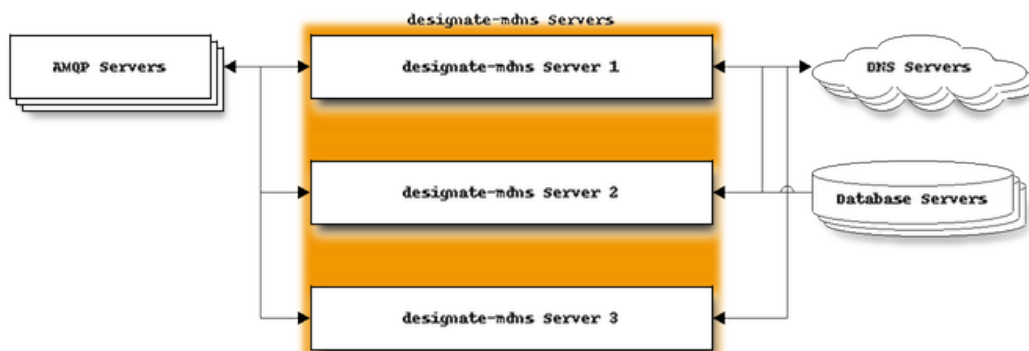
## Notes

You can run as many *designate-central* services as needed, as long as they all have access to the AMQP server(s), work will be distributed across all of them.

## designate-mdns

### Needs Access to:

- AMQP
- Database
- DNS Servers



## Notes

You can run as many *designate-mdns* services as needed, as long as they all have access to the AMQP server(s), work will be distributed across all of them.

## designate-worker

### Needs Access to:

- AMQP
- DNS Servers



## Notes

You can run as many *designate-worker* services as needed, as long as they all have access to the AMQP server(s), work will be distributed across all of them.

## designate-producer

### Needs Access to:

- AMQP
- DLM



## Notes

You can run as many *designate-producer* services as needed, as long as they all have access to the AMQP server(s), and a distributed lock manager, work will be sharded across all the services.

You will need to set a coordination *backend\_url*. This needs to be a DLM that is supported by *tooz*, that supports group membership. See [tooz driver list](#) for available drivers

**Warning:** Failure to set a *backend\_url* can cause unexpected consequences, and may result in some periodic tasks being ran more than once.

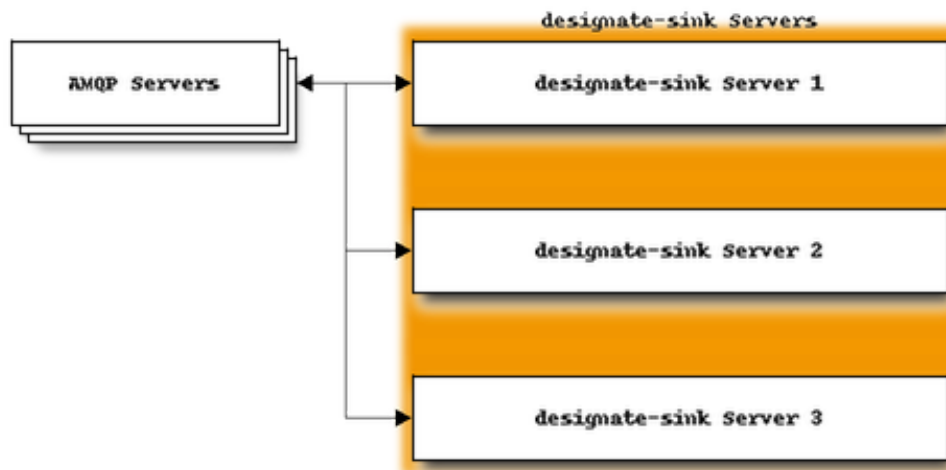
### [coordination]

```
backend_url = kazoo://<zookeeper url>:<zookeeper port>
```

## designate-sink

### Needs Access to:

- AMQP



## Notes

You can run as many *designate-sink* services as needed, as long as they all have access to the AMQP server(s), work will be distributed across all of them.

## 1.5.4 DNS Server Pools

### Overview

In designate we support the concept of multiple pools of DNS Servers.

This allows operators to scale out their DNS Service by adding more pools, avoiding the scaling problems that some DNS servers have for number of zones, and the total number of records hosted by a single server.

This also allows providers to have tiers of service (i.e. the difference between GOLD vs SILVER tiers may be the number of DNS Servers, and how they are distributed around the world.)

In a private cloud situation, it allows operators to separate internal and external facing zones.

To help users create zones on the correct pool we have a scheduler that is responsible for examining the zone being created and the pools that are available for use, and matching the zone to a pool.

The filters are pluggable (i.e. operator replaceable) and all follow a simple interface.

The zones are matched using zone attributes and pool attributes. These are key: value pairs that are attached to the zone when it is being created, and the pool. The pool attributes can be updated by the operator in the future, but it will **not** trigger zones to be moved from one pool to another.

---

**Note:** Currently the only zone attribute that is accepted is the *pool\_id* attribute. As more filters are merged there will be support for dynamic filters.

---

### Target vs. Nameserver

One thing that can be confusing about pools is the differentiation between a target and a nameserver. The target is where Designate will try to write the change, while a nameserver is where Designate checks that the change exists.

A great example of this is [binds stealth master system](#). In this configuration, there could be a stealth master that you configure as your target and a set of slaves pointed to that master as your nameservers. Designate will write to the master and then look for the changes on the slaves before considering the change active.

Another example would be where Designate uses an API backend such as DynDNS or even another Designate instance. In this situation, you will typically have a single target with a set of nameservers to test that meet your requirements.

Yet another example is when using a Designate agent. In this scenario your agent instances are the targets and the nameservers the agent updates would be checked for the correct information.

### Managing Pools

In mitaka we moved the method of updating pools to a CLI in *designate-manage*

There is a YAML file that defines the pool, and is used to load this information into the database.

```
---
- name: default
  # The name is immutable. There will be no option to change the name after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default PowerDNS Pool

  # Attributes are Key:Value pairs that describe the pool. for example the
  ↪level
  # of service (i.e. service_tier:GOLD), capabilities (i.e. anycast: true) or
  # other metadata. Users can use this information to point their zones to the
  # correct pool
  attributes: {}

  # List out the NS records for zones hosted within this pool
  ns_records:
    - hostname: ns1-1.example.org.
      priority: 1
    - hostname: ns1-2.example.org.
      priority: 2

  # List out the nameservers for this pool. These are the actual PowerDNS
  # servers. We use these to verify changes have propagated to all
  ↪nameservers.
  nameservers:
    - host: 192.0.2.2
```

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```

    port: 53

# List out the targets for this pool. For PowerDNS, this is the database
# (or databases, if you deploy a separate DB for each PowerDNS server)
targets:
  - type: powerdns
    description: PowerDNS Database Cluster

# List out the designate-mdns servers from which PowerDNS servers should
# request zone transfers (AXFRs) from.
masters:
  - host: 192.0.2.1
    port: 5354

# PowerDNS Configuration options
options:
  host: 192.0.2.2
  port: 53
  connection: 'mysql+pymysql://designate:password@127.0.0.1/designate_
↳pdns?charset=utf8'

# Optional list of additional IP/Port's for which designate-mdns will send
# DNS NOTIFY packets to
also_notifies:
  - host: 192.0.2.4
    port: 53

```

## Designate Manage Pools Command Reference

### Update Pools Information

```
designate-manage pool update [options]
```

#### Options:

<b>--file</b>	Input file (Default: /etc/designate/pools.yaml)
<b>--dry-run</b>	This will simulate what will happen when you run this command
<b>--delete</b>	Any Pools not listed in the config file will be deleted

#### Warning:

Running with **--delete** can be **extremely** dangerous. It will delete any pools that are not in the supplied YAML file, and any zones that are in that Pool.

```
Before running with --delete we recommend operators run with
--delete --dry-run to view the outcome.
```

### Generate YAML File

```
designate-manage pool generate_file [options]
```

#### Options:

**--file**                   YAML file output too (Default: /etc/designate/pools.yaml)

### Generate YAML File from Liberty Config

```
designate-manage pool export_from_config [options]
```

#### Options:

**--file**                   YAML file output too (Default: /etc/designate/pools.yaml)

## 1.5.5 Pool Scheduler

In designate we have a pluggable scheduler filter interface.

You can set an ordered list of filters to run on each zone create api request.

We provide a few basic filters below, and creating custom filters follows a similar pattern to schedulers.

You can create your own by extending `designate.scheduler.filters.base.Filter` and registering a new entry point in the `designate.scheduler.filters` namespace like so in your `setup.cfg` file:

```
[entry_points]
designate.scheduler.filters =
my_custom_filter = my_extension.filters.my_custom_filter:MyCustomFilter
```

The new filter can be added to the `scheduler_filters` list in the `[service:central]` section like so:

```
[service:central]
scheduler_filters = attribute, pool_id_attribute, fallback, random, my_custom_
↳filter
```

The filters list is ran from left to right, so if the list is set to:

```
[service:central]
```

```
scheduler_filters = attribute, random
```

There will be two filters ran, the `designate.scheduler.filters.attribute_filter.AttributeFilter` followed by `designate.scheduler.filters.random_filter.RandomFilter`

## Default Provided Filters

### Base Class - Filter

**class** `designate.scheduler.filters.base.Filter`(*storage*)

This is the base class used for filtering Pools.

This class should implement a single public function `filter()` which accepts a `designate.objects.pool.PoolList` and returns a `designate.objects.pool.PoolList`

**abstract filter**(*context, pools, zone*)

Filter list of supplied pools based on attributes in the request

#### Parameters

- **context** `designate.context.DesignateContext` - Context Object from request
- **pools** `designate.objects.pool.PoolList` - List of pools to choose from
- **zone** `designate.objects.zone.Zone` - Zone to be created

**Returns** `designate.objects.pool.PoolList` - Filtered list of Pools

### Attribute Filter

**class** `designate.scheduler.filters.attribute_filter.AttributeFilter`(*storage*)

Bases: `designate.scheduler.filters.base.Filter`

This allows users to choose the pool by supplying hints to this filter. These are provided as attributes as part of the zone object provided at zone create time.

```
{
  "attributes": {
    "pool_level": "gold",
    "fast_ttl": "true",
    "pops": "global",
  },
  "email": "user@example.com",
  "name": "example.com."
}
```

The zone attributes are matched against the potential pool candidates, and any pools that do not match **all** hints are removed.

**Warning:** This should be uses in conjunction with the `designate.scheduler.impl_filter.filters.random_filter.RandomFilter` in case of multiple Pools matching the filters, as without it, we will raise an error to the user.

**name = 'attribute'**

Name to enable in the `[designate:central:scheduler].filters` option list

## Pool ID Attribute Filter

**class** `designate.scheduler.filters.pool_id_attribute_filter.PoolIDAttributeFilter`(*storage*)

Bases: `designate.scheduler.filters.base.Filter`

This allows users with the correct role to specify the exact `pool_id` to schedule the supplied zone to.

This is supplied as an attribute on the zone

```
{
  "attributes": {
    "pool_id": "794ccc2c-d751-44fe-b57f-8894c9f5c842"
  },
  "email": "user@example.com",
  "name": "example.com."
}
```

The pool is loaded to ensure it exists, and then a policy check is performed to ensure the user has the correct role.

**Warning:** This should only be enabled if required, as it will raise a 403 Forbidden if a user without the correct role uses it.

**filter**(*context, pools, zone*)

Attempt to load and set the pool to the one provided in the Zone attributes.

### Parameters

- **context** `designate.context.DesignateContext` - Context Object from request
- **pools** `designate.objects.pool.PoolList` - List of pools to choose from
- **zone** `designate.objects.zone.Zone` - Zone to be created

**Returns** `designate.objects.pool.PoolList` A PoolList with containing a single pool.

**Raises** Forbidden, PoolNotFound

**name = 'pool\_id\_attribute'**

Name to enable in the `[designate:central:scheduler].filters` option list

## Random Filter

**class** `designate.scheduler.filters.random_filter.RandomFilter`(*storage*)

Bases: `designate.scheduler.filters.base.Filter`

Randomly chooses one of the input pools if there are multiple ones supplied.

---

**Note:** This should be used as one of the last filters, as it reduces the supplied pool list to one.

---

**name** = `'random'`

Name to enable in the `[designate:central:scheduler].filters` option list

## Fallback Filter

**class** `designate.scheduler.filters.fallback_filter.FallbackFilter`(*storage*)

Bases: `designate.scheduler.filters.base.Filter`

If there is no zones available to schedule to, this filter will insert the `default_pool_id`.

---

**Note:** This should be used as one of the last filters, if you want to preserve behavior from before the scheduler existed.

---

**name** = `'fallback'`

Name to enable in the `[designate:central:scheduler].filters` option list

## Default Pool Filter

**class** `designate.scheduler.filters.default_pool_filter.DefaultPoolFilter`(*storage*)

Bases: `designate.scheduler.filters.base.Filter`

This filter will always return the default pool specified in the designate config file

**Warning:** This should be used as the only filter, as it will always return the same thing - a `designate.objects.pool.PoolList` with a single `designate.objects.pool.Pool`

**name** = `'default_pool'`

Name to enable in the `[designate:central:scheduler].filters` option list

## In Doubt Default Pool Filter

**class** designate.scheduler.filters.in\_doubt\_default\_pool\_filter.InDoubtDefaultPoolFilter(*storage*)

Bases: *designate.scheduler.filters.base.Filter*

If the previous filter(s) didn't make a clear selection of one pool and if the default pool is in the set of multiple pools, this filter will select the default pool.

This filter will pass through the pool list, if there are one or less pools available to schedule to, or if the default pool is not in the set of multiple pools.

---

**Note:** This should be used as one of the last filters.

---

**name** = 'in\_doubt\_default\_pool'

Name to enable in the [designate:central:scheduler].filters option list

## 1.5.6 How To Configure Multiple Pools

Designate supports pools of nameservers. A pool is a collection of nameservers and targets that Designate will write to and read from to confirm changes are successful. In some cases you might have multiple pools that you need to manage differently. For example, you might use separate pools to distribute tenants across some subset of your DNS infrastructure.

Read the section on *DNS Server Pools* to learn more about what pools are and what they can do.

### Pools Configuration

Pools are configured by a *pools.yml* file. This file describes the pools and can be used to update Designate via *designate-manage* commands.

Here is an example *pools.yml* that configures two different pools. The idea is that we'll configure our pools to support different usage levels. We'll define a *gold* and *standard* level and put zones in each based on the tenant.

Our *gold* level will provide 6 nameservers that users have access to where our *standard* will only provide 2. Both pools will have one master target we write to.

```
---
- name: golden_pool
  description: The golden pool!

  attributes:
    service_tier: gold

  ns_records:
  - hostname: ns1-gold.example.org
    priority: 1

  - hostname: ns2-gold.example.org
```

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```
priority: 2

- hostname: ns3-gold.example.net
  priority: 3

- hostname: ns4-gold.example.net
  priority: 4

- hostname: ns5-gold.example.net
  priority: 5

- hostname: ns6-gold.example.net
  priority: 6

nameservers:
- host: ns1-gold.example.net
  port: 53

- host: ns2-gold.example.net
  port: 53

- host: ns3-gold.example.net
  port: 53

- host: ns4-gold.example.net
  port: 53

- host: ns5-gold.example.net
  port: 53

- host: ns6-gold.example.net
  port: 53

targets:
- type: bind9
  description: bind9 golden master

masters:
- host: mdns.designate.example.com
  port: 5354

options:
  host: ns-master-gold.example.org
  port: 53
  rndc_host: ns-master-gold.example.org
  rndc_port: 953
  rndc_key_file: /etc/designate.rndc.key
```

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```
- name: standard_pool
  description: The standard pool

  attributes:
    service_tier: standard

  ns_records:
    - hostname: ns1-std.example.org
      priority: 1

    - hostname: ns2-std.example.org
      priority: 2

  nameservers:
    - host: ns1-std.example.net
      port: 53

    - host: ns2-std.example.net
      port: 53

  targets:
    - type: bind9
      description: bind9 golden master

  masters:
    - host: mdns.designate.example.com
      port: 5354

  options:
    host: ns-master-std.example.org
    port: 53
    rndc_host: ns-master-std.example.org
    rndc_port: 953
    rndc_key_file: /etc/designate.rndc.key
```

With our configuration in place, we can then update Designate to use the pool configuration.

```
# Do a dry run
$ designate-manage pool update --file pools.yml --dry-run
$ designate-manage pool update --file pools.yml
```

Designate now has two pools to work with. The next step will be to configure the scheduler to use the attributes when choosing what pool to store the zone on.



## Pool Scheduler

The pool scheduler allows selecting a pool when a zone is created. Each scheduler acts as a filter, selecting or negating each pool based on some attributes. Designate comes with some simple schedulers to support common patterns:

- `default_pool`
- `fallback`
- `random`
- `pool_id_attribute`
- `attribute`

These are configured in the `service:central` section of the config.

### Schedule by Pool ID Example

For example, if we wanted to allow a user to select a specific pool by id or fallback to using a default, we could use the following configuration.

```
[service:central]
default_pool_id = 794ccc2c-d751-44fe-b57f-8894c9f5c842
scheduler_filters = pool_id_attribute, fallback
```

The filters are applied from left to right. If the zone body doesn't contain an `attributes` object with a `pool_id` set to a valid pool id, the fallback filter is then called, returning the default pool as the scheduled pool for that zone.

### Schedule by Tier Example

In our tiered example, we'll use the `attribute` filter to select the correct pool.

```
[service:central]
default_pool_id = 794ccc2c-d751-44fe-b57f-8894c9f5c842 # the std pool
scheduler_filters = attribute, fallback
```

When a user needs the zone to go to the `gold` pool, the user needs to provide the appropriate attribute in the zone.

```
POST /v2/zones HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "attributes": {
    "service_tier": "gold"
  },
  "email": "user@example.com",
  "name": "example.net."
}
```

This ensures the zone ends up on the correct pool.

In this example, we've allowed the user to define what pool should be scheduled. If we wanted to schedule the zone based on the tenant, we could write a custom filter that looked up the appropriate group and adds the appropriate pool.

### 1.5.7 Blacklisting Domain Names

---

**Note:** The blacklist feature will be renamed and moved to denylist in the near future.

---

You can prevent users from creating zones with names that match a particular regular expression using blacklists. For example, you might use a blacklist to prevent users from:

- creating a specific zone.
- creating zones that contain a certain string.
- creating subzones of a certain zone.

#### Managing Blacklists

You can create blacklists using the `zone blacklist create` command with [System Administrator](#) privileges. For example, to blacklist `example.com.` and all of its subdomains:

```
$ openstack zone blacklist create --pattern ".*example.com."
+-----+-----+
| Field      | Value                               |
+-----+-----+
| created_at | 2021-05-27T04:06:42.000000         |
| description| None                                |
| id         | 7622e241-8c3d-4c03-a692-8747e3cf2658 |
| pattern    | .*example.com.                     |
| updated_at | None                                 |
+-----+-----+
```

If a [Domain or Project Persona](#) attempts to create `foo.example.com.`, or `example.com.`, they encounter an error:

```
$ openstack zone create --email admin@example.com example.com.
Blacklisted zone name
$ openstack zone create --email admin@example.com foo.example.com.
Blacklisted zone name
```

---

**Note:** Users who satisfy the `use_blacklisted_zone` policy can create zones with names that are on a blacklist. By default, the only users who have this override are [System Administrators](#).

---

You can update a blacklist using `zone blacklist set` to modify its pattern or description;

```
$ openstack zone blacklist set 81fbfe02-6bf9-4812-a40e-1522ab6862ca --pattern
↳ "*.web.example.com"
+-----+-----+
| Field      | Value                                |
+-----+-----+
| created_at | 2021-05-27T04:14:14.000000          |
| description | None                                 |
| id         | 81fbfe02-6bf9-4812-a40e-1522ab6862ca |
| pattern    | *.web.example.com                  |
| updated_at | 2021-05-27T04:14:48.000000          |
+-----+-----+
```

You can delete a blacklist using *zone blacklist delete*:

```
$ openstack zone blacklist delete 7622e241-8c3d-4c03-a692-8747e3cf2658
```

There is no output when this command is successful.

## Using the REST API

The regular expressions used for blacklists are similar to Python regular expressions, but you must escape certain characters when making HTTP calls.

For examples, this regex restricts using `example.com.` and its ASCII subdomains:

```
^([A-Za-z0-9_\-]+\.)*example\.com\.$
```

However, you must insert the escape character (backslash, `\`) before the instances of dot (`.`) and `.com`:

```
^([A-Za-z0-9_\-]+\.\.)*example\\.com\\..$
```

Here is the API call and the regex with the HTTP characters escaped:

```
POST /v2/blacklists/ HTTP/1.1
Accept: application/json
Content-Type: application/json

{
  "pattern" : "^([A-Za-z0-9_\\-]+\\.\\.)*example\\.\\.com\\.\\..$",
  "description" : "This blacklists *.example.com."
}
```

## Regular Expressions

Regular Expressions can be difficult to work with. The [Python Regex Documentation](#) may serve as a useful introduction, and online regular expression tools can assist when building and testing regexes for use with the blacklist API.

## 1.5.8 View and Manage Quotas

Quotas exist in Designate for various resources. You can configure quotas globally or on a per-project basis.

### Viewing Quotas

The `Designate` plugin for the `OpenStack Client` allows users to query their current quota using the `dns quota list` command.

```
$ openstack dns quota list
+-----+-----+
| Field           | Value |
+-----+-----+
| api_export_size | 1000  |
| recordset_records | 20    |
| zone_records    | 500   |
| zone_recordsets | 500   |
| zones           | 10    |
+-----+-----+
```

Users can also view their quotas with a simple [View Current Projects Quotas Designate API call](#):

```
GET /v2/quotas/ HTTP/1.1
Accept: application/json
Content-Type: application/json
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json; charset=UTF-8
X-Openstack-Request-Id: req-bfcd0723-624c-4ec2-bbd5-99e985efe8db

{
  "api_export_size": 1000,
  "recordset_records": 20,
  "zone_records": 500,
  "zone_recordsets": 500,
  "zones": 10
}
```

Administrators with a cross-project read role can query the quotas for other projects using the `--project-id` option to the `dns quota list` command or by specifying a `project_id` when making the [View Quotas Designate API call](#).

```
$ openstack dns quota list --project-id ecd4341280d645e5959d32a4b7659da1
+-----+-----+
| Field           | Value |
+-----+-----+
| api_export_size | 1000  |
| recordset_records | 20    |
```

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```
| zone_records      | 500 |
| zone_recordsets  | 500 |
| zones            | 20  |
+-----+-----+
```

```
GET /v2/quotas/ecd4341280d645e5959d32a4b7659da1 HTTP/1.1
Accept: application/json
Content-Type: application/json
```

## Modifying Quotas

You can edit Designate quotas on a per-project basis. An administrator can edit quotas for any project, but they must have an *all\_tenants* role or use a system scoped admin token.

Administrators can set a custom quota for a project using the [OpenStack Client](#) `dns quota set` command.

```
$ openstack dns quota set --project-id ecd4341280d645e5959d32a4b7659da1 --
↪zones 30
+-----+-----+
| Field          | Value |
+-----+-----+
| api_export_size | 1000  |
| recordset_records | 20    |
| zone_records    | 500   |
| zone_recordsets | 500   |
| zones          | 30    |
+-----+-----+
```

Below is an example of setting a quota using the Set Quotas Designate API.

```
PATCH /v2/quotas/ecd4341280d645e5959d32a4b7659da1 HTTP/1.1
Accept: application/json
Content-Type: application/json
X-Auth-All-Projects: True

{
  "zones": 30
}
```

The response would be:

```
HTTP/1.1 200 OK
Content-Type: application/json; charset=UTF-8
X-Openstack-Request-Id: req-ee264c7d-d9f3-4de8-92ec-7de4dc93a255

{
  "api_export_size": 1000,
  "recordset_records": 20,
```

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```
"zone_records": 500,  
"zone_recordsets": 500,  
"zones": 30  
}
```

## Resetting Quotas

You can reset custom quotas for a project to their default values by using the `dns quota reset` command. Administrators can reset quotas for any project, but they must have an `all_tenants` role or use a system scoped admin token.

```
$ openstack dns quota reset --project-id ecd4341280d645e5959d32a4b7659da1
```

---

**Note:** There is no output from a successful `dns quota reset` command.

---

Below is an example of resetting a projects quota via the [Reset Quota Designate API](#).

```
DELETE /v2/quotas/ecd4341280d645e5959d32a4b7659da1 HTTP/1.1  
Accept: application/json  
Content-Type: application/json  
X-Auth-All-Projects: True
```

The response would be:

```
HTTP/1.1 204 No Content  
X-Openstack-Request-Id: req-82b85853-145d-4253-be86-b9aa3116b975
```

## Available Quotas

The quotas available in Designate are listed below with a short description and the default values.

### Zones

Quota	Description	Default
zones	The number of zone allowed per project	10

## Recordsets/Records

Quota	Description	Default
zone_recordsets	Number of recordsets allowed per zone	500
zone_records	Number of records allowed per zone	500
recordset_records	Number of records allowed per recordset	20

## Zone Exports

Quota	Description	Default
api_export_size	Number of recordsets allowed in a zone export	1000

## Default Quotas

You can set a default value for each quota that applies to all users by editing the [DEFAULT] configuration section of the `designate.conf` file, for example:

```
[DEFAULT]
#####
## General Configuration
#####
quota_zones = 10
quota_zone_recordsets = 500
quota_zone_records = 500
quota_recordset_records = 20
quota_api_export_size = 1000
```

## Project ID Verification

Although Designate API can accept arbitrary strings as the Project ID to set the quota for, actual enforcement of quota will be performed only when the project ID of the quota matches the `project-id` in the request that attempts to create a resource.

To prevent mistakes when specifying the `project-id` for a quota, you can turn on project ID verification in the Designate configuration file:

```
[service:api]
quotas_verify_project_id = True
```

You must also specify how Designate connects to Keystone and locates the appropriate Keystone endpoint with which to perform requests. In the [keystone] section, ensure that the Session- and Adapter-related options are set.

Here is an example:

```
[keystone]
cafile = /path/to/ca/bundle
```

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```
valid_interfaces = internal,public
region_name = RegionWest
```

See [keystoneauth documentation](#) for more details.

With project ID verification enabled, Designate will use the credentials provided with the request to attempt to verify that the project ID is valid in Keystone.

As a result of this verification, the request might return additional errors in these cases:

- when the Keystone V3 endpoint could not be found in the service catalog (as specified in [keystone] section) - 504 error is returned
- when the authentication with incoming token was successful but the project id was not actually found - 400 is returned

For project ID validation to be successful, the user setting quotas should have permission to list projects in Keystone. If the user does not have permission to list projects in Keystone, the validation will be skipped.

### 1.5.9 Designate Policies

**Warning:** JSON formatted policy file is deprecated since Designate 12.0.0 (Wallaby). This [oslopolicy-convert-json-to-yaml](#) tool will migrate your existing JSON-formatted policy file to YAML in a backward-compatible way.

Designate, like most OpenStack services, supports Role Based Access Control (RBAC) using [oslo policy](#) to define default RBAC policies in the Designate code. These default policies can be overridden by operators using a yaml policy file. For a sample policy file, refer to [policy.yaml](#).

Currently Designate defaults to the OpenStack legacy admin or owner scheme, but Designate also supports a newer RBAC model using [Keystone Default Roles](#) and [Keystone Scoped Tokens](#) via configuration settings.

#### Enabling Keystone Default Roles and Scoped Tokens

Starting with the Xena release of Designate, Keystone token scopes and default roles can be enforced. By default, in the Xena release, [oslo policy](#) will not be enforcing these new roles and scopes. However, at some point in the future they may become the default. You may want to enable them now to be ready for the later transition. This section will describe those settings.

The Oslo Policy project defines two configuration settings, among others, that can be set in the Designate configuration file to influence how policies are handled by Designate. Those two settings are `enforce_scope` and `enforce_new_defaults`.

When you enable [Keystone Default Roles](#) and [Keystone Scoped Tokens](#) the Designate policy honors the following roles:

- System scoped - Admin
- System scoped - Reader



- Project scoped - Reader
- Project scoped - Member

### [oslo\_policy] enforce\_scope

Keystone has introduced the concept of [token scopes](#). To ensure backward compatibility, Oslo Policy does not enforce scope validation of tokens by default.

In the Xena release, Designate supports enforcing Keystone token scopes. To enable Keystone token scoping, add the following to your Designate configuration file:

```
[oslo_policy]
enforce_scope = True
```

The primary effect of this setting is to allow a system scoped admin token when performing administrative API calls to the Designate API. The Designate API already enforces the project scoping in Keystone tokens.

### [oslo\_policy] enforce\_new\_defaults

The Designate Xena release added support for [Keystone Default Roles](#) in the default policies. To be backward compatible, Oslo Policy currently uses deprecated policies that do not require the new [Keystone Default Roles](#) by default.

Designate supports requiring these new [Keystone Default Roles](#) as of the Xena release. To start requiring these roles in Designate, enable the new policies by adding the following setting to your Designate configuration file:

```
[oslo_policy]
enforce_new_defaults = True
```

### Example OpenStack Client Command

After you have enabled `enforce_new_defaults` and `enforce_scope`, administrative commands require a system scoped admin token. An example [OpenStack Client](#) command to create a [Top Level Domain \(TLD\)](#) would look like:

```
openstack --os-system-scope all --os-auth-url <identity endpoint URL> --os-
↪password <admin password> --os-username admin --os-user-domain-name default_
↪create tld --name example.org
```

### Oslo Tools For Policy Management

This section describes how to use Oslo Policy tools to managing Designate policies.

#### Sample File Generation

To generate a sample policy.yaml file from the Designate defaults, run the oslo policy generation script:

```
oslopolicy-sample-generator
--config-file etc/designate/designate-policy-generator.conf
--output-file policy.yaml.sample
```

#### Merged File Generation

To generate a policy file which shows the effective policy in use by the project, including all registered policy defaults and the policy overrides included in a policy.yaml file, run this command:

```
oslopolicy-policy-generator
--config-file etc/designate/designate-policy-generator.conf
```

This tool uses the output\_file path from the config-file.

#### List Redundant Configurations

To generate a list of matches for policy rules that are defined in a configuration file where the rule does not differ from a registered default rule, run this command:

```
oslopolicy-list-redundant
--config-file etc/designate/designate-policy-generator.conf
```

These are rules that can be removed from the policy file with no change in effective policy.

#### Designate Default Policy Overview

The following is an overview of all available policies in Designate. For a sample configuration file, refer to *policy.yaml*.

##### designate

###### admin

**Default** role:admin or is\_admin:True

(no description provided)

###### owner

**Default** project\_id:%(tenant\_id)s

(no description provided)

#### **admin\_or\_owner**

**Default** rule:admin or rule:owner

(no description provided)

#### **default**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

(no description provided)

#### **create\_blacklist**

**Default** role:admin and system\_scope:all

##### **Operations**

- **POST** /v2/blacklists

##### **Scope Types**

- **system**

Create blacklist.

