

Oracle® Communications Session Delivery Manager

REST API

Release 7.4

Formerly Net-Net Central

November 2014

Notices

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About this Guide

Related Session Delivery Manager Documentation

The following table lists related documents for the Session Delivery Manager

Document Name	Document Description
Release Notes	Contains information about the administration and software configuration of the Session Delivery Manager feature support new to this release.
Installation Guide	Contains graphical and next mode installation information.
High Availability Guide	Describes Session Delivery Manager High Availability (HA) and the HA cluster, which is a network of tightly-linked servers. HA provides continuous management of the SDM system.
Web Services SOAP XML Provisioning API Guide	Provides a full description of the individual interface definitions that make up the Application Programming Interface (API).
REST API Guide	The OC SDM REST API consists of resources, representations, URIs and HTTP request types that make up the uniform interface used for client/server data transfers.
Core Functionality Guide	Contains an overview of the Session Delivery Manager graphical user interface (GUI), detailed information about managing devices in Net-Net Central, and Net-Net Central licenses.
Session Element Manager Guide	Contains detailed information pertaining to the Session Element Manager application and describes the dashboard summary view, audit log, fault, and performance views.
Session Route Manager Guide	Contains detailed information about centrally automating the management and distribution of routing data.
Quick Start Guide	Contains a brief description of the GUI, along with information on how to add a device and perform basic configuration tasks.
Administration Guide	Contains information about security administration, which lets you create new users and new user groups, and set group-based authorization.
Application Orchestrator User Guide	Contains detailed information of the use Application Orchestrator to set up and deploy virtual appliances.
Report Manager Installation Guide	Contains instructions for installing Report Manager's dependencies and registering BI Publisher.

About this Guide

Document Name	Document Description
Report Manager User Guide	Contains information about configuring collection groups and creating reports.

Revision History

Date	Description
November 2014	Initial release

REST API Overview

The OC SDM REST API consists of resources, representations, URIs and HTTP request types that make up the uniform interface used for client/server data transfers.

Application Support

The v0.0 REST API supports the following applications:

- OC Application Orchestrator

Pre-Requisites

The applications that wish to interact with OCSDM via this API need to be able to send HTTP requests and receive HTTP responses. The applications need to have certain software development toolkit to generate the HTTP requests and receive HTTP responses, such as the Java JDK or the Jersey client jar package. The request and response body are available in either XML or JSON formats. A XML and JSON parser toolkit is needed in the application to be able to parse the XML or JSON data.

Full Resource URI

A resource's full URI consists of the OCSDM instance, resource base, version information and specific resource URI.

The following example is for a login resource:

```
https:// OCSDM _ipaddress:8443/rest/v0.0/admin/login
```

OCSDM Instance

An OCSDM instance is **https:// OCSDM _ipaddress:8443/**. The protocol is either http or https; the port number could be different too, they depend on the OCSDM instance setup during the installation.

Resource Base

The resource base of this API is **/rest**

API Versioning

The API version information appears in resource URI. It uses major and minor version number such as, v0.0, v1.0, v1.1, v2.0, etc. Minor versions expand the interface and do not change the request and response body format. For example, everything in v1.1 is available in v1.2 and all existing request and response message formats are the same.

Message Body Format

The API supports both XML and JSON data formats in the request and response message body. Users need to specify the message format in the HTTP header. A request and response data formats are always same.

A request to the API resource always returns a HTTP response code. Error response codes typically break down into two types: 4xx series status codes for client side issues and 5xx series status codes for server side issues. An error response also contains an error body in either XML or JSON format containing the http status code, server error code, error label and error message are defined by OCAO server.

The following is an example of a 500 server error response in XML format when trying to create a vim resource with the vim name already existing in the server.

```
<?xml version="1.0"?>
<errorResponse>
  <httpStatusCode>500</httpStatusCode>
  <errorCode>41004</errorCode>
  <errorLabel>EM_ADD_ENGINE_EXISTS</errorLabel>
  <message>Engine already exists.</message>
</errorResponse>
```

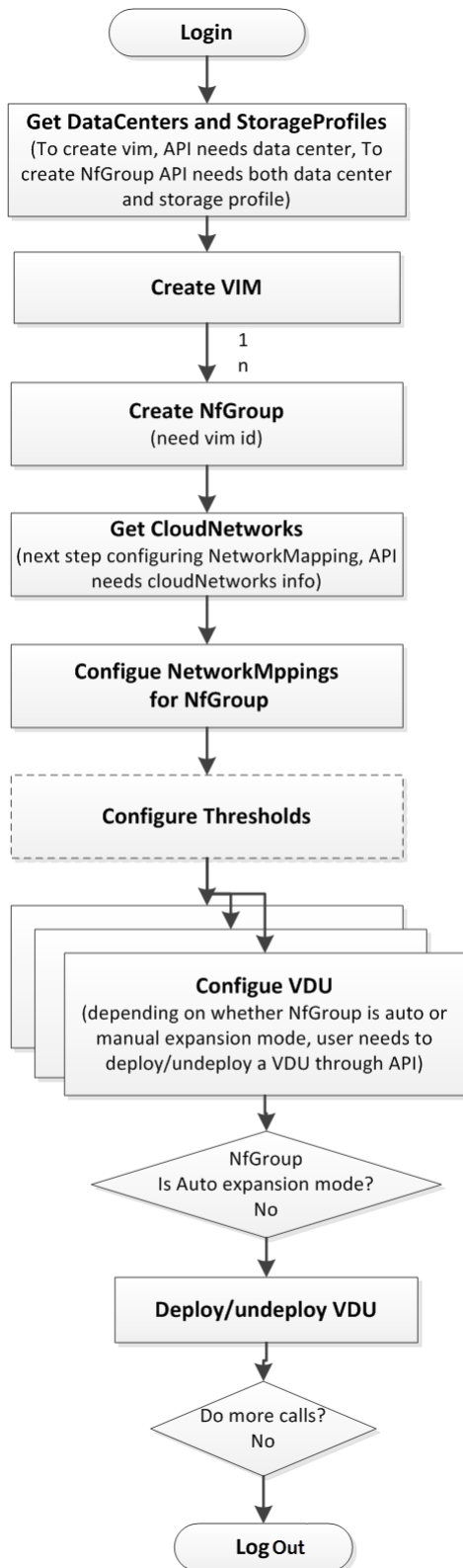
Status and Error Response Codes

The table below lists all the possible HTTP response codes.

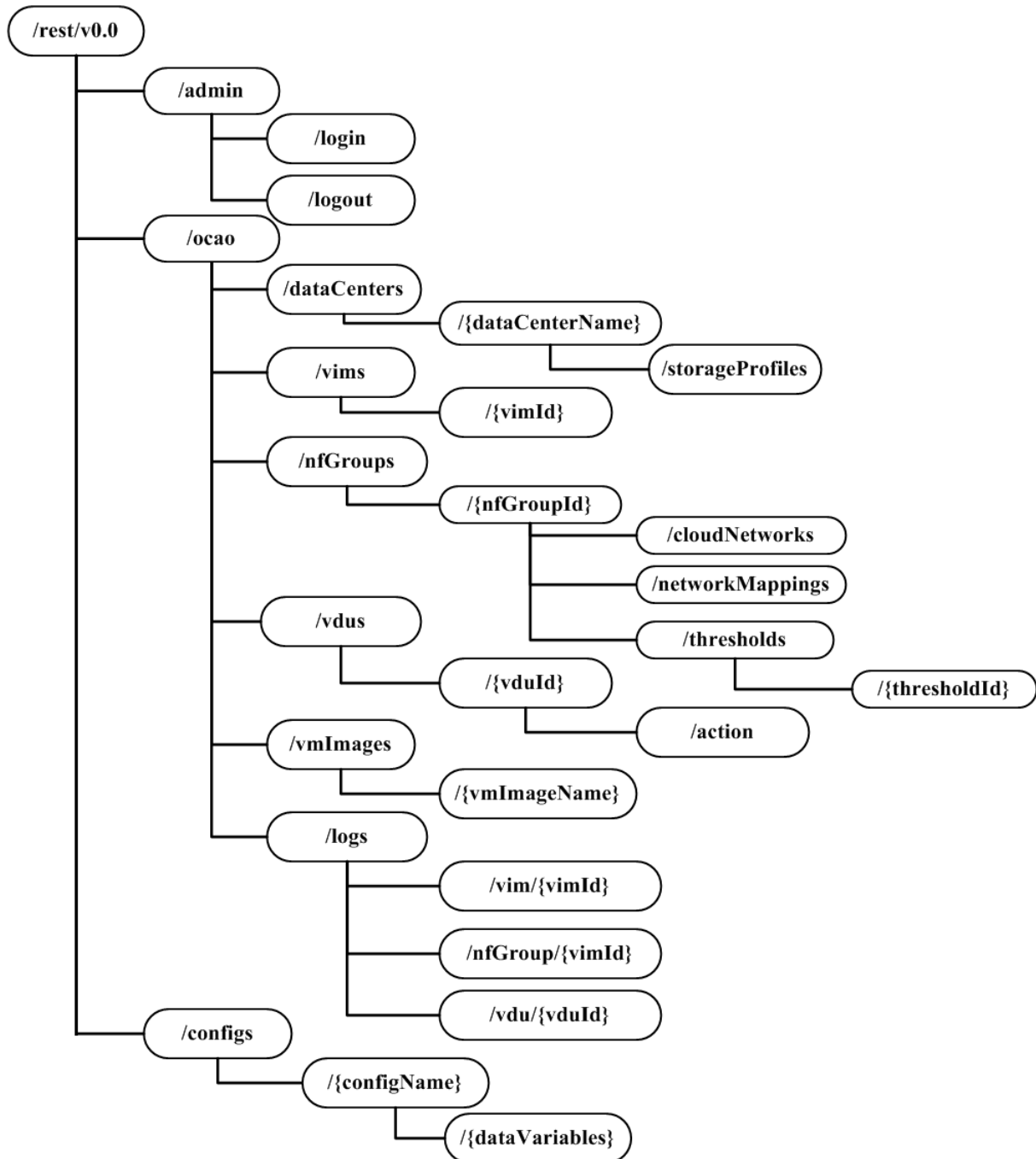
HTTP Response Code	Description
200(OK)	Successful request with GET, PUT and POST.
202(Accepted)	The request has been accepted for processing, but the processing has not been completed. The request may not be acted upon, as it might be disallowed when processing actually takes place.
204(No Content)	The server successfully processed the request, but is not returning any content. Usually used as a response to a successful delete request
400(Bad Request)	Bad request, the response body contains the message.
401(Unauthorized)	Login with invalid user/password, or request has no valid session Id.
403(Forbidden)	Forbidden, the user may not have the privilege to assess the resource or operation on the resource. The response body contains more detailed information.
404(Not Found)	Not found, the resource could not be found or may be deleted.
405(Internal Server Error)	Internal server error, the response body contains the message and error code.

