

## OpenStack: Creating a GRE Network

This page describes how to create a tenant (or Generic Routing Encapsulation--GRE) router using Neutron via the CLI. Note: You can accomplish the same task using the OpenStack dashboard. Only the CLI procedure is described here.

[Figure 1](#) and [Figure 2](#) show examples of tenant networks installed on an All-in-One server without and with an additional compute node, respectively.

### Contents

- [1 Prerequisites](#)
- [2 Procedure](#)
  - ◆ [2.1 Create the Networks](#)
  - ◆ [2.2 Create the Neutron Router](#)

### Prerequisites

Before creating the per-tenant router and private networks, you must:

- Install a controller node on which to install the router, for example the Cisco OpenStack All-in-One scenario as described in [All-in-One Model 1](#).
- Source the installed `openrc` file located in the `/root/` directory:

```
source openrc
```

to set several OpenStack environment variables.

### Procedure

#### Create the Networks

1. Create a public network to be used for instances (also called tenants, virtual machines, or VMs) to gain external (public) connectivity:

```
neutron net-create Public_Network --router:external=True
```

2. Create a subnet that is associated with the previously created public network. Note: The range of IP addresses in your subnet must not conflict with other network nodes on the subnet. For example, if you have a gateway upstream using addresses in the public subnet ranges (192.168.81.1, 192.168.81.2, and so on) then your allocation range must start in a non-overlapping range.

```
neutron subnet-create --name Public_Subnet --allocation-pool start=192.168.81.10,end=192.168.81.100
```

**Note:** The allocation pool command-line argument must not contain any spaces.

3. Create a private network and subnet to attach instances to. For example:

```
neutron net-create Private_Net10 && neutron subnet-create --name Private_Net10_Subnet Private_Net10
```

### Create the Neutron Router

1. Create a Neutron router:

```
neutron router-create os-router-1
```

2. Associate the Neutron router interface with the previously created private subnet:

```
neutron router-interface-add os-router-1 Private_Net10_Subnet
```

3. Set the default gateway (previously created public network) for the Neutron router:

```
neutron router-gateway-set os-router-1 Public_Network
```

4. Modify the default Neutron security group to allow for ICMP and SSH (for access to the instances):

```
neutron security-group-rule-create --protocol icmp --direction ingress default && neutron s
```