#### **find\_blacklists**

**Default** role:reader and system\_scope:all

##### **Operations**

- **GET** /v2/blacklists

##### **Scope Types**

- **system**

Find blacklists.

#### **get\_blacklist**

**Default** role:reader and system\_scope:all

##### **Operations**

- **GET** /v2/blacklists/{blacklist\_id}

##### **Scope Types**

- **system**

Get blacklist.

#### **update\_blacklist**

**Default** role:admin and system\_scope:all

##### **Operations**

- **PATCH** /v2/blacklists/{blacklist\_id}

##### **Scope Types**

- **system**

Update blacklist.

### **delete\_blacklist**

**Default** role:admin and system\_scope:all

#### **Operations**

- **DELETE** /v2/blacklists/{blacklist\_id}

#### **Scope Types**

- **system**

Delete blacklist.

### **use\_blacklisted\_zone**

**Default** role:admin and system\_scope:all

#### **Operations**

- **POST** /v2/zones

#### **Scope Types**

- **system**

Allowed bypass the blacklist.

### **all\_tenants**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- **system**

Action on all tenants.

### **edit\_managed\_records**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- **system**

Edit managed records.

### **use\_low\_ttl**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- **system**

Use low TTL.

### **use\_sudo**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- **system**

Accept sudo from user to tenant.

### **create\_pool**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- system

Create pool.

### **find\_pools**

**Default** role:reader and system\_scope:all

#### **Operations**

- GET /v2/pools

#### **Scope Types**

- system

Find pool.

### **find\_pool**

**Default** role:reader and system\_scope:all

#### **Operations**

- GET /v2/pools

#### **Scope Types**

- system

Find pools.

### **get\_pool**

**Default** role:reader and system\_scope:all

#### **Operations**

- GET /v2/pools/{pool\_id}

#### **Scope Types**

- system

Get pool.

### **update\_pool**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- system

Update pool.

### **delete\_pool**

**Default** role:admin and system\_scope:all

#### **Scope Types**

- **system**

Delete pool.

### **zone\_create\_forced\_pool**

**Default** role:admin and system\_scope:all

#### **Operations**

- **POST** /v2/zones

#### **Scope Types**

- **system**

load and set the pool to the one provided in the Zone attributes.

### **get\_quotas**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s) or (True:%(all\_tenants)s and role:reader)

#### **Operations**

- **GET** /v2/quotas

#### **Scope Types**

- **system**
- **project**

View Current Projects Quotas.

### **set\_quota**

**Default** role:admin and system\_scope:all

#### **Operations**

- **PATCH** /v2/quotas/{project\_id}

#### **Scope Types**

- **system**

Set Quotas.

### **reset\_quotas**

**Default** role:admin and system\_scope:all

#### **Operations**

- **DELETE** /v2/quotas/{project\_id}

#### **Scope Types**

- **system**

Reset Quotas.

### **find\_records**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- GET /v2/reverse/floatingips/{region}:{floatingip\_id}
- GET /v2/reverse/floatingips

**Scope Types**

- system
- project

Find records.

**count\_records**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Scope Types**

- system
- project

(no description provided)

**create\_recordset**

**Default** (role:member and project\_id:%(project\_id)s) and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all) and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all) and ('SECONDARY':%(zone\_type)s)

**Operations**

- POST /v2/zones/{zone\_id}/recordsets

**Scope Types**

- system
- project

Create Recordset

**get\_recordsets**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Scope Types**

- system
- project

(no description provided)

**get\_recordset**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Operations

- GET /v2/zones/{zone\_id}/recordsets/{recordset\_id}

### Scope Types

- system
- project

Get recordset

### find\_recordset

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Scope Types

- system
- project

List a Recordset in a Zone

### find\_recordsets

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Operations

- GET /v2/zones/{zone\_id}/recordsets

### Scope Types

- system
- project

List Recordsets in a Zone

### update\_recordset

**Default** (role:member and project\_id:%(project\_id)s) and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all) and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all) and ('SECONDARY':%(zone\_type)s)

### Operations

- PUT /v2/zones/{zone\_id}/recordsets/{recordset\_id}

### Scope Types

- system
- project

Update recordset

### delete\_recordset

**Default** (role:member and project\_id:%(project\_id)s) and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all)



and ('PRIMARY':%(zone\_type)s) or (role:admin and system\_scope:all) and ('SECONDARY':%(zone\_type)s)

**Operations**

- **DELETE** /v2/zones/{zone\_id}/recordsets/{recordset\_id}

**Scope Types**

- **system**
- **project**

Delete RecordSet

**count\_recordset**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Scope Types**

- **system**
- **project**

Count recordsets

**find\_service\_status**

**Default** role:reader and system\_scope:all

**Operations**

- **GET** /v2/service\_status/{service\_id}

**Scope Types**

- **system**

Find a single Service Status

**find\_service\_statuses**

**Default** role:reader and system\_scope:all

**Operations**

- **GET** /v2/service\_status

**Scope Types**

- **system**

List service statuses.

**update\_service\_status**

**Default** role:admin and system\_scope:all

**Scope Types**

- **system**

(no description provided)

**find\_tenants**

**Default** role:reader and system\_scope:all

**Scope Types**

- system

Find all Tenants.

#### **get\_tenant**

**Default** role:reader and system\_scope:all

**Scope Types**

- system

Get all Tenants.

#### **count\_tenants**

**Default** role:reader and system\_scope:all

**Scope Types**

- system

Count tenants

#### **create\_tld**

**Default** role:admin and system\_scope:all

**Operations**

- POST /v2/tlds

**Scope Types**

- system

Create Tld

#### **find\_tlds**

**Default** role:reader and system\_scope:all

**Operations**

- GET /v2/tlds

**Scope Types**

- system

List Tlds

#### **get\_tld**

**Default** role:reader and system\_scope:all

**Operations**

- GET /v2/tlds/{tld\_id}

**Scope Types**

- system

Show Tld

#### **update\_tld**

**Default** role:admin and system\_scope:all

##### **Operations**

- **PATCH** /v2/tlds/{tld\_id}

##### **Scope Types**

- **system**

Update Tld

#### **delete\_tld**

**Default** role:admin and system\_scope:all

##### **Operations**

- **DELETE** /v2/tlds/{tld\_id}

##### **Scope Types**

- **system**

Delete Tld

#### **create\_tsigkey**

**Default** role:admin and system\_scope:all

##### **Operations**

- **POST** /v2/tsigkeys

##### **Scope Types**

- **system**

Create Tsigkey

#### **find\_tsigkeys**

**Default** role:reader and system\_scope:all

##### **Operations**

- **GET** /v2/tsigkeys

##### **Scope Types**

- **system**

List Tsigkeys

#### **get\_tsigkey**

**Default** role:reader and system\_scope:all

##### **Operations**

- **GET** /v2/tsigkeys/{tsigkey\_id}

##### **Scope Types**

- **system**

Show a Tsigkey

#### **update\_tsigkey**

**Default** role:admin and system\_scope:all

##### **Operations**

- **PATCH** /v2/tsigkeys/{tsigkey\_id}

##### **Scope Types**

- **system**

Update Tsigkey

#### **delete\_tsigkey**

**Default** role:admin and system\_scope:all

##### **Operations**

- **DELETE** /v2/tsigkeys/{tsigkey\_id}

##### **Scope Types**

- **system**

Delete a Tsigkey

#### **create\_zone**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

##### **Operations**

- **POST** /v2/zones

##### **Scope Types**

- **system**
- **project**

Create Zone

#### **get\_zones**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

##### **Scope Types**

- **system**
- **project**

(no description provided)

#### **get\_zone**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- GET /v2/zones/{zone\_id}

**Scope Types**

- system
- project

Get Zone

**get\_zone\_servers**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Scope Types**

- system
- project

(no description provided)

**get\_zone\_ns\_records**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- GET /v2/zones/{zone\_id}/nameservers

**Scope Types**

- system
- project

Get the Name Servers for a Zone

**find\_zones**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- GET /v2/zones

**Scope Types**

- system
- project

List existing zones

**update\_zone**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

**Operations**

- PATCH /v2/zones/{zone\_id}

### Scope Types

- **system**
- **project**

Update Zone

### **delete\_zone**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **DELETE** /v2/zones/{zone\_id}

### Scope Types

- **system**
- **project**

Delete Zone

### **xfr\_zone**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **POST** /v2/zones/{zone\_id}/tasks/xfr

### Scope Types

- **system**
- **project**

Manually Trigger an Update of a Secondary Zone

### **abandon\_zone**

**Default** role:admin and system\_scope:all

### Operations

- **POST** /v2/zones/{zone\_id}/tasks/abandon

### Scope Types

- **system**

Abandon Zone

### **count\_zones**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Scope Types

- **system**
- **project**

(no description provided)

#### **count\_zones\_pending\_notify**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

##### **Scope Types**

- **system**
- **project**

(no description provided)

#### **purge\_zones**

**Default** role:admin and system\_scope:all

##### **Scope Types**

- **system**

(no description provided)

#### **zone\_export**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

##### **Operations**

- **GET** /v2/zones/tasks/exports/{zone\_export\_id}/export

##### **Scope Types**

- **system**
- **project**

Retrieve a Zone Export from the Designate Datastore

#### **create\_zone\_export**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

##### **Operations**

- **POST** /v2/zones/{zone\_id}/tasks/export

##### **Scope Types**

- **system**
- **project**

Create Zone Export

#### **find\_zone\_exports**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

##### **Operations**

- **GET** /v2/zones/tasks/exports

### Scope Types

- **system**
- **project**

List Zone Exports

### **get\_zone\_export**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Operations

- **GET** /v2/zones/tasks/exports/{zone\_export\_id}

### Scope Types

- **system**
- **project**

Get Zone Exports

### **update\_zone\_export**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **POST** /v2/zones/{zone\_id}/tasks/export

### Scope Types

- **system**
- **project**

Update Zone Exports

### **delete\_zone\_export**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **DELETE** /v2/zones/tasks/exports/{zone\_export\_id}

### Scope Types

- **system**
- **project**

Delete a zone export

### **create\_zone\_import**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **POST** /v2/zones/tasks/imports



**Scope Types**

- **system**
- **project**

Create Zone Import

**find\_zone\_imports**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- **GET** /v2/zones/tasks/imports

**Scope Types**

- **system**
- **project**

List all Zone Imports

**get\_zone\_import**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Operations**

- **GET** /v2/zones/tasks/imports/{zone\_import\_id}

**Scope Types**

- **system**
- **project**

Get Zone Imports

**update\_zone\_import**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

**Operations**

- **POST** /v2/zones/tasks/imports

**Scope Types**

- **system**
- **project**

Update Zone Imports

**delete\_zone\_import**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

**Operations**

- **DELETE** /v2/zones/tasks/imports/{zone\_import\_id}

### Scope Types

- **system**
- **project**

Delete a Zone Import

### **create\_zone\_transfer\_accept**

**Default** ((role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)) or project\_id:%(target\_project\_id)s or None:%(target\_project\_id)s

### Operations

- **POST** /v2/zones/tasks/transfer\_accepts

### Scope Types

- **system**
- **project**

Create Zone Transfer Accept

### **get\_zone\_transfer\_accept**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

### Operations

- **GET** /v2/zones/tasks/transfer\_requests/{zone\_transfer\_accept\_id}

### Scope Types

- **system**
- **project**

Get Zone Transfer Accept

### **find\_zone\_transfer\_accepts**

**Default** role:reader and system\_scope:all

### Operations

- **GET** /v2/zones/tasks/transfer\_accepts

### Scope Types

- **system**

List Zone Transfer Accepts

### **create\_zone\_transfer\_request**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

### Operations

- **POST** /v2/zones/{zone\_id}/tasks/transfer\_requests

**Scope Types**

- **system**
- **project**

Create Zone Transfer Accept

**get\_zone\_transfer\_request**

**Default** ((role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)) or project\_id:%(target\_project\_id)s or None:%(target\_project\_id)s

**Operations**

- **GET** /v2/zones/tasks/transfer\_requests/{zone\_transfer\_request\_id}

**Scope Types**

- **system**
- **project**

Show a Zone Transfer Request

**get\_zone\_transfer\_request\_detailed**

**Default** (role:reader and system\_scope:all) or (role:reader and project\_id:%(project\_id)s)

**Scope Types**

- **system**
- **project**

(no description provided)

**find\_zone\_transfer\_requests**

**Default** @

**Operations**

- **GET** /v2/zones/tasks/transfer\_requests

List Zone Transfer Requests

**update\_zone\_transfer\_request**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

**Operations**

- **PATCH** /v2/zones/tasks/transfer\_requests/{zone\_transfer\_request\_id}

**Scope Types**

- **system**
- **project**

Update a Zone Transfer Request

#### **delete\_zone\_transfer\_request**

**Default** (role:admin and system\_scope:all) or (role:member and project\_id:%(project\_id)s)

#### **Operations**

- **DELETE** /v2/zones/tasks/transfer\_requests/{zone\_transfer\_request\_id}

#### **Scope Types**

- **system**
- **project**

Delete a Zone Transfer Request

### **1.5.10 Config Documentation**

The following is an overview of all available configuration in Designate. For a sample configuration file, refer to *designate.conf*.

#### **DEFAULT**

##### **host**

**Type** string

**Default** current\_hostname

This option has a sample default set, which means that its actual default value may vary from the one documented above.

Name of this node

##### **pybasedir**

**Type** string

**Default** <Path>

This option has a sample default set, which means that its actual default value may vary from the one documented above.

Directory where the designate python module is installed

##### **state\_path**

**Type** string

**Default** /var/lib/designate

Top-level directory for maintaining designates state

**allowed\_remote\_exmods****Type** list**Default** []

Additional modules that contains allowed RPC exceptions.

Table 1: Deprecated Variations

Group	Name
DEFAULT	allowed_rpc_exception_modules

**default\_ttl****Type** integer**Default** 3600

TTL Value

**default\_soa\_refresh\_min****Type** integer**Default** 3500

SOA refresh-min value

Table 2: Deprecated Variations

Group	Name
DEFAULT	default_soa_refresh

**default\_soa\_refresh\_max****Type** integer**Default** 3600

SOA max value

**default\_soa\_retry****Type** integer**Default** 600

SOA retry

**default\_soa\_expire****Type** integer**Default** 86400

SOA expire

**default\_soa\_minimum****Type** integer

**Default** 3600

SOA minimum value

### **supported\_record\_type**

**Type** list

**Default** ['A', 'AAAA', 'CNAME', 'MX', 'SRV', 'TXT', 'SPF', 'NS',  
'PTR', 'SSHFP', 'SOA', 'NAPTR', 'CAA', 'CERT']

Supported record types

### **backlog**

**Type** integer

**Default** 4096

Number of backlog requests to configure the socket with

### **tcp\_keepidle**

**Type** integer

**Default** 600

Sets the value of TCP\_KEEPIDLE in seconds for each server socket. Not supported on OS X.

### **root\_helper**

**Type** string

**Default** sudo designate-rootwrap /etc/designate/rootwrap.conf

designate-rootwrap configuration

### **network\_api**

**Type** string

**Default** neutron

Which API to use.

### **notify\_api\_faults**

**Type** boolean

**Default** False

Send notifications if theres a failure in the API.

### **notification\_plugin**

**Type** string

**Default** default

The notification plugin to use

### **quota\_driver**

**Type** string

**Default** storage

Quota driver to use

**quota\_zones**

**Type** integer

**Default** 10

Number of zones allowed per tenant

**quota\_zone\_recordsets**

**Type** integer

**Default** 500

Number of recordsets allowed per zone

**quota\_zone\_records**

**Type** integer

**Default** 500

Number of records allowed per zone

**quota\_recordset\_records**

**Type** integer

**Default** 20

Number of records allowed per recordset

**quota\_api\_export\_size**

**Type** integer

**Default** 1000

Number of recordsets allowed in a zone export

**debug**

**Type** boolean

**Default** False

**Mutable** This option can be changed without restarting.

If set to true, the logging level will be set to DEBUG instead of the default INFO level.

**log\_config\_append**

**Type** string

**Default** <None>

**Mutable** This option can be changed without restarting.

The name of a logging configuration file. This file is appended to any existing logging configuration files. For details about logging configuration files, see the Python logging module documentation. Note that when logging configuration files are used then all logging configuration is set in the configuration file and other logging configuration options are ignored (for example, log-date-format).

Table 3: Deprecated Variations

Group	Name
DEFAULT	log-config
DEFAULT	log_config

### log\_date\_format

**Type** string

**Default** %Y-%m-%d %H:%M:%S

Defines the format string for `%(asctime)s` in log records. Default: the value above. This option is ignored if `log_config_append` is set.

### log\_file

**Type** string

**Default** <None>

(Optional) Name of log file to send logging output to. If no default is set, logging will go to `stderr` as defined by `use_stderr`. This option is ignored if `log_config_append` is set.

Table 4: Deprecated Variations

Group	Name
DEFAULT	logfile

### log\_dir

**Type** string

**Default** <None>

(Optional) The base directory used for relative `log_file` paths. This option is ignored if `log_config_append` is set.

Table 5: Deprecated Variations

Group	Name
DEFAULT	logdir

### watch\_log\_file

**Type** boolean

**Default** False

Uses logging handler designed to watch file system. When log file is moved or removed this handler will open a new log file with specified path instantaneously. It makes sense only if `log_file` option is specified and Linux platform is used. This option is ignored if `log_config_append` is set.

### use\_syslog

**Type** boolean

**Default** False



Use syslog for logging. Existing syslog format is DEPRECATED and will be changed later to honor RFC5424. This option is ignored if `log_config_append` is set.

**use\_journal**

**Type** boolean

**Default** False

Enable journald for logging. If running in a systemd environment you may wish to enable journal support. Doing so will use the journal native protocol which includes structured metadata in addition to log messages. This option is ignored if `log_config_append` is set.

**syslog\_log\_facility**

**Type** string

**Default** LOG\_USER

Syslog facility to receive log lines. This option is ignored if `log_config_append` is set.

**use\_json**

**Type** boolean

**Default** False

Use JSON formatting for logging. This option is ignored if `log_config_append` is set.

**use\_stderr**

**Type** boolean

**Default** False

Log output to standard error. This option is ignored if `log_config_append` is set.

**use\_eventlog**

**Type** boolean

**Default** False

Log output to Windows Event Log.

**log\_rotate\_interval**

**Type** integer

**Default** 1

The amount of time before the log files are rotated. This option is ignored unless `log_rotation_type` is set to interval.

**log\_rotate\_interval\_type**

**Type** string

**Default** days

**Valid Values** Seconds, Minutes, Hours, Days, Weekday, Midnight

Rotation interval type. The time of the last file change (or the time when the service was started) is used when scheduling the next rotation.

### **max\_logfile\_count**

**Type** integer

**Default** 30

Maximum number of rotated log files.

### **max\_logfile\_size\_mb**

**Type** integer

**Default** 200

Log file maximum size in MB. This option is ignored if `log_rotation_type` is not set to `size`.

### **log\_rotation\_type**

**Type** string

**Default** none

**Valid Values** interval, size, none

Log rotation type.

#### **Possible values**

**interval** Rotate logs at predefined time intervals.

**size** Rotate logs once they reach a predefined size.

**none** Do not rotate log files.

### **logging\_context\_format\_string**

**Type** string

**Default** `%(asctime)s.%(msecs)03d %(process)d %(levelname)s %(name)s  
[% (global_request_id)s %(request_id)s %(user_identity)s]  
%(instance)s%(message)s`

Format string to use for log messages with context. Used by `oslo_log.formatters.ContextFormatter`

### **logging\_default\_format\_string**

**Type** string

**Default** `%(asctime)s.%(msecs)03d %(process)d %(levelname)s %(name)s  
[-] %(instance)s%(message)s`

Format string to use for log messages when context is undefined. Used by `oslo_log.formatters.ContextFormatter`

### **logging\_debug\_format\_suffix**

**Type** string

**Default** `%(funcName)s %(pathname)s:%(lineno)d`

Additional data to append to log message when logging level for the message is `DEBUG`. Used by `oslo_log.formatters.ContextFormatter`

**logging\_exception\_prefix****Type** string**Default** `%(asctime)s.%(msecs)03d %(process)d ERROR %(name)s  
%(instance)s`

Prefix each line of exception output with this format. Used by `oslo_log.formatters.ContextFormatter`

**logging\_user\_identity\_format****Type** string**Default** `%(user)s %(project)s %(domain)s %(system_scope)s  
%(user_domain)s %(project_domain)s`

Defines the format string for `%(user_identity)s` that is used in `logging_context_format_string`. Used by `oslo_log.formatters.ContextFormatter`

**default\_log\_levels****Type** list**Default** `['amqp=WARN', 'amqp-lib=WARN', 'boto=WARN', 'qpid=WARN',  
'sqlalchemy=WARN', 'suds=INFO', 'oslo.messaging=INFO',  
'oslo_messaging=INFO', 'iso8601=WARN', 'requests.packages.  
urllib3.connectionpool=WARN', 'urllib3.connectionpool=WARN',  
'websocket=WARN', 'requests.packages.urllib3.util.retry=WARN',  
'urllib3.util.retry=WARN', 'keystonemiddleware=WARN',  
'routes.middleware=WARN', 'stevedore=WARN', 'taskflow=WARN',  
'keystoneauth=WARN', 'oslo.cache=INFO', 'oslo_policy=INFO',  
'dogpile.core.dogpile=INFO', 'kazoo.client=WARN',  
'keystone=INFO', 'oslo_service.loopingcall=WARN']`

List of package logging levels in `logger=LEVEL` pairs. This option is ignored if `log_config_append` is set.

**publish\_errors****Type** boolean**Default** `False`

Enables or disables publication of error events.

**instance\_format****Type** string**Default** `"[instance: %(uuid)s] "`

The format for an instance that is passed with the log message.

**instance\_uuid\_format****Type** string**Default** `"[instance: %(uuid)s] "`

The format for an instance UUID that is passed with the log message.

### **rate\_limit\_interval**

**Type** integer

**Default** 0

Interval, number of seconds, of log rate limiting.

### **rate\_limit\_burst**

**Type** integer

**Default** 0

Maximum number of logged messages per `rate_limit_interval`.

### **rate\_limit\_except\_level**

**Type** string

**Default** CRITICAL

Log level name used by rate limiting: CRITICAL, ERROR, INFO, WARNING, DEBUG or empty string. Logs with level greater or equal to `rate_limit_except_level` are not filtered. An empty string means that all levels are filtered.

### **fatal\_deprecations**

**Type** boolean

**Default** False

Enables or disables fatal status of deprecations.

### **run\_external\_periodic\_tasks**

**Type** boolean

**Default** True

Some periodic tasks can be run in a separate process. Should we run them here?

### **backdoor\_port**

**Type** string

**Default** <None>

Enable eventlet backdoor. Acceptable values are 0, <port>, and <start>:<end>, where 0 results in listening on a random tcp port number; <port> results in listening on the specified port number (and not enabling backdoor if that port is in use); and <start>:<end> results in listening on the smallest unused port number within the specified range of port numbers. The chosen port is displayed in the services log file.

### **backdoor\_socket**

**Type** string

**Default** <None>

Enable eventlet backdoor, using the provided path as a unix socket that can receive connections. This option is mutually exclusive with `backdoor_port` in that only one should be provided. If both are provided then the existence of this option overrides the usage of that option. Inside the path {pid} will be replaced with the PID of the current process.

**log\_options****Type** boolean**Default** True

Enables or disables logging values of all registered options when starting a service (at DEBUG level).

**graceful\_shutdown\_timeout****Type** integer**Default** 60

Specify a timeout after which a gracefully shutdown server will exit. Zero value means endless wait.

**api\_paste\_config****Type** string**Default** api-paste.ini

File name for the paste.deploy config for api service

**wsgi\_log\_format****Type** string**Default** %(client\_ip)s "%(request\_line)s" status: %(status\_code)s  
len: %(body\_length)s time: %(wall\_seconds).7f

A python format string that is used as the template to generate log lines. The following values can beformatted into it: client\_ip, date\_time, request\_line, status\_code, body\_length, wall\_seconds.

**tcp\_keepidle****Type** integer**Default** 600

Sets the value of TCP\_KEEPIDLE in seconds for each server socket. Not supported on OS X.

**wsgi\_default\_pool\_size****Type** integer**Default** 100

Size of the pool of greenthreads used by wsgi

**max\_header\_line****Type** integer**Default** 16384

Maximum line size of message headers to be accepted. max\_header\_line may need to be increased when using large tokens (typically those generated when keystone is configured to use PKI tokens with big service catalogs).

### **wsgi\_keep\_alive**

**Type** boolean

**Default** True

If False, closes the client socket connection explicitly.

### **client\_socket\_timeout**

**Type** integer

**Default** 900

Timeout for client connections socket operations. If an incoming connection is idle for this number of seconds it will be closed. A value of 0 means wait forever.

### **wsgi\_server\_debug**

**Type** boolean

**Default** False

True if the server should send exception tracebacks to the clients on 500 errors. If False, the server will respond with empty bodies.

### **rpc\_conn\_pool\_size**

**Type** integer

**Default** 30

**Minimum Value** 1

Size of RPC connection pool.

Table 6: Deprecated Variations

Group	Name
DEFAULT	rpc_conn_pool_size

### **conn\_pool\_min\_size**

**Type** integer

**Default** 2

The pool size limit for connections expiration policy

### **conn\_pool\_ttl**

**Type** integer

**Default** 1200

The time-to-live in sec of idle connections in the pool

### **executor\_thread\_pool\_size**

**Type** integer

**Default** 64

Size of executor thread pool when executor is threading or eventlet.

Table 7: Deprecated Variations

Group	Name
DEFAULT	rpc_thread_pool_size

### **rpc\_response\_timeout**

**Type** integer

**Default** 60

Seconds to wait for a response from a call.

### **transport\_url**

**Type** string

**Default** rabbit://

The network address and optional user credentials for connecting to the messaging backend, in URL format. The expected format is:

driver://[user:pass@]host:port[, [userN:passN@]hostN:portN]/virtual\_host?query

Example: rabbit://rabbitmq:password@127.0.0.1:5672//

For full details on the fields in the URL see the documentation of oslo\_messaging.TransportURL at <https://docs.openstack.org/oslo.messaging/latest/reference/transport.html>

### **control\_exchange**

**Type** string

**Default** designate

The default exchange under which topics are scoped. May be overridden by an exchange name specified in the transport\_url option.

### **rpc\_ping\_enabled**

**Type** boolean

**Default** False

Add an endpoint to answer to ping calls. Endpoint is named oslo\_rpc\_server\_ping

## **backend:agent:bind9**

### **rndc\_host**

**Type** string

**Default** 127.0.0.1

RNDC Host

### **rndc\_port**

**Type** integer

**Default** 953

RNDC Port

### **rndc\_config\_file**

**Type** string

**Default** <None>

RNDC Config File

### **rndc\_key\_file**

**Type** string

**Default** <None>

RNDC Key File

### **rndc\_timeout**

**Type** integer

**Default** 0

**Minimum Value** 0

RNDC command timeout

### **zone\_file\_path**

**Type** string

**Default** \$state\_path/zones

Path where zone files are stored

### **query\_destination**

**Type** string

**Default** 127.0.0.1

Host to query when finding zones

### **backend:agent:denominator**

#### **name**

**Type** string

**Default** fake

Name of the affected provider



**config\_file****Type** string**Default** /etc/denominator.conf

Path to Denominator configuration file

**backend:agent:djbdns****tcpclient\_cmd\_name****Type** string**Default** tcpclient

tcpclient executable path or rootwrap command name

**axfr\_get\_cmd\_name****Type** string**Default** axfr-get

axfr-get executable path or rootwrap command name

**tinydns\_data\_cmd\_name****Type** string**Default** tinydns-data

tinydns-data executable path or rootwrap command name

**tinydns\_datadir****Type** string**Default** /var/lib/djbdns

TinyDNS data directory

**query\_destination****Type** string**Default** 127.0.0.1

Host to query when finding zones

**backend:agent:gdnsd****gdnsd\_cmd\_name****Type** string**Default** gdnsd

gdnsd executable path or rootwrap command name

### **confdir\_path**

**Type** string

**Default** /etc/gdnssd

gdnssd configuration directory path

### **query\_destination**

**Type** string

**Default** 127.0.0.1

Host to query when finding zones

### **backend:agent:knot2**

#### **knotc\_cmd\_name**

**Type** string

**Default** knotc

knotc executable path or rootwrap command name

#### **query\_destination**

**Type** string

**Default** 127.0.0.1

Host to query when finding zones

### **backend:agent:msdns**

### **backend:dynect**

#### **job\_timeout**

**Type** integer

**Default** 30

Timeout in seconds for pulling a job in DynECT.

#### **timeout**

**Type** integer

**Default** 10

Timeout in seconds for API Requests.

#### **timings**

**Type** boolean

**Default** False

Measure requests timings.

## backend:infoblox

### wapi\_url

**Type** string

**Default** <None>

DEPRECATED: wapi\_url

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### username

**Type** string

**Default** <None>

DEPRECATED: username

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### password

**Type** string

**Default** <None>

DEPRECATED: password

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### sslverify

**Type** boolean

**Default** True

DEPRECATED: sslverify

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### multi\_tenant

**Type** boolean

**Default** False

DEPRECATED: multi\_tenant

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### http\_pool\_connections

**Type** integer

**Default** 100

DEPRECATED: http\_pool\_connections

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### http\_pool\_maxsize

**Type** integer

**Default** 100

DEPRECATED: http\_pool\_maxsize

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

### dns\_view

**Type** string

**Default** default

DEPRECATED: dns\_view

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

**network\_view****Type** string**Default** default

DEPRECATED: network\_view

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

**ns\_group****Type** string**Default** <None>

DEPRECATED: ns\_group

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** All backend options have been migrated to options in the pools.yaml file

**coordination****backend\_url****Type** string**Default** <None>

The backend URL to use for distributed coordination. If unset services that need coordination will function as a standalone service. This is a *tooz* url - see <https://docs.openstack.org/tooz/latest/user/compatibility.html>

**heartbeat\_interval****Type** floating point**Default** 5.0

Number of seconds between heartbeats for distributed coordination.

**run\_watchers\_interval****Type** floating point**Default** 10.0

Number of seconds between checks to see if group membership has changed

## **cors**

### **allowed\_origin**

**Type** list

**Default** <None>

Indicate whether this resource may be shared with the domain received in the requests origin header. Format: <protocol>://<host>[:<port>], no trailing slash. Example: <https://horizon.example.com>

### **allow\_credentials**

**Type** boolean

**Default** True

Indicate that the actual request can include user credentials

### **expose\_headers**

**Type** list

**Default** ['X-OpenStack-Request-ID', 'Host']

Indicate which headers are safe to expose to the API. Defaults to HTTP Simple Headers.

### **max\_age**

**Type** integer

**Default** 3600

Maximum cache age of CORS preflight requests.

