

Oracle® Communications

UDR Provisioning Gateway Installation Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Introduction

This document defines Provisioning Gateway and describes its installation and configuration procedures.

- Transmitting the MTAS (Multimedia Telephony Application Server) provisioning messages to SDS (Subscriber Database Server)
- Converting and Provisioning SDS messages on UDR

Provisioning Gateway is an application used to provision the subscriber information on subscriber database applications. It helps in transmitting provisioning commands from a provisioning system like MTAS to UDR/SDS. It helps in:

Overview

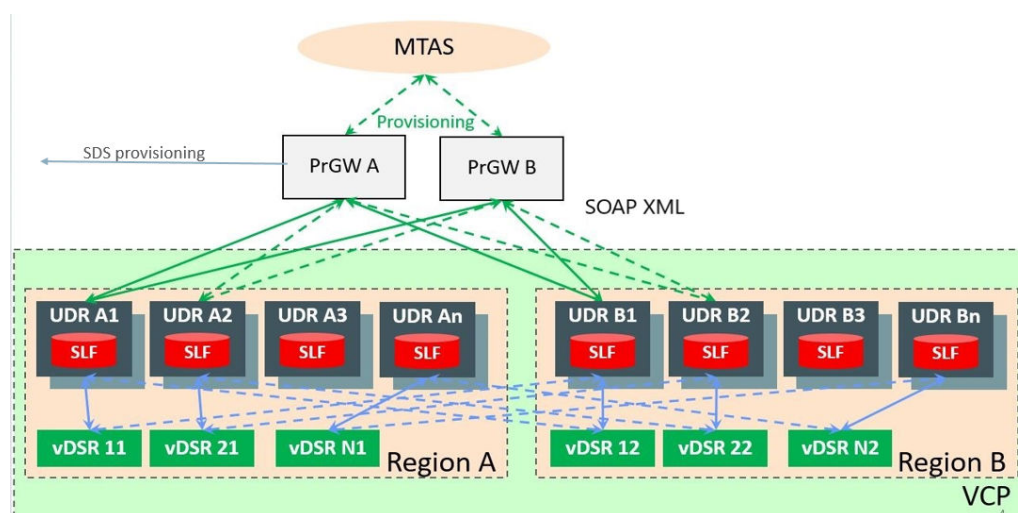
The **Provisioning Gateway** receives the provisioning commands from the provisioning system like MTAS and provisions the same on multiple UDR segments, along with an existing SDS. The Provisioning Gateway:

- Is useful in providing backward compatible provisioning interface.
- Helps SDS Provisioning system like MTAS to provision UDR (backward compatibility with SDS).
- Takes care of provisioning to multiple UDR segments.
- Identifies an active node and provisions the subscriber data so that MTAS can send commands to Provisioning Gateway without worrying about the HA status of the nodes.
- Allows the Provisioning system like MTAS to remain unchanged and can provision both SDS and UDRs.
- Avoids duplicate provisioning on multiple UDR/SDS nodes.

Architecture

The Provisioning Gateway architecture is shown below:

Figure 1-1 Architecture Diagram



The installation of Provisioning Gateway as an interface between MTAS and UDR provides the following solution:

- It automatically identifies and establishes the connection to each of the primary UDRs and starts provisioning. It uses SOAP interface for provisioning to SDS and UDRs.
- It has multiple instances of Provisioning Gateway but MTAS (Provisioning System) sends provisioning requests to only one instance at any point of time. This architecture does not provide high availability and is stateless. It means both the instances of provisioning gateway do not communicate with each other.
- It converts MTAS (Provisioning Client) requests to UDR SOAP request format and provisions the same to UDRs. It also transmits the original request to SDS.
- It provides **FABR Segmentation** feature along with multiple segments of UDR. UDR uses SLF data (Comcol based DB for FABR) and proprietary ComAgent for lookups from DA-MPs (Diameter Agent Message Processors). Each UDR pair is deployed in an active, standby configuration and each segment can have any number of such pairs.
- Each segment of UDR has multiple active-standby pairs and each pair has one VIP. In a segment, there is only one active VIP, which is a primary UDR.
- Each UDR instance in a segment has a complete SLF DB, which is replicated by comcol within the segment.