Major API Call Flow

The following figure displays the major API call flow:



Resource Tree



Sample Client Code

This section gives you examples for using the REST API with various client-side libraries and cURL. The REST API can be utilized in several different programming languages. The development environment determines how to best access the REST API.

Jersey Client Package Example

You must download a Jersey release and put the JARs in your class path to use the Jersey package. If using the JSON message format, you must also retrieve any additional JARs described in the Jersey User Guide. The following JARs are required to support MOXy as your JSON provider:

```
jersey-entity-filtering-2.9.jar
jersey-media-moxy-2.9.jar
org.eclipse.persistence.moxy-2.5.0.jar
org.eclipse.persistence.core-2.5.0.jar
org.eclipse.persistence.antlr-2.5.0.jar
org.eclipse.persistence.asm-2.5.0.jar
```

The sample code is java class:

```
com.oracle.ocsdm.ws.rest RestClientUsingJavaNetExample.java
```

Java JDK Net Package Example

No additional 3rd party JARs are required to make REST API calls using the JDK net package.

The sample code is java class:

```
com.oracle.ocsdm.ws.rest RestClientUsingJavaNetExample.java
```

cURL Example

This section provides some samples using the cURL command-line tool to make REST API calls.

1. Login example, input and out put is in xml format

```
curl -v -c sessionid.txt -X POST -d@user.xml -H"Content-Type: application/xml" -H"Accept: application/xml" http://localhost:8080/rest/v0.0/admin/login
```

The following is an example of the user.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<session>
  <userName>admin</userName>
  <password>admin</password>
</session>
```

2. Create a VIM in the XML format.

```
curl -v -b sessionid.txt -X POST -d@viminfo.xml -H"Content-Type: application/xml" -H"Accept: application/xml" http://localhost:8080/rest/v0.0/ocao/vims
```

The following is an example of the viminfo.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<vim>
  <type>VCLOUD_5_5</type>
  <name>tgeVmEngine-1</name>
  <userName>nnc</userName>
  <password>abc123</password>
  <organization>Oracle</organization>
  <ip>172.30.81.145</ip>
  <port>443</port>
  <vdc>SecondaryVDC</vdc>
</vim>
```

3. Retrieve all VIMs in the XML format.

```
curl -v -b sessionid.txt -X GET -H"Accept: application/xml" http://localhost:8080/rest/v0.0/ocao/vims
```

Administrative Resources Overview

The Administration chapter contains information on all administrative management resources available to the OC SDM REST API.

User Accounts

The User Accounts section contains information on establishing and tearing down valid sessions via the OC SDM REST API.

Method	URI	Description
POST	/v0.0/admin/login	Initiates a client/server session and returns a valid session ID.
POST	/v0.0/admin/logout	Tears down a session with a valid session ID.

Parameters

Property	Type	Request/Response	Description
userName	String	Request/Response	User name
password	String	Response	User password
sessionId	String	Response	Session ID generated by the server
userGroup	String	Response	User group that the user belongs to
idleTimeout	Long	Response	Idle time before the server closes the session, if no request from the client is received

Login a User Account

The /admin/login resource logs into the OC SDM server to establish a valid session for any following REST API calls.

Administrative Resources Overview

Method	URI	Description
POST	/v0.0/admin/login	Initiates a client/server session and returns a valid session ID.

Normal response code: 200(OK)

Error response code: 400(Bad Request), 401(Unauthorized)

Requests

XML Request

```
<? xml version="1.0" encoding="UTF-8"?>
<session>
  <userName>admin</userName>
  <password>admin</password>
</session>
```

JSON Request

```
{
  "userName": "admin",
  "password": "admin"
}
```

Responses

XML Responses

```
<? xml version="1.0" encoding="UTF-8"?>
<session>
  <userName>admin</userName>
  <userGroup>administrators</userGroup>
  <sessionId>F2AB1A21F5210EB8.tomcat1</sessionId>
  <idleTimeout>0</idleTimeout>
</session>
```

JSON Responses

```
{
  "userName": "admin",
  "userGroup": "administrators",
  "sessionId": " F2AB1A21F5210EB8.tomcat1",
  "idleTimeout": 0,
}
```

Logout a User Account

Method	URI	Description
POST	/v0.0/admin/logout	Tears down a session with a valid session ID.

Normal response code: 204(No Content)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 500(Internal Server Error)

Application Orchestrator Overview

The Application Orchestrator chapter contains information on all NFV management and orchestration resources available to the OC SDM REST API.

VIMs Overview

VIM resources include all the Vitalization Infrastructure Manager resources. See individual API calls for more information.

Method	URI	Description
GET	/v0.0/ocao/vims	Retrieves all VIMs.
POST	/v0.0/ocao/vims/	Creates a new VIM
GET	/v0.0/ocao/vims/{vimId}	Retrieves VIM parameters
PUT	/v0.0/ocao/vims/{vimId}	Updates VIM parameters
DELETE	/v0.0/ocao/vims/{vimId}	Deletes VIM

Parameters

Parameter	Type	Description
id	String	VIM resource ID
name	String	Unique name of the VIM engine resource
type	enum	Type of hypervisor
ip	String	The IP address of the hypervisor

Retrieve All VIMs

Method	URI	Description
GET	/v0.0/ocao/vims	Retrieves all VIM information

Application Orchestrator Overview

Normal Response Codes: 200(OK)

Error Response Codes: 401(Unauthorized), 403(Forbidden), 500(Internal Server Error)

XML Response

```
<? xml version="1.0" encoding="UTF-8"?>
<vims>
  <vim>
    <id>2</id>
    <ip>172.30.81.145</ip>
    <name>tgeVmEngine-10</name>
    <type>VCLLOUD_5_5</type>
  </vim>
  <vim>
    <id>3</id>
    <ip>172.30.81.145</ip>
    <name>tgeVmEngine-2</name>
    <type>VCLLOUD_5_5</type>
  </vim>
</vims>
```

JSON Response

```
[
  {
    "id": "2",
    "ip": "172.30.81.145",
    "name": "tgeVmEngine-10",
    "type": "VCLLOUD_5_5"
  },
  {
    "id": "3",
    "ip": "172.30.81.145",
    "name": "tgeVmEngine-2",
    "type": "VCLLOUD_5_5"
  }
]
```

Un-Deploy VDUs

Method	URI	Description
POST	/v0.0/ocao/vdus/{vduId}/undeploy	Un-Deploys the specified VDU

Normal response code: 202(Accepted)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Retrieve VIM Parameters

Method	Resource	Description
GET	/v0.0/ocao /vims /{vimId}	Retrieves all parameters for the target VIM.

Normal Response Codes: 200(OK)

Error Response Codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Response

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vim>
  <id>4</id>
  <ip>172.30.81.145</ip>
  <name>tgeVmEngine-120</name>
  <organization>Oracle</organization>
  <password>xxx</password>
  <port>443</port>
  <type>VCLLOUD_5_5</type>
  <userName>nnc</userName>
  <vdc>SecondaryVDC</vdc>
</vim>
```

JSON Response

```
{
  "id": "2",
  "ip": "172.30.81.145",
  "name": "tgeVmEngine-2",
  "organization": "Oracle",
  "password": "*****",
  "port": "443",
  "type": "VCLLOUD_5_5",
  "userName": "nnc",
  "vdc": "SecondaryVDC"
}
```

Update VIM Parameters

Method	URI	Description
PUT	/v0.0/ocao /vims /{vimId}	Updates the specified parameter for a target VIM.

Normal Response Code: 200(OK)

Error Response Codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Request

Parameter	Type	Description
password	String	Password



Note: Only the password may be updated once the VIM is provisioned.

XML Request

```
<?xml version="1.0" encoding="UTF-8"?>
<vim>
```

Application Orchestrator Overview

```
<password>mynewpassword</password>
</vim>
```

JSON Request

```
{
  "password": "mynewpassword"
}
```

Response

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vim>
  <id>4</id>
  <ip>172.30.81.145</ip>
  <name>tgeVmEngine-120</name>
  <organization>Oracle</organization>
  <password>xxx</password>
  <port>443</port>
  <type>VCLOUD_5_5</type>
  <userName>nnc</userName>
  <vdc>SecondaryVDC</vdc>
</vim>
```

JSON Response

```
{
  "id": "2",
  "ip": "172.30.81.145",
  "name": "tgeVmEngine-2",
  "organization": "Oracle",
  "password": "*****",
  "port": "443",
  "type": "VCLOUD_5_5",
  "userName": "nnc",
  "vdc": "SecondaryVDC"
}
```

Delete VIMs

Method	URI	Description
DELETE	/v0.0/ocao /vims /{vimId}	Deletes the target VIM.

