Oracle® Communications

Cloud Native Security Edge Protection Proxy (SEPP) Installation Guide

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Oracle Communications Cloud Native Security Edge Protection Proxy (SEPP) Installation Guide, Release 1.4.0

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What's New in This Guide

New and Updated Features and their Configurations in Release 1.4:

- TLS Protection Mode: This enables inter PLMN communication over N32 interface using TLS mode.
- Ingress and Egress gateway parameters are added to section SEPP Configurable Parameters.
- Helm 2/ helm 3 commands are added for installation to the section SEPP Installation and for uninstallation to the section Uninstalling SEPP.

1 Overview

Oracle Communications Security Edge Protection Proxy (OCSEPP) is a proxy network function (NF) which is used for secured communication between inter-Public Land Mobile Network (PLMN) messages. This document provides a brief overview of the recommended methods for installing SEPP.

For more details on SEPP Architecture, refer to SEPP User's Guide.

References

Following are the reference documents:

- Cloud Native Environment (OCCNE) Installation Guide
- Security Edge Protection Proxy (SEPP) Cloud Native User's Guide

Acronyms

Table 1-1 Acronyms

Acronym	Meaning
CRD	Custom Resource Definition
CNE	Cloud Native Environment
DNS	Domain Name System
FQDN	Fully Qualified Domain Name
NF	Network Function
OHC	Oracle Help Center
OSDC	Oracle Software Delivery Cloud
PLMN	Public Land Mobile Network
SEPP	Security Edge Protection Proxy
SVC	Services
TLS	Transport Layer Security

2
Installing SEPP

This section describes how to install SEPP on a cloud native environment. It contains the following topics:

SEPP Prerequisites

This section includes information about the necessary prerequisites for SEPP deployment.

The 5G SEPP requires the following environment:

- Kubernetes Cluster must be available with Core DNS configured to talk to operator's DNS server.
- Service FQDN of SEPP should be discoverable from outside of cluster (i.e., publicly exposed if ingress messages to SEPP can come from outside of K8S).
- The user must have their own repository for storing the SEPP images and repository should be accessible from his Kubernetes cluster.

Following are the prerequisites to install and configure SEPP:

SEPP Software

The SEPP software includes:

- SEPP Helm charts
- SEPP docker images

The following software must be installed:

Software	Version
Kubernetes	v1.16.7 and v1.17.1
HELM	v2.14.3 and v3.2

Additional software that needs to be deployed as per the requirement of the services:

Software	Notes
elasticsearch	Needed for Logging Area
elastic-curator	Needed for Logging Area
elastic-exporter	Needed for Logging Area

Software	Notes
logs	Needed for Logging Area
kibana	Needed for Logging Area
grafana	Needed for Metrics Area
prometheus	Needed for Metrics Area
prometheus-node-exporter	Needed for Metrics Area
metallb	Needed for External IP
metrics-server	Needed for Metric Server
tracer	Needed for Tracing Area

Note:

If any of the software specified in the table above is not installed in CNE, install the software. If OCCNE is the platform, refer *Cloud Native Environment Installation Guide.*
To check the installed software items, execute:

```
helm ls
```

Use the helm command with `admin.conf` file, if requried:

```
helm --kubeconfig admin.conf
```

SEPP Microservices and Images

The following are the SEPP Microservices and images:

No	Micro Service Name	Image Name
1	<Releasename>-cn32c-svc	ocsepp-cn32c-svc
2	<Releasename>-pn32c-svc	ocsepp-pn32c-svc
3	<Releasename>-config-mgr-svc	ocsepp-config-mgr-svc
4	<Releasename>-cn32f-svc	ocsepp-cn32f-svc
5	<Releasename>-pn32f-svc	ocsepp-pn32f-svc
6	<Releasename>-plmn-ingress-gateway	ocingress_gateway
7	<Releasename>-plmn-egress-gateway	ocegress_gateway
8	<Releasename>-n32-ingress-gateway	ocingress_gateway
9	<Releasename>-n32-egress-gateway	ocegress_gateway
10	<Releasename>-nrf client	nrf-client
11	<Releasename>-perf-info	perf_info
12	<Releasename>-config-server	config_server
13	<Releasename>-appinfo	app_info

> **Note:**
>
> The Releasename represents the helm release name.