### **allow\_methods**

**Type** list

**Default** ['GET', 'PUT', 'POST', 'DELETE', 'PATCH', 'HEAD']

Indicate which methods can be used during the actual request.

### **allow\_headers**

**Type** list

**Default** ['X-Auth-Token', 'X-Auth-Sudo-Tenant-ID',  
'X-Auth-Sudo-Project-ID', 'X-Auth-All-Projects',  
'X-Designate-Edit-Managed-Records', 'OpenStack-DNS-Hide-Counts']

Indicate which header field names may be used during the actual request.

**database****sqlite\_synchronous****Type** boolean**Default** True

If True, SQLite uses synchronous mode.

Table 8: Deprecated Variations

Group	Name
DEFAULT	sqlite_synchronous

**backend****Type** string**Default** sqlalchemy

The back end to use for the database.

Table 9: Deprecated Variations

Group	Name
DEFAULT	db_backend

**connection****Type** string**Default** <None>

The SQLAlchemy connection string to use to connect to the database.

Table 10: Deprecated Variations

Group	Name
DEFAULT	sql_connection
DATABASE	sql_connection
sql	connection

**slave\_connection****Type** string**Default** <None>

The SQLAlchemy connection string to use to connect to the slave database.

**mysql\_sql\_mode****Type** string**Default** TRADITIONAL

The SQL mode to be used for MySQL sessions. This option, including the default, overrides any server-set SQL mode. To use whatever SQL mode is set by the server configuration, set this to no value. Example: `mysql_sql_mode=`

#### **mysql\_enable\_ndb**

**Type** boolean

**Default** False

If True, transparently enables support for handling MySQL Cluster (NDB).

#### **connection\_recycle\_time**

**Type** integer

**Default** 3600

Connections which have been present in the connection pool longer than this number of seconds will be replaced with a new one the next time they are checked out from the pool.

#### **max\_pool\_size**

**Type** integer

**Default** 5

Maximum number of SQL connections to keep open in a pool. Setting a value of 0 indicates no limit.

#### **max\_retries**

**Type** integer

**Default** 10

Maximum number of database connection retries during startup. Set to -1 to specify an infinite retry count.

Table 11: Deprecated Variations

Group	Name
DEFAULT	sql_max_retries
DATABASE	sql_max_retries

#### **retry\_interval**

**Type** integer

**Default** 10

Interval between retries of opening a SQL connection.

Table 12: Deprecated Variations

Group	Name
DEFAULT	sql_retry_interval
DATABASE	reconnect_interval



**max\_overflow****Type** integer**Default** 50

If set, use this value for max\_overflow with SQLAlchemy.

Table 13: Deprecated Variations

Group	Name
DEFAULT	sql_max_overflow
DATABASE	sqlalchemy_max_overflow

**connection\_debug****Type** integer**Default** 0**Minimum Value** 0**Maximum Value** 100

Verbosity of SQL debugging information: 0=None, 100=Everything.

Table 14: Deprecated Variations

Group	Name
DEFAULT	sql_connection_debug

**connection\_trace****Type** boolean**Default** False

Add Python stack traces to SQL as comment strings.

Table 15: Deprecated Variations

Group	Name
DEFAULT	sql_connection_trace

**pool\_timeout****Type** integer**Default** <None>

If set, use this value for pool\_timeout with SQLAlchemy.

Table 16: Deprecated Variations

Group	Name
DATABASE	sqlalchemy_pool_timeout

#### **use\_db\_reconnect**

**Type** boolean

**Default** False

Enable the experimental use of database reconnect on connection lost.

#### **db\_retry\_interval**

**Type** integer

**Default** 1

Seconds between retries of a database transaction.

#### **db\_inc\_retry\_interval**

**Type** boolean

**Default** True

If True, increases the interval between retries of a database operation up to `db_max_retry_interval`.

#### **db\_max\_retry\_interval**

**Type** integer

**Default** 10

If `db_inc_retry_interval` is set, the maximum seconds between retries of a database operation.

#### **db\_max\_retries**

**Type** integer

**Default** 20

Maximum retries in case of connection error or deadlock error before error is raised. Set to -1 to specify an infinite retry count.

#### **connection\_parameters**

**Type** string

**Default** ''

Optional URL parameters to append onto the connection URL at connect time; specify as `param1=value1&param2=value2&`

#### **handler:neutron\_floatingip**

##### **notification\_topics**

**Type** list

**Default** ['notifications']

notification any events from neutron

**control\_exchange****Type** string**Default** neutron

control-exchange for neutron notification

**zone\_id****Type** string**Default** <None>

Zone ID with each notification

**formatv4****Type** multi-valued**Default** ''

IPv4 format

**format****Type** multi-valued**Default** ''

format which replaced by formatv4/formatv6

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Replaced by formatv4/formatv6

**formatv6****Type** multi-valued**Default** ''

IPv6 format

**handler:nova\_fixed****notification\_topics****Type** list**Default** ['notifications']

notification any events from nova

**control\_exchange****Type** string**Default** nova

control-exchange for nova notification

#### zone\_id

**Type** string

**Default** <None>

Zone ID with each notification

#### formatv4

**Type** multi-valued

**Default** ''

IPv4 format

#### format

**Type** multi-valued

**Default** ''

format which replaced by formatv4/formatv6

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Replaced by formatv4/formatv6

#### formatv6

**Type** multi-valued

**Default** ''

IPv6 format

#### healthcheck

##### path

**Type** string

**Default** /healthcheck

The path to respond to healthcheck requests on.

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

#### detailed

**Type** boolean

**Default** False

Show more detailed information as part of the response. Security note: Enabling this option may expose sensitive details about the service being monitored. Be sure to verify that it will not violate your security policies.

### **backends**

**Type** list

**Default** []

Additional backends that can perform health checks and report that information back as part of a request.

### **disable\_by\_file\_path**

**Type** string

**Default** <None>

Check the presence of a file to determine if an application is running on a port. Used by Disable-ByFileHealthcheck plugin.

### **disable\_by\_file\_paths**

**Type** list

**Default** []

Check the presence of a file based on a port to determine if an application is running on a port. Expects a port:path list of strings. Used by DisableByFilesPortsHealthcheck plugin.

### **heartbeat\_emitter**

#### **heartbeat\_interval**

**Type** floating point

**Default** 10.0

Number of seconds between heartbeats for reporting state

#### **emitter\_type**

**Type** string

**Default** rpc

Emitter to use

### **keystone**

#### **service\_type**

**Type** string

**Default** <None>

The default service\_type for endpoint URL discovery.

### **service\_name**

**Type** string

**Default** <None>

The default service\_name for endpoint URL discovery.

### **valid\_interfaces**

**Type** list

**Default** <None>

List of interfaces, in order of preference, for endpoint URL.

### **region\_name**

**Type** string

**Default** <None>

The default region\_name for endpoint URL discovery.

### **endpoint\_override**

**Type** string

**Default** <None>

Always use this endpoint URL for requests for this client. NOTE: The unversioned endpoint should be specified here; to request a particular API version, use the *version*, *min-version*, and/or *max-version* options.

### **version**

**Type** string

**Default** <None>

Minimum Major API version within a given Major API version for endpoint URL discovery. Mutually exclusive with min\_version and max\_version

### **min\_version**

**Type** string

**Default** <None>

The minimum major version of a given API, intended to be used as the lower bound of a range with max\_version. Mutually exclusive with version. If min\_version is given with no max\_version it is as if max version is latest.

### **max\_version**

**Type** string

**Default** <None>

The maximum major version of a given API, intended to be used as the upper bound of a range with min\_version. Mutually exclusive with version.

**connect\_retries****Type** integer**Default** <None>

The maximum number of retries that should be attempted for connection errors.

**connect\_retry\_delay****Type** floating point**Default** <None>

Delay (in seconds) between two retries for connection errors. If not set, exponential retry starting with 0.5 seconds up to a maximum of 60 seconds is used.

**status\_code\_retries****Type** integer**Default** <None>

The maximum number of retries that should be attempted for retrieable HTTP status codes.

**status\_code\_retry\_delay****Type** floating point**Default** <None>

Delay (in seconds) between two retries for retrieable status codes. If not set, exponential retry starting with 0.5 seconds up to a maximum of 60 seconds is used.

**interface****Type** string**Default** <None>

The default interface for endpoint URL discovery.

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Using valid-interfaces is preferable because it is capable of accepting a list of possible interfaces.

**cafile****Type** string**Default** <None>

PEM encoded Certificate Authority to use when verifying HTTPs connections.

**certfile****Type** string**Default** <None>

PEM encoded client certificate cert file

**keyfile**

**Type** string

**Default** <None>

PEM encoded client certificate key file

**insecure**

**Type** boolean

**Default** False

Verify HTTPS connections.

**timeout**

**Type** integer

**Default** <None>

Timeout value for http requests

**collect\_timing**

**Type** boolean

**Default** False

Collect per-API call timing information.

**split\_loggers**

**Type** boolean

**Default** False

Log requests to multiple loggers.

**keystone\_authtoken**

**www\_authenticate\_uri**

**Type** string

**Default** <None>

Complete public Identity API endpoint. This endpoint should not be an admin endpoint, as it should be accessible by all end users. Unauthenticated clients are redirected to this endpoint to authenticate. Although this endpoint should ideally be unversioned, client support in the wild varies. If you're using a versioned v2 endpoint here, then this should *not* be the same endpoint the service user utilizes for validating tokens, because normal end users may not be able to reach that endpoint.

Table 17: Deprecated Variations

Group	Name
keystone_authtoken	auth_uri



**auth\_uri****Type** string**Default** <None>

Complete public Identity API endpoint. This endpoint should not be an admin endpoint, as it should be accessible by all end users. Unauthenticated clients are redirected to this endpoint to authenticate. Although this endpoint should ideally be unversioned, client support in the wild varies. If you're using a versioned v2 endpoint here, then this should *not* be the same endpoint the service user utilizes for validating tokens, because normal end users may not be able to reach that endpoint. This option is deprecated in favor of `www_authenticate_uri` and will be removed in the S release.

**Warning:** This option is deprecated for removal since Queens. Its value may be silently ignored in the future.

**Reason** The `auth_uri` option is deprecated in favor of `www_authenticate_uri` and will be removed in the S release.

**auth\_version****Type** string**Default** <None>

API version of the Identity API endpoint.

**interface****Type** string**Default** internal

Interface to use for the Identity API endpoint. Valid values are public, internal (default) or admin.

**delay\_auth\_decision****Type** boolean**Default** False

Do not handle authorization requests within the middleware, but delegate the authorization decision to downstream WSGI components.

**http\_connect\_timeout****Type** integer**Default** <None>

Request timeout value for communicating with Identity API server.

**http\_request\_max\_retries****Type** integer**Default** 3

How many times are we trying to reconnect when communicating with Identity API Server.

### cache

**Type** string

**Default** <None>

Request environment key where the Swift cache object is stored. When `auth_token` middleware is deployed with a Swift cache, use this option to have the middleware share a caching backend with swift. Otherwise, use the `memcached_servers` option instead.

### certfile

**Type** string

**Default** <None>

Required if identity server requires client certificate

### keyfile

**Type** string

**Default** <None>

Required if identity server requires client certificate

### cafile

**Type** string

**Default** <None>

A PEM encoded Certificate Authority to use when verifying HTTPs connections. Defaults to system CAs.

### insecure

**Type** boolean

**Default** False

Verify HTTPS connections.

### region\_name

**Type** string

**Default** <None>

The region in which the identity server can be found.

### memcached\_servers

**Type** list

**Default** <None>

Optionally specify a list of memcached server(s) to use for caching. If left undefined, tokens will instead be cached in-process.

Table 18: Deprecated Variations

Group	Name
keystone_authtoken	memcache_servers

**token\_cache\_time****Type** integer**Default** 300

In order to prevent excessive effort spent validating tokens, the middleware caches previously-seen tokens for a configurable duration (in seconds). Set to -1 to disable caching completely.

**memcache\_security\_strategy****Type** string**Default** None**Valid Values** None, MAC, ENCRYPT

(Optional) If defined, indicate whether token data should be authenticated or authenticated and encrypted. If MAC, token data is authenticated (with HMAC) in the cache. If ENCRYPT, token data is encrypted and authenticated in the cache. If the value is not one of these options or empty, `auth_token` will raise an exception on initialization.

**memcache\_secret\_key****Type** string**Default** <None>

(Optional, mandatory if `memcache_security_strategy` is defined) This string is used for key derivation.

**memcache\_pool\_dead\_retry****Type** integer**Default** 300

(Optional) Number of seconds memcached server is considered dead before it is tried again.

**memcache\_pool\_maxsize****Type** integer**Default** 10

(Optional) Maximum total number of open connections to every memcached server.

**memcache\_pool\_socket\_timeout****Type** integer**Default** 3

(Optional) Socket timeout in seconds for communicating with a memcached server.

**memcache\_pool\_unused\_timeout****Type** integer**Default** 60

(Optional) Number of seconds a connection to memcached is held unused in the pool before it is closed.

#### **memcache\_pool\_conn\_get\_timeout**

**Type** integer

**Default** 10

(Optional) Number of seconds that an operation will wait to get a memcached client connection from the pool.

#### **memcache\_use\_advanced\_pool**

**Type** boolean

**Default** True

(Optional) Use the advanced (eventlet safe) memcached client pool.

#### **include\_service\_catalog**

**Type** boolean

**Default** True

(Optional) Indicate whether to set the X-Service-Catalog header. If False, middleware will not ask for service catalog on token validation and will not set the X-Service-Catalog header.

#### **enforce\_token\_bind**

**Type** string

**Default** permissive

Used to control the use and type of token binding. Can be set to: disabled to not check token binding. permissive (default) to validate binding information if the bind type is of a form known to the server and ignore it if not. strict like permissive but if the bind type is unknown the token will be rejected. required any form of token binding is needed to be allowed. Finally the name of a binding method that must be present in tokens.

#### **service\_token\_roles**

**Type** list

**Default** ['service']

A choice of roles that must be present in a service token. Service tokens are allowed to request that an expired token can be used and so this check should tightly control that only actual services should be sending this token. Roles here are applied as an ANY check so any role in this list must be present. For backwards compatibility reasons this currently only affects the allow\_expired check.

#### **service\_token\_roles\_required**

**Type** boolean

**Default** False

For backwards compatibility reasons we must let valid service tokens pass that dont pass the service\_token\_roles check as valid. Setting this true will become the default in a future release and should be enabled if possible.

**service\_type****Type** string**Default** <None>

The name or type of the service as it appears in the service catalog. This is used to validate tokens that have restricted access rules.

**auth\_type****Type** unknown type**Default** <None>

Authentication type to load

Table 19: Deprecated Variations

Group	Name
keystone_authtoken	auth_plugin

**auth\_section****Type** unknown type**Default** <None>

Config Section from which to load plugin specific options

**network\_api:neutron****endpoints****Type** list**Default** <None>

URL to use if None in the ServiceCatalog that is passed by the request context. Format: <region>|<url>

**endpoint\_type****Type** string**Default** publicURL

Endpoint type to use

**timeout****Type** integer**Default** 30

timeout value for connecting to neutron in seconds

**admin\_username****Type** string**Default** <None>

username for connecting to neutron in admin context

**admin\_password**

**Type** string

**Default** <None>

password for connecting to neutron in admin context

**admin\_tenant\_name**

**Type** string

**Default** <None>

tenant name for connecting to neutron in admin context

**auth\_url**

**Type** string

**Default** <None>

auth url for connecting to neutron in admin context

**insecure**

**Type** boolean

**Default** False

if set, ignore any SSL validation issues

**auth\_strategy**

**Type** string

**Default** keystone

auth strategy for connecting to neutron in admin context

**ca\_certificates\_file**

**Type** string

**Default** <None>

Location of ca certificates file to use for neutron client requests.

**oslo\_concurrency**

**disable\_process\_locking**

**Type** boolean

**Default** False

Enables or disables inter-process locks.

Table 20: Deprecated Variations

Group	Name
DEFAULT	disable_process_locking

**lock\_path****Type** string**Default** \$state\_path

Directory to use for lock files. For security, the specified directory should only be writable by the user running the processes that need locking. Defaults to environment variable OSLO\_LOCK\_PATH. If external locks are used, a lock path must be set.

Table 21: Deprecated Variations

Group	Name
DEFAULT	lock_path

**oslo\_messaging\_amqp****container\_name****Type** string**Default** <None>

Name for the AMQP container. must be globally unique. Defaults to a generated UUID

Table 22: Deprecated Variations

Group	Name
amqp1	container_name

**idle\_timeout****Type** integer**Default** 0

Timeout for inactive connections (in seconds)

Table 23: Deprecated Variations

Group	Name
amqp1	idle_timeout

**trace****Type** boolean**Default** False

Debug: dump AMQP frames to stdout

Table 24: Deprecated Variations

Group	Name
amqp1	trace

## ssl

**Type** boolean

**Default** False

Attempt to connect via SSL. If no other ssl-related parameters are given, it will use the systems CA-bundle to verify the servers certificate.

## ssl\_ca\_file

**Type** string

**Default** ''

CA certificate PEM file used to verify the servers certificate

Table 25: Deprecated Variations

Group	Name
amqp1	ssl_ca_file

## ssl\_cert\_file

**Type** string

**Default** ''

Self-identifying certificate PEM file for client authentication

Table 26: Deprecated Variations

Group	Name
amqp1	ssl_cert_file

## ssl\_key\_file

**Type** string

**Default** ''

Private key PEM file used to sign ssl\_cert\_file certificate (optional)

Table 27: Deprecated Variations

Group	Name
amqp1	ssl_key_file

## ssl\_key\_password

**Type** string

**Default** <None>

Password for decrypting ssl\_key\_file (if encrypted)

Table 28: Deprecated Variations

Group	Name
amqp1	ssl_key_password



**ssl\_verify\_vhost****Type** boolean**Default** False

By default SSL checks that the name in the servers certificate matches the hostname in the transport\_url. In some configurations it may be preferable to use the virtual hostname instead, for example if the server uses the Server Name Indication TLS extension (rfc6066) to provide a certificate per virtual host. Set ssl\_verify\_vhost to True if the servers SSL certificate uses the virtual host name instead of the DNS name.

**sasl\_mechanisms****Type** string**Default** ''

Space separated list of acceptable SASL mechanisms

Table 29: Deprecated Variations

Group	Name
amqp1	sasl_mechanisms

**sasl\_config\_dir****Type** string**Default** ''

Path to directory that contains the SASL configuration

Table 30: Deprecated Variations

Group	Name
amqp1	sasl_config_dir

**sasl\_config\_name****Type** string**Default** ''

Name of configuration file (without .conf suffix)

Table 31: Deprecation Variations

Group	Name
amqp1	sasl_config_name

**sasl\_default\_realm****Type** string**Default** ''

SASL realm to use if no realm present in username

### **connection\_retry\_interval**

**Type** integer

**Default** 1

**Minimum Value** 1

Seconds to pause before attempting to re-connect.

### **connection\_retry\_backoff**

**Type** integer

**Default** 2

**Minimum Value** 0

Increase the `connection_retry_interval` by this many seconds after each unsuccessful failover attempt.

### **connection\_retry\_interval\_max**

**Type** integer

**Default** 30

**Minimum Value** 1

Maximum limit for `connection_retry_interval` + `connection_retry_backoff`

### **link\_retry\_delay**

**Type** integer

**Default** 10

**Minimum Value** 1

Time to pause between re-connecting an AMQP 1.0 link that failed due to a recoverable error.

### **default\_reply\_retry**

**Type** integer

**Default** 0

**Minimum Value** -1

The maximum number of attempts to re-send a reply message which failed due to a recoverable error.

### **default\_reply\_timeout**

**Type** integer

**Default** 30

**Minimum Value** 5

The deadline for an rpc reply message delivery.

**default\_send\_timeout****Type** integer**Default** 30**Minimum Value** 5

The deadline for an rpc cast or call message delivery. Only used when caller does not provide a timeout expiry.

**default\_notify\_timeout****Type** integer**Default** 30**Minimum Value** 5

The deadline for a sent notification message delivery. Only used when caller does not provide a timeout expiry.

**default\_sender\_link\_timeout****Type** integer**Default** 600**Minimum Value** 1

The duration to schedule a purge of idle sender links. Detach link after expiry.

**addressing\_mode****Type** string**Default** dynamic

Indicates the addressing mode used by the driver. Permitted values: legacy - use legacy non-routable addressing routable - use routable addresses dynamic - use legacy addresses if the message bus does not support routing otherwise use routable addressing

**pseudo\_vhost****Type** boolean**Default** True

Enable virtual host support for those message buses that do not natively support virtual hosting (such as qpid). When set to true the virtual host name will be added to all message bus addresses, effectively creating a private subnet per virtual host. Set to False if the message bus supports virtual hosting using the hostname field in the AMQP 1.0 Open performative as the name of the virtual host.

**server\_request\_prefix****Type** string**Default** exclusive

address prefix used when sending to a specific server

Table 32: Deprecated Variations

Group	Name
amqp1	server_request_prefix

### **broadcast\_prefix**

**Type** string

**Default** broadcast

address prefix used when broadcasting to all servers

Table 33: Deprecated Variations

Group	Name
amqp1	broadcast_prefix

### **group\_request\_prefix**

**Type** string

**Default** unicast

address prefix when sending to any server in group

Table 34: Deprecated Variations

Group	Name
amqp1	group_request_prefix

### **rpc\_address\_prefix**

**Type** string

**Default** openstack.org/om/rpc

Address prefix for all generated RPC addresses

### **notify\_address\_prefix**

**Type** string

**Default** openstack.org/om/notify

Address prefix for all generated Notification addresses

### **multicast\_address**

**Type** string

**Default** multicast

Appended to the address prefix when sending a fanout message. Used by the message bus to identify fanout messages.

### **unicast\_address**

**Type** string

**Default** unicast

Appended to the address prefix when sending to a particular RPC/Notification server. Used by the message bus to identify messages sent to a single destination.

#### **anycast\_address**

**Type** string

**Default** anycast

Appended to the address prefix when sending to a group of consumers. Used by the message bus to identify messages that should be delivered in a round-robin fashion across consumers.

#### **default\_notification\_exchange**

**Type** string

**Default** <None>

Exchange name used in notification addresses. Exchange name resolution precedence: Target.exchange if set else default\_notification\_exchange if set else control\_exchange if set else notify

#### **default\_rpc\_exchange**

**Type** string

**Default** <None>

Exchange name used in RPC addresses. Exchange name resolution precedence: Target.exchange if set else default\_rpc\_exchange if set else control\_exchange if set else rpc

#### **reply\_link\_credit**

**Type** integer

**Default** 200

**Minimum Value** 1

Window size for incoming RPC Reply messages.

#### **rpc\_server\_credit**

**Type** integer

**Default** 100

**Minimum Value** 1

Window size for incoming RPC Request messages

#### **notify\_server\_credit**

**Type** integer

**Default** 100

**Minimum Value** 1

Window size for incoming Notification messages

#### **pre\_settled**

**Type** multi-valued

**Default** rpc-cast

**Default** rpc-reply

Send messages of this type pre-settled. Pre-settled messages will not receive acknowledgement from the peer. Note well: pre-settled messages may be silently discarded if the delivery fails. Permitted values: rpc-call - send RPC Calls pre-settled rpc-reply- send RPC Replies pre-settled rpc-cast - Send RPC Casts pre-settled notify - Send Notifications pre-settled

## oslo\_messaging\_kafka

### kafka\_max\_fetch\_bytes

**Type** integer

**Default** 1048576

Max fetch bytes of Kafka consumer

### kafka\_consumer\_timeout

**Type** floating point

**Default** 1.0

Default timeout(s) for Kafka consumers

### pool\_size

**Type** integer

**Default** 10

Pool Size for Kafka Consumers

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Driver no longer uses connection pool.

### conn\_pool\_min\_size

**Type** integer

**Default** 2

The pool size limit for connections expiration policy

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Driver no longer uses connection pool.

### conn\_pool\_ttl

**Type** integer

**Default** 1200

The time-to-live in sec of idle connections in the pool

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Driver no longer uses connection pool.

#### **consumer\_group**

**Type** string

**Default** oslo\_messaging\_consumer

Group id for Kafka consumer. Consumers in one group will coordinate message consumption

#### **producer\_batch\_timeout**

**Type** floating point

**Default** 0.0

Upper bound on the delay for KafkaProducer batching in seconds

#### **producer\_batch\_size**

**Type** integer

**Default** 16384

Size of batch for the producer async send

#### **compression\_codec**

**Type** string

**Default** none

**Valid Values** none, gzip, snappy, lz4, zstd

The compression codec for all data generated by the producer. If not set, compression will not be used. Note that the allowed values of this depend on the kafka version

#### **enable\_auto\_commit**

**Type** boolean

**Default** False

Enable asynchronous consumer commits

#### **max\_poll\_records**

**Type** integer

**Default** 500

The maximum number of records returned in a poll call

#### **security\_protocol**

**Type** string

**Default** PLAINTEXT

**Valid Values** PLAINTEXT, SASL\_PLAINTEXT, SSL, SASL\_SSL

Protocol used to communicate with brokers

#### **sasl\_mechanism**

**Type** string

**Default** PLAIN

Mechanism when security protocol is SASL

#### **ssl\_cafile**

**Type** string

**Default** ''

CA certificate PEM file used to verify the server certificate

#### **ssl\_client\_cert\_file**

**Type** string

**Default** ''

Client certificate PEM file used for authentication.

#### **ssl\_client\_key\_file**

**Type** string

**Default** ''

Client key PEM file used for authentication.

#### **ssl\_client\_key\_password**

**Type** string

**Default** ''

Client key password file used for authentication.

### **oslo\_messaging\_notifications**

#### **driver**

**Type** multi-valued

**Default** ''

The Drivers(s) to handle sending notifications. Possible values are messaging, messagingv2, routing, log, test, noop

Table 35: Deprecated Variations

Group	Name
DEFAULT	notification_driver



**transport\_url****Type** string**Default** <None>

A URL representing the messaging driver to use for notifications. If not set, we fall back to the same configuration used for RPC.

Table 36: Deprecated Variations

Group	Name
DEFAULT	notification_transport_url

**topics****Type** list**Default** ['notifications']

AMQP topic used for OpenStack notifications.

Table 37: Deprecated Variations

Group	Name
rpc_notifier2	topics
DEFAULT	notification_topics

**retry****Type** integer**Default** -1

The maximum number of attempts to re-send a notification message which failed to be delivered due to a recoverable error. 0 - No retry, -1 - indefinite

**oslo\_messaging\_rabbit****amqp\_durable\_queues****Type** boolean**Default** False

Use durable queues in AMQP. If rabbit\_quorum\_queue is enabled, queues will be durable and this value will be ignored.

**amqp\_auto\_delete****Type** boolean**Default** False

Auto-delete queues in AMQP.

Table 38: Deprecated Variations

Group	Name
DEFAULT	amqp_auto_delete

## ssl

**Type** boolean

**Default** False

Connect over SSL.

Table 39: Deprecated Variations

Group	Name
oslo_messaging_rabbit	rabbit_use_ssl

## ssl\_version

**Type** string

**Default** ''

SSL version to use (valid only if SSL enabled). Valid values are TLSv1 and SSLv23. SSLv2, SSLv3, TLSv1\_1, and TLSv1\_2 may be available on some distributions.

Table 40: Deprecated Variations

Group	Name
oslo_messaging_rabbit	kombu_ssl_version

## ssl\_key\_file

**Type** string

**Default** ''

SSL key file (valid only if SSL enabled).

Table 41: Deprecated Variations

Group	Name
oslo_messaging_rabbit	kombu_ssl_keyfile

## ssl\_cert\_file

**Type** string

**Default** ''

SSL cert file (valid only if SSL enabled).

Table 42: Deprecated Variations

Group	Name
oslo_messaging_rabbit	kombu_ssl_certfile

**ssl\_ca\_file****Type** string**Default** ''

SSL certification authority file (valid only if SSL enabled).

Table 43: Deprecated Variations

Group	Name
oslo_messaging_rabbit	kombu_ssl_ca_certs

**ssl\_enforce\_fips\_mode****Type** boolean**Default** False

Global toggle for enforcing the OpenSSL FIPS mode. This feature requires Python support. This is available in Python 3.9 in all environments and may have been backported to older Python versions on select environments. If the Python executable used does not support OpenSSL FIPS mode, an exception will be raised.

**heartbeat\_in\_pthread****Type** boolean**Default** False

Run the health check heartbeat thread through a native python thread by default. If this option is equal to False then the health check heartbeat will inherit the execution model from the parent process. For example if the parent process has monkey patched the stdlib by using eventlet/greenlet then the heartbeat will be run through a green thread. This option should be set to True only for the wsgi services.

**kombu\_reconnect\_delay****Type** floating point**Default** 1.0**Minimum Value** 0.0**Maximum Value** 4.5

How long to wait (in seconds) before reconnecting in response to an AMQP consumer cancel notification.

Table 44: Deprecated Variations

Group	Name
DEFAULT	kombu_reconnect_delay

**kombu\_compression****Type** string**Default** <None>

EXPERIMENTAL: Possible values are: gzip, bz2. If not set compression will not be used. This option may not be available in future versions.

#### **kombu\_missing\_consumer\_retry\_timeout**

**Type** integer

**Default** 60

How long to wait a missing client before abandoning to send it its replies. This value should not be longer than `rpc_response_timeout`.

Table 45: Deprecated Variations

Group	Name
oslo_messaging_rabbit	kombu_reconnect_timeout

#### **kombu\_failover\_strategy**

**Type** string

**Default** round-robin

**Valid Values** round-robin, shuffle

Determines how the next RabbitMQ node is chosen in case the one we are currently connected to becomes unavailable. Takes effect only if more than one RabbitMQ node is provided in config.

#### **rabbit\_login\_method**

**Type** string

**Default** AMQPLAIN

**Valid Values** PLAIN, AMQPLAIN, EXTERNAL, RABBIT-CR-DEMO

The RabbitMQ login method.

Table 46: Deprecated Variations

Group	Name
DEFAULT	rabbit_login_method

#### **rabbit\_retry\_interval**

**Type** integer

**Default** 1

How frequently to retry connecting with RabbitMQ.

#### **rabbit\_retry\_backoff**

**Type** integer

**Default** 2

How long to backoff for between retries when connecting to RabbitMQ.

Table 47: Deprecated Variations

Group	Name
DEFAULT	rabbit_retry_backoff

**rabbit\_interval\_max****Type** integer**Default** 30

Maximum interval of RabbitMQ connection retries. Default is 30 seconds.

**rabbit\_ha\_queues****Type** boolean**Default** False

Try to use HA queues in RabbitMQ (`x-ha-policy: all`). If you change this option, you must wipe the RabbitMQ database. In RabbitMQ 3.0, queue mirroring is no longer controlled by the `x-ha-policy` argument when declaring a queue. If you just want to make sure that all queues (except those with auto-generated names) are mirrored across all nodes, run: `rabbitmqctl set_policy HA ^(?!amq.)* {ha-mode: all}`

Table 48: Deprecated Variations

Group	Name
DEFAULT	rabbit_ha_queues

**rabbit\_quorum\_queue****Type** boolean**Default** False

Use quorum queues in RabbitMQ (`x-queue-type: quorum`). The quorum queue is a modern queue type for RabbitMQ implementing a durable, replicated FIFO queue based on the Raft consensus algorithm. It is available as of RabbitMQ 3.8.0. If set this option will conflict with the HA queues (`rabbit_ha_queues`) aka mirrored queues, in other words the HA queues should be disabled, quorum queues durable by default so the `amqp_durable_queues` option is ignored when this option enabled.