Normal Response Codes: 204(No Content)

Error Response Codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Service Error)

Data Centers Overview

Method	URI	Description
GET	/v0.0/ocao /dataCenters/	Retrieves All Data Centers.
GET	/v0.0/ocao /dataCenters /{dataCenterName}/	Retrieves Data Center Parameters.
GET	/v0.0/ocao /dataCenters /{dataCenterName}/ storageProfiles	Retrieves Storage Profiles for a specific Data Center.

Parameters

Parameter	Type	Description
vdc	String	Name of the data center
organization	String	Organization the data center belongs to
vdcRef	String	URI for the data center

Retrieve All Data Centers

Method	URI	Description
GET	/v0.0/ocao /dataCenters? vimType={VCLLOUD_5_5}&organization={Oracle}&userName={nnc}&password={userpassword}&ip={172.30.1.1}&port={443}	Retrieves all data centers associated with a user account
GET	/v0.0/ocao/dataCenters? vimId={vim_Id}	Retrieves all data centers associated with a VIM id

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dataCenters>
  <dataCenter>
    <organization>Oracle</organization>
    <vdc>SecondaryVDC</vdc>
    <vdcRef>https://172.30.81.145/api/vdc/c77c89d3-ae1d-482c-98de-
ca2ef832b2e7</vdcRef>
  </dataCenter>
  <dataCenter>
    <organization>Oracle</organization>
    <vdc>MainVDC</vdc>
    <vdcRef>https://172.30.81.145/api/vdc/3c9cd2e2-
```

```
f65b-4f32-91de-5525b58d3a1f</vdcRef>
</dataCenter>
</dataCenters>
```

JSON Response

```
[
  {
    "organization": "Oracle",
    "vdc": "SecondaryVDC",
    "vdcRef": "https://172.30.81.145/api/vdc/c77c89d3-
aeld-482c-98de-ca2ef832b2e7"
  },
  {
    "organization": "Oracle",
    "vdc": "MainVDC",
    "vdcRef": "https://172.30.81.145/api/vdc/3c9cd2e2-
f65b-4f32-91de-5525b58d3a1f"
  }
]
```

Retrieve Data Center Parameters

Method	URI	Description
GET	/v0.0/ocao/dataCenters/ {dataCenterName}? vimType={VCLOUD_5_5}&organiz ation={Oracle}&userName={nnc}& password={password}&ip={172.30. 81.145}&port={443}	Retrieves the parameters for a data center associated with a user account
GET	/v0.0/ocao/dataCenters/ {dataCenterName}?vimId={vim_Id}	Retrieves the parameters for a data center associated with a VIM

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found)

Responses

XML Response

```
<dataCenter>
  <organization>Oracle</organization>
  <storageProfile>
    <name>*</name>          <ref>https://172.30.81.145/api/
vdcStorageProfile/97abelbc-8c82-4e4e-a8a4-a1a1fc92efa5</ref>
  </storageProfile>
  <storageProfile>
    <name>Local Storage</name>          <ref>https://
172.30.81.145/api/vdcStorageProfile/7edf44ee-c434-4ece-b542-
d7c8ed191d88</ref>          </storageProfile>
  <storageProfile>
    <name>SharedStorage</name>          <ref>https://
172.30.81.145/api/vdcStorageProfile/
374055b7-70a1-4482-85f9-510b865e750b</ref>
  </storageProfile>
```

```
<vdc>MainVDC</vdc>
<vdcRef>https://172.30.81.145/api/vdc/3c9cd2e2-
f65b-4f32-91de-5525b58d3a1f</vdcRef>
</dataCenter>
```

JSON Response

```
{
  "organization": "Oracle",
  "storageProfile": [
    {
      "name": "*",
      "ref": "https://172.30.81.145/api/
vdcStorageProfile/97abelbc-8c82-4e4e-a8a4-a1a1fc92efa5"
    },
    {
      "name": "Local Storage",
      "ref": "https://172.30.81.145/api/
vdcStorageProfile/7edf44ee-c434-4ece-b542-d7c8ed191d88"
    },
    {
      "name": "SharedStorage",
      "ref": "https://172.30.81.145/api/
vdcStorageProfile/374055b7-70a1-4482-85f9-510b865e750b"
    }
  ],
  "vdc": "MainVDC",
  "vdcRef": "https://172.30.81.145/api/vdc/3c9cd2e2-
f65b-4f32-91de-5525b58d3a1f"
}
```

Retrieve Storage Profiles for a Data Center

Method	URI	Description
GET	/v0.0/ocao/dataCenters/ {dataCenterName}/storageProfiles? vimType={VCLOUD_5_5}&organiz ation={Oracle}&userName={nnc}& password={password}&ip={172.30. 81.145}&port={443}	Retrieves storage profiles for a data center associated with a user account
GET	/v0.0/ocao/dataCenters/ {dataCenterName}/storageProfiles? vimId={vim_Id}	Retrieves storage profiles for a data center associated with a VIM id

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found)

Responses

XML Reponse

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<storageProfiles>
  <storageProfile>
    <name>*</name>      <ref>https://172.30.81.145/api/
vdcStorageProfile/97abelbc-8c82-4e4e-a8a4-a1a1fc92efa5</ref>
  </storageProfile>
  <storageProfile>
```

Application Orchestrator Overview

```
<name>Local Storage</name>      <ref>https://172.30.81.145/api/
vdcStorageProfile/7edf44ee-c434-4ece-b542-d7c8ed191d88</ref>
</storageProfile>
<storageProfile>
  <name>SharedStorage</name>      <ref>https://172.30.81.145/api/
vdcStorageProfile/374055b7-70a1-4482-85f9-510b865e750b</ref>
</storageProfile>
</storageProfiles>
```

JSON Reponse

```
[
  {
    "name": "*",
    "ref": "https://172.30.81.145/api/vdcStorageProfile/
97abelbc-8c82-4e4e-a8a4-ala1fc92efa5"
  },
  {
    "name": "Local Storage",
    "ref": "https://172.30.81.145/api/
vdcStorageProfile/7edf44ee-c434-4ece-b542-d7c8ed191d88"
  },
  {
    "name": "SharedStorage",
    "ref": "https://172.30.81.145/api/
vdcStorageProfile/374055b7-70a1-4482-85f9-510b865e750b"
  }
]
```

NF Groups Overview

NF groups are logical configuration objects that are associated with a VIM. Characteristics of VIM deployment are configured within the NF group.

Method	URI	Description
GET	/v0.0/ocao/nfGroups	Retrieves all NF groups
POST	/v0.0/ocao/nfGroups	Creates a new NF group
GET	/v0.0/ocao/nfGroups/{nfGroupId}	Retrieves parameters for the specified NF group
PUT	/v0.0/ocao/nfGroups/{nfGroupId}	Updates parameters for the specified NF group
DELETE	/v0.0/ocao/nfGroups/{nfGroupId}	Deletes the specified NF group

Parameters

Parameter	Type	Description
name	String	NF group name
id	String	A unique NF group ID
description	String	NF group description
vimId	String	VIM ID the NF group belongs to

Parameter	Type	Description
cloudEntityId	String	Cloud entity ID
status	String	Status of the NF group
lastStatusModifiedHost	String	The OC Application Orchestrator node IP that made the last notification
vmImageName	String	VM image name
imageType	enum	VM image type, e.g. CSM
vduCount	int	Current active VDU accounts in the NF group
minVduCount	int	Minimum VDU number
maxVduCount	int	Maximum VDU number
deviceGroupName	String	Device group name
configName	String	Configuration name
acpUserName	String	ACP user name
acpPassword	String	ACP user password
acpNewPassword	String	New ACP password used by the VM after deployment
configPassword	String	Configuration password
configNewPassword	String	New configuration password used by the VM after deployment
snmpCommunityName	String	SNMP community name used by the VDU
snmpPort	String	SNMP port used by the VDU
mgmtNetworkMask	String	Network mask on the VDU
mgmtGateway	String	Default gateway on the VDU
mgmtVLAN	int	VLAN ID on the VDU
enabledHA	Boolean	Status of High Availability
scaleDownKPI	enum	CallsPerSecond, ActiveSessions, ActiveLocalContacts, CPUUtil, MemoryUtil
loadSheddingThreshold	int	Threshold for load shedding
loadSheddingTimeout	int	Timeout value for load shedding
callDownKPI	String	KPI for the call down
vCloud Director VIM Parameters		
vdc	String	Data center name
storageProfile	String	Storage profile name
vCenterUrl	String	Data center URL

Application Orchestrator Overview

Parameter	Type	Description
vCenterUser	String	Data center user
vCenterPassword	String	Data center password

Retrieve All NF Groups

Method	URI	Description
GET	/v0.0/ocao/ nfGroups	Retrieves all NF groups
GET	/v0.0/ocao/nfGroups?vimId={vimId}	Retrieves all NF groups associated with the specified VIM

Normal response code: 200(OK)