SEPP Pre-deployment Configuration

This section describes about the various SEPP pre-deployment configuration steps. It includes the following:

1. Verify and Create kubernetes Namespace
2. Create MySql Database and User for OCSEPP
3. Create a Kubernetes secrets for enabling HTTPS/ HTTP over TLS

Verify and Create kubernetes Namespace

This section explains how a user can verify the existence of a required namespace in the system. If the namespace does not exist, the user must create it.

Procedure

1. Verify whether required namespace already exists in system by executing the following command:

   ```
   $ kubectl get namespaces
   ```

2. If the output of the above command does not display the required namespace, create the namespace by executing the following command:

   ```
   $ kubectl create namespace <required namespace>
   ```

   Example:

   ```
   $ kubectl create namespace seppsvc
   ```

Create MySQL Database and User for OCSEPP

1. Login to the server or machine which has permission to access the SQL nodes of NDB cluster.
2. Connect to the SQL nodes of NDB cluster one at the time.
3. Login to the MySQL prompt using root permission or user who has permission to create users with permissions as mentioned below.

   Example:

   ```
   mysql -h 127.0.0.1 -uroot -p
   ```

4. Check whether OCSEPP network function user already exists. If the user does not exist, create an OCSEPP network function user by executing the following queries:

a. Execute

```
$ SELECT User FROM mysql.user;
```

to list the users.

b. If the user does not exist, create the new user by executing:

```
$ CREATE USER '<OCSEPP User Name>'@'%' IDENTIFIED BY '<OCSEPP
Password>';
```

c. Example:

```
$ CREATE USER 'seppusr'@'%' IDENTIFIED BY 'sepppasswd';
```

5. Check if OCSEPP network function database already exists. If it does not exist, create an OCSEPP network function database and provide permissions to OCSEPP username created in the previous step by executing the following commands:

a. Execute

```
$ show databases;
```

to check if database exists.

b. If database does not exist, execute

```
$ CREATE DATABASE IF NOT EXISTS <OCSEPP Database> CHARACTER SET
utf8;
```

for Database creation.

Example:

```
$ CREATE DATABASE IF NOT EXISTS seppdb CHARACTER SET utf8;
```

c. Granting permission to user:

```
$ GRANT SELECT,INSERT,CREATE,ALTER,DROP,LOCK TABLES,CREATE
TEMPORARY TABLES,
 DELETE,UPDATE,EXECUTE ON <OCSEPP Database>.* TO '<OCSEPP User
Name>'@'%';
```

Create a Kubernetes Secrets for Enabling HTTPS/ HTTP over TLS

Creation of Secrets for Enabling HTTPS in plmn OCSEPP Egress/Ingress Gateway

This section explains the steps to create secret for HTTPS related details. This section must be executed before enabling HTTPS in plmn OCSEPP Egress/Ingress gateway.

> **Note:**
>
> The passwords for TrustStore and KeyStore are stored in respective password files below.

To create kubernetes secret for HTTPS, following files are required:

- ECDSA private key and CA signed certificate of OCSEPP (if initialAlgorithm is ES256)
- RSA private key and CA signed certificate of OCSEPP (if initialAlgorithm is RSA256)
- TrustStore password file
- KeyStore password file
- CA certificate

> **Note:**
>
> Creation process for private keys, certificates and passwords is on discretion of user/operator.

1. Execute the following command to create secret:

```
$ kubectl create secret generic < ocsepp-plmn-secret > --
fromfile=<ssl_ecdsa_private_key.pem>
 --from-file=<rsa_private_key_pkcs1.pem> --
fromfile=<ssl_truststore.txt> --from-file=<ssl_keystore.txt>
 --from-file=<caroot.cer> --fromfile=<ssl_rsa_certificate.crt> --
from-file=<ssl_ecdsa_certificate.crt> -n
<Namespace of OCSEPP ocegress Gateway secret>
```

> **Note:**
>
> Note down the command used during the creation of kubernetes secret, this command will be used for updates in future.