**rabbit\_quorum\_delivery\_limit****Type** integer**Default** 0

Each time a message is redelivered to a consumer, a counter is incremented. Once the redelivery count exceeds the delivery limit the message gets dropped or dead-lettered (if a DLX exchange has been configured) Used only when `rabbit_quorum_queue` is enabled, Default 0 which means dont set a limit.

**rabbit\_quorum\_max\_memory\_length****Type** integer**Default** 0

By default all messages are maintained in memory if a quorum queue grows in length it can put memory pressure on a cluster. This option can limit the number of messages in the quorum queue. Used only when `rabbit_quorum_queue` is enabled, Default 0 which means dont set a limit.

### `rabbit_quorum_max_memory_bytes`

**Type** integer

**Default** 0

By default all messages are maintained in memory if a quorum queue grows in length it can put memory pressure on a cluster. This option can limit the number of memory bytes used by the quorum queue. Used only when `rabbit_quorum_queue` is enabled, Default 0 which means dont set a limit.

### `rabbit_transient_queues_ttl`

**Type** integer

**Default** 1800

**Minimum Value** 1

Positive integer representing duration in seconds for queue TTL (x-expires). Queues which are unused for the duration of the TTL are automatically deleted. The parameter affects only reply and fanout queues.

### `rabbit_qos_prefetch_count`

**Type** integer

**Default** 0

Specifies the number of messages to prefetch. Setting to zero allows unlimited messages.

### `heartbeat_timeout_threshold`

**Type** integer

**Default** 60

Number of seconds after which the Rabbit broker is considered down if heartbeats keep-alive fails (0 disables heartbeat).

### `heartbeat_rate`

**Type** integer

**Default** 2

How often times during the `heartbeat_timeout_threshold` we check the heartbeat.

### `direct_mandatory_flag`

**Type** boolean

**Default** True

(DEPRECATED) Enable/Disable the RabbitMQ mandatory flag for direct send. The direct send is used as reply, so the `MessageUndeliverable` exception is raised in case the client queue does not exist. `MessageUndeliverable` exception will be used to loop for a timeout to lets a chance to sender to recover. This flag is deprecated and it will not be possible to deactivate this functionality anymore

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** Mandatory flag no longer deactivable.

### **enable\_cancel\_on\_failover**

**Type** boolean

**Default** False

Enable x-cancel-on-ha-failover flag so that rabbitmq server will cancel and notify consumers when queue is down

### **oslo\_middleware**

#### **max\_request\_body\_size**

**Type** integer

**Default** 114688

The maximum body size for each request, in bytes.

Table 49: Deprecated Variations

Group	Name
DEFAULT	osapi_max_request_body_size
DEFAULT	max_request_body_size

#### **secure\_proxy\_ssl\_header**

**Type** string

**Default** X-Forwarded-Proto

The HTTP Header that will be used to determine what the original request protocol scheme was, even if it was hidden by a SSL termination proxy.

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

#### **enable\_proxy\_headers\_parsing**

**Type** boolean

**Default** False

Whether the application is behind a proxy or not. This determines if the middleware should parse the headers or not.

#### **http\_basic\_auth\_user\_file**

**Type** string

**Default** /etc/htpasswd

HTTP basic auth password file.

## oslo\_policy

### enforce\_scope

**Type** boolean

**Default** False

This option controls whether or not to enforce scope when evaluating policies. If `True`, the scope of the token used in the request is compared to the `scope_types` of the policy being enforced. If the scopes do not match, an `InvalidScope` exception will be raised. If `False`, a message will be logged informing operators that policies are being invoked with mismatching scope.

### enforce\_new\_defaults

**Type** boolean

**Default** False

This option controls whether or not to use old deprecated defaults when evaluating policies. If `True`, the old deprecated defaults are not going to be evaluated. This means if any existing token is allowed for old defaults but is disallowed for new defaults, it will be disallowed. It is encouraged to enable this flag along with the `enforce_scope` flag so that you can get the benefits of new defaults and `scope_type` together. If `False`, the deprecated policy check string is logically OR'd with the new policy check string, allowing for a graceful upgrade experience between releases with new policies, which is the default behavior.

### policy\_file

**Type** string

**Default** policy.yaml

The relative or absolute path of a file that maps roles to permissions for a given service. Relative paths must be specified in relation to the configuration file setting this option.

Table 50: Deprecated Variations

Group	Name
DEFAULT	policy_file

### policy\_default\_rule

**Type** string

**Default** default

Default rule. Enforced when a requested rule is not found.

Table 51: Deprecated Variations

Group	Name
DEFAULT	policy_default_rule



**policy\_dirs****Type** multi-valued**Default** policy.d

Directories where policy configuration files are stored. They can be relative to any directory in the search path defined by the config\_dir option, or absolute paths. The file defined by policy\_file must exist for these directories to be searched. Missing or empty directories are ignored.

Table 52: Deprecated Variations

Group	Name
DEFAULT	policy_dirs

**remote\_content\_type****Type** string**Default** application/x-www-form-urlencoded**Valid Values** application/x-www-form-urlencoded, application/json

Content Type to send and receive data for REST based policy check

**remote\_ssl\_verify\_server\_cert****Type** boolean**Default** False

server identity verification for REST based policy check

**remote\_ssl\_ca\_cert\_file****Type** string**Default** <None>

Absolute path to ca cert file for REST based policy check

**remote\_ssl\_client\_cert\_file****Type** string**Default** <None>

Absolute path to client cert for REST based policy check

**remote\_ssl\_client\_key\_file****Type** string**Default** <None>

Absolute path client key file REST based policy check

## oslo\_reports

### log\_dir

**Type** string

**Default** <None>

Path to a log directory where to create a file

### file\_event\_handler

**Type** string

**Default** <None>

The path to a file to watch for changes to trigger the reports, instead of signals. Setting this option disables the signal trigger for the reports. If application is running as a WSGI application it is recommended to use this instead of signals.

### file\_event\_handler\_interval

**Type** integer

**Default** 1

How many seconds to wait between polls when file\_event\_handler is set

## producer\_task:delayed\_notify

### interval

**Type** integer

**Default** 5

Run interval in seconds

### per\_page

**Type** integer

**Default** 100

Default amount of results returned per page

### batch\_size

**Type** integer

**Default** 100

How many zones to receive NOTIFY on each run

### **producer\_task:periodic\_exists**

#### **interval**

**Type** integer

**Default** 3600

Run interval in seconds

#### **per\_page**

**Type** integer

**Default** 100

Default amount of results returned per page

### **producer\_task:periodic\_secondary\_refresh**

#### **interval**

**Type** integer

**Default** 3600

Run interval in seconds

#### **per\_page**

**Type** integer

**Default** 100

Default amount of results returned per page

### **producer\_task:worker\_periodic\_recovery**

#### **interval**

**Type** integer

**Default** 120

Run interval in seconds

#### **per\_page**

**Type** integer

**Default** 100

Default amount of results returned per page

## **producer\_task:zone\_purge**

### **interval**

**Type** integer

**Default** 3600

Run interval in seconds

### **per\_page**

**Type** integer

**Default** 100

Default amount of results returned per page

### **time\_threshold**

**Type** integer

**Default** 604800

How old deleted zones should be (deleted\_at) to be purged, in seconds

### **batch\_size**

**Type** integer

**Default** 100

How many zones to be purged on each run

## **proxy**

### **http\_proxy**

**Type** string

**Default** <None>

Proxy HTTP requests via this proxy.

### **https\_proxy**

**Type** string

**Default** <None>

Proxy HTTPS requests via this proxy

### **no\_proxy**

**Type** list

**Default** []

These addresses should not be proxied

**service:agent****workers**

**Type** integer

**Default** <None>

Number of agent worker processes to spawn

**threads**

**Type** integer

**Default** 1000

Number of agent greenthreads to spawn

**listen**

**Type** list

**Default** ['0.0.0.0:5358']

Agent host:port pairs to listen on

**tcp\_backlog**

**Type** integer

**Default** 100

The Agent TCP Backlog

**tcp\_rcv\_timeout**

**Type** floating point

**Default** 0.5

Agent TCP Receive Timeout

**allow\_notify**

**Type** list

**Default** []

List of IP addresses allowed to NOTIFY The Agent

**masters**

**Type** list

**Default** []

List of masters for the Agent, format ip:port

**backend\_driver**

**Type** string

**Default** bind9

The backend driver to use, e.g. bind9, djbdns, knot2

### **transfer\_source**

**Type** string

**Default** <None>

An IP address to be used to fetch zones transferred in

### **notify\_delay**

**Type** floating point

**Default** 0.0

Delay after a NOTIFY arrives for a zone that the Agent will pause and drop subsequent NOTIFYs for that zone

## **service:api**

### **workers**

**Type** integer

**Default** <None>

Number of api worker processes to spawn

### **threads**

**Type** integer

**Default** 1000

Number of api greenthreads to spawn

### **enable\_host\_header**

**Type** boolean

**Default** True

Enable host request headers

### **api\_base\_uri**

**Type** string

**Default** http://127.0.0.1:9001/

the url used as the base for all API responses, This should consist of the scheme (http/https), the hostname, port, and any paths that are added to the base of Designate is URLs, For example <http://dns.openstack.example.com/dns>

### **listen**

**Type** list

**Default** ['0.0.0.0:9001']

API host:port pairs to listen on

**api\_paste\_config****Type** string**Default** api-paste.ini

File name for the paste.deploy config for designate-api

**auth\_strategy****Type** string**Default** keystone

The strategy to use for auth. Supports noauth or keystone

**enable\_api\_v2****Type** boolean**Default** True

Enable the Designate V2 API

**enable\_api\_admin****Type** boolean**Default** False

enable-api-admin

**max\_header\_line****Type** integer**Default** 16384

Maximum line size of message headers to be accepted. `max_header_line` may need to be increased when using large tokens (typically those generated by the Keystone v3 API with big service catalogs).

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** This parameter has had no effect since Train. Use [DEFAULT] `max_header_line` instead.

**pecan\_debug****Type** boolean**Default** False

Pecan HTML Debug Interface

**enabled\_extensions\_v2****Type** list**Default** []

Enabled API Extensions for the V2 API

**default\_limit\_v2**

**Type** integer

**Default** 20

Default per-page limit for the V2 API, a value of None means show all results by default

**max\_limit\_v2**

**Type** integer

**Default** 1000

Max per-page limit for the V2 API

**quotas\_verify\_project\_id**

**Type** boolean

**Default** False

Verify that the requested Project ID for quota target is a valid project in Keystone.

**enabled\_extensions\_admin**

**Type** list

**Default** []

Enabled Admin API Extensions

**default\_limit\_admin**

**Type** integer

**Default** 20

Default per-page limit for the Admin API, a value of None means show all results by default

**max\_limit\_admin**

**Type** integer

**Default** 1000

Max per-page limit for the Admin API

**maintenance\_mode**

**Type** boolean

**Default** False

Enable API Maintenance Mode

**maintenance\_mode\_role**

**Type** string

**Default** admin

Role allowed to bypass maintenance mode



**secure\_proxy\_ssl\_header****Type** string**Default** X-Forwarded-Proto

The HTTP Header that will be used to determine which the original request protocol scheme was, even if it was removed by an SSL terminating proxy.

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** This parameter has had no effect since SSLMiddleware was replaced by `http_proxy_to_wsgi`

**override\_proto****Type** string**Default** <None>

A scheme that will be used to override the request protocol scheme, even if it was set by an SSL terminating proxy.

**Warning:** This option is deprecated for removal. Its value may be silently ignored in the future.

**Reason** This parameter has had no effect since SSLMiddleware was replaced by `http_proxy_to_wsgi`

**service:central****workers****Type** integer**Default** <None>

Number of central worker processes to spawn

**threads****Type** integer**Default** 1000

Number of central greenthreads to spawn

**storage\_driver****Type** string**Default** sqlalchemy

The storage driver to use

**max\_zone\_name\_len**

**Type** integer

**Default** 255

Maximum zone name length

**max\_recordset\_name\_len**

**Type** integer

**Default** 255

Maximum recordset name length

Table 53: Deprecated Variations

Group	Name
service:central	max_record_name_len

**managed\_resource\_email**

**Type** string

**Default** hostmaster@example.com

E-Mail for Managed resources

**managed\_resource\_tenant\_id**

**Type** string

**Default** 000000000-0000-0000-0000-000000000000

The Tenant ID that will own any managed resources.

**min\_ttl**

**Type** integer

**Default** <None>

Minimum TTL allowed

**default\_pool\_id**

**Type** string

**Default** 794ccc2c-d751-44fe-b57f-8894c9f5c842

The name of the default pool

**topic**

**Type** string

**Default** central

RPC topic name for central

**scheduler\_filters****Type** list**Default** ['default\_pool']

Enabled Pool Scheduling filters

**service:mdns****workers****Type** integer**Default** <None>

Number of mdns worker processes to spawn

**threads****Type** integer**Default** 1000

Number of mdns greenthreads to spawn

**listen****Type** list**Default** ['0.0.0.0:5354']

mDNS host:port pairs to listen on

**tcp\_backlog****Type** integer**Default** 100

mDNS TCP Backlog

**tcp\_rcv\_timeout****Type** floating point**Default** 0.5

mDNS TCP Receive Timeout

**all\_tcp****Type** integer**Default** <None>

Send all traffic over TCP

**Warning:** This option is deprecated for removal since Zed. Its value may be silently ignored in the future.

**Reason** This parameter should now be configured in `service:worker` instead

### query\_enforce\_tsig

**Type** boolean

**Default** False

Enforce all incoming queries (including AXFR) are TSIG signed

### storage\_driver

**Type** string

**Default** sqlalchemy

The storage driver to use

### max\_message\_size

**Type** integer

**Default** 65535

Maximum message size to emit

### topic

**Type** string

**Default** mdns

RPC topic name for mdns

### xfr\_timeout

**Type** integer

**Default** <None>

Timeout in seconds for XFRs.

**Warning:** This option is deprecated for removal since Zed. Its value may be silently ignored in the future.

**Reason** This parameter should now be configured inservice:worker instead

### service:producer

#### workers

**Type** integer

**Default** <None>

Number of Producer worker processes to spawn

#### threads

**Type** integer

**Default** 1000

Number of Producer greenthreads to spawn

**enabled\_tasks**

**Type** list

**Default** <None>

Enabled tasks to run

**storage\_driver**

**Type** string

**Default** sqlalchemy

The storage driver to use

**export\_synchronous**

**Type** boolean

**Default** True

Whether to allow synchronous zone exports

<p><b>Warning:</b> This option is deprecated for removal. Its value may be silently ignored in the future.</p>
--

<p><b>Reason</b> Migrated to designate-worker</p>
---

**topic**

**Type** string

**Default** producer

RPC topic name for producer

**service:sink****workers**

**Type** integer

**Default** <None>

Number of sink worker processes to spawn

**threads**

**Type** integer

**Default** 1000

Number of sink greenthreads to spawn

### **enabled\_notification\_handlers**

**Type** list

**Default** []

Enabled Notification Handlers

### **listener\_pool\_name**

**Type** string

**Default** <None>

pool name to use for oslo.messaging notification listener. Note that listener pooling is not supported by all oslo.messaging drivers.

### **service:worker**

#### **workers**

**Type** integer

**Default** <None>

Number of Worker worker processes to spawn

#### **threads**

**Type** integer

**Default** 200

Number of Worker threads to spawn per process

#### **storage\_driver**

**Type** string

**Default** sqlalchemy

The storage driver to use

#### **threshold\_percentage**

**Type** integer

**Default** 100

The percentage of servers requiring a successful update for a domain change to be considered active

#### **poll\_timeout**

**Type** integer

**Default** 30

The time to wait for a response from a server

**poll\_retry\_interval****Type** integer**Default** 15

The time between retrying to send a request and waiting for a response from a server

**poll\_max\_retries****Type** integer**Default** 10

The maximum number of times to retry sending a request and wait for a response from a server

**poll\_delay****Type** integer**Default** 5

The time to wait before sending the first request to a server

**export\_synchronous****Type** boolean**Default** True

Whether to allow synchronous zone exports

**topic****Type** string**Default** worker

RPC topic name for worker

**xfr\_timeout****Type** integer**Default** 10

Timeout in seconds for XFRs.

**serial\_max\_retries****Type** integer**Default** 3

The maximum number of times to retry fetching a zones serial.

**serial\_retry\_delay****Type** integer**Default** 1

The time to wait before retrying a zone serial request.

### serial\_timeout

**Type** integer

**Default** 1

Timeout in seconds before giving up on fetching a zones serial.

### all\_tcp

**Type** boolean

**Default** False

Send all traffic over TCP

## ssl

### ca\_file

**Type** string

**Default** <None>

CA certificate file to use to verify connecting clients.

Table 54: Deprecated Variations

Group	Name
DEFAULT	ssl_ca_file

### cert\_file

**Type** string

**Default** <None>

Certificate file to use when starting the server securely.

Table 55: Deprecated Variations

Group	Name
DEFAULT	ssl_cert_file

### key\_file

**Type** string

**Default** <None>

Private key file to use when starting the server securely.

Table 56: Deprecated Variations

Group	Name
DEFAULT	ssl_key_file



**version****Type** string**Default** <None>

SSL version to use (valid only if SSL enabled). Valid values are TLSv1 and SSLv23. SSLv2, SSLv3, TLSv1\_1, and TLSv1\_2 may be available on some distributions.

**ciphers****Type** string**Default** <None>

Sets the list of available ciphers. value should be a string in the OpenSSL cipher list format.

**storage:sqlalchemy****sqlite\_synchronous****Type** boolean**Default** True

If True, SQLite uses synchronous mode.

Table 57: Deprecated Variations

Group	Name
DEFAULT	sqlite_synchronous

**backend****Type** string**Default** sqlalchemy

The back end to use for the database.

Table 58: Deprecated Variations

Group	Name
DEFAULT	db_backend

**connection****Type** string**Default** <None>

The SQLAlchemy connection string to use to connect to the database.

Table 59: Deprecated Variations

Group	Name
DEFAULT	sql_connection
DATABASE	sql_connection
sql	connection

### **slave\_connection**

**Type** string

**Default** <None>

The SQLAlchemy connection string to use to connect to the slave database.

### **mysql\_sql\_mode**

**Type** string

**Default** TRADITIONAL

The SQL mode to be used for MySQL sessions. This option, including the default, overrides any server-set SQL mode. To use whatever SQL mode is set by the server configuration, set this to no value. Example: `mysql_sql_mode=`

### **mysql\_enable\_ndb**

**Type** boolean

**Default** False

If True, transparently enables support for handling MySQL Cluster (NDB).

### **connection\_recycle\_time**

**Type** integer

**Default** 3600

Connections which have been present in the connection pool longer than this number of seconds will be replaced with a new one the next time they are checked out from the pool.

### **max\_pool\_size**

**Type** integer

**Default** 5

Maximum number of SQL connections to keep open in a pool. Setting a value of 0 indicates no limit.

### **max\_retries**

**Type** integer

**Default** 10

Maximum number of database connection retries during startup. Set to -1 to specify an infinite retry count.

Table 60: Deprecated Variations

Group	Name
DEFAULT	sql_max_retries
DATABASE	sql_max_retries

**retry\_interval****Type** integer**Default** 10

Interval between retries of opening a SQL connection.

Table 61: Deprecated Variations

Group	Name
DEFAULT	sql_retry_interval
DATABASE	reconnect_interval

**max\_overflow****Type** integer**Default** 50

If set, use this value for max\_overflow with SQLAlchemy.

Table 62: Deprecated Variations

Group	Name
DEFAULT	sql_max_overflow
DATABASE	sqlalchemy_max_overflow

**connection\_debug****Type** integer**Default** 0**Minimum Value** 0**Maximum Value** 100

Verbosity of SQL debugging information: 0=None, 100=Everything.

Table 63: Deprecated Variations

Group	Name
DEFAULT	sql_connection_debug

**connection\_trace****Type** boolean**Default** False

Add Python stack traces to SQL as comment strings.

Table 64: Deprecated Variations

Group	Name
DEFAULT	sql_connection_trace

### pool\_timeout

**Type** integer

**Default** <None>

If set, use this value for pool\_timeout with SQLAlchemy.

Table 65: Deprecated Variations

Group	Name
DATABASE	sqlalchemy_pool_timeout

### use\_db\_reconnect

**Type** boolean

**Default** False

Enable the experimental use of database reconnect on connection lost.

### db\_retry\_interval

**Type** integer

**Default** 1

Seconds between retries of a database transaction.

### db\_inc\_retry\_interval

**Type** boolean

**Default** True

If True, increases the interval between retries of a database operation up to db\_max\_retry\_interval.

### db\_max\_retry\_interval

**Type** integer

**Default** 10

If db\_inc\_retry\_interval is set, the maximum seconds between retries of a database operation.

### db\_max\_retries

**Type** integer

**Default** 20

Maximum retries in case of connection error or deadlock error before error is raised. Set to -1 to specify an infinite retry count.

### connection\_parameters

**Type** string

**Default** ''

Optional URL parameters to append onto the connection URL at connect time; specify as param1=value1&param2=value2&

## 1.5.11 Notifications

---

**Hint:** In this context, notifications are not related to the DNS NOTIFY message.

---

Notifications are RPC calls that contain a JSON object. Designate both generates and receives notifications.

The purpose of notifications is to inform unrelated OpenStack components of events in real time and trigger actions.

### Emitters

They are emitted by Central on the following events:

- dns.tld.create
- dns.tld.update
- dns.tld.delete
- dns.tsigkey.create
- dns.tsigkey.update
- dns.tsigkey.delete
- dns.domain.create
- dns.zone.create
- dns.domain.update
- dns.zone.update
- dns.domain.delete
- dns.zone.delete
- dns.zone.touch
- dns.recordset.create
- dns.recordset.update
- dns.recordset.delete
- dns.record.create
- dns.record.update
- dns.record.delete
- dns.blacklist.create
- dns.blacklist.update
- dns.blacklist.delete
- dns.pool.create
- dns.pool.update

- dns.pool.delete
- dns.domain.update
- dns.zone.update
- dns.zone\_transfer\_request.create
- dns.zone\_transfer\_request.update
- dns.zone\_transfer\_request.delete
- dns.zone\_transfer\_accept.create
- dns.zone\_transfer\_accept.update
- dns.zone\_transfer\_accept.delete
- dns.zone\_import.create
- dns.zone\_import.update
- dns.zone\_import.delete
- dns.zone\_export.create
- dns.zone\_export.update
- dns.zone\_export.delete

### Receivers

Notification from other OpenStack component outside of Designate are received by *Designate Sink*.

### Format

An example notification from Neutron:

```
{
  "priority" : "INFO",
  "message_id" : "95ecdca3-967f-40aa-9469-d9fccc91d64b",
  "event_type" : "port.delete.start",
  "_context_roles" : [
    "Member"
  ],
  "_context_tenant_id" : "c97027dd880d4c129ae7a4ba7edade05",
  "timestamp" : "2012-11-16 12:56:17.155860",
  "_context_is_admin" : false,
  "_context_user_id" : "4ce5c085e09a478ea4edcd667a92df78",
  "payload" : {
    "port_id" : "bfdcb007-f68d-46bd-8150-abcae9fb3af6"
  },
  "_context_timestamp" : "2012-11-16 12:56:17.154672",
  "publisher_id" : "network.svc02.os.lan",
  "_context_read_deleted" : "no"
}
```

More examples can be found at [designate/tests/resources/sample\\_notifications](#)

### 1.5.12 Production Guidelines

This document aims to provide a location for documented production configurations and considerations. Including common misconfigurations, attack mitigation techniques, and other relevant tips.

#### DNS Zone Squatting

Designates multi-tenant nature allows for any user to create (almost) any zone, which can result in the legitimate owner being unable to create the zone within Designate. There are several ways this can occur:

1. The squatter simply creates `example.com.` in Designate before the legitimate owner can.
2. The squatter creates `foo.example.com.` as a zone in Designate, preventing the creation of any parent zones (`example.com.`, `com.`) by any other tenant.
3. The squatter creates `com.` as a zone in Designate, preventing the creation of any zones ending in `com.` by any other tenant.
4. The squatter creates `co.uk.` as a zone in Designate, preventing the creation of any zones ending in `co.uk.` by any other tenant.

#### Scenario #1 and #2 Mitigation

There is no automated mitigation that can reasonably be performed here, DNS providers have typically used a manual process, triggered through a support request, to identify the legitimate owner and request the illegitimate owner relinquish control, or action any other provider specific policy for handling these scenarios.

#### Scenario #3 Mitigation

This scenario can be mitigated by ensuring Designate has been configured, and is updated periodically, with the latest list of gTLDs published as the [IANA TLD list](#). These TLDs can be entered into Designate through the [TLD API](#)

#### Scenario #4 Mitigation

This is a variation on Scenario #3, where public registration is available for a second level domain, such as is the case with `co.uk.`. Due to the nature of public second level domains, where the IANA has no authority, these are not included in the [IANA TLD list](#). A Mozilla sponsored initiative has stepped up to fill this gap, crowdsourcing the list of public suffixes, which includes both standard TLDs and public second level domains. We recommend configuring, and periodically updating, Designate with Mozillas [Public Suffix list](#). These public suffixes can be entered into Designate through the [TLD API](#)

### DNS Cache Poisoning

Multi-tenant nameservers can lead to an interesting variation of DNS Cache Poisoning if nameservers are configured without consideration. Two tenants, both owning different zones, can under the right circumstances inject content into DNS responses for the other tenants zone. Lets consider an example:

Tenant A owns example.com., and has created an additional NS record within their zone pointing to ns.example.org. Tenant B, the attacker in this example, can now create the example.org. zone within their tenant. Within this zone, they can legitimately create an A record with the name ns.example.org.. Under default configurations, many DNS servers (e.g. BIND), will now include Tenant Bs A record within responses for several queries for example.com.. Should the recursive resolver used by the end-user not be configured to ignore out-of-bailiwick responses, this potentially invalid A record for ns.example.org. will be injected into the resolvers cache, resulting in a cache poisoning attack.

This is an interesting variation of DNS cache poisoning, because the poison records are returned by the authoritative nameserver for a given zone, rather than in responses for the attackers zone.

Bug 1471159 includes additional worked examples of this attack.

### BIND9 Mitigation

BIND9 by default will include out-of-zone additional, resulting is susceptibility to this attack. We recommend BIND is configured to send minimal responses - preventing the out-of-zone additional from being processed.

In BINDs global options clause, include the following statement:

```
minimal-responses yes;
```

### PowerDNS Mitigation

PowerDNS by default will include out-of-zone additional, resulting is susceptibility to this attack. We recommend setting the *out-of-zone-additional-processing* configuration flag set to no - preventing the out-of-zone additional from being processed.

In the main PowerDNS configuration file, include the following statement:

```
out-of-zone-additional-processing=no
```

### 1.5.13 Upgrades

In this section, you will find documentation relevant for upgrading Designate.

---

**Note:** The *designate-status upgrade check* command can be used to verify a deployment before starting services with new code.

---

Contents:



## Upgrading to Kilo from Juno

**Note:** This doc section is a work in progress, for now, we have some smaller hints and tips for watchout for during the upgrade.

### Tips and Tricks

1. Two new Designate services

Two new Designate services were added in Kilo, designate-pool-manager and designate-mdns. Please ensure to configure and enable these services as part of the upgrade.

2. Post-Migration, existing DNS domains hosted by PowerDNS must have their masters column manually populated with the list of designate-mdns ip and port pairs, and their type switched to SECONDARY. For example:

```
UPDATE powerdns.domains SET type = "SECONDARY", masters = "192.0.2.1:5354,192.
→0.2.2:5354" WHERE masters IS NULL;
```

## Upgrading to Mitaka from Liberty

### Pools Configuration

We have updated how the config data for pools is now stored.

Previously there was a mix of content in the `designate.conf` file and in the designate database.

We have moved all of the data to the database in Mitaka, to avoid confusion, and avoid the massive complexity that exists in the config file.

**Warning:** This part of the upgrade **requires** downtime.

We have 2 new commands in the `designate-manage` utility that are able to assist the migration.

To make the config syntax simpler we have a new YAML based config file that is used to load information into the database.

```
---
- name: default
  # The name is immutable. There will be no option to change the name after
  # creation and the only way will to change it will be to delete it
  # (and all zones associated with it) and recreate it.
  description: Default PowerDNS Pool

  # Attributes are Key:Value pairs that describe the pool. for example the
  →level
```

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```
# of service (i.e. service_tier:GOLD), capabilities (i.e. anycast: true) or
# other metadata. Users can use this information to point their zones to the
# correct pool
attributes: {}

# List out the NS records for zones hosted within this pool
ns_records:
- hostname: ns1-1.example.org.
  priority: 1
- hostname: ns1-2.example.org.
  priority: 2

# List out the nameservers for this pool. These are the actual PowerDNS
# servers. We use these to verify changes have propagated to all
↪nameservers.
nameservers:
- host: 192.0.2.2
  port: 53

# List out the targets for this pool. For PowerDNS, this is the database
# (or databases, if you deploy a separate DB for each PowerDNS server)
targets:
- type: powerdns
  description: PowerDNS Database Cluster

# List out the designate-mdns servers from which PowerDNS servers should
# request zone transfers (AXFRs) from.
masters:
- host: 192.0.2.1
  port: 5354

# PowerDNS Configuration options
options:
  host: 192.0.2.2
  port: 53
  connection: 'mysql+pymysql://designate:password@127.0.0.1/designate_
↪pdns?charset=utf8'

# Optional list of additional IP/Port's for which designate-mdns will send
# DNS NOTIFY packets to
also_notifies:
- host: 192.0.2.4
  port: 53
```

We have a command that will allow you to take your current running config, and export it to the new YAML format.

---

**Note:** You will need to have at least one instance of central running, and machine designate-manage

is running on will need access to the messaging queue

```
designate-manage pool generate_file --file output.yml
```

This will create a YAML file, with all the currently defined pools, and all of their config.

We suggest this is then migrated into a config management system, or other document management system.

From this point on all updates to pools should be done by updating this file, and running:

```
designate-manage pool update --file /path/to/file.yml
```

## Pools - Step by Step

1. Ensure there is not 2 pools with the same name.
2. Stop all Designate Services.
3. Deploy new Mitaka code
4. Start `designate-central`
5. **Run**

```
designate-manage pool export_from_config --file output.yml
```

6. Ensure the output file is correct (reference sample file for each value)
7. Run

```
designate-manage pool update --file output.yml --dry_run True --  
↪delete True
```

8. Ensure the output of this command is not removing any Pools
9. Run

```
designate-manage pool update --file output.yml --delete True
```

10. Start the remaining designate services.

## Upgrading to Newton from Mitaka

The Newton release of Designate adds two new services `designate-producer`, `designate-worker`. These replace `designate-zone-manager` and `designate-pool-manager`, respectively. In a future cycle, the old services will be removed, and the new ones will be enabled by default. In Newton, you must enable the new services yourself. Designate will work with both configurations, as there is no breaking change from Mitaka.

### Breaking Changes

The default port the `designate-agent` service listens on has changed from 53 to 5358. This matches the port we have always used in the sample configuration, and the port used in the agent backend class.

### Upgrading Code and Enabling Services

To enable the new services with minimal impact, the following process can be followed. This assumes you have all Mitaka Designate services running.

1. Deploy the Newton code.
2. Add the `[service:worker]` and `[service:producer]` sections to your configuration file. Ensure `enabled` and `notify` in the worker section are `True`.