Error response code: 401(Unauthorized), 403(Forbidden)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nfGroups>
  <nfGroup>
    <description>Test VM Group Creation</description>
    <deviceGroupId>ID1</deviceGroupId>
    <deviceGroupName>Home</deviceGroupName>
    <enableHA>>false</enableHA>
    <expansionMode>Manual</expansionMode>
    <id>15</id>
    <imageType>CSM</imageType>
    <maxVdus>5</maxVdus>
    <minVdus>1</minVdus>
    <name>tgeVmGroup5</name>
    <status>Running</status>
    <vduCount>1</vduCount>
    <vimId>2</vimId>
    <vimName>tgeVmEngine-2</vimName>
    <vmImageName>vmImage6315</vmImageName>
  </nfGroup>
  <nfGroup>
    <description>Another VM Group Creation</description>
    <deviceGroupId>ID1</deviceGroupId>
    <deviceGroupName>Home</deviceGroupName>
    <enableHA>>false</enableHA>
    <expansionMode>Manual</expansionMode>
    <id>29</id>
    <imageType>CSM</imageType>
    <maxVdus>5</maxVdus>
    <minVdus>1</minVdus>
    <name>tgeVmGroup6</name>
    <status>Running</status>
    <vduCount>0</vduCount>
    <vimId>2</vimId>
    <vimName>tgeVmEngine-2</vimName>
    <vmImageName>vmImage6315</vmImageName>
  </nfGroup>
</nfGroups>
```

JSON Response

```
[
  {
    "description": "Test VM Group Creation",
    "deviceGroupId": "ID1",
    "deviceGroupName": "Home",
    "enableHA": "false",
    "expansionMode": "Manual",
    "id": "15",
    "imageType": "CSM",
    "maxVdus": "5",
    "minVdus": "1",
    "name": "tgeVmGroup5",
    "status": "Running",
    "vduCount": "1",
    "vimId": "2",
    "vimName": "tgeVmEngine-2",
    "vmImageName": "vmImage6315"
  },
  {
    "description": "Another Test VM Group Creation",
    "deviceGroupId": "ID1",
    "deviceGroupName": "Home",
    "enableHA": "false",
    "expansionMode": "Manual",
    "id": "29",
    "imageType": "CSM",
    "maxVdus": "5",
    "minVdus": "1",
    "name": "tgeVmGroup6",
    "status": "Running",
    "vduCount": "0",
    "vimId": "2",
    "vimName": "tgeVmEngine-2",
    "vmImageName": "vmImage6315"
  }
]
```

Create NF Groups

Method	URI	Description
POST	/v0.0/ocao/nfGroups	Creates a new NF group

Normal response code: 200(OK)

Error response code: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 500(Internal Server Error)

Requests**XML Request**

```
<?xml version="1.0" encoding="UTF-8"?>
<nfGroup>
  <name>tgeVmGroup10</name>
  <vimName>tgeVmEngine-120</vimName>
  <description>Test VM Group Creation REST API</description>
  <vmImageName>vmImage6315</vmImageName>
  <imageType>CSM</imageType>
  < minVdus >1</ minVdus >
```

```
<maxVdus>5</maxVdus>
<deviceGroupName>Home</deviceGroupName>
<expansionMode>Auto</expansionMode>
<enableHA>false</enableHA>
<configName>oc-s-1</ configName >
<loadSheddingThreshold>1</ loadSheddingThreshold >
<callSheddingTimeout>1</callSheddingTimeout>
<scaleDownKPI>apSysGlobalCPS</scaleDownKPI>
<acpUserName>admin</acpUserName>
<acpPassword>packet</acpPassword>
<acpNewPassword>abc123</acpNewPassword>
<configPassword>acmepacket</configPassword>
<configNewPassword>abc123456</configNewPassword>
<snmpCommunityName>tge</snmpCommunityName>
<snmpPort>161</snmpPort>
<mgmtNetmask>255.255.0.0</mgmtNetmask>
<mgmtGateway>172.30.0.1</mgmtGateway>
<mgmtVlan>0</mgmtVlan>
<vdc>SecondaryVDC</vdc>
<storageProfile>*</storageProfile>
</nfGroup>
```

JSON Request

```
{
  "acpNewPassword": "abc1234!",
  "acpPassword": "packet",
  "acpUserName": "admin",
  "activeCallThreshold": "1",
  "callSheddingTimeout": "1",
  "configNewPassword": "abc1234!",
  "configPassword": "acmepacket",
  "description": "Test VM Group Creation REST API JSON",
  "deviceGroupName": "Home",
  "enableHA": "false",
  "expansionMode": "Manual",
  "imageType": "CSM",
  "maxVirtualDevices": "5",
  "mgmtGateway": "172.30.0.1",
  "mgmtNetmask": "255.255.0.0",
  "mgmtVlan": "0",
  "minVirtualDevices": "1",
  "name": "tgeVmGroup5",
  "configName": "oc-s-2",
  "snmpCommunityName": "tge",
  "snmpPort": "161",
  "storageProfile": "*",
  "vdc": "SecondaryVDC",
  "vimId": "2",
  "vimName": "tgeVmEngine-2",
  "vmImageName": "vmImage6315"
}
```

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nfGroup>
  <acpNewPassword>*****</acpNewPassword>
  <acpPassword>*****</acpPassword>
```

```

<acpUserName>admin</acpUserName>
<activeCallThreshold>1</activeCallThreshold>
<callSheddingTimeout>1</callSheddingTimeout>
<cloudEntityId>https://172.30.81.145/api/vApp/vapp-ald5c82e-
feaf-4a12-8dce-f66a34a21590</cloudEntityId>
<configNewPassword>*****</configNewPassword>
<configPassword>*****</configPassword>
<description>Test VM Group Creation REST API</description>
<deviceCount>0</deviceCount>
<deviceGroupId>ID1</deviceGroupId>
<deviceGroupName>Home</deviceGroupName>
<enableHA>false</enableHA>
<expansionMode>Auto</expansionMode>
<id>10</id>
<imageType>CSM</imageType>
<lastModifiedHost>172.30.0.91</lastModifiedHost>
<maxVdus>5</ maxVdus >
<mgmtGateway>172.30.0.1</mgmtGateway>
<mgmtNetmask>255.255.0.0</mgmtNetmask>
<mgmtVlan>0</mgmtVlan>
<minVdus>1</minVdus>
<name>tgeVmGroup10</name>
<configName>oc-s-1</ configName >
<scaleDownKPI>apSysGlobalCPS</scaleDownKPI>
<snmpCommunityName>tge</snmpCommunityName>
<snmpPort>161</snmpPort>
<status>Not_Configured</status>
<storageProfile>*</storageProfile>
<vdc>SecondaryVDC</vdc>
<vimId>4</vimId>
<vimName>tgeVmEngine-120</vimName>
<vmImageName>vmImage6315</vmImageName>
</nfGroup>

```

JSON Response

```

{
  "acpNewPassword": "*****",
  "acpPassword": "*****",
  "acpUserName": "admin",
  "cloudEntityId": "https://172.30.81.145/api/vApp/
vapp-82ff82b2-6f29-4cb9-968e-8c5eddd03efa",
  "configName": "oc-s-2",
  "configNewPassword": "*****",
  "configPassword": "*****",
  "description": "Test VM Group Creation REST API JSON",
  "deviceGroupId": "ID1",
  "deviceGroupName": "Home",
  "enableHA": "false",
  "expansionMode": "Manual",
  "id": "15",
  "imageType": "CSM",
  "lastModifiedHost": "172.30.0.91",
  "loadSheddingThreshold": "0",
  "loadSheddingTimeout": "0",
  "maxVdus": "5",
  "mgmtGateway": "172.30.0.1",
  "mgmtNetmask": "255.255.0.0",
  "mgmtVlan": "0",
  "minVdus": "1",
  "name": "tgeVmGroup5",
  "scaleDownKPI": "apSysGlobalConSess",
  "snmpCommunityName": "tge",

```

```
    "snmpPort": "161",
    "status": "Not_Configured",
    "storageProfile": "*",
    "vdc": "SecondaryVDC",
    "vduCount": "0",
    "vimId": "2",
    "vimName": "tgeVmEngine-2",
    "vmImageName": "vmImage6315"
}
```

Retrieve NF Group Parameters

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}	Retrieves parameters for the specified NF group

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nfGroup>
  <acpNewPassword>*****</acpNewPassword>
  <acpPassword>*****</acpPassword>
  <acpUserName>admin</acpUserName>
  <cloudEntityId>https://172.30.81.145/api/vApp/
vapp-82ff82b2-6f29-4cb9-968e-8c5eddd03efa</cloudEntityId>
  <configName>oc-s-2</configName>
  <configNewPassword>*****</configNewPassword>
  <configPassword>*****</configPassword>
  <description>Test VM Group Creation REST API JSON</description>
  <deviceGroupId>ID1</deviceGroupId>
  <deviceGroupName>Home</deviceGroupName>
  <enableHA>false</enableHA>
  <expansionMode>Manual</expansionMode>
  <id>15</id>
  <imageType>CSM</imageType>
  <lastModifiedHost>172.30.0.91</lastModifiedHost>
  <loadSheddingThreshold>0</loadSheddingThreshold>
  <loadSheddingTimeout>0</loadSheddingTimeout>
  <maxVdus>5</maxVdus>
  <mgmtGateway>172.30.0.1</mgmtGateway>
  <mgmtNetmask>255.255.0.0</mgmtNetmask>
  <mgmtVlan>0</mgmtVlan>
  <minVdus>1</minVdus>
  <name>tgeVmGroup5</name>
  <networkMapping>
    <cloudNetwork>Management</cloudNetwork>
    <id>41</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>wancom1</cloudNetwork>
    <id>42</id>
```