Example: The names used below are same as provided in custom values.yaml in OCSEPP deployment.

```
$ kubectl create secret generic  ocsepp-plmn-secret --
fromfile=ssl_ecdsa_private_key.pem
 --from-file=rsa_private_key_pkcs1.pem --
fromfile=ssl_truststore.txt --from-file=ssl_keystore.txt
--from-file=caroot.cer --fromfile=ssl_rsa_certificate.crt --from-
file=ssl_ecdsa_certificate.crt -n ocsepp
```

2. Verify the secret created using the following command:

```
$ kubectl describe secret <ocsepp-plmn-secret> -n <Namespace of
OCSEPP
ocegress Gateway secret>
```

Example:

```
$ kubectl describe secret  ocsepp-plmn-secret -n ocsepp
```

Creation of Secrets for Enabling HTTP over TLS in n32 OCSEPP Egress/Ingress Gateway

This section explains the steps to create secret for HTTP over TLS related details. This section must be executed before enabling HTTP over TLS in n32 OCSEPP Egress/Ingress gateway.

> **Note:**
>
> The passwords for TrustStore and KeyStore are stored in respective password files below.

To create kubernetes secret for HTTP over TLS, following files are required:

- ECDSA private key and CA signed certificate of OCSEPP (if initialAlgorithm is ES256)
- RSA private key and CA signed certificate of OCSEPP (if initialAlgorithm is RSA256)
- TrustStore password file
- KeyStore password file
- CA certificate

> **Note:**
>
> Creation process for private keys, certificates and passwords is on discretion of user/operator.

1. Execute the following command to create secret:

```
$ kubectl create secret generic < ocsepp-n32-secret > --
fromfile=<ssl_ecdsa_private_key.pem>
 --from-file=<rsa_private_key_pkcs1.pem> --
fromfile=<ssl_truststore.txt> --from-file=<ssl_keystore.txt>
 --from-file=<caroot.cer> --fromfile=<ssl_rsa_certificate.crt> --
from-file=<ssl_ecdsa_certificate.crt> -n
<Namespace of OCSEPP ocegress Gateway secret>
```

> **Note:**
>
> Note down the command used during the creation of kubernetes secret, this command will be used for updates in future.

Example: The names used below are same as provided in custom values.yaml in OCSEPP deployment.

```
$ kubectl create secret generic ocsepp-n32-secret --
fromfile=ssl_ecdsa_private_key.pem
 --from-file=rsa_private_key_pkcs1.pem --
fromfile=ssl_truststore.txt --from-file=ssl_keystore.txt
--from-file=caroot.cer --fromfile=ssl_rsa_certificate.crt --from-
file=ssl_ecdsa_certificate.crt -n ocsepp
```

2. Verify the secret created using the following command:

```
$ kubectl describe secret <ocsepp-n32-secret> -n <Namespace of
OCSEPP
ocegress Gateway secret>
```

Example:

```
$ kubectl describe secret ocsepp-n32-secret -n ocsepp
```

SEPP Installation Sequence

This section provides details about the sequence in which SEPP must be installed.

1. **Installation Preparation:** This includes downloading the required files and loading the files to the system.
2. **Configure the `ocsepp-custom-values-1.4.0.yaml` file:** This step includes configuring the following based on the deployment:
   - Repository path
   - Primary and Secondary db node
   - SEPP local profile
   - Gateway Secret details
   - NRF Information

> **Note:**
>
> Other configurations might be changed based on the deployment.

3. **SEPP deployment**: SEPP can be deployed in either of the following ways:
   - With HELM repository
   - With HELM tar

4. **Verify SEPP deployment:** In this step if the services and pods are up and running is verified.

SEPP Installation Preparation

The following procedure describes the steps to download the SEPP Images and Helm files from OSDC.

For more information about configuring docker image and registry, refer to chapter *OCCNE Docker Image Registry Configuration* in *OCCNE Installation Guide*.

1. **Download the SEPP package file:**
   Customers are required to download the SEPP package file from Oracle Software Delivery Cloud (OSDC). Package is named as follows:

   ```
   <nfname>-pkg-<marketing-release-number>


   Example: ocsepp-pkg-1.4.0.0.0.tgz
   ```

2. **Untar the SEPP Package File:**
   Untar the SEPP package to the specific repository:

   ```
   tar -xvf <<nfname>-pkg-<marketing-release-number>>
   ```

   The package file consists of following:

   - SEPP Docker Images File
     `ocsepp-images-1.4.0.tar`
   - Helm File
     `ocsepp-1.4.0.tgz`
   - Readme txt file
     `Readme.txt` (Contains cksum and md5sum of tarballs)

3. **Check the checksums:**

   Check the checksums of tarballs mentioned in `Readme.txt`. Refer to the `Readme.txt` file for commands and checksum details.