```
[service:worker]
enabled = True
#workers = None
#threads = 1000
#threshold_percentage = 100
#poll_timeout = 30
#poll_retry_interval = 15
#poll_max_retries = 10
#poll_delay = 5
notify = True

[service:producer]
#workers = None
#threads = 1000
# Can be any/all of: periodic_exists, delayed_notify, worker_
↪periodic_recovery
# None => All tasks enabled
#enabled_tasks = None

[producer_task:domain_purge]
#interval = 3600 # 1h
#batch_size = 100
#time_threshold = 604800 # 7 days

[producer_task:delayed_notify]
#interval = 5

[producer_task:worker_periodic_recovery]
#interval = 120
```

3. Stop the `designate-pool-manager` and `designate-zone-manager` processes.
4. Restart the `designate-api`, `designate-central` and `designate-mdns` services.
5. Start the `designate-producer` and `designate-worker` services.

## New Features

- `designate-mdns`, `designate-agent` and `designate-api` can now bind to multiple host:port pairs via the new `listen` configuration arguments for each service.
- New pool scheduler attribute filter for scheduling zones across pools. This can be enabled in the `[service:central]` section of the config by adding `attribute` to the list of values in the `filters` option.
- An experimental agent backend to support TinyDNS, the DNS resolver from the `djbdns` tools.
- An experimental agent backend to support Knot DNS 2
- A new recordset api `/v2/recordsets` is exposed, docs can be found [here](#).
- Designate services now report running status. The information is exposed via `api`.
- The quotas API from the admin API has been ported to `/v2` with some changes and is now [stable](#).

## Deprecation Notices

- `designate-apis` `api_host` and `api_port` configuration options have been deprecated, please use the new combined `listen` argument in place of these.
- `designate-mdnss` `host` and `port` configuration options have been deprecated, please use the new combined `listen` argument in place of these.
- `designate-agentss` `host` and `port` configuration options have been deprecated, please use the new combined `listen` argument in place of these.
- `designate-zone-manager` and `designate-pool-manager` are now deprecated and will be removed in a future release.

## Upgrading to Ocata from Newton

### Upgrading Code and Enabling Services

1. Deploy Ocata code or packages.
2. Restart all services. See the Newton upgrade guide for enabling `designate-producer` and `designate-worker`.

## New Features

- The notifications Designate emits via MQ are now pluggable, drivers are defined by python entry-points and the new `notification_plugin` option in the `DEFAULT` config section enables selection. By default, the notifications have not changed. There is an `audit` plugin that can be used, if desired.
- Scheduling zones across pools. See *Pool Scheduler* for more details.

### Deprecation Notices

- `designate-zone-manager` and `designate-pool-manager` remain deprecated and will be removed in a future release.

### 1.5.14 Troubleshooting

#### I have a broken zone

A zone is considered broken when it is not receiving updates anymore. Its status can be ERROR if Designate detected the error condition or it can be stuck in PENDING for a long time.

Review the logs from the API, Central, Producer, Worker and MiniDNS. Identify the transaction ID of the last successful change and the first failing change. Using the ID, you can filter logs from the Designate components that are related to the same transaction. Look for log messages with ERROR level before and after the first failing update.

Failures in updating a zone are usually related to problems in Producer, Worker, MiniDNS or the database.

Ensure the services are running and network connectivity is not impaired.

Transient network issues can be the cause of a broken zone. Producer and Worker are stateful services and perform attempts at restoring failing zones over time. Restarting the services will trigger new attempts.

#### I have a broken pool

#### I deleted a zone but its still in the database

Deleted zones are flagged with status set to DELETED and task set to NONE once the deletion process terminates successfully.

#### What ports should be open?

Port numbers are configurable: review your `designate.conf`

The default values are:

Component (header rows optional)	Protocol	Port numbers
Agent	TCP	5358
	UDP	5358
API	TCP	9001
Keystone (external)	TCP	35357
MiniDNS	TCP	5354
	UDP	5354
MySQL	TCP	3306
RabbitMQ	TCP	5672
Resolvers	TCP	53
	UDP	53
ZooKeeper	TCP	2181
	TCP	2888,3888

### What network protocol are used?

HTTP[S] by the API, RabbitMQ and the MySQL protocol by most components, DNS (resolution and XFR), ZooKeeper, Memcached.

### What needs access to the Database?

Central, MiniDNS

### What needs access to RabbitMQ?

The API, Central, Producer, Worker, MiniDNS

### What needs access to ZooKeeper?

Pool and Producer

### What needs access to Memcached?

API and Worker

### How do I monitor Designate?

Designate can be monitored by various [monitoring systems listed here](#)

### What are useful metrics to monitor?

- General host monitoring, i.e. CPU load, memory usage, disk and network I/O
- MySQL performance, errors and free disk space
- Number of zones in ACTIVE, PENDING and ERROR status
- API queries per second, broken down by read and write operation on zones, records, etc
- Zone change propagation time i.e. how long does it takes for a record update to reach the resolvers
- Log messages containing having ERROR level
- Quotas utilization i.e. number of existing records/zones against the maximum allowed
- Memcached, RabbitMQ, ZooKeeper performance and errors

### What are useful metrics to review first during an incident?

- Host, network and MySQL performance metrics
- Number of zones in ACTIVE, PENDING and ERROR status
- Log messages containing having ERROR level

### 1.5.15 Sample configuration files

Configuration files can alter how designate behaves at runtime and by default are located in `/etc/designate/`. Links to sample configuration files can be found below:

#### policy.yaml

Use the `policy.yaml` file to define additional access controls that apply to the DNS service:

```
#"admin": "role:admin or is_admin:True"

#"owner": "project_id:%(tenant_id)s"

#"admin_or_owner": "rule:admin or rule:owner"

#"default": "(role:admin and system_scope:all) or (role:member and project_id:
↪%(project_id)s)"

# DEPRECATED
# "default": "rule:admin_or_owner" has been deprecated since W in favor
# of "default": "(role:admin and system_scope:all) or (role:member and
# project_id:%(project_id)s)".
# The designate API now supports system scope and default roles.

# Create blacklist.
# POST /v2/blacklists
# Intended scope(s): system
#"create_blacklist": "role:admin and system_scope:all"

# DEPRECATED
# "create_blacklist": "rule:admin" has been deprecated since W in favor
# of "create_blacklist": "role:admin and system_scope:all".
# The blacklist API now supports system scope and default roles.

# Find blacklists.
# GET /v2/blacklists
# Intended scope(s): system
#"find_blacklists": "role:reader and system_scope:all"

# DEPRECATED
# "find_blacklists": "rule:admin" has been deprecated since W in favor
# of "find_blacklists": "role:reader and system_scope:all".
```

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```
# The blacklist API now supports system scope and default roles.

# Get blacklist.
# GET /v2/blacklists/{blacklist_id}
# Intended scope(s): system
#"get_blacklist": "role:reader and system_scope:all"

# DEPRECATED
# "get_blacklist":"rule:admin" has been deprecated since W in favor of
# "get_blacklist":"role:reader and system_scope:all".
# The blacklist API now supports system scope and default roles.

# Update blacklist.
# PATCH /v2/blacklists/{blacklist_id}
# Intended scope(s): system
#"update_blacklist": "role:admin and system_scope:all"

# DEPRECATED
# "update_blacklist":"rule:admin" has been deprecated since W in favor
# of "update_blacklist":"role:admin and system_scope:all".
# The blacklist API now supports system scope and default roles.

# Delete blacklist.
# DELETE /v2/blacklists/{blacklist_id}
# Intended scope(s): system
#"delete_blacklist": "role:admin and system_scope:all"

# DEPRECATED
# "delete_blacklist":"rule:admin" has been deprecated since W in favor
# of "delete_blacklist":"role:admin and system_scope:all".
# The blacklist API now supports system scope and default roles.

# Allowed bypass the blacklist.
# POST /v2/zones
# Intended scope(s): system
#"use_blacklisted_zone": "role:admin and system_scope:all"

# DEPRECATED
# "use_blacklisted_zone":"rule:admin" has been deprecated since W in
# favor of "use_blacklisted_zone":"role:admin and system_scope:all".
# The blacklist API now supports system scope and default roles.

# Action on all tenants.
# Intended scope(s): system
#"all_tenants": "role:admin and system_scope:all"

# DEPRECATED
# "all_tenants":"rule:admin" has been deprecated since W in favor of
# "all_tenants":"role:admin and system_scope:all".
```

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```
# The designate API now supports system scope and default roles.

# Edit managed records.
# Intended scope(s): system
#"edit_managed_records": "role:admin and system_scope:all"

# DEPRECATED
# "edit_managed_records":"rule:admin" has been deprecated since W in
# favor of "edit_managed_records":"role:admin and system_scope:all".
# The designate API now supports system scope and default roles.

# Use low TTL.
# Intended scope(s): system
#"use_low_ttl": "role:admin and system_scope:all"

# DEPRECATED
# "use_low_ttl":"rule:admin" has been deprecated since W in favor of
# "use_low_ttl":"role:admin and system_scope:all".
# The designate API now supports system scope and default roles.

# Accept sudo from user to tenant.
# Intended scope(s): system
#"use_sudo": "role:admin and system_scope:all"

# DEPRECATED
# "use_sudo":"rule:admin" has been deprecated since W in favor of
# "use_sudo":"role:admin and system_scope:all".
# The designate API now supports system scope and default roles.

# Create pool.
# Intended scope(s): system
#"create_pool": "role:admin and system_scope:all"

# DEPRECATED
# "create_pool":"rule:admin" has been deprecated since W in favor of
# "create_pool":"role:admin and system_scope:all".
# The pool API now supports system scope and default roles.

# Find pool.
# GET /v2/pools
# Intended scope(s): system
#"find_pools": "role:reader and system_scope:all"

# DEPRECATED
# "find_pools":"rule:admin" has been deprecated since W in favor of
# "find_pools":"role:reader and system_scope:all".
# The pool API now supports system scope and default roles.

# Find pools.
```

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```
# GET /v2/pools
# Intended scope(s): system
#"find_pool": "role:reader and system_scope:all"

# DEPRECATED
# "find_pool":"rule:admin" has been deprecated since W in favor of
# "find_pool":"role:reader and system_scope:all".
# The pool API now supports system scope and default roles.

# Get pool.
# GET /v2/pools/{pool_id}
# Intended scope(s): system
#"get_pool": "role:reader and system_scope:all"

# DEPRECATED
# "get_pool":"rule:admin" has been deprecated since W in favor of
# "get_pool":"role:reader and system_scope:all".
# The pool API now supports system scope and default roles.

# Update pool.
# Intended scope(s): system
#"update_pool": "role:admin and system_scope:all"

# DEPRECATED
# "update_pool":"rule:admin" has been deprecated since W in favor of
# "update_pool":"role:admin and system_scope:all".
# The pool API now supports system scope and default roles.

# Delete pool.
# Intended scope(s): system
#"delete_pool": "role:admin and system_scope:all"

# DEPRECATED
# "delete_pool":"rule:admin" has been deprecated since W in favor of
# "delete_pool":"role:admin and system_scope:all".
# The pool API now supports system scope and default roles.

# load and set the pool to the one provided in the Zone attributes.
# POST /v2/zones
# Intended scope(s): system
#"zone_create_forced_pool": "role:admin and system_scope:all"

# DEPRECATED
# "zone_create_forced_pool":"rule:admin" has been deprecated since W
# in favor of "zone_create_forced_pool":"role:admin and
# system_scope:all".
# The pool API now supports system scope and default roles.

# View Current Project's Quotas.
```

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```
# GET /v2/quotas
# Intended scope(s): system, project
#"get_quotas": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s) or (True:%(all_tenants)s and role:reader)"

# DEPRECATED
# "get_quotas":"rule:admin_or_owner" has been deprecated since W in
# favor of "get_quotas":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s) or (True:%(all_tenants)s
# and role:reader)".
# The quota API now supports system scope and default roles.

# Set Quotas.
# PATCH /v2/quotas/{project_id}
# Intended scope(s): system
#"set_quota": "role:admin and system_scope:all"

# DEPRECATED
# "set_quota":"rule:admin" has been deprecated since W in favor of
# "set_quota":"role:admin and system_scope:all".
# The quota API now supports system scope and default roles.

# Reset Quotas.
# DELETE /v2/quotas/{project_id}
# Intended scope(s): system
#"reset_quotas": "role:admin and system_scope:all"

# DEPRECATED
# "reset_quotas":"rule:admin" has been deprecated since W in favor of
# "reset_quotas":"role:admin and system_scope:all".
# The quota API now supports system scope and default roles.

# Find records.
# GET /v2/reverse/floatingips/{region}:{floatingip_id}
# GET /v2/reverse/floatingips
# Intended scope(s): system, project
#"find_records": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "find_records":"rule:admin_or_owner" has been deprecated since W in
# favor of "find_records":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The records API now supports system scope and default roles.

# Intended scope(s): system, project
#"count_records": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"
```

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```

# DEPRECATED
# "count_records": "rule:admin_or_owner" has been deprecated since W in
# favor of "count_records": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The records API now supports system scope and default roles.

# Create Recordset
# POST /v2/zones/{zone_id}/recordsets
# Intended scope(s): system, project
#"create_recordset": "(role:member and project_id:%(project_id)s) and ('PRIMARY
↪:%(zone_type)s) or (role:admin and system_scope:all) and ('PRIMARY':%(zone_
↪type)s) or (role:admin and system_scope:all) and ('SECONDARY':%(zone_type)s)"

# DEPRECATED
# "create_recordset": "('PRIMARY':%(zone_type)s and
# rule:admin_or_owner) OR ('SECONDARY':%(zone_type)s AND
# is_admin:True)" has been deprecated since W in favor of
# "create_recordset": "(role:member and project_id:%(project_id)s) and
# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and
# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and
# ('SECONDARY':%(zone_type)s)".
# The record set API now supports system scope and default roles.

# Intended scope(s): system, project
#"get_recordsets": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

# DEPRECATED
# "get_recordsets": "rule:admin_or_owner" has been deprecated since W
# in favor of "get_recordsets": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The record set API now supports system scope and default roles.

# Get recordset
# GET /v2/zones/{zone_id}/recordsets/{recordset_id}
# Intended scope(s): system, project
#"get_recordset": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

# DEPRECATED
# "get_recordset": "rule:admin_or_owner" has been deprecated since W in
# favor of "get_recordset": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The record set API now supports system scope and default roles.

# List a Recordset in a Zone
# Intended scope(s): system, project
#"find_recordset": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

```

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```

# DEPRECATED
# "find_recordset": "rule:admin_or_owner" has been deprecated since W
# in favor of "find_recordset": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The record set API now supports system scope and default roles.

# List Recordsets in a Zone
# GET /v2/zones/{zone_id}/recordsets
# Intended scope(s): system, project
#"find_recordsets": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "find_recordsets": "rule:admin_or_owner" has been deprecated since W
# in favor of "find_recordsets": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The record set API now supports system scope and default roles.

# Update recordset
# PUT /v2/zones/{zone_id}/recordsets/{recordset_id}
# Intended scope(s): system, project
#"update_recordset": "(role:member and project_id:%(project_id)s) and ('PRIMARY
↳:%(zone_type)s) or (role:admin and system_scope:all) and ('PRIMARY':%(zone_
↳type)s) or (role:admin and system_scope:all) and ('SECONDARY':%(zone_type)s)"

# DEPRECATED
# "update_recordset": "('PRIMARY':%(zone_type)s and
# rule:admin_or_owner) OR ('SECONDARY':%(zone_type)s AND
# is_admin:True)" has been deprecated since W in favor of
# "update_recordset": "(role:member and project_id:%(project_id)s) and
# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and
# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and
# ('SECONDARY':%(zone_type)s)".
# The record set API now supports system scope and default roles.

# Delete RecordSet
# DELETE /v2/zones/{zone_id}/recordsets/{recordset_id}
# Intended scope(s): system, project
#"delete_recordset": "(role:member and project_id:%(project_id)s) and ('PRIMARY
↳:%(zone_type)s) or (role:admin and system_scope:all) and ('PRIMARY':%(zone_
↳type)s) or (role:admin and system_scope:all) and ('SECONDARY':%(zone_type)s)"

# DEPRECATED
# "delete_recordset": "('PRIMARY':%(zone_type)s and
# rule:admin_or_owner) OR ('SECONDARY':%(zone_type)s AND
# is_admin:True)" has been deprecated since W in favor of
# "delete_recordset": "(role:member and project_id:%(project_id)s) and
# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and

```

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```

# ('PRIMARY':%(zone_type)s) or (role:admin and system_scope:all) and
# ('SECONDARY':%(zone_type)s)".
# The record set API now supports system scope and default roles.

# Count recordsets
# Intended scope(s): system, project
#"count_recordset": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "count_recordset":"rule:admin_or_owner" has been deprecated since W
# in favor of "count_recordset":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The record set API now supports system scope and default roles.

# Find a single Service Status
# GET /v2/service_status/{service_id}
# Intended scope(s): system
#"find_service_status": "role:reader and system_scope:all"

# DEPRECATED
# "find_service_status":"rule:admin" has been deprecated since W in
# favor of "find_service_status":"role:reader and system_scope:all".
# The service status API now supports system scope and default roles.

# List service statuses.
# GET /v2/service_status
# Intended scope(s): system
#"find_service_statuses": "role:reader and system_scope:all"

# DEPRECATED
# "find_service_statuses":"rule:admin" has been deprecated since W in
# favor of "find_service_statuses":"role:reader and system_scope:all".
# The service status API now supports system scope and default roles.

# Intended scope(s): system
#"update_service_status": "role:admin and system_scope:all"

# DEPRECATED
# "update_service_status":"rule:admin" has been deprecated since W in
# favor of "update_service_status":"role:admin and system_scope:all".
# The service status API now supports system scope and default roles.

# Find all Tenants.
# Intended scope(s): system
#"find_tenants": "role:reader and system_scope:all"

# DEPRECATED
# "find_tenants":"rule:admin" has been deprecated since W in favor of

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```
# "find_tenants": "role:reader and system_scope:all".
# The tenant API now supports system scope and default roles.

# Get all Tenants.
# Intended scope(s): system
#"get_tenant": "role:reader and system_scope:all"

# DEPRECATED
# "get_tenant": "rule:admin" has been deprecated since W in favor of
# "get_tenant": "role:reader and system_scope:all".
# The tenant API now supports system scope and default roles.

# Count tenants
# Intended scope(s): system
#"count_tenants": "role:reader and system_scope:all"

# DEPRECATED
# "count_tenants": "rule:admin" has been deprecated since W in favor of
# "count_tenants": "role:reader and system_scope:all".
# The tenant API now supports system scope and default roles.

# Create Tld
# POST /v2/tlds
# Intended scope(s): system
#"create_tld": "role:admin and system_scope:all"

# DEPRECATED
# "create_tld": "rule:admin" has been deprecated since W in favor of
# "create_tld": "role:admin and system_scope:all".
# The top-level domain API now supports system scope and default
# roles.

# List Tlds
# GET /v2/tlds
# Intended scope(s): system
#"find_tlds": "role:reader and system_scope:all"

# DEPRECATED
# "find_tlds": "rule:admin" has been deprecated since W in favor of
# "find_tlds": "role:reader and system_scope:all".
# The top-level domain API now supports system scope and default
# roles.

# Show Tld
# GET /v2/tlds/{tld_id}
# Intended scope(s): system
#"get_tld": "role:reader and system_scope:all"

# DEPRECATED
```

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```
# "get_tld":"rule:admin" has been deprecated since W in favor of
# "get_tld":"role:reader and system_scope:all".
# The top-level domain API now supports system scope and default
# roles.

# Update Tld
# PATCH /v2/tlds/{tld_id}
# Intended scope(s): system
#"update_tld": "role:admin and system_scope:all"

# DEPRECATED
# "update_tld":"rule:admin" has been deprecated since W in favor of
# "update_tld":"role:admin and system_scope:all".
# The top-level domain API now supports system scope and default
# roles.

# Delete Tld
# DELETE /v2/tlds/{tld_id}
# Intended scope(s): system
#"delete_tld": "role:admin and system_scope:all"

# DEPRECATED
# "delete_tld":"rule:admin" has been deprecated since W in favor of
# "delete_tld":"role:admin and system_scope:all".
# The top-level domain API now supports system scope and default
# roles.

# Create Tsigkey
# POST /v2/tsigkeys
# Intended scope(s): system
#"create_tsigkey": "role:admin and system_scope:all"

# DEPRECATED
# "create_tsigkey":"rule:admin" has been deprecated since W in favor
# of "create_tsigkey":"role:admin and system_scope:all".
# The tsigkey API now supports system scope and default roles.

# List Tsigkeys
# GET /v2/tsigkeys
# Intended scope(s): system
#"find_tsigkeys": "role:reader and system_scope:all"

# DEPRECATED
# "find_tsigkeys":"rule:admin" has been deprecated since W in favor of
# "find_tsigkeys":"role:reader and system_scope:all".
# The tsigkey API now supports system scope and default roles.

# Show a Tsigkey
# GET /v2/tsigkeys/{tsigkey_id}
```

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```
# Intended scope(s): system
#"get_tsigkey": "role:reader and system_scope:all"

# DEPRECATED
# "get_tsigkey":"rule:admin" has been deprecated since W in favor of
# "get_tsigkey":"role:reader and system_scope:all".
# The tsigkey API now supports system scope and default roles.

# Update Tsigkey
# PATCH /v2/tsigkeys/{tsigkey_id}
# Intended scope(s): system
#"update_tsigkey": "role:admin and system_scope:all"

# DEPRECATED
# "update_tsigkey":"rule:admin" has been deprecated since W in favor
# of "update_tsigkey":"role:admin and system_scope:all".
# The tsigkey API now supports system scope and default roles.

# Delete a Tsigkey
# DELETE /v2/tsigkeys/{tsigkey_id}
# Intended scope(s): system
#"delete_tsigkey": "role:admin and system_scope:all"

# DEPRECATED
# "delete_tsigkey":"rule:admin" has been deprecated since W in favor
# of "delete_tsigkey":"role:admin and system_scope:all".
# The tsigkey API now supports system scope and default roles.

# Create Zone
# POST /v2/zones
# Intended scope(s): system, project
#"create_zone": "(role:admin and system_scope:all) or (role:member and_
↪project_id:%(project_id)s)"

# DEPRECATED
# "create_zone":"rule:admin_or_owner" has been deprecated since W in
# favor of "create_zone":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Intended scope(s): system, project
#"get_zones": "(role:reader and system_scope:all) or (role:reader and project_
↪id:%(project_id)s)"

# DEPRECATED
# "get_zones":"rule:admin_or_owner" has been deprecated since W in
# favor of "get_zones":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.
```

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```

# Get Zone
# GET /v2/zones/{zone_id}
# Intended scope(s): system, project
#"get_zone": "(role:reader and system_scope:all) or (role:reader and project_
↳id:%(project_id)s)"

# DEPRECATED
# "get_zone": "rule:admin_or_owner" has been deprecated since W in
# favor of "get_zone": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Intended scope(s): system, project
#"get_zone_servers": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "get_zone_servers": "rule:admin_or_owner" has been deprecated since W
# in favor of "get_zone_servers": "(role:reader and system_scope:all)
# or (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Get the Name Servers for a Zone
# GET /v2/zones/{zone_id}/nameservers
# Intended scope(s): system, project
#"get_zone_ns_records": "(role:reader and system_scope:all) or (role:reader
↳and project_id:%(project_id)s)"

# DEPRECATED
# "get_zone_ns_records": "rule:admin_or_owner" has been deprecated
# since W in favor of "get_zone_ns_records": "(role:reader and
# system_scope:all) or (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# List existing zones
# GET /v2/zones
# Intended scope(s): system, project
#"find_zones": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "find_zones": "rule:admin_or_owner" has been deprecated since W in
# favor of "find_zones": "(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Update Zone
# PATCH /v2/zones/{zone_id}

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```
# Intended scope(s): system, project
#"update_zone": "(role:admin and system_scope:all) or (role:member and
↪project_id:%(project_id)s)"

# DEPRECATED
# "update_zone":"rule:admin_or_owner" has been deprecated since W in
# favor of "update_zone":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Delete Zone
# DELETE /v2/zones/{zone_id}
# Intended scope(s): system, project
#"delete_zone": "(role:admin and system_scope:all) or (role:member and
↪project_id:%(project_id)s)"

# DEPRECATED
# "delete_zone":"rule:admin_or_owner" has been deprecated since W in
# favor of "delete_zone":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Manually Trigger an Update of a Secondary Zone
# POST /v2/zones/{zone_id}/tasks/xfr
# Intended scope(s): system, project
#"xfr_zone": "(role:admin and system_scope:all) or (role:member and project_
↪id:%(project_id)s)"

# DEPRECATED
# "xfr_zone":"rule:admin_or_owner" has been deprecated since W in
# favor of "xfr_zone":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Abandon Zone
# POST /v2/zones/{zone_id}/tasks/abandon
# Intended scope(s): system
#"abandon_zone": "role:admin and system_scope:all"

# DEPRECATED
# "abandon_zone":"rule:admin" has been deprecated since W in favor of
# "abandon_zone":"role:admin and system_scope:all".
# The zone API now supports system scope and default roles.

# Intended scope(s): system, project
#"count_zones": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

# DEPRECATED
```

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```

# "count_zones":"rule:admin_or_owner" has been deprecated since W in
# favor of "count_zones":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Intended scope(s): system, project
#"count_zones_pending_notify": "(role:reader and system_scope:all) or
↳(role:reader and project_id:%(project_id)s)"

# DEPRECATED
# "count_zones_pending_notify":"rule:admin_or_owner" has been
# deprecated since W in favor of
# "count_zones_pending_notify":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone API now supports system scope and default roles.

# Intended scope(s): system
#"purge_zones": "role:admin and system_scope:all"

# DEPRECATED
# "purge_zones":"rule:admin" has been deprecated since W in favor of
# "purge_zones":"role:admin and system_scope:all".
# The zone API now supports system scope and default roles.

# Retrieve a Zone Export from the Designate Datastore
# GET /v2/zones/tasks/exports/{zone_export_id}/export
# Intended scope(s): system, project
#"zone_export": "(role:admin and system_scope:all) or (role:member and
↳project_id:%(project_id)s)"

# DEPRECATED
# "zone_export":"rule:admin_or_owner" has been deprecated since W in
# favor of "zone_export":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# Create Zone Export
# POST /v2/zones/{zone_id}/tasks/export
# Intended scope(s): system, project
#"create_zone_export": "(role:admin and system_scope:all) or (role:member and
↳project_id:%(project_id)s)"

# DEPRECATED
# "create_zone_export":"rule:admin_or_owner" has been deprecated since
# W in favor of "create_zone_export":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# List Zone Exports

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```
# GET /v2/zones/tasks/exports
# Intended scope(s): system, project
#"find_zone_exports": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "find_zone_exports":"rule:admin_or_owner" has been deprecated since
# W in favor of "find_zone_exports":"(role:reader and
# system_scope:all) or (role:reader and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# Get Zone Exports
# GET /v2/zones/tasks/exports/{zone_export_id}
# Intended scope(s): system, project
#"get_zone_export": "(role:reader and system_scope:all) or (role:reader and
↳project_id:%(project_id)s)"

# DEPRECATED
# "get_zone_export":"rule:admin_or_owner" has been deprecated since W
# in favor of "get_zone_export":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# Update Zone Exports
# POST /v2/zones/{zone_id}/tasks/export
# Intended scope(s): system, project
#"update_zone_export": "(role:admin and system_scope:all) or (role:member and
↳project_id:%(project_id)s)"

# DEPRECATED
# "update_zone_export":"rule:admin_or_owner" has been deprecated since
# W in favor of "update_zone_export":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# Delete a zone export
# DELETE /v2/zones/tasks/exports/{zone_export_id}
# Intended scope(s): system, project
#"delete_zone_export": "(role:admin and system_scope:all) or (role:member and
↳project_id:%(project_id)s)"

# DEPRECATED
# "delete_zone_export":"rule:admin_or_owner" has been deprecated since
# W in favor of "delete_zone_export":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone export API now supports system scope and default roles.

# Create Zone Import
# POST /v2/zones/tasks/imports
```

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```

# Intended scope(s): system, project
#"create_zone_import": "(role:admin and system_scope:all) or (role:member and
↪project_id:%(project_id)s)"

# DEPRECATED
# "create_zone_import":"rule:admin_or_owner" has been deprecated since
# W in favor of "create_zone_import":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone import API now supports system scope and default roles.

# List all Zone Imports
# GET /v2/zones/tasks/imports
# Intended scope(s): system, project
#"find_zone_imports": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

# DEPRECATED
# "find_zone_imports":"rule:admin_or_owner" has been deprecated since
# W in favor of "find_zone_imports":"(role:reader and
# system_scope:all) or (role:reader and project_id:%(project_id)s)".
# The zone import API now supports system scope and default roles.

# Get Zone Imports
# GET /v2/zones/tasks/imports/{zone_import_id}
# Intended scope(s): system, project
#"get_zone_import": "(role:reader and system_scope:all) or (role:reader and
↪project_id:%(project_id)s)"

# DEPRECATED
# "get_zone_import":"rule:admin_or_owner" has been deprecated since W
# in favor of "get_zone_import":"(role:reader and system_scope:all) or
# (role:reader and project_id:%(project_id)s)".
# The zone import API now supports system scope and default roles.

# Update Zone Imports
# POST /v2/zones/tasks/imports
# Intended scope(s): system, project
#"update_zone_import": "(role:admin and system_scope:all) or (role:member and
↪project_id:%(project_id)s)"

# DEPRECATED
# "update_zone_import":"rule:admin_or_owner" has been deprecated since
# W in favor of "update_zone_import":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone import API now supports system scope and default roles.