```

    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom1</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>43</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom2</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>44</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>spare</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>Access</cloudNetwork>
    <id>45</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>46</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>slp0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>Core</cloudNetwork>
    <id>47</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p1</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>48</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>slp1</vmNicName>
  </networkMapping>
  <scaleDownKPI>apSysGlobalConSess</scaleDownKPI>
  <snmpCommunityName>tge</snmpCommunityName>
  <snmpPort>161</snmpPort>
  <status>Running</status>
  <storageProfile>*</storageProfile>
  <vdc>SecondaryVDC</vdc>
  <vduCount>0</vduCount>
  <vimId>2</vimId>
  <vimName>tgeVmEngine-2</vimName>
  <vmImageName>vmImage6315</vmImageName>
</nfGroup>

```

JSON Response

```

{
  "acpNewPassword": "*****",
  "acpPassword": "*****",

```

```
"acpUserName":"admin",
"cloudEntityId":"https://172.30.81.145/api/vApp/
vapp-82ff82b26f29-4cb9-968e-8c5eddd03efa",
"configName":"oc-s-2",
"configNewPassword":"*****",
"configPassword":"*****",
"description":"Test VM Group Creation REST API JSON",
"deviceGroupId":"ID1",
"deviceGroupName":"Home",
"enableHA":"false",
"expansionMode":"Manual",
"id":"15",
"imageType":"CSM",
"lastModifiedHost":"172.30.0.91",
"loadSheddingThreshold":"0",
"loadSheddingTimeout":"0",
"maxVdus":"5",
"mgmtGateway":"172.30.0.1",
"mgmtNetmask":"255.255.0.0",
"mgmtVlan":"0",
"minVdus":"1",
"name":"tgeVmGroup5",
"networkMapping":
[
    {
        "cloudNetwork":"Management",
        "id":"41",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom0"
    },
    {
        "cloudNetwork":"wancom1",
        "id":"42",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom1"
    },
    {
        "cloudNetwork":"none",
        "id":"43",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom2"
    },
    {
        "cloudNetwork":"none",
        "id":"44",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"spare"
    },
    {
        "cloudNetwork":"Access",
        "id":"45",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"s0p0"
    },
    {
        "cloudNetwork":"none",
        "id":"46",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"s1p0"
    }
]
```

```

    },
    {
        "cloudNetwork": "Core",
        "id": "47",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s0p1"
    },
    {
        "cloudNetwork": "none",
        "id": "48",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s1p1"
    }
],
"scaleDownKPI": "apSysGlobalConSess",
"snmpCommunityName": "tge",
"snmpPort": "161",
"status": "Running",
"storageProfile": "*",
"vdc": "SecondaryVDC",
"vduCount": "0",
"vimId": "2",
"vimName": "tgeVmEngine-2",
"vmImageName": "vmImage6315"
}

```

Update NF Group Parameters

Method	URI	Description
PUT	/v0.0/ocao/nfGroups/{nfGroupId}	Updates parameters for the specified NF group

Normal response codes: 200(OK)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Requests

XML Request

```

<?xml version="1.0" encoding="UTF-8"?>
<nfGroup>
  <description>Test REST API VM Group Update</description>
  <minVdus>2</ minVdus >
  <maxVdus>4</ maxVdus >
  <expansionMode>Manual</expansionMode>
  <loadSheddingThreshold>2</loadSheddingThreshold>
  <loadSheddingTimeout>2</callSheddingTimeout>
  <scaleDownKPI>apSysGlobalConSess</scaleDownKPI>
  <acpUserName>admin</acpUserName>
  <acpPassword>packet</acpPassword>
  <acpNewPassword>abc123des</acpNewPassword>
  <configPassword>acmepacket</configPassword>
  <configNewPassword>walderhodl2</configNewPassword>
</nfGroup>

```

JSON Request

```
{
    "acpNewPassword": "aNewPassowrd",
    "acpPassword": "theAcpPassowrd",
    "acpUserName": "admin",
    "configNewPassword": "tanewConfigPwd",
    "configPassword": "theConfigPwd",
    "description": "Test VM Group REST API JSON",
    "expansionMode": "Manual",
    "loadSheddingThreshold": "2",
    "loadSheddingTimeout": "2",
    "scaleDownKPI": "apSysGlobalConSess",
    "maxVdus": "5",
    "minVdus": "1",
}
```

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nfGroup>
  <acpNewPassword>*****</acpNewPassword>
  <acpPassword>*****</acpPassword>
  <acpUserName>admin</acpUserName>
  <cloudEntityId>https://172.30.81.145/api/vApp/
vapp-82ff82b2-6f29-4cb9-968e-8c5eddd03efa</cloudEntityId>
  <configName>oc-s-2</configName>
  <configNewPassword>*****</configNewPassword>
  <configPassword>*****</configPassword>
  <description>Test VM Group Creation REST API JSON</description>
  <deviceGroupId>ID1</deviceGroupId>
  <deviceGroupName>Home</deviceGroupName>
  <enableHA>false</enableHA>
  <expansionMode>Manual</expansionMode>
  <id>15</id>
  <imageType>CSM</imageType>
  <lastModifiedHost>172.30.0.91</lastModifiedHost>
  <loadSheddingThreshold>0</loadSheddingThreshold>
  <loadSheddingTimeout>0</loadSheddingTimeout>
  <maxVdus>5</maxVdus>
  <mgmtGateway>172.30.0.1</mgmtGateway>
  <mgmtNetmask>255.255.0.0</mgmtNetmask>
  <mgmtVlan>0</mgmtVlan>
  <minVdus>1</minVdus>
  <name>tgeVmGroup5</name>
  <networkMapping>
    <cloudNetwork>Management</cloudNetwork>
    <id>41</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>wancom1</cloudNetwork>
    <id>42</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom1</vmNicName>
  </networkMapping>
</networkMapping>
```

```

    <cloudNetwork>none</cloudNetwork>
    <id>43</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom2</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>44</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>spare</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>Access</cloudNetwork>
    <id>45</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>46</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s1p0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>Core</cloudNetwork>
    <id>47</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p1</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>48</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s1p1</vmNicName>
  </networkMapping>
  <scaleDownKPI>apSysGlobalConSess</scaleDownKPI>
  <snmpCommunityName>tge</snmpCommunityName>
  <snmpPort>161</snmpPort>
  <status>Running</status>
  <storageProfile>*</storageProfile>
  <vdc>SecondaryVDC</vdc>
  <vduCount>0</vduCount>
  <vimId>2</vimId>
  <vimName>tgeVmEngine-2</vimName>
  <vmImageName>vmImage6315</vmImageName>
</nfGroup>

```

JSON Response

```

{
  "acpNewPassword":"*****",
  "acpPassword":"*****",
  "acpUserName":"admin",
  "cloudEntityId":"https://172.30.81.145/api/vApp/vapp-82ff82b26f29-4cb9-968e-8c5eddd03efa",
  "configName":"oc-s-2",
  "configNewPassword":"*****",

```

```
"configPassword":"*****",
"description":"Test VM Group Creation REST API JSON",
"deviceGroupId":"ID1",
"deviceGroupName":"Home",
"enableHA":"false",
"expansionMode":"Manual",
"id":"15",
"imageType":"CSM",
"lastModifiedHost":"172.30.0.91",
"loadSheddingThreshold":"0",
"loadSheddingTimeout":"0",
"maxVdus":"5",
"mgmtGateway":"172.30.0.1",
"mgmtNetmask":"255.255.0.0",
"mgmtVlan":"0",
"minVdus":"1",
"name":"tgeVmGroup5",
"networkMapping":
[
    {
        "cloudNetwork":"Management",
        "id":"41",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom0"
    },
    {
        "cloudNetwork":"wancom1",
        "id":"42",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom1"
    },
    {
        "cloudNetwork":"none",
        "id":"43",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"wancom2"
    },
    {
        "cloudNetwork":"none",
        "id":"44",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"spare"
    },
    {
        "cloudNetwork":"Access",
        "id":"45",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"s0p0"
    },
    {
        "cloudNetwork":"none",
        "id":"46",
        "nfGroupId":"15",
        "nfGroupName":"tgeVmGroup5",
        "vmNicName":"slp0"
    },
    {
        "cloudNetwork":"Core",
        "id":"47",
        "nfGroupId":"15",

```

```

        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s0pl"
      },
      {
        "cloudNetwork": "none",
        "id": "48",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s1pl"
      }
    ],
    "scaleDownKPI": "apSysGlobalConSess",
    "snmpCommunityName": "tge",
    "snmpPort": "161",
    "status": "Running",
    "storageProfile": "*",
    "vdc": "SecondaryVDC",
    "vduCount": "0",
    "vimId": "2",
    "vimName": "tgeVmEngine-2",
    "vmImageName": "vmImage6315"
  }
}

```

Delete NF Groups

Method	URI	Description
DELETE	/v0.0/ocao/nfGroups/{nfGroupId}	Deletes the specified NF group

Normal response code: 202(Accepted)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Cloud Networks Overview

Cloud network information is used by the NF group configuration to allow users to associate specific network interface cards with their virtual network resources.