4. **Load the tarball to system:**
   Execute the following command to load the tarball to system:

   ```
   docker load --input ocsepp-images-1.4.0.tar
   ```

5. **Check if all the images are loaded:**

   Execute the following command to check whether alll the images are loaded:

   ```
   docker images
   ```

6. **Push docker images to docker registry:**

Execute the following commands to push the docker images to docker registry:

```
docker tag <image-name>:<image-tag> <docker-repo>/<image-name>:<image-tag>
```

```
docker push <docker-repo>/<image-name>:<image-tag>
```

7. **Untar Helm Files:**

   Execute the following command to untar the helm files:

   ```
   tar -xvzf ocsepp-1.4.0.tgz
   ```

8. **Download the Network Slice Selection Function (SEPP) Custom Template ZIP file:**

   Download the **Network Slice Selection Function (SEPP) Custom Template** ZIP file from OHC:

   - Go to the URL, docs.oracle.com
   - Navigate to **Industries >Communications >Signaling & Policy >Cloud Native Core**
   - Click the **Network Slice Selection Function (SEPP) Custom Template** link to download the zip file.
   - Unzip the template to get the following files:
     - `ocsepp-custom-values-1.4.0.yaml`
     - `seppAlertRules.yaml.`
     - `ocseppDashboard.json`

SEPP Installation and Deployment

This section includes information about SEPP deployment.

Following are the parameters and definitions used during SEPP deployment:

Table 2-1 Parameters and Definitions

Parameters	Definitions
`<helm chart>`	It is the name of the chart that is of the form `<helm repo>/ocsepp.`
`<OCSEPP version>`	It is the software version (helm chart version) of the SEPP. This is optional, if omitted, the default version is the latest version available in helm repository.
`<release>`	It is a name provided by the user to identify the helm deployment.
`<k8s namespace>`	It is a name provided by the user to identify the kubernetes namespace of the SEPP. All the SEPP microservices are deployed in this kubernetes namespace.

SEPP Deployment on Kubernetes

> **Note:**
>
> To configure the parameters, refer *Customizing SEPP*.

Create Database User and Group

The SEPP uses a MySQL database to store the configuration and run time data.

The SEPP deployment using MySQL NDB cluster requires the database administrator to create a user in the MYSQL DB and to provide the user with necessary permissions to access the tables in the NDB cluster.

1. Login to the server where the ssh keys are stored and the SQL nodes are accessible.
2. Connect to the SQL nodes.
3. Login to the Database as a root user.
4. Create a user and assign it to a group having necessary permission to access the tables on primary SQL nodes:

```
CREATE USER '<username>'@'%' IDENTIFIED BY '<password>';
DROP DATABASE if exists seppdb;
CREATE DATABASE seppdb CHARACTER SET utf8;
GRANT SELECT, INSERT, CREATE, ALTER, DROP, LOCK TABLES, CREATE
TEMPORARY
TABLES, DELETE, UPDATE,
EXECUTE ON seppdb.* TO '<username>'@'%';
USE seppdb;
```

5. Grant necessary permissoins to access the tables on seconary SQL nodes:

```
GRANT SELECT, INSERT, CREATE, ALTER, DROP, LOCK TABLES, CREATE
TEMPORARY
TABLES, DELETE, UPDATE,
EXECUTE ON seppdb.* TO '<username>'@'%';
USE seppdb;
```

> **Note:**
>
> The `<username>` and `<password>` is created by the Database Administrator.

6. Exit from database and logout from SQL node.

SEPP Deployment

1. **Create customized `ocsepp-custom-values-1.4.0.yaml` file** :

   Create the customized `ocsepp-custom-values-1.4.0.yaml` with the required input parameters.
   To configure the `ocsepp-custom-values-1.4.0.yaml`, refer to *Customizing SEPP.*

   or,
   The `ocsepp-custom-values-1.4.0.yaml` template can be downloaded from OHC.

   Download the package `ocsepp-custom-configTemplates-1.4.0.0.0.zip` and Unzip to get `ocsepp-custom-values-1.4.0.yaml` file.