2

Provisioning Gateway

In this chapter, you will learn to install Provisioning Gateway.

Prerequisites

The following prerequisites are required to install Provisioning Gateway:

- An OpenStack instance, Queen version.

 **Note:**

The openstack instance must have admin privileges for multi-tenant deployments.

- A ProvGateway image must be in the **qcow2/vmdk** format as per GA release names as: UDRProvGateway-x.x.x.x.qcow2/UDRProvGateway-x.x.x.x.vmdk

This image must be accessible from every tenant.

- ProvGateway needs specific flavor as shown below:

Table 2-1 ProvGateway Flavor

vCPUs	RAM	HDD
4	8GB	60GB

Provisioning Gateway Installation Procedure

The steps to install and configure Provisioning Gateway are as follows:

1. Take one Linux system that has Openstack Client installed on it. If a system does not have Openstack client, then install it through CLI.
 - a. The steps to install OpenStack Client are:
 - i. Login as a root user and execute the following command:
`yum install python-devel`
 - ii. Install OpenStack client using following command:
`pip install python-openstackclient`
 - iii. The above command does not import heatclient plugin. Execute the following command to install this plugin.
`pip install python-heatclient`
2. Identify an OpenStack instance. The steps to identify an OpenStack instance are:

 **Note:**

This identified OpenStack instance must meet the Provisioning Gateway OpenStack [Prerequisites](#).

- a. Download the OpenStack API credential file from OpenStack.
- b. Download the OpenStack RC file. The steps are:
 - i. Login to **OpenStack** application.
 - ii. Go to **API Access** section tab.
 - iii. Click the **Download Openstack RC File** option and download the **Identity API v3** file.
- c. Execute the following command to source the downloaded OpenStack API RC file into the Linux system where openstack client is installed.

```
source openrc.sh
```

Example: `source openstack_API.rc` where, `openstack_API.rc` is the API RC file name.

 **Note:**

When system prompts for password, you have to enter OpenStack Controller password.

3. Download the HEAT templates for Provisioning Gateway installation.

 **Note:**

Download the `provgateway (x.x.x.x)` HEAT template to your local system from Oracle Help Center (OHC).

4. Upload the image file to OpenStack. The steps to upload the image file to OpenStack are:
 - a. From the OpenStack GUI, navigate to **Projects > Compute-Image**.
 - b. Click **Create Image**.
 - c. In the **Create Image** dialog box, select an appropriate options for the following fields:
 - i. Select an Image File from the **Image Source** field.
 - ii. Select the `Provgateway-x.x.x.x` image from the **Image File**. The `ProvGateway` Image can be obtained from Oracle Software Delivery Cloud (OSDC) Portal.
Image name:
ProvGateway-x_x_x_x.qcow2
 - iii. The **Minimum Disk** and **Minimum RAM** fields can be left blank.

- iv. The **ProvGateway flavors** must be provided with the appropriate values (4-8-60).
5. Modify the input parameters. The steps to modify the input parameters are:
- a. Edit the HEAT template file, '**provGwParams.yaml**'.

 **Note:**

- The input parameters are given as key/value pairs. Only modify the values (the part to the right side of the colon).
- The formatting is very important in a YAML file. Do not remove any leading spaces or add any line to the file.

- b. Edit the values as per the guidelines provided in below table and save the file.