# Delete a Zone Import
# DELETE /v2/zones/tasks/imports/{zone_import_id}
# Intended scope(s): system, project

```

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```
#"delete_zone_import": "(role:admin and system_scope:all) or (role:member and
↳project_id:%(project_id)s)"

# DEPRECATED
# "delete_zone_import":"rule:admin_or_owner" has been deprecated since
# W in favor of "delete_zone_import":"(role:admin and
# system_scope:all) or (role:member and project_id:%(project_id)s)".
# The zone import API now supports system scope and default roles.

# Create Zone Transfer Accept
# POST /v2/zones/tasks/transfer_accepts
# Intended scope(s): system, project
#"create_zone_transfer_accept": "(role:admin and system_scope:all) or
↳(role:member and project_id:%(project_id)s) or project_id:(target_project_
↳id)s or None:%(target_project_id)s"

# DEPRECATED
# "create_zone_transfer_accept":"rule:admin_or_owner OR
# project_id:(target_tenant_id)s OR None:%(target_tenant_id)s" has
# been deprecated since W in favor of
# "create_zone_transfer_accept":"(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s) or
# project_id:(target_project_id)s or None:%(target_project_id)s".
# The zone transfer accept API now supports system scope and default
# roles.

# Get Zone Transfer Accept
# GET /v2/zones/tasks/transfer_requests/{zone_transfer_accept_id}
# Intended scope(s): system, project
#"get_zone_transfer_accept": "(role:reader and system_scope:all) or
↳(role:reader and project_id:%(project_id)s)"

# DEPRECATED
# "get_zone_transfer_accept":"rule:admin_or_owner" has been deprecated
# since W in favor of "get_zone_transfer_accept":"(role:reader and
# system_scope:all) or (role:reader and project_id:%(project_id)s)".
# The zone transfer accept API now supports system scope and default
# roles.

# List Zone Transfer Accepts
# GET /v2/zones/tasks/transfer_accepts
# Intended scope(s): system
#"find_zone_transfer_accepts": "role:reader and system_scope:all"

# DEPRECATED
# "find_zone_transfer_accepts":"rule:admin" has been deprecated since
# W in favor of "find_zone_transfer_accepts":"role:reader and
# system_scope:all".
# The zone transfer accept API now supports system scope and default
```

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```

# roles.

# Create Zone Transfer Accept
# POST /v2/zones/{zone_id}/tasks/transfer_requests
# Intended scope(s): system, project
#"create_zone_transfer_request": "(role:admin and system_scope:all) or
↳(role:member and project_id:%(project_id)s)"

# DEPRECATED
# "create_zone_transfer_request": "rule:admin_or_owner" has been
# deprecated since W in favor of
# "create_zone_transfer_request": "(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone transfer request API now supports system scope and default
# roles.

# Show a Zone Transfer Request
# GET /v2/zones/tasks/transfer_requests/{zone_transfer_request_id}
# Intended scope(s): system, project
#"get_zone_transfer_request": "(role:admin and system_scope:all) or
↳(role:member and project_id:%(project_id)s)) or project_id:%(target_project_
↳id)s or None:%(target_project_id)s"

# DEPRECATED
# "get_zone_transfer_request": "rule:admin_or_owner OR
# project_id:%(target_tenant_id)s OR None:%(target_tenant_id)s" has
# been deprecated since W in favor of
# "get_zone_transfer_request": "(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)) or
# project_id:%(target_project_id)s or None:%(target_project_id)s".
# The zone transfer request API now supports system scope and default
# roles.

# Intended scope(s): system, project
#"get_zone_transfer_request_detailed": "(role:reader and system_scope:all) or
↳(role:reader and project_id:%(project_id)s)"

# DEPRECATED
# "create_zone_transfer_request": "rule:admin_or_owner" has been
# deprecated since W in favor of
# "get_zone_transfer_request_detailed": "(role:reader and
# system_scope:all) or (role:reader and project_id:%(project_id)s)".
# The zone transfer request API now supports system scope and default
# roles.
# WARNING: A rule name change has been identified.
#         This may be an artifact of new rules being
#         included which require legacy fallback
#         rules to ensure proper policy behavior.
#         Alternatively, this may just be an alias.

```

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# Please evaluate on a case by case basis
# keeping in mind the format for aliased
# rules is:
# "old_rule_name": "new_rule_name".
# "create_zone_transfer_request": "rule:get_zone_transfer_request_detailed"

# List Zone Transfer Requests
# GET /v2/zones/tasks/transfer_requests
#"find_zone_transfer_requests": "@"

# Update a Zone Transfer Request
# PATCH /v2/zones/tasks/transfer_requests/{zone_transfer_request_id}
# Intended scope(s): system, project
#"update_zone_transfer_request": "(role:admin and system_scope:all) or_
↪(role:member and project_id:%(project_id)s)"

# DEPRECATED
# "update_zone_transfer_request": "rule:admin_or_owner" has been
# deprecated since W in favor of
# "update_zone_transfer_request": "(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone transfer request API now supports system scope and default
# roles.

# Delete a Zone Transfer Request
# DELETE /v2/zones/tasks/transfer_requests/{zone_transfer_request_id}
# Intended scope(s): system, project
#"delete_zone_transfer_request": "(role:admin and system_scope:all) or_
↪(role:member and project_id:%(project_id)s)"

# DEPRECATED
# "delete_zone_transfer_request": "rule:admin_or_owner" has been
# deprecated since W in favor of
# "delete_zone_transfer_request": "(role:admin and system_scope:all) or
# (role:member and project_id:%(project_id)s)".
# The zone transfer request API now supports system scope and default
# roles.

```

**designate.conf**

Please refer to the online version of this documentation for a full config file example.

### 1.5.16 DNS Server Driver Support Matrix

This info should be maintained along with the list of current driver maintainers responsible for the Non Integrated backends. The upkeep of this list will fall on the PTL or his/her delegate.

Should a backends grade be in dispute, it falls on the current project PTL to make the final decision after listening to all sides concerns.

Grades

Grade	Description
Integrated	Tested on every commit by the OpenStack CI Infrastructure, and maintained by designate developers as a reference backend
Master Compatible	Tested on every commit by 3rd party testing, and has a person or group dedicated to maintaining compatibility on a regular basis
Release Compatible	Not necessarily tested on every commit, but has a maintainer committed to ensuring compatibility for each release
Untested	All other backends in the designate repository
Failing	Backends that were previously Compatible, but tests are now failing on a regular basis.
Known Broken	Backends that do not work, and have been broken with no sign of any fixes
Experimental	Backends that are under development, and may change at any time
Deprecated	Backends have been superseded, and will be removed in the future
End of Life	A backend that has reached its end of life and has been removed from the code.

Backends - Summary

Backend	Status	Type	In Tree	Notes
Bind9	Integrated	xfr	✓	None
Power DNS 4	Integrated	xfr	✓	None
Agent	Untested	xfr	✓	None
Akamai DNS v2	Untested	xfr	✓	None
Bind9 (Agent)	Untested	agent	✓	None
Denominator	Untested	agent	✓	None
Designate to Designate	Untested	xfr	✓	None
DynECT	Untested	xfr	✓	None
Infoblox (XFR)	Untested	xfr	✓	None
Microsoft DNS (Agent)	Untested	agent	✓	None
NS1 DNS	Untested	xfr	✓	None
NSD4	Untested	xfr	✓	None
Djbdns (Agent)	Experimental	agent	✓	None
Gdnisd (Agent)	Experimental	agent	✓	None
Knot2 (Agent)	Experimental	agent	✓	None
Akamai eDNS	End of Life	xfr	×	Akamai has turned off the eDNS API - see <a href="https://community.akamai.com/customers/s/article/Big-Changes-Coming-to-Fast-DNS-in-2018">https://community.akamai.com/customers/s/article/Big-Changes-Coming-to-Fast-DNS-in-2018</a>

Backend Details

Bind9

<b>Grade</b>	Integrated
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

## Power DNS 4

<b>Grade</b>	Integrated
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

## Designate to Designate

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

## DynECT

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

## Akamai eDNS

<b>Grade</b>	End of Life
<b>In Tree</b>	×
<b>Main-tainers</b>	Designate Team
<b>Reposi-tory</b>	Designate Repository
<b>Notes</b>	Akamai has turned off the eDNS API - see <a href="https://community.akamai.com/customers/s/article/Big-Changes-Coming-to-Fast-DNS-in-2018">https://community.akamai.com/customers/s/article/Big-Changes-Coming-to-Fast-DNS-in-2018</a>

## Akamai DNS v2

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Infoblox (XFR)

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Infoblox OpenStack Team <openstack-maintainer@infoblox.com>
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

NSD4

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

NS1 DNS

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Agent

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Bind9 (Agent)

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Denominator

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Knot2 (Agent)

<b>Grade</b>	Experimental
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Djbdns (Agent)

<b>Grade</b>	Experimental
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Gdnsd (Agent)

<b>Grade</b>	Experimental
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

Microsoft DNS (Agent)

<b>Grade</b>	Untested
<b>In Tree</b>	✓
<b>Maintainers</b>	Designate Team
<b>Repository</b>	Designate Repository
<b>Notes</b>	None

## 1.6 Designate Configuration Guide

Designate configuration is needed for getting it work correctly either with real OpenStack environment or without OpenStack environment.

**NOTE:** The most of the following operations should performed in designate directory.

1. You can generate full sample *designate.conf* (if it does not already exist):

```
$ oslo-config-generator --config-file etc/designate/designate-config-  
↪generator.conf --output-file /etc/designate/designate.conf
```

2. You can generate full sample of default policies *policy.yaml* (if it does not already exist):

```
$ oslopolicy-sample-generator --config-file etc/designate/designate-  
↪policy-generator.conf --output-file /etc/designate/policy.yaml
```

For more information on Designate configuration see the following sections

## 1.7 Command-Line Interface Reference

Users can interact with designate using the Openstack client via the commands provided by the [designate plugin](#)

Information on the commands available through Designates Command Line Interface (CLI) can be found in this section.

### 1.7.1 Designate Manage CLI

This chapter documents **designate-manage**

For help on a specific **designate** command, enter:

```
$ designate-manage COMMAND --help
```

#### **designate-manage**

#### **designate-manage usage**

```
usage: designate-manage [-h] [--config-dir DIR] [--config-file PATH] [--debug]  
↪FORMAT] [--log-config-append PATH] [--log-date-format DATE_  
↪noverbose] [--log-dir LOG_DIR] [--log-file PATH] [--nodebug]  
↪syslog] [--nouse-syslog] [--nouse-syslog-rfc-format] [--  
↪syslog] [--nowatch-log-file] [--syslog-log-facility SYSLOG_LOG_FACILITY] [--use-  
↪syslog-rfc-format] [--verbose] [--version] [--watch-log-file]
```



## designate optional arguments

- config-dir DIR** Path to a config directory to pull \*.conf files from. This file set is sorted, so as to provide a predictable parse order if individual options are over-ridden. The set is parsed after the file(s) specified via previous config-file, arguments hence over-ridden options in the directory take precedence.
- config-file PATH** Path to a config file to use. Multiple config files can be specified, with values in later files taking precedence. Defaults to None.
- debug, -d** If set to true, the logging level will be set to DEBUG instead of the default INFO level.
- log-config-append PATH, --log\_config PATH** The name of a logging configuration file. This file is appended to any existing logging configuration files. For details about logging configuration files, see the Python logging module documentation. Note that when logging configuration files are used then all logging configuration is set in the configuration file and other logging configuration options are ignored (for example, logging\_context\_format\_string).
- log-date-format DATE\_FORMAT** Defines the format string for %(asctime)s in log records. Default: None . This option is ignored if log\_config\_append is set.
- log-dir LOG\_DIR, --logdir LOG\_DIR** (Optional) The base directory used for relative log\_file paths. This option is ignored if log\_config\_append is set.
- log-file PATH, --logfile PATH** (Optional) Name of log file to send logging output to. If no default is set, logging will go to stderr as defined by use\_stderr. This option is ignored if log\_config\_append is set.
- nodebug** The inverse of debug
- nouse-syslog** The inverse of use-syslog
- nouse-syslog-rfc-format** The inverse of use-syslog-rfc-format
- noverbose** The inverse of verbose
- nowatch-log-file** The inverse of watch-log-file
- syslog-log-facility SYSLOG\_LOG\_FACILITY** Syslog facility to receive log lines. This option is ignored if log\_config\_append is set.
- use-syslog** Use syslog for logging. Existing syslog format is DEPRECATED and will be changed later to honor RFC5424. This option is ignored if log\_config\_append is set.
- use-syslog-rfc-format** Enables or disables syslog rfc5424 format for logging. If enabled, prefixes the MSG part of the syslog message with APP-NAME (RFC5424). This option is ignored if log\_config\_append is set.
- verbose, -v** If set to false, the logging level will be set to WARNING instead of the default INFO level.
- watch-log-file** Uses logging handler designed to watch file system. When log file is moved or removed this handler will open a new log file with specified path instantaneously. It makes sense only if log\_file option is specified and Linux platform is used. This option is ignored if log\_config\_append is set.

## designate-manage pool

### designate-manage pool generate\_file

```
usage: designate-manage pool generate_file [-h] [--file FILE]
```

Export a YAML copy of the current running pool config

#### Optional arguments:

**-h, --help** show this help message and exit

**--file FILE** The path to the file the yaml output should be written to (Defaults to /etc/designate/pools.yaml)

### designate-manage pool update

```
usage: designate-manage pool update [-h] [--file FILE] [--delete]
                                     [--dry-run]
```

Update the running pool config from a YAML file

#### Optional arguments:

**-h, --help** show this help message and exit

**--file FILE** The path to the file that should be used to update the pools config (Defaults to /etc/designate/pools.yaml)

**--delete** Any Pools not listed in the config file will be deleted. .. warning:: This will delete any zones left in this pool

**--dry-run** This will simulate what will happen when you run this command

## designate-manage database

### designate-manage database sync

```
usage: designate-manage database sync [-h] [--revision REVISION]
```

Update the designate database schema

#### Optional arguments:

**-h, --help** show this help message and exit

**--revision REVISION** The version that the designate database should be synced to. (Defaults to latest version)

## designate-manage database version

```
usage: designate-manage database version [-h]
```

Show what version of the database schema is currently in place

### Optional arguments:

**-h, --help** show this help message and exit

## 1.7.2 Designate Status CLI

This chapter documents **designate-status**.

For help on a specific **designate-status** command, enter:

```
$ designate-status COMMAND --help
```

## designate-status

**designate-status** is a tool that provides routines for checking the status of a Designate deployment.

The standard pattern for executing a **designate-status** command is:

```
designate-status <category> <command> [<args>]
```

Run without arguments to see a list of available command categories:

```
designate-status
```

Categories are:

- upgrade

Detailed descriptions are below.

You can also run with a category argument such as **upgrade** to see a list of all commands in that category:

```
designate-status upgrade
```

The following sections describe the available categories and arguments for **designate-status**.

### designate-status upgrade

#### designate-status upgrade check

**designate-status upgrade check** Performs a release-specific readiness check before running db sync for the new version. This command expects to have complete configuration and access to the database.

#### Return Codes

Return code	Description
0	All upgrade readiness checks passed successfully and there is nothing to do.
1	At least one check encountered an issue and requires further investigation. This is considered a warning but the upgrade may be OK.
2	There was an upgrade status check failure that needs to be investigated. This should be considered something that stops an upgrade.
255	An unexpected error occurred.

### History of Checks

#### 8.0.0 (Stein)

- Checks that duplicate entries do not exist in the `service_statuses` table.

## 1.8 Designate Reference

### 1.8.1 Designate Glossary

The following is a glossary of terms that may be used throughout the Designate documentation and code.

**Fully Qualified Domain Name** A domain name that includes all levels of the domain hierarchy, including the root domain (represented by a period at the end). Fully Qualified Domain Name is sometimes abbreviated as FQDN. Example: `www.example.com`.

**Record** The data (also known as the RDATA in RFC1034) part of a recordset. Recordsets may have one or more records. An example of a record for a recordset of type **A** would be an IP address, such as `192.0.2.1`.

**Recordset** A recordset represents one or more DNS *records* that share the same *Name* and *Type*. For example, a recordset *named* `www.example.com.`, with a *Type* of **A**, may contain two records; `192.0.2.1` and `192.0.2.2`.

**Zone** A zone represents a namespace in DNS, for example the zone `example.com.` may contain a *recordset* for `www`.

For information on the Designate API, see the [API Reference](#).

This documentation is generated by the Sphinx toolkit and lives in the [source tree](#).



`_concatenate_zone_datafiles()` (*designate.backend.agent\_backend.impl\_djbdns.DjbdnsBackend* static method), 56

`_execute_knotc()` (*designate.backend.agent\_backend.impl\_knot2.Knot2Backend* method), 53

`_generate_zone_filename()` (*designate.backend.agent\_backend.impl\_gdnsd.GdnsdBackend* method), 55

`_lock_name` (*designate.backend.agent\_backend.impl\_knot2.Knot2Backend* attribute), 54

`_modify_zone()` (*designate.backend.agent\_backend.impl\_knot2.Knot2Backend* method), 54

`_perform_axfr_from_minidns()` (*designate.backend.agent\_backend.impl\_djbdns.DjbdnsBackend* method), 56

`_rebuild_data_cdb()` (*designate.backend.agent\_backend.impl\_djbdns.DjbdnsBackend* method), 56

`_start_minidns_to_knot_axfr()` (*designate.backend.agent\_backend.impl\_knot2.Knot2Backend* method), 54

`_write_zone_file()` (*designate.backend.agent\_backend.impl\_gdnsd.GdnsdBackend* method), 55

## A

`A` (class in *designate.objects.rrddata\_a*), 82

`AAAA` (class in *designate.objects.rrddata\_aaaa*), 84

`AAAAList` (class in *designate.objects.rrddata\_aaaa*), 86

`action` (*designate.objects.record.Record* property), 74

`action` (*designate.objects.recordset.RecordSet* property), 76

`action` (*designate.objects.rrddata\_a.A* property), 82

`action` (*designate.objects.rrddata\_aaaa.AAAA* property), 84

`action` (*designate.objects.rrddata\_cname.CNAME* property), 87

`action` (*designate.objects.rrddata\_mx.MX* property), 89

`action` (*designate.objects.rrddata\_naptr.NAPTR* property), 114

`action` (*designate.objects.rrddata\_ns.NS* property), 92

`action` (*designate.objects.rrddata\_ptr.PTR* property), 95

`action` (*designate.objects.rrddata\_soa.SOA* property), 98

`action` (*designate.objects.rrddata\_spf.SPF* property), 102

`action` (*designate.objects.rrddata\_srv.SRV* property), 104

`action` (*designate.objects.rrddata\_sshfp.SSHFP* property), 110

`action` (*designate.objects.rrddata\_txt.TXT* property), 108

`action` (*designate.objects.zone.Zone* property), 69

`address` (*designate.objects.rrddata\_a.A* property), 84

`address` (*designate.objects.rrddata\_aaaa.AAAA* property), 84

`aliases_backend` (*designate.objects.rrddata\_sshfp.SSHFP* property), 110

`aliases_backend` (*designate.objects.tsigkey.TsigKey* property), 80

`AList` (class in *designate.objects.rrddata\_a*), 84

`aliases_backend` (*designate.objects.pool.Pool* property), 72

`APIv2ValidationErrorMiddleware` (class in *designate.api.middleware*), 46

`append()` (*designate.objects.base.ListObjectMixin* method), 67

`architecture` brief, 34

`AttributeFilter` (class in *designate.scheduler.filters.attribute\_filter*), 203

`AttributeListObjectMixin` (class in *designate.objects.base*), 65

`attributes` (*designate.objects.pool.Pool* property), 72

`attributes` (*designate.objects.zone.Zone* property), 69

`auth_pipeline_factory()` (in module *designate.api.middleware*), 47

## B

`Backend` (class in *designate.backend.base*), 48

`bind9` install, 133

`Bind9Backend` (class in *designate.backend.impl\_bind9*), 48

`Blacklist` (class in *designate.objects.blacklist*), 68

BlacklistList	(class in designate.objects.blacklist), 69	61
brief	architecture, 34 introduction, 3	
<b>C</b>		
central	install, 135	
CentralAPI	(class in designate.central.rpcapi), 58	count_zones() (designate.storage.base.Storage method), 118
client	(designate.backend.impl_designate.DesignateBackend property), 49	create_blacklist() (designate.central.rpcapi.CentralAPI method), 58
CNAME	(class in designate.objects.rdata_cname), 87	create_blacklist() (designate.central.service.Service method), 61
cname	(designate.objects.rdata_cname.CNAME property), 87	create_blacklist() (designate.storage.base.Storage method), 58
CNAMEList	(class in designate.objects.rdata_cname), 89	create_pool() (designate.central.rpcapi.CentralAPI method), 58
configure	designate, 344	create_pool() (designate.central.service.Service method), 61
ContextMiddleware	(class in designate.api.middleware), 46	create_pool() (designate.storage.base.Storage method), 119
count()	(designate.objects.base.ListObjectMixin method), 67	create_pool_attribute() (designate.storage.base.Storage method), 119
count_records()	(designate.central.service.Service method), 61	create_quota() (designate.storage.base.Storage method), 119
count_records()	(designate.storage.base.Storage method), 118	create_record() (designate.storage.base.Storage method), 119
count_recordsets()	(designate.central.service.Service method), 61	create_recordset() (designate.central.rpcapi.CentralAPI method), 58
count_recordsets()	(designate.storage.base.Storage method), 118	create_recordset() (designate.central.service.Service method), 61
count_report()	(designate.central.rpcapi.CentralAPI method), 58	create_recordset() (designate.storage.base.Storage method), 119
count_report()	(designate.central.service.Service method), 61	create_tld() (designate.central.rpcapi.CentralAPI method), 58
count_tenants()	(designate.central.service.Service method), 61	create_tld() (designate.central.service.Service method), 61
count_tenants()	(designate.storage.base.Storage method), 118	create_tld() (designate.storage.base.Storage method), 120
count_zones()	(designate.central.service.Service method), 61	create_tsigkey() (designate.central.rpcapi.CentralAPI method), 58
		create_tsigkey() (designate.central.service.Service method), 61
		create_tsigkey() (designate-

	<i>nate.storage.base.Storage</i>	<i>method</i> ),	61	
	120			<i>create_zone_export()</i> ( <i>designate.storage.base.Storage</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.agent_backend.impl_djbdns.DjbdnsBackend</i> <i>method</i> ),	56	
<i>create_zone()</i>		( <i>designate.backend.agent_backend.impl_gdnsd.GdnsdBackend</i> <i>method</i> ),	55	<i>create_zone_import()</i> ( <i>designate.central.rpcapi.CentralAPI</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.agent_backend.impl_knot2.Knot2Backend</i> <i>method</i> ),	54	<i>create_zone_import()</i> ( <i>designate.central.service.Service</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.agent_backend.impl_msdns.MSDNSBackend</i> <i>method</i> ),	57	<i>create_zone_import()</i> ( <i>designate.central.service.Service</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.base.Backend</i> <i>method</i> ),	48	<i>create_zone_transfer_accept()</i> ( <i>designate.central.rpcapi.CentralAPI</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_bind9.Bind9Backend</i> <i>method</i> ),	48	<i>create_zone_transfer_accept()</i> ( <i>designate.central.service.Service</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_designate.DesignateBackend</i> <i>method</i> ),	49	<i>create_zone_transfer_request()</i> ( <i>designate.central.rpcapi.CentralAPI</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_dynect.DynECTBackend</i> <i>method</i> ),	50	<i>create_zone_transfer_request()</i> ( <i>designate.central.service.Service</i> <i>method</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_fake.FakeBackend</i> <i>method</i> ),	52	<i>created_at</i> ( <i>designate.objects.blacklist.Blacklist</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_infoblox.InfobloxBackend</i> <i>method</i> ),	51	<i>created_at</i> ( <i>designate.objects.pool.Pool</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_nsd4.NSD4Backend</i> <i>method</i> ),	52	<i>created_at</i> ( <i>designate.objects.quota.Quota</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.backend.impl_pdns4.PDNS4Backend</i> <i>method</i> ),	53	<i>created_at</i> ( <i>designate.objects.record.Record</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.central.rpcapi.CentralAPI</i> <i>method</i> ),	58	<i>created_at</i> ( <i>designate.objects.recordset.RecordSet</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_a.A</i> <i>property</i> ),
<i>create_zone()</i>		( <i>designate.storage.base.Storage</i> <i>method</i> ),	120	<i>created_at</i> ( <i>designate.objects.rrddata_aaaa.AAAA</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.rpcapi.CentralAPI</i> <i>method</i> ),	58	<i>created_at</i> ( <i>designate.objects.rrddata_cname.CNAME</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_mx.MX</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_mx.MX</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_naptr.NAPTR</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_naptr.NAPTR</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_ns.NS</i> <i>property</i> ),
<i>create_zone_export()</i>		( <i>designate.central.service.Service</i> <i>method</i> ),	61	<i>created_at</i> ( <i>designate.objects.rrddata_ns.NS</i> <i>property</i> ),



- created\_at (*designate.objects.rrdata\_ptr.PTR* property), 96
  - created\_at (*designate.objects.rrdata\_soa.SOA* property), 98
  - created\_at (*designate.objects.rrdata\_spf.SPF* property), 102
  - created\_at (*designate.objects.rrdata\_srv.SRV* property), 104
  - created\_at (*designate.objects.rrdata\_sshfp.SSHFP* property), 111
  - created\_at (*designate.objects.rrdata\_txt.TXT* property), 108
  - created\_at (*designate.objects.server.Server* property), 78
  - created\_at (*designate.objects.tld.Tld* property), 79
  - created\_at (*designate.objects.tsigkey.TsigKey* property), 80
  - created\_at (*designate.objects.zone.Zone* property), 69
- D**
- data (*designate.objects.record.Record* property), 74
  - data (*designate.objects.rrdata\_a.A* property), 82
  - data (*designate.objects.rrdata\_aaaa.AAAA* property), 85
  - data (*designate.objects.rrdata\_cname.CNAME* property), 87
  - data (*designate.objects.rrdata\_mx.MX* property), 89
  - data (*designate.objects.rrdata\_naptr.NAPTR* property), 114
  - data (*designate.objects.rrdata\_ns.NS* property), 93
  - data (*designate.objects.rrdata\_ptr.PTR* property), 96
  - data (*designate.objects.rrdata\_soa.SOA* property), 99
  - data (*designate.objects.rrdata\_spf.SPF* property), 102
  - data (*designate.objects.rrdata\_srv.SRV* property), 105
  - data (*designate.objects.rrdata\_sshfp.SSHFP* property), 111
  - data (*designate.objects.rrdata\_txt.TXT* property), 108
  - database
    - install, 135
  - DefaultPoolFilter (class in *designate.scheduler.filters.default\_pool\_filter*), 205
  - delayed\_notify (*designate.objects.zone.Zone* property), 69
  - delete() (*designate.backend.impl\_dynect.DynClient* method), 49
  - delete\_blacklist() (*designate.central.rpcapi.CentralAPI* method), 58
  - delete\_blacklist() (*designate.central.service.Service* method), 61
  - delete\_blacklist() (*designate.storage.base.Storage* method), 120
  - delete\_pool() (*designate.central.rpcapi.CentralAPI* method), 58
  - delete\_pool() (*designate.central.service.Service* method), 61
  - delete\_pool() (*designate.storage.base.Storage* method), 120
  - delete\_pool\_attribute() (*designate.storage.base.Storage* method), 120
  - delete\_quota() (*designate.storage.base.Storage* method), 121
  - delete\_record() (*designate.storage.base.Storage* method), 121
  - delete\_recordset() (*designate.central.rpcapi.CentralAPI* method), 58
  - delete\_recordset() (*designate.central.service.Service* method), 61
  - delete\_recordset() (*designate.storage.base.Storage* method), 121
  - delete\_tld() (*designate.central.rpcapi.CentralAPI* method), 58
  - delete\_tld() (*designate.central.service.Service* method), 62
  - delete\_tld() (*designate.storage.base.Storage* method), 121
  - delete\_tsigkey() (*designate.central.rpcapi.CentralAPI* method), 59

<code>delete_tsigkey()</code>	( <i>designate.central.service.Service</i> method), 62	( <i>designate.central.rpcapi.CentralAPI</i> method), 59
<code>delete_tsigkey()</code>	( <i>designate.storage.base.Storage</i> method), 121	<code>delete_zone_export()</code> ( <i>designate.central.service.Service</i> method), 62
<code>delete_zone()</code>	( <i>designate.backend.agent_backend.impl_djbdns.DjbdnsBackend</i> method), 57	<code>delete_zone_export()</code> ( <i>designate.storage.base.Storage</i> method), 121
<code>delete_zone()</code>	( <i>designate.backend.agent_backend.impl_gdnsd.GdnsdBackend</i> method), 55	<code>delete_zone_import()</code> ( <i>designate.central.rpcapi.CentralAPI</i> method), 59
<code>delete_zone()</code>	( <i>designate.backend.agent_backend.impl_knot2.Knot2Backend</i> method), 54	<code>delete_zone_import()</code> ( <i>designate.central.service.Service</i> method), 62
<code>delete_zone()</code>	( <i>designate.backend.agent_backend.impl_msdns.MSDNSBackend</i> method), 57	<code>delete_zone_import()</code> ( <i>designate.storage.base.Storage</i> method), 121
<code>delete_zone()</code>	( <i>designate.backend.base.Backend</i> method), 48	<code>delete_zone_transfer_request()</code> ( <i>designate.central.rpcapi.CentralAPI</i> method), 59
<code>delete_zone()</code>	( <i>designate.backend.impl_bind9.Bind9Backend</i> method), 48	<code>delete_zone_transfer_request()</code> ( <i>designate.central.service.Service</i> method), 62
<code>delete_zone()</code>	( <i>designate.backend.impl_designate.DesignateBackend</i> method), 49	<code>deleted</code> ( <i>designate.objects.zone.Zone</i> property), 69
<code>delete_zone()</code>	( <i>designate.backend.impl_dynect.DynECTBackend</i> method), 51	<code>deleted_at</code> ( <i>designate.objects.zone.Zone</i> property), 69
<code>delete_zone()</code>	( <i>designate.backend.impl_fake.FakeBackend</i> method), 52	<code>description</code> ( <i>designate.objects.blacklist.Blacklist</i> property), 68
<code>delete_zone()</code>	( <i>designate.backend.impl_infoblox.InfobloxBackend</i> method), 51	<code>description</code> ( <i>designate.objects.pool.Pool</i> property), 72
<code>delete_zone()</code>	( <i>designate.backend.impl_nsd4.NSD4Backend</i> method), 52	<code>description</code> ( <i>designate.objects.record.Record</i> property), 74
<code>delete_zone()</code>	( <i>designate.backend.impl_pdns4.PDNS4Backend</i> method), 53	<code>description</code> ( <i>designate.objects.recordset.RecordSet</i> property), 76
<code>delete_zone()</code>	( <i>designate.central.rpcapi.CentralAPI</i> method), 59	<code>description</code> ( <i>designate.objects.rrdata_a.A</i> property), 82
<code>delete_zone()</code>	( <i>designate.central.service.Service</i> method), 62	<code>description</code> ( <i>designate.objects.rrdata_aaaa.AAAA</i> property), 85
<code>delete_zone()</code>	( <i>designate.storage.base.Storage</i> method), 121	<code>description</code> ( <i>designate.objects.rrdata_cname.CNAME</i> property), 87
<code>delete_zone_export()</code>	( <i>designate.central.service.Service</i> method), 62	<code>description</code> ( <i>designate.objects.rrdata_mx.MX</i> property), 90
		<code>description</code> ( <i>designate.objects.rrdata_naptr.NAPTR</i> property), 114
		<code>description</code> ( <i>designate.objects.rrdata_ns.NS</i> property), 114