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/cloudNetworks	Retrieves all cloud network configurations for the specified NF Group

Retrieve All Network Configurations for a NF Group

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/cloudNetworks	Retrieves all cloud network configurations for the specified NF Group

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<cloudNetworks>
  <cloudNetwork>
    <name>wancom2</name>
    <ref>https://172.30.81.145/api/network/
e378bb8f-53bd-4bbeb130-169a09188d33</ref>
  </ cloudNetwork >
  < cloudNetwork >
    <name>wancom1</name>
    <ref>https://172.30.81.145/api/network/56326d19-ec10-48b19062-
ea141425e4d0</ref>
  </ cloudNetwork >
  < cloudNetwork >
    <name>Access</name>
    <ref>https://172.30.81.145/api/network/
7c439cef-165b-4dfc-923a-c8662cea43c4</ref>
  </ cloudNetwork >
  < cloudNetwork >
    <name>Management</name>
    <ref>https://172.30.81.145/api/network/
40d90f7e-4b62-4c79-9fb4-c8a0de812928</ref>
  </ cloudNetwork >
  < cloudNetwork >
    <name>Core</name>
    <ref>https://172.30.81.145/api/network/8c84edd5-cf93-41fca3f2-
a81b04425e0e</ref>
  </ cloudNetwork >
</ cloudNetworks>
```

JSON Response

```
[
  {
    "name": "wancom2",
    "ref": "https://172.30.81.145/api/network/74088575-
e53a-40d4-871e-5d87df6a6503"
  },
  {
    "name": "wancom1",
    "ref": "https://172.30.81.145/api/network/d73e7538-
d4b1-429a-939b-1bca8829ddaf"
  },
  {
    "name": "Access",
    "ref": "https://172.30.81.145/api/network/
7c439cef-165b-4dfc-923a-c8662cea43c4"
  },
  {
    "name": "Management",
    "ref": "https://172.30.81.145/api/network/
40d90f7e-4b62-4c79-9fb4-c8a0de812928"
  },
  {
    "name": "Core",
    "ref": "https://172.30.81.145/api/network/8c84edd5-
cf93-41fc-a3f2-a81b04425e0e"
  }
]
```

```
    }
  ]
}
```

Network Mapping Overview

Network mapping configuration allows VDUs to associate network interface cards with virtual network configurations in the cloud.

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/networkMappings	Retrieves all network mapping configurations for the selected NF group
POST	/v0.0/ocao/nfGroups/{nfGroupId}/networkMappings	Configures predefined network interface cards to associate with cloud networks

Retrieve All Network Mapping and Configuration Information

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/networkMappings	Retrieves all network mapping configurations for the selected NF group

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<networkMappings>
  <networkMapping>
    <cloudNetwork>Management</cloudNetwork>
    <id>41</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>wancom1</cloudNetwork>
    <id>42</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom1</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>43</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>wancom2</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>44</id>
    <nfGroupId>15</nfGroupId>
```

```
<nfGroupName>tgeVmGroup5</nfGroupName>
<vmNicName>spare</vmNicName>
</networkMapping>
<networkMapping>
  <cloudNetwork>Access</cloudNetwork>
  <id>45</id>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <vmNicName>s0p0</vmNicName>
</networkMapping>
<networkMapping>
  <cloudNetwork>none</cloudNetwork>
  <id>46</id>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <vmNicName>s1p0</vmNicName>
</networkMapping>
<networkMapping>
  <cloudNetwork>Core</cloudNetwork>
  <id>47</id>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <vmNicName>s0p1</vmNicName>
</networkMapping>
<networkMapping>
  <cloudNetwork>none</cloudNetwork>
  <id>48</id>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <vmNicName>s1p1</vmNicName>
</networkMapping>
</networkMappings>
```

JSON Response

```
[
  {
    "cloudNetwork": "Management",
    "id": "41",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom0"
  },
  {
    "cloudNetwork": "wancom1",
    "id": "42",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom1"
  },
  {
    "cloudNetwork": "none",
    "id": "43",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom2"
  },
  {
    "cloudNetwork": "none",
    "id": "44",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "spare"
  }
]
```

```

    },
    {
        "cloudNetwork": "Access",
        "id": "45", "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s0p0"
    },
    {
        "cloudNetwork": "none",
        "id": "46",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s1p0"
    },
    {
        "cloudNetwork": "Core",
        "id": "47",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s0p1"
    },
    {
        "cloudNetwork": "none",
        "id": "48",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s1p1"
    }
}
]

```

Associate Pre-Defined Network Interface Cards with Cloud Networks

Method	URI	Description
POST	/v0.0/ocao/nfGroups/{nfGroupId}/networkMappings	Configures predefined network interface cards to associate with cloud networks

Normal response code: 200(OK)

Error response code: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Requests

XML Request

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<networkMappings>
  <networkMapping>
    < cloudNetwork >Management</ cloudNetwork >
    <vmNicName>wancom0</ vmNicName >
  </ networkMapping >
  < networkMapping >
    < cloudNetwork >Core</ cloudNetwork >
    < vmNicName >s0p0</ vmNicName >
  </ networkMapping >
  < networkMapping >
    < cloudNetwork >Access</ cloudNetwork >
    < vmNicName >s0p1</ vmNicName >
  </ networkMapping >
</ networkMappings >

```

```
</ networkMapping >  
</ networkMappings>
```

JSON Request

```
[  
  {  
    "cloudNetwork": "Management",  
    "vmNicName": "wancom0"  
  },  
  {  
    "cloudNetwork": "wancom1",  
    "vmNicName": "wancom1"  
  },  
  {  
    "cloudNetwork": "Access",  
    "vmNicName": "s0p0"  
  },  
  {  
    "cloudNetwork": "Core",  
    "vmNicName": "s0p1"  
  }  
]
```

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<networkMappings>  
  <networkMapping>  
    <cloudNetwork>Management</cloudNetwork>  
    <id>41</id>  
    <nfGroupId>15</nfGroupId>  
    <nfGroupName>tgeVmGroup5</nfGroupName>  
    <vmNicName>wancom0</vmNicName>  
  </networkMapping>  
  <networkMapping>  
    <cloudNetwork>wancom1</cloudNetwork>  
    <id>42</id>  
    <nfGroupId>15</nfGroupId>  
    <nfGroupName>tgeVmGroup5</nfGroupName>  
    <vmNicName>wancom1</vmNicName>  
  </networkMapping>  
  <networkMapping>  
    <cloudNetwork>none</cloudNetwork>  
    <id>43</id>  
    <nfGroupId>15</nfGroupId>  
    <nfGroupName>tgeVmGroup5</nfGroupName>  
    <vmNicName>wancom2</vmNicName>  
  </networkMapping>  
  <networkMapping>  
    <cloudNetwork>none</cloudNetwork>  
    <id>44</id>  
    <nfGroupId>15</nfGroupId>  
    <nfGroupName>tgeVmGroup5</nfGroupName>  
    <vmNicName>spare</vmNicName>  
  </networkMapping>  
  <networkMapping>  
    <cloudNetwork>Access</cloudNetwork>  
    <id>45</id>
```

```

    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>46</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>slp0</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>Core</cloudNetwork>
    <id>47</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>s0p1</vmNicName>
  </networkMapping>
  <networkMapping>
    <cloudNetwork>none</cloudNetwork>
    <id>48</id>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <vmNicName>slp1</vmNicName>
  </networkMapping>
</networkMappings>

```

JSON Response

```

[
  {
    "cloudNetwork": "Management",
    "id": "41",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom0"
  },
  {
    "cloudNetwork": "wancom1",
    "id": "42",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom1"
  },
  {
    "cloudNetwork": "none",
    "id": "43",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "wancom2"
  },
  {
    "cloudNetwork": "none",
    "id": "44",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "spare"
  },
  {
    "cloudNetwork": "Access",
    "id": "45",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "vmNicName": "s0p0"
  }
]

```

```
    },
    {
        "cloudNetwork": "none",
        "id": "46",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "slp0"
    },
    {
        "cloudNetwork": "Core",
        "id": "47",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "s0pl"
    },
    {
        "cloudNetwork": "none",
        "id": "48",
        "nfGroupId": "15",
        "nfGroupName": "tgeVmGroup5",
        "vmNicName": "slp1"
    }
}
```

Thresholds Overview

Threshold configuration is contained with a NF group. OCAO uses thresholds to decide when to dynamically deploy or un-deploy VDUs.

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds	Retrieves all Thresholds for the specified NF group
POST	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds	Creates a new threshold for the specified NF group
GET	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Retrieves parameters for the specified threshold
PUT	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Updates parameters for the specified threshold
DELETE	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Deletes the specified threshold

Parameters

Parameter	Type	Description
name	String	The predefined threshold metric name
maxNumber	int	Max number of calls or sessions, depending on the metric name
majorThreshold	int	Threshold for major level
criticalThreshold	int	Threshold for critical level
growthDuration	int	Duration for deploying VDUs
declineDuration	int	Duration for un-deploying VDUs

Retrieve All Thresholds

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds	Retrieves all Thresholds for the specified NF group

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses**XML Response**

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<thresholds>
  <threshold>
    <id>62</id>
    <name>CallsPerSecond</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
  <threshold>
    <id>64</id>
    <name>ActiveLocalContacts</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
  <threshold>
    <id>72</id>
    <name>CPUUtilization</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
</thresholds>
```

JSON Response

```
[
  {
    "id": "62",
    "name": "CallsPerSecond",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "64",
    "name": "ActiveLocalContacts",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "72",
    "name": "CPUUtilization",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  }
]
```

Create Thresholds

The predefined thresholds available are CallsPerSecond, ActiveSessions, ActiveLocalContacts, CPUUtilization, and MemoryUtilization.

Method	URI	Description
POST	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds	Creates a new threshold for the specified NF group

Normal response code: 200(OK)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Requests

XML Request

```
<?xml version="1.0" encoding="UTF-8"?>
<threshold>
  <name>CPUUtilization</name>
  <maxNumber>100</maxNumber>
  <majorThreshold>50</majorThreshold>
  <criticalThreshold>75</criticalThreshold>
  <growthDuration>1</growthDuration>
  <declineDuration>1</declineDuration>
</threshold>
```

JSON Request