Table 2-2 provGwParams.yaml File Parameters

Parameter	Description	Value
index	Index in the lists of VM names.	0
vmNames	Provisioning Gateway Server Name.	VMNames to identify Provisioning Gateway in the network. Example: ProvGatewayServers
image	The VM image for the Provisioning gateway.	Provisioning gateway Image name. Example: UDR-PrvGwy-12.6.0.0.0_18.4.0-dev.qcow2
flavor	The flavor that defines the VM size for the Provisioning Gateway.	The provisioning gateway flavor name loaded onto the openstack.
xmiPublicNetwork	Network to communicate with external devices.	Xmi network type name. Example: xmi
xmiNetworkName	Network name to communicate with users and MMI clients.	Only one XMI network Name. Example: xmi_net, EXT_NET
xmiIps	IP to communicate with external devices.	Default: []. If fixed Ips if are present: [IP1, IP2]
xmiSubnetName	Subnet name for XMI	[{"subnet": "ext-net-subnet"}]
provGatewayVMName	Name of ProvGateway VM on which config XML was loaded	VM Name for this Instance. Example: ProvGateway_01
isFixedIps	True, if the VM is created by fixed Ips	Default: false
configDrive	Config drive enable condition	false

6. Execute the following command to deploy Provisioning Gateway using the OpenStack CLI:
- ```
openstack stack create -t ProvGatewayVm.yaml -e ProvGatewayParams.yaml < stackName >
```

# 3

## Provisioning Gateway Configuration

Once the OpenStack is ready and the Instance is created, connect to the instance using ssh command with it's IP Address as follows:

1. Login to root using:
  - **Username** as root
  - **Password** as changeme
  - Go to `/var/ProvGateway` and edit the **Config.toml** file. Refer to the table given below to edit the config.toml file.

**Table 3-1 Config.toml - Config Parameters**

| Parameter         | Value                                                               |
|-------------------|---------------------------------------------------------------------|
| port              | A port number on which ProvGw listens and accepts the soap requests |
| noOfThreadPools   | Number of threads for parallel execution, default is 5              |
| connectionTimeout | Timeout value once the soap client disconnects                      |
| logLevel          | Logging level values are, "DEBUG", "INFO", "ERROR"                  |
| allowedIps        | MTAS IPs, which are allowed to provision                            |

**Table 3-2 Config.toml - SDS Parameters**

| Parameter   | Value                                              |
|-------------|----------------------------------------------------|
| IP          | IP of SDS instance                                 |
| SoapPort    | Port on which SDS is listening for soap messages   |
| Name        | Identifier name for SDS instance, used for logging |
| GUIusername | Username of SDS GUI for MMI commands               |
| GUIpassword | Password of SDS GUI for MMI commands               |

**Table 3-3 Config.toml - UDR Parameters**

| Parameter   | Value                                              |
|-------------|----------------------------------------------------|
| IP          | IP of UDR instance                                 |
| SoapPort    | Port on which UDR is listening for soap messages   |
| Name        | Identifier name for UDR instance, used for logging |
| GUIusername | Username of UDR GUI for MMI commands               |

**Table 3-3 (Cont.) Config.toml - UDR Parameters**

| Parameter   | Value                                |
|-------------|--------------------------------------|
| GUIpassword | Password of UDR GUI for MMI commands |

2. To start the Provisioning Gateway application, execute the following command:  
`StartProvGateway`
3. To stop the Provisioning Gateway application, execute the following command:  
`StopProvGateway`
4. To restart the Provisioning Gateway application after making necessary configuration changes, execute the following command:  
`RestartProvGateway`

# 4

## Provisioning Gateway Upgrade

Currently, Provisioning Gateway does not support Software Upgrade. To upgrade to a newer version of Provisioning Gateway, the user must:

- Follow the steps given in the [Provisioning Gateway Installation Procedure](#)
- Use the new image provided
- Create a new stack
- Not create a Flavor again
- Configure the application (Config.toml file) manually and start the application again
- Delete the old Provisioning stack/instances



### Note:

Provisioning Gateway supports both the fixed and dynamic IP support. To bring up the new Provisioning Gateway with the same IP as the existing one, the user can use [FIXED IP deployment model](#).