- property*), 93
- description (*designate.objects.rrdata\_ptr.PTR property*), 96
- description (*designate.objects.rrdata\_soa.SOA property*), 99
- description (*designate.objects.rrdata\_spf.SPF property*), 102
- description (*designate.objects.rrdata\_srv.SRV property*), 105
- description (*designate.objects.rrdata\_sshfp.SSHFP property*), 111
- description (*designate.objects.rrdata\_txt.TXT property*), 108
- description (*designate.objects.tld.Tld property*), 79
- description (*designate.objects.zone.Zone property*), 69
- designate
  - configure, 344
  - install, 131
- designate.api.middleware
  - module, 46
- designate.api.service
  - module, 47
- designate.backend.agent\_backend.impl\_djbdns
  - module, 56
- designate.backend.agent\_backend.impl\_gdnssd
  - module, 54
- designate.backend.agent\_backend.impl\_knot2
  - module, 53
- designate.backend.agent\_backend.impl\_msdns
  - module, 57
- designate.backend.base
  - module, 48
- designate.backend.impl\_bind9
  - module, 48
- designate.backend.impl\_designate
  - module, 49
- designate.backend.impl\_dynect
  - module, 49
- designate.backend.impl\_fake
  - module, 52
- designate.backend.impl\_infoblox
  - module, 51
- designate.backend.impl\_nsd4
  - module, 52
- designate.backend.impl\_pdns4
  - module, 53
- designate.central.rpcapi
  - module, 58
- designate.central.service
  - module, 61
- designate.mdns.handler
  - module, 65
- designate.mdns.service
  - module, 65
- designate.objects.base
  - module, 65
- designate.objects.blacklist
  - module, 68
- designate.objects.pool
  - module, 72
- designate.objects.quota
  - module, 73
- designate.objects.record
  - module, 74
- designate.objects.recordset
  - module, 76
- designate.objects.rrdata\_a
  - module, 82
- designate.objects.rrdata\_aaaa
  - module, 84
- designate.objects.rrdata\_caa
  - module, 117
- designate.objects.rrdata\_cert
  - module, 117
- designate.objects.rrdata\_cname
  - module, 87
- designate.objects.rrdata\_mx
  - module, 89
- designate.objects.rrdata\_naptr
  - module, 114
- designate.objects.rrdata\_ns
  - module, 92
- designate.objects.rrdata\_ptr
  - module, 95
- designate.objects.rrdata\_soa
  - module, 98
- designate.objects.rrdata\_spf
  - module, 102
- designate.objects.rrdata\_srv
  - module, 104
- designate.objects.rrdata\_sshfp
  - module, 110
- designate.objects.rrdata\_txt
  - module, 108
- designate.objects.server
  - module, 78
- designate.objects.tenant
  - module, 79
- designate.objects.tld

- module, 79
  - designate.objects.tsigkey
    - module, 80
  - designate.objects.zone
    - module, 69
  - designate.quota.base
    - module, 117
  - designate.quota.impl\_storage
    - module, 117
  - designate.sink.service
    - module, 118
  - designate.storage.base
    - module, 118
  - DesignateBackend (class in *designate.backend.impl\_designate*), 49
  - DesignateObject (class in *designate.objects.base*), 65
  - DesignateRegistry (class in *designate.objects.base*), 67
  - DjbdnsBackend (class in *designate.backend.agent\_backend.impl\_djbdns*), 56
  - dns\_application (*designate.mdns.service.Service* property), 65
  - DynClient (class in *designate.backend.impl\_dynect*), 49
  - DynClientAuthError, 50
  - DynClientError, 50
  - DynClientOperationBlocked, 50
  - DynECTBackend (class in *designate.backend.impl\_dynect*), 50
  - DynTimeoutError, 51
- E**
- email (*designate.objects.zone.Zone* property), 69
  - error\_code (*designate.backend.impl\_dynect.DynTimeoutError* attribute), 51
  - error\_type (*designate.backend.impl\_dynect.DynClientOperationBlocked* attribute), 50
  - error\_type (*designate.backend.impl\_dynect.DynTimeoutError* attribute), 51
  - exchange (*designate.objects.rrdata\_mx.MX* property), 90
  - expire (*designate.objects.rrdata\_soa.SOA* property), 99
  - expire (*designate.objects.zone.Zone* property), 69
  - export\_zone() (*designate.central.rpcapi.CentralAPI* method), 59
  - export\_zone() (*designate.central.service.Service* method), 62
  - extend() (*designate.objects.base.ListObjectMixin* method), 67
- F**
- FakeBackend (class in *designate.backend.impl\_fake*), 52
  - FallbackFilter (class in *designate.scheduler.filters.fallback\_filter*), 205
  - FaultWrapperMiddleware (class in *designate.api.middleware*), 46
  - fields (*designate.objects.base.PagedListObjectMixin* attribute), 67
  - fields (*designate.objects.base.PersistentObjectMixin* attribute), 67
  - fields (*designate.objects.base.SoftDeleteObjectMixin* attribute), 68
  - fields (*designate.objects.blacklist.Blacklist* attribute), 68
  - fields (*designate.objects.blacklist.BlacklistList* attribute), 69
  - fields (*designate.objects.pool.Pool* attribute), 72
  - fields (*designate.objects.pool.PoolList* attribute), 73
  - fields (*designate.objects.quota.Quota* attribute), 73
  - fields (*designate.objects.quota.QuotaList* attribute), 74
  - fields (*designate.objects.record.Record* attribute), 74
  - fields (*designate.objects.record.RecordList* attribute), 76
  - fields (*designate.objects.recordset.RecordSet* attribute), 76
  - fields (*designate.objects.recordset.RecordSetList* attribute), 78
  - fields (*designate.objects.rrdata\_a.A* attribute), 82
  - fields (*designate.objects.rrdata\_a.AList* attribute), 84
  - fields (*designate.objects.rrdata\_aaaa.AAAA* attribute), 85
  - fields (*designate.objects.rrdata\_aaaa.AAAAList* attribute), 86

- fields (*designate.objects.rrdata\_cname.CNAME* attribute), 87
- fields (*designate.objects.rrdata\_cname.CNAMEList* attribute), 89
- fields (*designate.objects.rrdata\_mx.MX* attribute), 90
- fields (*designate.objects.rrdata\_mx.MXList* attribute), 92
- fields (*designate.objects.rrdata\_naptr.NAPTR* attribute), 114
- fields (*designate.objects.rrdata\_naptr.NAPTRList* attribute), 116
- fields (*designate.objects.rrdata\_ns.NS* attribute), 93
- fields (*designate.objects.rrdata\_ns.NSList* attribute), 95
- fields (*designate.objects.rrdata\_ptr.PTR* attribute), 96
- fields (*designate.objects.rrdata\_ptr.PTRList* attribute), 98
- fields (*designate.objects.rrdata\_soa.SOA* attribute), 99
- fields (*designate.objects.rrdata\_soa.SOAList* attribute), 101
- fields (*designate.objects.rrdata\_spf.SPF* attribute), 102
- fields (*designate.objects.rrdata\_spf.SPFList* attribute), 104
- fields (*designate.objects.rrdata\_srv.SRV* attribute), 105
- fields (*designate.objects.rrdata\_srv.SRVList* attribute), 107
- fields (*designate.objects.rrdata\_sshfp.SSHFP* attribute), 111
- fields (*designate.objects.rrdata\_sshfp.SSHFPList* attribute), 113
- fields (*designate.objects.rrdata\_txt.TXT* attribute), 108
- fields (*designate.objects.rrdata\_txt.TXTList* attribute), 110
- fields (*designate.objects.server.Server* attribute), 78
- fields (*designate.objects.server.ServerList* attribute), 78
- fields (*designate.objects.tenant.Tenant* attribute), 79
- fields (*designate.objects.tenant.TenantList* attribute), 79
- fields (*designate.objects.tld.Tld* attribute), 79
- fields (*designate.objects.tld.TldList* attribute), 80
- fields (*designate.objects.tsigkey.TsigKey* attribute), 80
- fields (*designate.objects.tsigkey.TsigKeyList* attribute), 81
- fields (*designate.objects.zone.Zone* attribute), 69
- fields (*designate.objects.zone.ZoneList* attribute), 71
- Filter (class in *designate.scheduler.filters.base*), 203
- filter() (*designate.scheduler.filters.base.Filter* method), 203
- filter() (*designate.scheduler.filters.pool\_id\_attribute\_filter.PoolIDAttributeFilter* method), 204
- filter\_exceptions() (in module *designate.backend.agent\_backend.impl\_djbdns*), 57
- filter\_exceptions() (in module *designate.backend.agent\_backend.impl\_gdnssd*), 55
- find\_blacklist() (*designate.storage.base.Storage* method), 122
- find\_blacklists() (*designate.central.rpcapi.CentralAPI* method), 59
- find\_blacklists() (*designate.central.service.Service* method), 62
- find\_blacklists() (*designate.storage.base.Storage* method), 122
- find\_pool() (*designate.central.rpcapi.CentralAPI* method), 59
- find\_pool() (*designate.central.service.Service* method), 62
- find\_pool() (*designate.storage.base.Storage* method), 122
- find\_pool\_attribute() (*designate.storage.base.Storage* method), 122
- find\_pool\_attributes() (*designate.storage.base.Storage* method), 122
- find\_pools() (*designate.central.rpcapi.CentralAPI* method), 59
- find\_pools() (*designate.central.service.Service* method), 62

<code>find_pools()</code>	<i>(designate.storage.base.Storage method)</i> , 123	62	<code>find_service_statuses()</code>	<i>(designate.storage.base.Storage method)</i> , 125
<code>find_quota()</code>	<i>(designate.storage.base.Storage method)</i> , 123		<code>find_tenants()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59
<code>find_quotas()</code>	<i>(designate.storage.base.Storage method)</i> , 123		<code>find_tenants()</code>	<i>(designate.central.service.Service method)</i> , 62
<code>find_record()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_tenants()</code>	<i>(designate.storage.base.Storage method)</i> , 125
<code>find_records()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59		<code>find_tld()</code>	<i>(designate.storage.base.Storage method)</i> , 125
<code>find_records()</code>	<i>(designate.central.service.Service method)</i> , 62		<code>find_tlds()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59
<code>find_records()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_tlds()</code>	<i>(designate.central.service.Service method)</i> , 62
<code>find_recordset()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59		<code>find_tlds()</code>	<i>(designate.storage.base.Storage method)</i> , 125
<code>find_recordset()</code>	<i>(designate.central.service.Service method)</i> , 62		<code>find_tsigkeys()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59
<code>find_recordset()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_tsigkeys()</code>	<i>(designate.central.service.Service method)</i> , 62
<code>find_recordsets()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59		<code>find_tsigkeys()</code>	<i>(designate.storage.base.Storage method)</i> , 125
<code>find_recordsets()</code>	<i>(designate.central.service.Service method)</i> , 62		<code>find_zone()</code>	<i>(designate.storage.base.Storage method)</i> , 126
<code>find_recordsets()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_zone_export()</code>	<i>(designate.storage.base.Storage method)</i> , 126
<code>find_recordsets_axfr()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_zone_exports()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59
<code>find_service_status()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59		<code>find_zone_exports()</code>	<i>(designate.central.service.Service method)</i> , 62
<code>find_service_status()</code>	<i>(designate.central.service.Service method)</i> , 62		<code>find_zone_exports()</code>	<i>(designate.storage.base.Storage method)</i> , 126
<code>find_service_status()</code>	<i>(designate.storage.base.Storage method)</i> , 124		<code>find_zone_import()</code>	<i>(designate.storage.base.Storage method)</i> , 126
<code>find_service_statuses()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59		<code>find_zone_imports()</code>	<i>(designate.central.rpcapi.CentralAPI method)</i> , 59
<code>find_service_statuses()</code>	<i>(designate.central.service.Service method)</i> , 62		<code>find_zone_imports()</code>	<i>(designate.storage.base.Storage method)</i> , 126

<code>nate.central.service.Service</code>	method),	<code>from_list()</code>	( <i>designate</i>
62			<code>nate.objects.base.DesignateObject</code>
<code>find_zone_imports()</code>	( <i>designate</i>		class method), 66
<code>nate.storage.base.Storage</code>	method),	<code>from_list()</code>	( <i>designate</i>
126			<code>nate.objects.base.ListObjectMixin</code> class
<code>find_zone_serial()</code>	( <i>designate</i>		method), 67
<code>nate.backend.agent_backend.impl_djbdns.DjbDnsBackend</code>	method), 57	<code>from_string()</code>	( <i>designate</i>
			<code>nate.objects.base.DesignateObject</code>
<code>find_zone_serial()</code>	( <i>designate</i>		class method), 66
<code>nate.backend.agent_backend.impl_gdnsd.GdnsdBackend</code>	method), 55	<code>from_response()</code>	( <i>designate</i>
			<code>nate.backend.impl_dynect.DynClientError</code>
<code>find_zone_serial()</code>	( <i>designate</i>		static method), 50
<code>nate.backend.agent_backend.impl_knot2.Knot2Backend</code>	method), 54	<code>from_string()</code>	( <i>designate.objects.rrdata_a.A</i>
			method), 83
<code>find_zone_serial()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.backend.agent_backend.impl_msdns.MSDNSBackend</code>	method), 57		<code>nate.objects.rrdata_aaaa.AAAA</code> method),
			85
<code>find_zone_transfer_accepts()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.central.rpcapi.CentralAPI</code>	method),		<code>nate.objects.rrdata_cname.CNAME</code>
59			method), 88
<code>find_zone_transfer_accepts()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.central.service.Service</code>	method),		<code>nate.objects.rrdata_mx.MX</code> method),
62			91
<code>find_zone_transfer_requests()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.central.rpcapi.CentralAPI</code>	method),		<code>nate.objects.rrdata_naptr.NAPTR</code>
59			method), 116
<code>find_zone_transfer_requests()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate.objects.rrdata_ns.NS</i>
<code>nate.central.service.Service</code>	method),		method), 94
63		<code>from_string()</code>	( <i>designate</i>
<code>find_zones()</code>	( <i>designate</i>		<code>nate.objects.rrdata_ptr.PTR</code> method),
<code>nate.central.rpcapi.CentralAPI</code>	method),		97
59		<code>from_string()</code>	( <i>designate</i>
<code>find_zones()</code>	( <i>designate</i>		<code>nate.objects.rrdata_soa.SOA</code> method),
<code>nate.central.service.Service</code>	method), 63		101
<code>find_zones()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.storage.base.Storage</code>	method), 127		<code>nate.objects.rrdata_spf.SPF</code> method),
			103
<code>fingerprint</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.objects.rrdata_sshfp.SSHFP</code>	property), 112		<code>nate.objects.rrdata_srv.SRV</code> method),
<code>flags</code>	( <i>designate.objects.rrdata_naptr.NAPTR</i>		107
property), 116		<code>from_string()</code>	( <i>designate</i>
<code>fp_type</code>	( <i>designate.objects.rrdata_sshfp.SSHFP</i>		<code>nate.objects.rrdata_sshfp.SSHFP</code>
property), 113			method), 113
<code>from_dict()</code>	( <i>designate</i>	<code>from_string()</code>	( <i>designate</i>
<code>nate.objects.base.AttributeListObjectMixin</code>	class method), 65		<code>nate.objects.rrdata_txt.TXT</code> method),
			109
<code>from_dict()</code>	( <i>designate</i>	Fully Qualified Domain Name, 348	
<code>nate.objects.base.DesignateObject</code>	class method), 66	<b>G</b>	
<code>from_dict()</code>	( <i>designate.objects.quota.QuotaList</i>	<code>GdnsdBackend</code>	(class in <i>designate</i>
class method), 74			<code>nate.backend.agent_backend.impl_gdnsd</code> ),

55

`get()` (*designate.backend.impl\_dynect.DynClient* method), 50

`get()` (*designate.objects.base.AttributeListObjectMixin* method), 65

`get_absolute_limits()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_absolute_limits()` (*designate.central.service.Service* method), 63

`get_blacklist()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_blacklist()` (*designate.central.service.Service* method), 63

`get_blacklist()` (*designate.storage.base.Storage* method), 127

`get_client()` (*designate.backend.impl\_dynect.DynECTBackend* method), 51

`get_default_quotas()` (*designate.quota.base.Quota* method), 117

`get_dict_attr()` (in module *designate.objects.base*), 68

`get_floatingip()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_floatingip()` (*designate.central.service.Service* method), 63

`get_instance()` (*designate.central.rpcapi.CentralAPI* class method), 60

`get_master_by_ip()` (*designate.objects.zone.Zone* method), 71

`get_pool()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_pool()` (*designate.central.service.Service* method), 63

`get_pool()` (*designate.storage.base.Storage* method), 127

`get_pool_attribute()` (*designate.storage.base.Storage* method), 127

`get_quota()` (*designate.quota.base.Quota* method), 117

`get_quota()` (*designate.quota.impl\_storage.StorageQuota* method), 117

`get_quota()` (*designate.storage.base.Storage* method), 127

`get_quotas()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_quotas()` (*designate.central.service.Service* method), 63

`get_quotas()` (*designate.quota.base.Quota* method), 117

`get_record()` (*designate.storage.base.Storage* method), 128

`get_recordset()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_recordset()` (*designate.central.service.Service* method), 63

`get_recordset()` (*designate.storage.base.Storage* method), 128

`get_recordset_schema_changes()` (*designate.objects.record.Record* class method), 75

`get_recordset_schema_changes()` (*designate.objects.rrdata\_ns.NS* class method), 94

`get_recordset_schema_changes()` (*designate.objects.rrdata\_srv.SRV* class method), 107

`get_tenant()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_tenant()` (*designate.central.service.Service* method), 63

`get_tenant()` (*designate.storage.base.Storage* method), 128

`get_timings()` (*designate.backend.impl\_dynect.DynClient* method), 50

`get_tld()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_tld()` (*designate.central.service.Service* method), 63

`get_tld()` (*designate.storage.base.Storage* method), 128

`get_tsigkey()` (*designate.central.rpcapi.CentralAPI* method), 60

`get_tsigkey()` (*designate* method), 60



- nate.central.service.Service* method), 63
- `get_tsigkey()` (*designate.storage.base.Storage* method), 128
- `get_zone()` (*designate.backend.impl\_bind9.Bind9Backend* method), 48
- `get_zone()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone()` (*designate.central.service.Service* method), 63
- `get_zone()` (*designate.storage.base.Storage* method), 128
- `get_zone_export()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone_export()` (*designate.central.service.Service* method), 63
- `get_zone_export()` (*designate.storage.base.Storage* method), 128
- `get_zone_import()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone_import()` (*designate.central.service.Service* method), 63
- `get_zone_import()` (*designate.storage.base.Storage* method), 128
- `get_zone_ns_records()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone_ns_records()` (*designate.central.service.Service* method), 63
- `get_zone_transfer_accept()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone_transfer_accept()` (*designate.central.service.Service* method), 63
- `get_zone_transfer_request()` (*designate.central.rpcapi.CentralAPI* method), 60
- `get_zone_transfer_request()` (*designate.central.service.Service* method), 63
- ## H
- `hard_limit` (*designate.objects.quota.Quota* property), 73
- `hash` (*designate.objects.record.Record* property), 75
- `hash` (*designate.objects.rrddata\_a.A* property), 83
- `hash` (*designate.objects.rrddata\_aaaa.AAAA* property), 86
- `hash` (*designate.objects.rrddata\_cname.CNAME* property), 88
- `hash` (*designate.objects.rrddata\_mx.MX* property), 91
- `hash` (*designate.objects.rrddata\_naptr.NAPTR* property), 116
- `hash` (*designate.objects.rrddata\_ns.NS* property), 94
- `hash` (*designate.objects.rrddata\_ptr.PTR* property), 97
- `hash` (*designate.objects.rrddata\_soa.SOA* property), 101
- `hash` (*designate.objects.rrddata\_spf.SPF* property), 103
- `hash` (*designate.objects.rrddata\_srv.SRV* property), 107
- `hash` (*designate.objects.rrddata\_sshfp.SSHFP* property), 113
- `hash` (*designate.objects.rrddata\_txt.TXT* property), 109
- ## I
- `id` (*designate.objects.blacklist.Blacklist* property), 68
- `id` (*designate.objects.pool.Pool* property), 72
- `id` (*designate.objects.quota.Quota* property), 73
- `id` (*designate.objects.record.Record* property), 75
- `id` (*designate.objects.recordset.RecordSet* property), 77
- `id` (*designate.objects.rrddata\_a.A* property), 83
- `id` (*designate.objects.rrddata\_aaaa.AAAA* property), 86
- `id` (*designate.objects.rrddata\_cname.CNAME* property), 88
- `id` (*designate.objects.rrddata\_mx.MX* property), 92
- `id` (*designate.objects.rrddata\_naptr.NAPTR* property), 116
- `id` (*designate.objects.rrddata\_ns.NS* property), 94
- `id` (*designate.objects.rrddata\_ptr.PTR* property), 97
- `id` (*designate.objects.rrddata\_soa.SOA* property), 101
- `id` (*designate.objects.rrddata\_spf.SPF* property), 103

<code>id</code> ( <i>designate.objects.rrdata_srv.SRV</i> property), 107	<code>list_floatingips()</code> ( <i>designate.central.service.Service</i> method), 63
<code>id</code> ( <i>designate.objects.rrdata_sshfp.SSHFP</i> property), 113	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.base.ListObjectMixin</i> attribute), 67
<code>id</code> ( <i>designate.objects.rrdata_txt.TXT</i> property), 109	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.blacklist.BlacklistList</i> attribute), 69
<code>id</code> ( <i>designate.objects.server.Server</i> property), 78	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.pool.PoolList</i> attribute), 73
<code>id</code> ( <i>designate.objects.tenant.Tenant</i> property), 79	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.quota.QuotaList</i> attribute), 74
<code>id</code> ( <i>designate.objects.tld.Tld</i> property), 80	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.record.RecordList</i> attribute), 76
<code>id</code> ( <i>designate.objects.tsigkey.TsigKey</i> property), 81	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.recordset.RecordSetList</i> attribute), 78
<code>id</code> ( <i>designate.objects.zone.Zone</i> property), 71	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_a.AList</i> attribute), 84
<code>index()</code> ( <i>designate.objects.base.ListObjectMixin</i> method), 67	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_aaaa.AAAAList</i> attribute), 86
<code>InDoubtDefaultPoolFilter</code> (class in <i>designate.scheduler.filters.in_doubt_default_poolfilter</i> ), 206	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_cname.CNAMEList</i> attribute), 89
<code>info()</code> ( <i>designate.sink.service.Service</i> method), 118	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_mx.MXList</i> attribute), 92
<code>InfobloxBackend</code> (class in <i>designate.backend.impl_infoblox</i> ), 51	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_naptr.NAPTRList</i> attribute), 116
<code>insert()</code> ( <i>designate.objects.base.ListObjectMixin</i> method), 67	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_ns.NSList</i> attribute), 95
<code>install</code>	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_ptr.PTRList</i> attribute), 98
<code>bind9</code> , 133	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_soa.SOAList</i> attribute), 101
<code>central</code> , 135	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_spf.SPFList</i> attribute), 104
<code>database</code> , 135	<code>LIST_ITEM_TYPE</code> ( <i>designate.objects.rrdata_srv.SRVList</i> attribute), 107
<code>designate</code> , 131	
<code>mysql</code> , 132	
<code>pools</code> , 134	
<code>services</code> , 135	
<code>introduction</code>	
<code>brief</code> , 3	
<code>is_valid</code> ( <i>designate.objects.base.DesignateObject</i> property), 66	
<b>K</b>	
<code>KeystoneContextMiddleware</code> (class in <i>designate.api.middleware</i> ), 46	
<code>Knot2Backend</code> (class in <i>designate.backend.agent_backend.impl_knot2</i> ), 53	
<b>L</b>	
<code>limit_check()</code> ( <i>designate.quota.base.Quota</i> method), 117	
<code>list_floatingips()</code> ( <i>designate.central.rpcapi.CentralAPI</i> method), 60	

LIST_ITEM_TYPE	( <i>designate.objects.rrdata_sshfp.SSHFPList</i> attribute), 113	managed ( <i>designate.objects.rrdata_ns.NS</i> property), 95
LIST_ITEM_TYPE	( <i>designate.objects.rrdata_ptr.PTR</i> attribute), 110	managed ( <i>designate.objects.rrdata_ptr.PTR</i> property), 97
LIST_ITEM_TYPE	( <i>designate.objects.rrdata_soa.SOA</i> attribute), 101	managed ( <i>designate.objects.rrdata_soa.SOA</i> property), 101
LIST_ITEM_TYPE	( <i>designate.objects.server.ServerList</i> attribute), 78	managed ( <i>designate.objects.rrdata_spf.SPF</i> property), 103
LIST_ITEM_TYPE	( <i>designate.objects.rrdata_srv.SRV</i> attribute), 107	managed ( <i>designate.objects.rrdata_srv.SRV</i> property), 107
LIST_ITEM_TYPE	( <i>designate.objects.tenant.TenantList</i> attribute), 79	managed ( <i>designate.objects.rrdata_sshfp.SSHFP</i> property), 113
LIST_ITEM_TYPE	( <i>designate.objects.tld.TldList</i> attribute), 80	managed ( <i>designate.objects.rrdata_txt.TXT</i> property), 109
LIST_ITEM_TYPE	( <i>designate.objects.tsigkey.TsigKeyList</i> attribute), 81	managed_extra ( <i>designate.objects.record.Record</i> property), 75
LIST_ITEM_TYPE	( <i>designate.objects.rrdata_a.A</i> attribute), 84	managed_extra ( <i>designate.objects.rrdata_a.A</i> property), 84
ListObjectMixin	(class in <i>designate.objects.base</i> ), 67	managed_extra ( <i>designate.objects.rrdata_aaaa.AAAA</i> property), 86
LOGGING_BLACKLIST	( <i>designate.central.rpcapi.CentralAPI</i> attribute), 58	managed_extra ( <i>designate.objects.rrdata_cname.CNAME</i> property), 89
login()	( <i>designate.backend.impl_dynect.DynClient</i> method), 50	managed_extra ( <i>designate.objects.rrdata_mx.MX</i> property), 92
logout()	( <i>designate.backend.impl_dynect.DynClient</i> method), 50	managed_extra ( <i>designate.objects.rrdata_naptr.NAPTR</i> property), 116
<b>M</b>		managed_extra ( <i>designate.objects.rrdata_ns.NS</i> property), 95
MaintenanceMiddleware	(class in <i>designate.api.middleware</i> ), 47	managed_extra ( <i>designate.objects.rrdata_ptr.PTR</i> property), 98
make_context()	( <i>designate.api.middleware.ContextMiddleware</i> method), 46	managed_extra ( <i>designate.objects.rrdata_soa.SOA</i> property), 101
managed	( <i>designate.objects.record.Record</i> property), 75	managed_extra ( <i>designate.objects.rrdata_spf.SPF</i> property), 104
managed	( <i>designate.objects.recordset.RecordSet</i> property), 77	managed_extra ( <i>designate.objects.rrdata_srv.SRV</i> property), 107
managed	( <i>designate.objects.rrdata_a.A</i> property), 83	managed_extra ( <i>designate.objects.rrdata_sshfp.SSHFP</i> property), 113
managed	( <i>designate.objects.rrdata_aaaa.AAAA</i> property), 86	managed_extra ( <i>designate.objects.rrdata_txt.TXT</i> property), 110
managed	( <i>designate.objects.rrdata_cname.CNAME</i> property), 88	managed_plugin_name ( <i>designate.objects.rrdata_mx.MX</i> property), 92
managed	( <i>designate.objects.rrdata_mx.MX</i> property), 92	managed_plugin_name ( <i>designate.objects.rrdata_naptr.NAPTR</i> property), 116
managed	( <i>designate.objects.rrdata_naptr.NAPTR</i> property), 116	





- nate.objects.rrdata\_cname.CNAME* property), 89
- managed\_tenant\_id (*designate.objects.rrdata\_mx.MX* property), 92
- managed\_tenant\_id (*designate.objects.rrdata\_naptr.NAPTR* property), 116
- managed\_tenant\_id (*designate.objects.rrdata\_ns.NS* property), 95
- managed\_tenant\_id (*designate.objects.rrdata\_ptr.PTR* property), 98
- managed\_tenant\_id (*designate.objects.rrdata\_soa.SOA* property), 101
- managed\_tenant\_id (*designate.objects.rrdata\_spf.SPF* property), 104
- managed\_tenant\_id (*designate.objects.rrdata\_srv.SRV* property), 107
- managed\_tenant\_id (*designate.objects.rrdata\_sshfp.SSHFP* property), 113
- managed\_tenant\_id (*designate.objects.rrdata\_txt.TXT* property), 110
- masters (*designate.objects.zone.Zone* property), 71
- minimum (*designate.objects.rrdata\_soa.SOA* property), 101
- minimum (*designate.objects.zone.Zone* property), 71
- mname (*designate.objects.rrdata\_soa.SOA* property), 101
- module
  - designate.api.middleware, 46
  - designate.api.service, 47
  - designate.backend.agent\_backend.impl\_djbdns, 57
  - designate.backend.agent\_backend.impl\_mxlist, 54
  - designate.backend.agent\_backend.impl\_known, 53
  - designate.backend.agent\_backend.impl\_msdns, 57
  - designate.backend.base, 48
  - designate.backend.impl\_bind9, 48
  - designate.backend.impl\_designate, 49
  - designate.backend.impl\_dynect, 49
  - designate.backend.impl\_fake, 52
  - designate.backend.impl\_infoblox, 51
  - designate.backend.impl\_nsd4, 52
  - designate.backend.impl\_pdns4, 53
  - designate.central.rpcapi, 58
  - designate.central.service, 61
  - designate.mdns.handler, 65
  - designate.mdns.service, 65
  - designate.objects.base, 65
  - designate.objects.blacklist, 68
  - designate.objects.pool, 72
  - designate.objects.quota, 73
  - designate.objects.record, 74
  - designate.objects.recordset, 76
  - designate.objects.rrdata\_a, 82
  - designate.objects.rrdata\_aaaa, 84
  - designate.objects.rrdata\_caa, 117
  - designate.objects.rrdata\_cert, 117
  - designate.objects.rrdata\_cname, 87
  - designate.objects.rrdata\_mx, 89
  - designate.objects.rrdata\_naptr, 114
  - designate.objects.rrdata\_ns, 92
  - designate.objects.rrdata\_ptr, 95
  - designate.objects.rrdata\_soa, 98
  - designate.objects.rrdata\_spf, 102
  - designate.objects.rrdata\_srv, 104
  - designate.objects.rrdata\_sshfp, 110
  - designate.objects.rrdata\_txt, 108
  - designate.objects.server, 78
  - designate.objects.tenant, 79
  - designate.objects.tld, 79
  - designate.objects.tsigkey, 80
  - designate.objects.zone, 69
  - designate.quota.base, 117
  - designate.quota.impl\_storage, 117
  - designate.sink.service, 118
  - designate.storage.base, 118
  - MSDNSBackend (class in *designate.backend.agent\_backend.impl\_msdns*), 57
  - MX (class in *designate.objects.rrdata\_mx*), 89
  - Mxlist (class in *designate.objects.rrdata\_mx*), 92
  - mysql
  - install, 132