```
{
  "name": "CPUUtilization",
  "criticalThreshold": "90",
  "declineDuration": "1",
  "growthDuration": "2",
  "majorThreshold": "40",
  "maxNumber": "200"
}
```

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<threshold>
  <criticalThreshold>75</criticalThreshold>
  <declineDuration>1</declineDuration>
  <growthDuration>1</growthDuration>
  <id>72</id>
  <majorThreshold>50</majorThreshold>
  <maxNumber>100</maxNumber>
  <name>CPUUtilization</name>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
</threshold>
```

JSON Response

```
{
  "name": "CPUUtilization",
  "criticalThreshold": "90",
  "declineDuration": "1",
  "growthDuration": "2",
  "majorThreshold": "40",
  "maxNumber": "200",
  "id": "72",
  "nfGroupId": "15",
  "nfGroupName": "15",
}
```

Retrieve Threshold Parameters

Method	URI	Description
GET	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Retrieves parameters for the specified threshold

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses**XML Response**

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<thresholds>
  <threshold>
    <id>62</id>
    <name>CallsPerSecond</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
  <threshold>
    <id>64</id>
    <name>ActiveLocalContacts</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
  <threshold>
    <id>72</id>
    <name>CPUUtilization</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
</thresholds>
```

JSON Response

```
[
  {
    "id": "62",
    "name": "CallsPerSecond",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "64",
    "name": "ActiveLocalContacts",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "72",
    "name": "CPUUtilization",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  }
]
```

```
        "id": "64",
        "name": "ActiveLocalContacts",
        "nfGroupId": "15"
        "nfGroupName": "tgeVmGroup5"
    },
    {
        "id": "72",
        "name": "CPUUtilization",
        "nfGroupId": "15"
        "nfGroupName": "tgeVmGroup5"
    }
]
```

Update Threshold Parameters

Method	URI	Description
PUT	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Updates parameters for the specified threshold

Normal response code: 200(OK)

Error response code: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Requests

XML Request

```
<threshold>
  <maxNumber>200</maxNumber>
  <majorThreshold>40</majorThreshold>
  <criticalThreshold>90</criticalThreshold>
  <growthDuration>2</growthDuration>
  <declineDuration>1</declineDuration>
</threshold>
```

JSON Request

```
{
  "criticalThreshold": "90",
  "declineDuration": "1",
  "growthDuration": "2",
  "majorThreshold": "40",
  "maxNumber": "200",
}
```

Responses

XML Response

```
<thresholds>
  <threshold>
    <id>62</id>
    <name>CallsPerSecond</name>
    <nfGroupId>15</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
  </threshold>
  <threshold>
```

```

<id>64</id>
<name>ActiveLocalContacts</name>
<nfGroupId>15</nfGroupId>
<nfGroupName>tgeVmGroup5</nfGroupName>
</threshold>
<threshold>
  <id>72</id>
  <name>CPUUtilization</name>
  <nfGroupId>15</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
</threshold>
</thresholds>

```

JSON Response

```

[
  {
    "id": "62",
    "name": "CallsPerSecond",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "64",
    "name": "ActiveLocalContacts",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  },
  {
    "id": "72",
    "name": "CPUUtilization",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5"
  }
]

```

Delete Thresholds

Method	URI	Description
DELETE	/v0.0/ocao/nfGroups/{nfGroupId}/thresholds/{thresholdId}	Deletes the specified threshold

Normal response code: 204(No Content)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

VDU Overview

VDUs serve as containers for NfVm resources. A VDU resource contains two or less NfVm in this release. A NfVm resource represents the network function virtual machine where the SBC image runs. VDU resources are created automatically when configuring a NfGroup. Users can configure, deploy or undeploy a VDU, but cannot create or delete a VDU.

Method	URI	Description
GET	/v0.0/ocao/vdus	Retrieves all VDUs

Application Orchestrator Overview

Method	URI	Description
GET	/v0.0/ocao/vdus/{vduId}	Retrieves all parameters for the specified VDU
PUT	/v0.0/ocao/vdus/{vduId}	Updates a VDU with the specified parameters
POST	/v0.0/ocao/vdus/{vduId}/deploy	Deploys the specified VDU
POST	/v0.0/ocao/vdus/{vduId}/undeploy	Un-Deploys the specified VDU

Parameters

Parameter	Type	Description
id	String	VDU ID
name	String	VDU name
status	enum	Current status
nfGroupId	String	NF group ID that the VDU belongs to
nfGroupName	String	NF group name that the VDU belongs to

Retrieve All VDUs

This resource retrieves all available VDUs. It also allows you to retrieve specific VDUs through filtering.

Method	URI	Description
GET	/v0.0/ocao/vdus	Retrieves all VDUs
GET	/v0.0/ocao/nfGroups? nfGroupId={nfGroupId}	Retrieves all VDUs for the specified NF Group

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vdus>
  <vdu>
    <name>172.30.81.165</name>
    <displayName>VM1</displayName>
    <id>7</id>
    <nfGroupId>5</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <status>Not_Deployed</status>
  </vdu>
  <vdu>
    <displayName>VM2</displayName>
    <id>9</id>
    <nfGroupId>5</nfGroupId>
    <nfGroupName>tgeVmGroup5</nfGroupName>
    <status>Not_Configured</status>
  </vdu>
</vdus>
```

```

</vdu>
<vdu>
  <displayName>VM3</displayName>
  <id>11</id>
  <nfGroupId>5</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <status>Not_Configured</status>
</vdu>
<vdu>
  <displayName>VM4</displayName>
  <id>13</id>
  <nfGroupId>5</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <status>Not_Configured</status>
</vdu>
<vdu>
  <displayName>VM5</displayName>
  <id>15</id>
  <nfGroupId>5</nfGroupId>
  <nfGroupName>tgeVmGroup5</nfGroupName>
  <status>Not_Configured</status>
</vdu>
</vds>

```

JSON Response

```

[
  {
    "name": "172.30.81.165",
    "displayName": "VM1",
    "id": "17",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "status": "Not_Deployed"
  },
  {
    "displayName": "VM2",
    "id": "19",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "status": "Not_Configured"
  },
  {
    "displayName": "VM3",
    "id": "21",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "status": "Not_Configured"
  },
  {
    "displayName": "VM4",
    "id": "23",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "status": "Not_Configured"
  },
  {
    "displayName": "VM5",
    "id": "25",
    "nfGroupId": "15",
    "nfGroupName": "tgeVmGroup5",
    "status": "Not_Configured"
  }
]

```

```
}  
]
```

Create VDUs

Configuration of VDUs happens at two levels, common configuration for all VDUs in a NfGroup and VDU specific information. Device specific information includes IP address, target name, and any other configuration associated with data variables in the device configuration template.

Method	URI	Description
POST	/v0.0/ocao/vdus	Creates a new VDU

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Retrieve VDU Parameters

Method	URI	Description
GET	/v0.0/ocao/vdus/{vduId}	Retrieves all parameters for the specified VDU

Normal response code: 200(OK)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<vdu>  
  <displayName>VM1</displayName>  
  <id>7</id>  
  <name>172.30.81.165</name>  
  <nfGroupId>5</nfGroupId>  
  <nfVm>  
    <id>8</id>  
    <ip>172.30.81.165</ip>  
    <name>vm-tge-1</name>  
    <primary>true</primary>  
    <vduId>7</vduId>  
  </nfVm>  
  <status>Not_Deployed</status>  
</vdu>
```

JSON Response

```
{  
  "displayName": "VM1",  
  "id": "17",  
  "name": "172.30.81.168",  
  "nfGroupId": "15",  
  "nfGroupName": "tgeVmGroup5",  
  "nfVm":  
    [  
      {
```

```

        "id": "18",
        "ip": "172.30.81.168",
        "name": "vm-tge-168",
        "vduId": "17"
    },
    "status": "Not_Deployed"
}

```

Configure VDU Parameters

This API call allows you to update VDU specific configuration. To list all data variables in a device configuration template, see the *Retrieve Data Variables for an Offline Configuration* section.

Method	URI	Description
PUT	/v0.0/ocao/vdus/{vduId}	Configures a VDU with the specified parameters

Normal response code: 200(OK)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Requests

XML Request

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<vdu>
  <nfVm>
    <ip>172.30.81.165</ip>
    <name>vm-tge-1</name>
  </nfVm>
  <dataVariable>
    <name>dv-ipv4-mtu</name>
    <value>1505</value>
  </dataVariable>
  <dataVariable>
    <name>dv-sys-location</name>
    <value>tge office</value>
  </dataVariable>
</vdu>

```

JSON Request

```

{
  "nfVm": [
    {
      "ip": "172.30.81.167",
      "name": "vm-tge-167"
    }
  ],
  "dataVariable": [
    {
      "name": "dv-ipv4-mtu",
      "value": "1505"
    }
  ]
}

```

```
        "name": "dv-sys-location",  
        "value": "tge office"  
      }  
    ]  
  }  
}
```

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>  
<vdu>  
  <displayName>VM1</displayName>  
  <id>7</id>  
  <name>172.30.81.165</name>  
  <nfGroupId>5</nfGroupId>  
  <nfGroupName>tgeVmGroup5</nfGroupName>  
  <nfvm>  
    <id>8</id>  
    <ip>172.30.81.165</ip>  
    <name>vm-tge-165</name>  
    <vduId>7</vduId>  
  </nfvm>  
  <status>Not_Deployed</status>  
</vdu>
```

JSON Response