## N

- name (*designate.objects.pool.Pool* property), 72
- name (*designate.objects.recordset.RecordSet* property), 77

name (*designate.objects.server.Server* property), 78

name (*designate.objects.tld.Tld* property), 80

name (*designate.objects.tsigkey.TsigKey* property), 81

name (*designate.objects.zone.Zone* property), 71

name (*designate.scheduler.filters.attribute\_filter.AttributeFilter* class attribute), 204

name (*designate.scheduler.filters.default\_pool\_filter.DefaultPoolFilter* class attribute), 205

name (*designate.scheduler.filters.fallback\_filter.FallbackFilter* class method), 66

name (*designate.scheduler.filters.in\_doubt\_default\_pool\_filter.InDoubtDefaultPoolFilter* class attribute), 206

name (*designate.scheduler.filters.pool\_id\_attribute\_filter.PoolIDAttributeFilter* class attribute), 204

name (*designate.scheduler.filters.random\_filter.RandomFilter* class attribute), 205

nameservers (*designate.objects.pool.Pool* property), 72

NAPTR (*class in designate.objects.rrdata\_naptr*), 114

NAPTRList (*class in designate.objects.rrdata\_naptr*), 116

nested\_sort() (*designate.objects.base.DesignateObject* method), 66

NoAuthContextMiddleware (*class in designate.api.middleware*), 47

NormalizeURIMiddleware (*class in designate.api.middleware*), 47

NS (*class in designate.objects.rrdata\_ns*), 92

ns\_records (*designate.objects.pool.Pool* property), 72

NSD4Backend (*class in designate.backend.impl\_nsd4*), 52

NSDCT\_VERSION (*designate.backend.impl\_nsd4.NSD4Backend* attribute), 52

nsdname (*designate.objects.rrdata\_ns.NS* property), 95

NSList (*class in designate.objects.rrdata\_ns*), 95

**O**

obj\_attr\_is\_set() (*designate.objects.base.DesignateObject* method), 66

obj\_cls\_from\_name() (*designate.objects.base.DesignateObject* class method), 66

obj\_context (*designate.objects.base.DesignateObject* property), 66

obj\_fields (*designate.objects.base.DesignateObject* property), 66

obj\_get\_original\_value() (*designate.objects.base.DesignateObject* method), 66

obj\_get\_schema() (*designate.objects.base.DesignateObject* method), 66

OBJ\_PROJECT\_NAMESPACE (*designate.objects.base.DesignateObject* attribute), 66

obj\_pre\_hook\_change\_filter() (*designate.objects.base.DesignateObject* method), 66

OBJ\_SERIAL\_NAMESPACE (*designate.objects.base.DesignateObject* attribute), 66

objects (*designate.objects.blacklist.BlacklistList* property), 69

objects (*designate.objects.pool.PoolList* property), 73

objects (*designate.objects.quota.QuotaList* property), 74

objects (*designate.objects.record.RecordList* property), 76

objects (*designate.objects.recordset.RecordSetList* property), 78

objects (*designate.objects.rrdata\_a.AList* property), 84

objects (*designate.objects.rrdata\_aaaa.AAAAList* property), 86

objects (*designate.objects.rrdata\_cname.CNAMEList* property), 89

objects (*designate.objects.rrdata\_mx.MXList* property), 92

objects (*designate.objects.rrdata\_naptr.NAPTRList* property), 117

objects (*designate.objects.rrdata\_ns.NSList* property), 95

objects (*designate.objects.rrdata\_ptr.PTRList* property), 98

objects (*designate.objects.rrdata\_soa.SOAList* property), 101

objects (*designate.objects.rrdata\_spf.SPFList* property), 104

objects (*designate.objects.rrdata\_srv.SRVList* property), 107

objects (*designate.objects.rrdata\_sshfp.SSHFPList*

- property), 113
  - objects (*designate.objects.rrddata\_txt.TXTList* property), 110
  - objects (*designate.objects.server.ServerList* property), 79
  - objects (*designate.objects.tenant.TenantList* property), 79
  - objects (*designate.objects.tld.TldList* property), 80
  - objects (*designate.objects.tsigkey.TsigKeyList* property), 81
  - objects (*designate.objects.zone.ZoneList* property), 71
  - order (*designate.objects.rrddata\_naptr.NAPTR* property), 116
- P**
- PagedListObjectMixin (class in *designate.objects.base*), 67
  - parent\_zone\_id (*designate.objects.zone.Zone* property), 71
  - patch() (*designate.backend.impl\_dynect.DynClient* method), 50
  - pattern (*designate.objects.blacklist.Blacklist* property), 68
  - PDNS4Backend (class in *designate.backend.impl\_pdns4*), 53
  - PersistentObjectMixin (class in *designate.objects.base*), 67
  - poll\_response() (*designate.backend.impl\_dynect.DynClient* method), 50
  - Pool (class in *designate.objects.pool*), 72
  - pool\_id (*designate.objects.zone.Zone* property), 71
  - PoolIDAttributeFilter (class in *designate.scheduler.filters.pool\_id\_attribute\_filter*), 204
  - PoolList (class in *designate.objects.pool*), 73
  - pools
    - install, 134
  - pop() (*designate.objects.base.ListObjectMixin* method), 67
  - port (*designate.objects.rrddata\_srv.SRV* property), 107
  - post() (*designate.backend.impl\_dynect.DynClient* method), 50
  - preference (*designate.objects.rrddata\_naptr.NAPTR* property), 116
  - priority (*designate.objects.rrddata\_mx.MX* property), 92
  - priority (*designate.objects.rrddata\_srv.SRV* property), 107
  - process\_request() (*designate.api.middleware.KeystoneContextMiddleware* method), 46
  - process\_request() (*designate.api.middleware.MaintenanceMiddleware* method), 47
  - process\_request() (*designate.api.middleware.NoAuthContextMiddleware* method), 47
  - process\_request() (*designate.api.middleware.TestContextMiddleware* method), 47
  - provisioner (*designate.objects.pool.Pool* property), 72
  - PTR (class in *designate.objects.rrddata\_ptr*), 95
  - ptrname (*designate.objects.rrddata\_ptr.PTR* property), 98
  - PTRList (class in *designate.objects.rrddata\_ptr*), 98
  - purge\_zone() (*designate.storage.base.Storage* method), 129
  - purge\_zones() (*designate.central.rpcapi.CentralAPI* method), 60
  - purge\_zones() (*designate.central.service.Service* method), 63
  - put() (*designate.backend.impl\_dynect.DynClient* method), 50
- Q**
- Quota (class in *designate.objects.quota*), 73
  - Quota (class in *designate.quota.base*), 117
  - quota (*designate.central.service.Service* property), 63
  - QuotaList (class in *designate.objects.quota*), 74
- R**
- RandomFilter (class in *designate.scheduler.filters.random\_filter*), 205
  - Record, 348
  - Record (class in *designate.objects.record*), 74
  - RECORD\_TYPE (*designate.objects.rrddata\_a.A* attribute), 82
  - RECORD\_TYPE (*designate.objects.rrddata\_aaaa.AAAA* attribute), 84



**RECORD\_TYPE** (*designate.objects.rrdata\_cname.CNAME attribute*), 87  
**RECORD\_TYPE** (*designate.objects.rrdata\_mx.MX attribute*), 89  
**RECORD\_TYPE** (*designate.objects.rrdata\_naptr.NAPTR attribute*), 114  
**RECORD\_TYPE** (*designate.objects.rrdata\_ns.NS attribute*), 92  
**RECORD\_TYPE** (*designate.objects.rrdata\_ptr.PTR attribute*), 95  
**RECORD\_TYPE** (*designate.objects.rrdata\_soa.SOA attribute*), 98  
**RECORD\_TYPE** (*designate.objects.rrdata\_spf.SPF attribute*), 102  
**RECORD\_TYPE** (*designate.objects.rrdata\_srv.SRV attribute*), 104  
**RECORD\_TYPE** (*designate.objects.rrdata\_sshfp.SSHFP attribute*), 110  
**RECORD\_TYPE** (*designate.objects.rrdata\_txt.TXT attribute*), 108  
**RecordList** (*class in designate.objects.record*), 76  
**records** (*designate.objects.recordset.RecordSet property*), 77  
**Recordset**, 348  
**RecordSet** (*class in designate.objects.recordset*), 76  
**recordset\_id** (*designate.objects.record.Record property*), 76  
**recordset\_id** (*designate.objects.rrdata\_a.A property*), 84  
**recordset\_id** (*designate.objects.rrdata\_aaaa.AAAA property*), 86  
**recordset\_id** (*designate.objects.rrdata\_cname.CNAME property*), 89  
**recordset\_id** (*designate.objects.rrdata\_mx.MX property*), 92  
**recordset\_id** (*designate.objects.rrdata\_naptr.NAPTR property*), 116  
**recordset\_id** (*designate.objects.rrdata\_ns.NS property*), 95  
**recordset\_id** (*designate.objects.rrdata\_ptr.PTR property*), 98  
**recordset\_id** (*designate.objects.rrdata\_soa.SOA property*), 101  
**recordset\_id** (*designate.objects.rrdata\_spf.SPF property*), 104  
**recordset\_id** (*designate.objects.rrdata\_srv.SRV property*), 107  
**recordset\_id** (*designate.objects.rrdata\_sshfp.SSHFP property*), 113  
**recordset\_id** (*designate.objects.rrdata\_txt.TXT property*), 110  
**RecordSetList** (*class in designate.objects.recordset*), 77  
**recordsets** (*designate.objects.zone.Zone property*), 71  
**refresh** (*designate.objects.rrdata\_soa.SOA property*), 101  
**refresh** (*designate.objects.zone.Zone property*), 71  
**regexp** (*designate.objects.rrdata\_naptr.NAPTR property*), 116  
**registration\_hook()** (*designate.objects.base.DesignateRegistry method*), 67  
**remove()** (*designate.objects.base.ListObjectMixin method*), 67  
**replacement** (*designate.objects.rrdata\_naptr.NAPTR property*), 116  
**request()** (*designate.backend.impl\_dynect.DynClient method*), 50  
**RequestHandler** (*class in designate.mdns.handler*), 65  
**reset()** (*in module designate.central.rpcapi*), 61  
**reset\_quotas()** (*designate.central.rpcapi.CentralAPI method*), 60  
**reset\_quotas()** (*designate.central.service.Service method*), 63  
**reset\_quotas()** (*designate.quota.base.Quota method*), 117  
**reset\_quotas()** (*designate.quota.impl\_storage.StorageQuota method*), 117  
**reset\_timings()** (*designate.backend.impl\_dynect.DynClient method*), 50  
**resource** (*designate.objects.quota.Quota property*), 73

- resource\_id (*designate.objects.tsigkey.TsigKey* property), 81
  - retry (*designate.objects.rrdata\_soa.SOA* property), 101
  - retry (*designate.objects.zone.Zone* property), 71
  - rname (*designate.objects.rrdata\_soa.SOA* property), 101
  - RPC\_API\_VERSION (*designate.central.rpcapi.CentralAPI* attribute), 58
  - RPC\_API\_VERSION (*designate.central.service.Service* attribute), 61
- S**
- save() (*designate.objects.base.DesignateObject* method), 66
  - scheduler (*designate.central.service.Service* property), 63
  - scope (*designate.objects.tsigkey.TsigKey* property), 81
  - secret (*designate.objects.tsigkey.TsigKey* property), 81
  - serial (*designate.objects.record.Record* property), 76
  - serial (*designate.objects.rrdata\_a.A* property), 84
  - serial (*designate.objects.rrdata\_aaaa.AAAA* property), 86
  - serial (*designate.objects.rrdata\_cname.CNAME* property), 89
  - serial (*designate.objects.rrdata\_mx.MX* property), 92
  - serial (*designate.objects.rrdata\_naptr.NAPTR* property), 116
  - serial (*designate.objects.rrdata\_ns.NS* property), 95
  - serial (*designate.objects.rrdata\_ptr.PTR* property), 98
  - serial (*designate.objects.rrdata\_soa.SOA* property), 101
  - serial (*designate.objects.rrdata\_spf.SPF* property), 104
  - serial (*designate.objects.rrdata\_srv.SRV* property), 107
  - serial (*designate.objects.rrdata\_sshfp.SSHFP* property), 113
  - serial (*designate.objects.rrdata\_txt.TXT* property), 110
  - serial (*designate.objects.zone.Zone* property), 71
  - Server (*class in designate.objects.server*), 78
  - ServerList (*class in designate.objects.server*), 78
  - Service (*class in designate.api.service*), 47
  - Service (*class in designate.central.service*), 61
  - Service (*class in designate.mdns.service*), 65
  - Service (*class in designate.sink.service*), 118
  - service (*designate.objects.rrdata\_naptr.NAPTR* property), 116
  - service\_name (*designate.api.service.Service* property), 47
  - service\_name (*designate.central.service.Service* property), 63
  - service\_name (*designate.mdns.service.Service* property), 65
  - service\_name (*designate.sink.service.Service* property), 118
  - services
    - install, 135
  - set\_quota() (*designate.central.rpcapi.CentralAPI* method), 60
  - set\_quota() (*designate.central.service.Service* method), 64
  - set\_quota() (*designate.quota.base.Quota* method), 117
  - set\_quota() (*designate.quota.impl\_storage.StorageQuota* method), 117
  - shard (*designate.objects.record.Record* property), 76
  - shard (*designate.objects.recordset.RecordSet* property), 77
  - shard (*designate.objects.rrdata\_a.A* property), 84
  - shard (*designate.objects.rrdata\_aaaa.AAAA* property), 86
  - shard (*designate.objects.rrdata\_cname.CNAME* property), 89
  - shard (*designate.objects.rrdata\_mx.MX* property), 92
  - shard (*designate.objects.rrdata\_naptr.NAPTR* property), 116
  - shard (*designate.objects.rrdata\_ns.NS* property), 95
  - shard (*designate.objects.rrdata\_ptr.PTR* property), 98
  - shard (*designate.objects.rrdata\_soa.SOA* property), 101
  - shard (*designate.objects.rrdata\_spf.SPF* property), 104
  - shard (*designate.objects.rrdata\_srv.SRV* prop-

- erty), 107
- shard (*designate.objects.rrdata\_sshfp.SSHFP property*), 113
- shard (*designate.objects.rrdata\_txt.TXT property*), 110
- shard (*designate.objects.zone.Zone property*), 71
- SOA (*class in designate.objects.rrdata\_soa*), 98
- SOAList (*class in designate.objects.rrdata\_soa*), 101
- SoftDeleteObjectMixin (*class in designate.objects.base*), 68
- SPF (*class in designate.objects.rrdata\_spf*), 102
- SPFList (*class in designate.objects.rrdata\_spf*), 104
- SRV (*class in designate.objects.rrdata\_srv*), 104
- SRVList (*class in designate.objects.rrdata\_srv*), 107
- SSHFP (*class in designate.objects.rrdata\_sshfp*), 110
- SSHFPList (*class in designate.objects.rrdata\_sshfp*), 113
- start() (*designate.api.service.Service method*), 47
- start() (*designate.backend.agent\_backend.impl\_djbdns.DjbdnsBackend method*), 57
- start() (*designate.backend.agent\_backend.impl\_gandiva.GandivaBackend method*), 55
- start() (*designate.backend.agent\_backend.impl\_knot.KnotBackend method*), 54
- start() (*designate.backend.agent\_backend.impl\_msdns.MsdnsBackend method*), 57
- start() (*designate.central.service.Service method*), 64
- start() (*designate.mdns.service.Service method*), 65
- start() (*designate.sink.service.Service method*), 118
- status (*designate.objects.record.Record property*), 76
- status (*designate.objects.recordset.RecordSet property*), 77
- status (*designate.objects.rrdata\_a.A property*), 84
- status (*designate.objects.rrdata\_aaaa.AAAA property*), 86
- status (*designate.objects.rrdata\_cname.CNAME property*), 89
- status (*designate.objects.rrdata\_mx.MX property*), 92
- status (*designate.objects.rrdata\_naptr.NAPTR property*), 116
- status (*designate.objects.rrdata\_ns.NS property*), 95
- status (*designate.objects.rrdata\_ptr.PTR property*), 98
- status (*designate.objects.rrdata\_soa.SOA property*), 101
- status (*designate.objects.rrdata\_spf.SPF property*), 104
- status (*designate.objects.rrdata\_srv.SRV property*), 107
- status (*designate.objects.rrdata\_sshfp.SSHFP property*), 113
- status (*designate.objects.rrdata\_txt.TXT property*), 110
- status (*designate.objects.zone.Zone property*), 71
- stop() (*designate.api.service.Service method*), 47
- stop() (*designate.central.service.Service method*), 64
- stop() (*designate.mdns.service.Service method*), 65
- stop() (*designate.sink.service.Service method*), 118
- Storage (*class in designate.storage.base*), 118
- StorageBackend (*class in designate.backend*), 54
- STRING\_KEYS (*designate.objects.base.DesignateObject attribute*), 66
- STRING\_KEYS (*designate.objects.blacklist.Blacklist attribute*), 68
- STRING\_KEYS (*designate.objects.pool.Pool attribute*), 72
- STRING\_KEYS (*designate.objects.quota.Quota attribute*), 73
- STRING\_KEYS (*designate.objects.record.Record attribute*), 74
- STRING\_KEYS (*designate.objects.recordset.RecordSet attribute*), 76
- STRING\_KEYS (*designate.objects.server.Server attribute*), 78
- STRING\_KEYS (*designate.objects.tenant.Tenant attribute*), 79
- STRING\_KEYS (*designate.objects.tld.Tld attribute*), 80

- tribute*), 79
- STRING\_KEYS (*designate.objects.tsigkey.TsigKey* attribute), 80
- STRING\_KEYS (*designate.objects.zone.Zone* attribute), 69
- T**
- target (*designate.central.service.Service* attribute), 64
- target (*designate.objects.rrdata\_srv.SRV* property), 107
- targets (*designate.objects.pool.Pool* property), 72
- Tenant (*class in designate.objects.tenant*), 79
- tenant\_id (*designate.objects.pool.Pool* property), 73
- tenant\_id (*designate.objects.quota.Quota* property), 73
- tenant\_id (*designate.objects.record.Record* property), 76
- tenant\_id (*designate.objects.recordset.RecordSet* property), 77
- tenant\_id (*designate.objects.rrdata\_a.A* property), 84
- tenant\_id (*designate.objects.rrdata\_aaaa.AAAA* property), 86
- tenant\_id (*designate.objects.rrdata\_cname.CNAME* property), 89
- tenant\_id (*designate.objects.rrdata\_mx.MX* property), 92
- tenant\_id (*designate.objects.rrdata\_naptr.NAPTR* property), 116
- tenant\_id (*designate.objects.rrdata\_ns.NS* property), 95
- tenant\_id (*designate.objects.rrdata\_ptr.PTR* property), 98
- tenant\_id (*designate.objects.rrdata\_soa.SOA* property), 101
- tenant\_id (*designate.objects.rrdata\_spf.SPF* property), 104
- tenant\_id (*designate.objects.rrdata\_srv.SRV* property), 107
- tenant\_id (*designate.objects.rrdata\_sshfp.SSHFP* property), 113
- tenant\_id (*designate.objects.rrdata\_txt.TXT* property), 110
- tenant\_id (*designate.objects.zone.Zone* property), 71
- TenantList (*class in designate.objects.tenant*), 79
- TestContextMiddleware (*class in designate.api.middleware*), 47
- Tld (*class in designate.objects.tld*), 79
- TldList (*class in designate.objects.tld*), 80
- to\_dict() (*designate.objects.base.AttributeListObjectMixin* method), 65
- to\_dict() (*designate.objects.base.DesignateObject* method), 66
- to\_dict() (*designate.objects.quota.QuotaList* method), 74
- to\_list() (*designate.objects.base.ListObjectMixin* method), 67
- to\_primitive() (*designate.objects.base.DesignateObject* method), 66
- total\_count (*designate.objects.recordset.RecordSetList* property), 78
- total\_count (*designate.objects.zone.ZoneList* property), 71
- transferred\_at (*designate.objects.zone.Zone* property), 71
- TsigKey (*class in designate.objects.tsigkey*), 80
- TsigKeyList (*class in designate.objects.tsigkey*), 81
- ttl (*designate.objects.recordset.RecordSet* property), 77
- ttl (*designate.objects.zone.Zone* property), 71
- TXT (*class in designate.objects.rrdata\_txt*), 108
- txt\_data (*designate.objects.rrdata\_spf.SPF* property), 104
- txt\_data (*designate.objects.rrdata\_txt.TXT* property), 110
- TXTList (*class in designate.objects.rrdata\_txt*), 110
- type (*designate.objects.recordset.RecordSet* property), 77
- type (*designate.objects.zone.Zone* property), 71
- U**
- update() (*designate.objects.base.DesignateObject* method), 67
- update\_blacklist() (*designate.central.rpcapi.CentralAPI* method),

60		<i>nate.central.service.Service</i>	method),
update_blacklist()	( <i>designate</i>		64
	<i>nate.central.service.Service</i>	method),	update_tld()
64			( <i>designate</i>
update_blacklist()	( <i>designate</i>		<i>nate.central.rpcapi.CentralAPI</i>
	<i>nate.storage.base.Storage</i>	method),	60
129			update_tld() ( <i>designate.central.service.Service</i>
update_floatingip()	( <i>designate</i>		method), 64
	<i>nate.central.rpcapi.CentralAPI</i>	method),	update_tld() ( <i>designate.storage.base.Storage</i>
60			method), 130
update_floatingip()	( <i>designate</i>		update_tsigkey()
	<i>nate.central.service.Service</i>	method),	( <i>designate</i>
64			<i>nate.central.rpcapi.CentralAPI</i>
update_pool()	( <i>designate</i>		61
	<i>nate.central.service.Service</i>	method),	update_tsigkey()
64			( <i>designate</i>
update_pool()	( <i>designate</i>		<i>nate.central.service.Service</i>
	<i>nate.central.rpcapi.CentralAPI</i>	method),	64
60			update_tsigkey()
update_pool()	( <i>designate</i>		<i>nate.storage.base.Storage</i>
	<i>nate.central.service.Service</i>	method),	method),
64			130
update_pool()	( <i>designate</i>		update_zone()
	<i>nate.storage.base.Storage</i>	method),	( <i>designate</i>
129			<i>nate.backend.agent_backend.impl_djbdns.DjbdnsBackend</i>
update_pool_attribute()	( <i>designate</i>		method), 57
	<i>nate.storage.base.Storage</i>	method),	update_zone()
129			( <i>designate</i>
update_quota()	( <i>designate</i>		<i>nate.backend.agent_backend.impl_gdnssd.GdnssdBackend</i>
	<i>nate.storage.base.Storage</i>	method),	method), 55
129			update_zone()
update_record()	( <i>designate</i>		( <i>designate</i>
	<i>nate.storage.base.Storage</i>	method),	<i>nate.backend.agent_backend.impl_knot2.Knot2Backend</i>
129			method), 54
update_recordset()	( <i>designate</i>		update_zone()
	<i>nate.central.rpcapi.CentralAPI</i>	method),	( <i>designate</i>
60			<i>nate.backend.agent_backend.impl_msdns.MSDNSBackend</i>
update_recordset()	( <i>designate</i>		method), 57
	<i>nate.central.service.Service</i>	method),	update_zone()
64			( <i>designate</i>
update_recordset()	( <i>designate</i>		<i>nate.backend.base.Backend</i>
	<i>nate.storage.base.Storage</i>	method),	method),
129			48
update_service_status()	( <i>designate</i>		update_zone()
	<i>nate.central.rpcapi.CentralAPI</i>	method),	( <i>designate</i>
60			<i>nate.backend.impl_bind9.Bind9Backend</i>
update_service_status()	( <i>designate</i>		method), 49
	<i>nate.central.service.Service</i>	method),	update_zone()
64			( <i>designate</i>
update_service_status()	( <i>designate</i>		<i>nate.central.rpcapi.CentralAPI</i>
	<i>nate.storage.base.Storage</i>	method),	61
130			update_zone()
update_status()	( <i>designate</i>		( <i>designate</i>
	<i>nate.central.rpcapi.CentralAPI</i>	method),	<i>nate.central.service.Service</i>
60			method),
update_status()	( <i>designate</i>		64
	<i>nate.storage.base.Storage</i>	method),	update_zone()
64			( <i>designate</i>
update_status()	( <i>designate</i>		<i>nate.storage.base.Storage</i>
	<i>nate.central.rpcapi.CentralAPI</i>	method),	method), 130
64			update_zone_export()
			( <i>designate</i>
			<i>nate.central.rpcapi.CentralAPI</i>
			method),
			61
			update_zone_export()
			( <i>designate</i>
			<i>nate.central.service.Service</i>
			method),
			64
			update_zone_export()
			( <i>designate</i>

*nate.storage.base.Storage* method), 130  
*update\_zone\_import()* (*designate.central.rpcapi.CentralAPI* method), 61  
*update\_zone\_import()* (*designate.central.service.Service* method), 64  
*update\_zone\_import()* (*designate.storage.base.Storage* method), 130  
*update\_zone\_transfer\_request()* (*designate.central.rpcapi.CentralAPI* method), 61  
*update\_zone\_transfer\_request()* (*designate.central.service.Service* method), 64  
*updated\_at* (*designate.objects.blacklist.Blacklist* property), 68  
*updated\_at* (*designate.objects.pool.Pool* property), 73  
*updated\_at* (*designate.objects.quota.Quota* property), 74  
*updated\_at* (*designate.objects.record.Record* property), 76  
*updated\_at* (*designate.objects.recordset.RecordSet* property), 77  
*updated\_at* (*designate.objects.rrddata\_a.A* property), 84  
*updated\_at* (*designate.objects.rrddata\_aaaa.AAAA* property), 86  
*updated\_at* (*designate.objects.rrddata\_cname.CNAME* property), 89  
*updated\_at* (*designate.objects.rrddata\_mx.MX* property), 92  
*updated\_at* (*designate.objects.rrddata\_naptr.NAPTR* property), 116  
*updated\_at* (*designate.objects.rrddata\_ns.NS* property), 95  
*updated\_at* (*designate.objects.rrddata\_ptr.PTR* property), 98  
*updated\_at* (*designate.objects.rrddata\_soa.SOA* property), 101  
*updated\_at* (*designate.objects.rrddata\_spf.SPF* property), 104  
*updated\_at* (*designate.objects.rrddata\_srv.SRV* property), 107  
*updated\_at* (*designate.objects.rrddata\_sshfp.SSHFP* property), 113  
*updated\_at* (*designate.objects.rrddata\_txt.TXT* property), 110  
*updated\_at* (*designate.objects.server.Server* property), 78  
*updated\_at* (*designate.objects.tld.Tld* property), 80  
*updated\_at* (*designate.objects.tsigkey.TsigKey* property), 81  
*updated\_at* (*designate.objects.zone.Zone* property), 71

## V

*validate()* (*designate.objects.base.DesignateObject* method), 67  
*validate()* (*designate.objects.recordset.RecordSet* method), 77  
*validate()* (*designate.objects.zone.Zone* method), 71  
*version* (*designate.objects.blacklist.Blacklist* property), 69  
*version* (*designate.objects.pool.Pool* property), 73  
*version* (*designate.objects.quota.Quota* property), 74  
*version* (*designate.objects.record.Record* property), 76  
*version* (*designate.objects.recordset.RecordSet* property), 77  
*version* (*designate.objects.rrddata\_a.A* property), 84  
*version* (*designate.objects.rrddata\_aaaa.AAAA* property), 86  
*version* (*designate.objects.rrddata\_cname.CNAME* property), 89  
*version* (*designate.objects.rrddata\_mx.MX* property), 92  
*version* (*designate.objects.rrddata\_naptr.NAPTR* property), 116  
*version* (*designate.objects.rrddata\_ns.NS* property), 95  
*version* (*designate.objects.rrddata\_ptr.PTR* property), 98  
*version* (*designate.objects.rrddata\_soa.SOA* property), 101  
*version* (*designate.objects.rrddata\_spf.SPF* property), 104

- version (*designate.objects.rrdata\_srv.SRV* property), 107
- version (*designate.objects.rrdata\_sshfp.SSHFP* property), 113
- version (*designate.objects.rrdata\_txt.TXT* property), 110
- version (*designate.objects.server.Server* property), 78
- version (*designate.objects.tld.Tld* property), 80
- version (*designate.objects.tsigkey.TsigKey* property), 81
- version (*designate.objects.zone.Zone* property), 71
- ## W
- weight (*designate.objects.rrdata\_srv.SRV* property), 107
- worker\_api (*designate.central.service.Service* property), 64
- worker\_api (*designate.mdns.handler.RequestHandler* property), 65
- wsgi\_application (*designate.api.service.Service* property), 48
- ## X
- xfr\_zone() (*designate.central.rpcapi.CentralAPI* method), 61
- xfr\_zone() (*designate.central.service.Service* method), 65
- ## Z
- Zone, 348**
- Zone (*class in designate.objects.zone*), 69
- zone\_count (*designate.objects.tenant.Tenant* property), 79
- zone\_id (*designate.objects.record.Record* property), 76
- zone\_id (*designate.objects.recordset.RecordSet* property), 77
- zone\_id (*designate.objects.rrdata\_a.A* property), 84
- zone\_id (*designate.objects.rrdata\_aaaa.AAAA* property), 86
- zone\_id (*designate.objects.rrdata\_cname.CNAME* property), 89
- zone\_id (*designate.objects.rrdata\_mx.MX* property), 92
- zone\_id (*designate.objects.rrdata\_naptr.NAPTR* property), 116
- zone\_id (*designate.objects.rrdata\_ns.NS* property), 95
- zone\_id (*designate.objects.rrdata\_ptr.PTR* property), 98
- zone\_id (*designate.objects.rrdata\_soa.SOA* property), 101
- zone\_id (*designate.objects.rrdata\_spf.SPF* property), 104
- zone\_id (*designate.objects.rrdata\_srv.SRV* property), 107
- zone\_id (*designate.objects.rrdata\_sshfp.SSHFP* property), 113
- zone\_id (*designate.objects.rrdata\_txt.TXT* property), 110
- zone\_name (*designate.objects.recordset.RecordSet* property), 77
- ZoneList (*class in designate.objects.zone*), 71
- zones (*designate.objects.tenant.Tenant* property), 79