```
{  
  "displayName": "VM1",  
  "id": "7",  
  "name": "172.30.81.165",  
  "nfGroupId": "5",  
  "nfGroupName": "tgeVmGroup5",  
  "nfVm": [  
    {  
      "id": "22",  
      "ip": "172.30.81.165",  
      "name": "vm-tge-165",  
      "vduId": "21"  
    }  
  ],  
  "status": "Not_Deployed"  
}
```

Deploy VDUs

Method	URI	Description
POST	/v0.0/ocao/vdus/{vduId}/deploy	Deploys the specified VDU

Normal response code: 202(Accepted)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Un-Deploy VDUs

Method	URI	Description
POST	/v0.0/ocao/vdus/{vduId}/undeploy	Un-Deploys the specified VDU

Normal response code: 202(Accepted)

Error response codes: 400(Bad Request), 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

VM Images Overview

The VM image is the software image run on a VDU to provide services.

Method	URI	Description
GET	/v0.0/vmImages	Retrieves all VM Images
GET	/v0.0/vmImages/{vmImageName}	Retrieves parameters for the specified VM image

Retrieve All VM Images

Method	URI	Description
GET	/v0.0/vmImages	Retrieves information for all VM images

Retrieve VM Image Parameters

Method	URI	Description
GET	/v0.0/vmImages/{vmImageName}	Retrieves the parameters for the specified VM Image

Configuration Overview

This resource retrieves configuration information for the VDU to provision virtual devices.

Method	URI	Description
GET	/v0.0/configs	Retrieves all available offline configuration
GET	/v0.0/configs/{configName}/dataVariables	Retrieves data variables for a specified offline configuration

Parameters

Parameter	Type	Description
name	String	Name of the configuration
softwareVersion	enum	Software version of the configuration seeded

Application Orchestrator Overview

Parameter	Type	Description
platform	String	Platform of the configuration
deviceType	Enum	Standalone or HA

Retrieve All Offline Configurations

Method	URI	Description
GET	/v0.0/configs? deviceType={Standalone HA}	Retrieves all available offline configuration information for a specified device type

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<configurations>
  <configuration>
    <created>2014-09-16 12:16:59</created>
    <description>testing based on sw version</description>
    <deviceType>Standalone</deviceType>
    <lastModified>2014-09-16 12:16:59</lastModified>
    <name>oc-s-1</name>
    <platform>NNOS</platform>
    <seededFrom>schema</seededFrom>
    <softwareVersion>SCZ6315</softwareVersion>
  </configuration>
  <configuration>
    <created>2014-09-16 12:36:15</created>
    <description>test</description>
    <deviceType>Standalone</deviceType>
    <lastModified>2014-09-17 14:26:23</lastModified>
    <name>oc-s-2</name>
    <platform>NNOS</platform>
    <seededFrom>device</seededFrom>
    <softwareVersion>SCZ6315</softwareVersion>
  </configuration>
</configurations>
```

JSON Response

```
[
  {
    "created": "2014-09-16 12:16:59",
    "description": "testing based on sw version",
    "deviceType": "Standalone",
    "lastModified": "2014-09-16 12:16:59",
    "name": "oc-s-1",
    "platform": "NNOS",
    "seededFrom": "schema",
    "softwareVersion": "SCZ6315"
  },
  {
    "created": "2014-09-16 12:36:15",
```

```

        "description": "test",
        "deviceType": "Standalone",
        "lastModified": "2014-09-17 14:26:23",
        "name": "oc-s-2",
        "platform": "NNOS",
        "seededFrom": "device",
        "softwareVersion": "SCZ6315"
    }
]

```

Retrieve Data Variables for an Offline Configuration

Method	URI	Description
GET	/v0.0/configs/{configName}/dataVariables	Retrieves all data variables for an offline configuration

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dataVariables>
  <dataVariable>
    <defaultValue>1501</defaultValue>
    <name>dv-1</name>
  </dataVariable>
  <dataVariable>
    <defaultValue>tge office</defaultValue>
    <name>dv-2</name>
  </dataVariable>
</dataVariables>

```

JSON Response

```

[
  {
    "defaultValue": "1501",
    "name": "dv-1"
  },
  {
    "defaultValue": "testing system",
    "name": "dv-2"
  }
]

```

Retrieve Data Variables for an Offline Configuration

Method	URI	Description
GET	/v0.0/configs/{configName}/dataVariables	Retrieves all data variables for an offline configuration

Normal response code: 200(OK)

Application Orchestrator Overview

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Responses

XML Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<dataVariables>
  <dataVariable>
    <defaultValue>1501</defaultValue>
    <name>dv-1</name>
  </dataVariable>
  <dataVariable>
    <defaultValue>tge office</defaultValue>
    <name>dv-2</name>
  </dataVariable>
</dataVariables>
```

JSON Response

```
[
  {
    "defaultValue": "1501",
    "name": "dv-1"
  },
  {
    "defaultValue": "testing system",
    "name": "dv-2"
  }
]
```

Logs Overview

This resource retrieves user visible logging messages for a particular VIM, NF group, or VDU.

Method	URI	Description
GET	/v0.0/ocao/logs/vim/{vimId}	Retrieves a plain text file of user visible VIM logging messages.
GET	/v0.0/ocao/logs/nfGroup/{nfGroupId}	Retrieves a log of user visible NF group logging messages.
GET	/v0.0/ocao/logs/vdu/{vduId}	Retrieves a plain text file of user visible VDU logging messages.

VIM Logs

Method	URI	Description
GET	/v0.0/ocao/logs/vim/{vimId}	Retrieves user visible logging messages for a VIM

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Response

```

08/14/2014 15:14:16 [172.30.0.91] Adding new Engine
'tgeVmEngine-120' ...
08/14/2014 15:14:16 [172.30.0.91] Starting initial Cloud
configuration ...
08/14/2014 15:14:16 [172.30.0.91] Finished initial Cloud
configuration successfully.
08/14/2014 15:14:16 [172.30.0.91] Added Engine tgeVmEngine-120
successfully.
08/14/2014 15:27:08 [172.30.0.91] Updated Engine successfully.
08/14/2014 15:27:08 [172.30.0.91] Updated Engine
'tgeVmEngine-120' successfully.
08/14/2014 16:16:45 [172.30.0.91] Adding VmGroup
'tgeVmGroup1' ...
08/14/2014 16:17:58 [172.30.0.91] Failed to add VmGroup
'tgeVmGroup1'. Reason: An error was encountered.
08/14/2014 16:23:04 [172.30.0.91] Deleting VmGroup
'tgeVmGroup1' ...
08/14/2014 16:23:05 [172.30.0.91] Deleted VmGroup 'tgeVmGroup1'
successfully.
08/14/2014 16:23:15 [172.30.0.91] Adding VmGroup
'tgeVmGroup1' ...
08/14/2014 16:23:15 [172.30.0.91] Failed to add VmGroup
'tgeVmGroup1'. Reason: An error was encountered.
08/14/2014 16:24:41 [172.30.0.91] Deleting VmGroup
'tgeVmGroup1' ...
08/14/2014 16:24:41 [172.30.0.91] Deleted VmGroup 'tgeVmGroup1'
successfully.
08/14/2014 16:34:52 [172.30.0.91] Adding VmGroup
'tgeVmGroup10' ...
08/14/2014 16:35:05 [172.30.0.91] Added VmGroup 'tgeVmGroup10'
successfully.

```

NF Group Logs

Method	URI	Description
GET	/v0.0/ocao/logs/nfGroup/ {nfGroupId}	Retrieves user visible logging messages for a NF Group

Normal response code: 200(OK)

Error response code: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Response

```

08/14/2014 16:34:52 [172.30.0.91] Adding VmGroup
'tgeVmGroup10' ...
08/14/2014 16:34:53 [172.30.0.91] Added device cluster
'tgeVmGroup10' successfully.
08/14/2014 16:34:53 [172.30.0.91] Adding VmGroup 'tgeVmGroup10'
to Cloud ...
08/14/2014 16:35:04 [172.30.0.91] Added VmGroup 'tgeVmGroup10'
to Cloud successfully.
08/14/2014 16:35:05 [172.30.0.91] Added new VirtualDevices [VM1,
VM2, VM3, VM4, VM5].
08/14/2014 16:35:05 [172.30.0.91] Changed VmGroup device count
successfully. New device count is 5.
08/14/2014 16:35:05 [172.30.0.91] Added VmGroup 'tgeVmGroup10'

```

Application Orchestrator Overview

```
successfully.  
08/15/2014 02:00:01 [172.30.0.91] Renewing runtime and storage  
leases for VmGroup ...  
08/15/2014 02:00:06 [172.30.0.91] Renewed runtime and storage  
leases for VmGroup successfully.  
08/15/2014 12:49:46 [172.30.0.91] Configuring VmGroup ...  
08/15/2014 12:49:46 [172.30.0.91] Set networking for VmGroup  
successfully.  
08/15/2014 12:49:46 [172.30.0.91] Configuring VmGroup in  
Cloud ...  
08/15/2014 12:49:52 [172.30.0.91] Finished configuring VmGroup  
in Cloud successfully.  
08/15/2014 12:49:52 [172.30.0.91] Finished configuring VmGroup  
successfully.  
08/15/2014 12:49:52 [172.30.0.91] Updating VmGroup ...  
08/15/2014 12:49:53 [172.30.0.91] Finished updating VmGroup  
successfully.
```

VDU Logs

Method	URI	Description
GET	/v0.0/ocao/logs/vdu/{vduId}	Retrieves user visible logging messages for a VDU

Normal response code: 200(OK)

Error response codes: 401(Unauthorized), 403(Forbidden), 404(Not Found), 500(Internal Server Error)

Response

```
08/14/2014 16:35:04 [172.30.0.91] Added new VirtualDevice 'VM1'.
```