   > **Note:**
   >
   > - For connecting services to the database, ensure the following parameters must be customized: `envMysqlHost, mysql.primary.host, mysql.primary.port, mysql.secondary.host, mysql.secondary.port.`
   > - The database secret (`dbCredSecretName`) must be provided.

2. **Go to the unzipped OCSEPP package:**
   Go to the following directory:

   ```
   cd OCSEPP-pkg-1.4.0.0.0
   ```

3. **Deploy OCSEPP:**

   Execute the following command:
   For helm 2 based:

   ```
   helm install ocsepp/ --name <helm-release> --namespace <k8s
   namespace> -f <ocsepp_customized_values.yaml>
   Example: helm install ocsepp/ --name ocsepp --namespace ocsepp -f
   ocsepp-custom-values-1.4.0.yaml
   ```

   Example:

   ```
   helm install ocsepp/ --name ocsepp --namespace ocsepp -f ocsepp-
   custom-values-1.4.0.yaml
   ```

   For helm 3 based:

   ```
   helm3 install <helm-release> ocsepp/ --namespace <k8s namespace> f
   <ocsepp_customized_values.yaml>

   Example:
   helm3 install ocsepp ocsepp/ --namespace ocsepp -f ocsepp-custom-
   values-1.4.0.yaml
   ```

4. **Check status of the deployment:**

Execute the following command to check the status of the deployment:

For helm 2:

```
helm status --name <helm-release>
```

Example:

```
helm status --name ocsepp
```

For helm 3:

```
helm3 status --name <helm-release>
```

Example:

```
helm3 status --name ocsepp
```

5. **Check status of the services:**

   Execute the following command to check the status of services:

   ```
   kubectl -n <k8s namespace> get services
   ```

   Example:

   ```
   kubectl -n ocsepp get services
   ```

   > **Note:**
   >
   > If `metallb` is used, `EXTERNAL-IP` is assigned to<helm release name>-endpoint. `ocsepp` is the helm release name.

6. **Check status of the pods:**

   Execute the following command to status of the pods:

   ```
   kubectl get pods -n <k8s namespace>
   ```

   Status column of all the pods must indicate 'Running'.

   Ready column of all the pods must be n/n, where n is number of containers in the pod.

   Example:

   ```
   kubectl get pods -n ocsepp
   ```

Sample output :

```
NAME                                                READY   STATUS
RESTARTS     AGE
ocsepp-appinfo-7687997858-2vn4r                     1/1     Running
0          20m
ocsepp-cn32c-svc-845f689879-r8zcr                   1/1     Running
0          20m
ocsepp-cn32f-svc-6655cdf7bc-8sxrl                   1/1     Running
0          20m
ocsepp-config-mgr-svc-6c8c5c968d-qqd4f              1/1     Running
0          20m
ocsepp-n32-egress-gateway-76bdbc7546-t7msc          2/2     Running
0          20m
ocsepp-n32-ingress-gateway-5545f455c-br2cv          2/2     Running
0          20m
ocsepp-ocpm-config-854dd8b7b5-j2lgg                 1/1     Running
0          20m
ocsepp-plmn-egress-gateway-655886df4f-b9rl6         2/2     Running
0          20m
ocsepp-plmn-ingress-gateway-6586fbfc59-9f4lx        2/2     Running
0          20m
ocsepp-pn32c-svc-55d5748b76-p6p4t                   1/1     Running
0          20m
ocsepp-pn32f-svc-846558995b-5wvpt                   1/1     Running
0          20m
ocsepp-sepp-nrf-client-nfmanagement
            -7c94cf8dbf-lxbsb                       1/1     Running
0          20m
```

3
Customizing SEPP

This section explains the configuration parameters of the SEPP.

Follow the below steps to customize the `ocsepp-custom-values-1.4.0.yaml` file as per the required parameters:

1. Go to the Oracle Help Center (OHC) Web site.
2. Navigate to **Industries->Communications->Cloud Native Core->Release 2.3.1**.
3. Click the **SEPP Custom Template** link to download the zip file.
4. Unzip the file to get ocscp-custom-configTemplates-1.4.0.0.0 file that contains the ocsepp-custom-configTemplates-1.4.0.0.0. This file is used during installation.
5. Customize the ocsepp-custom-values-1.4.0.yaml file.
6. Save the updated ocsepp-custom-values-1.4.0.yaml file in the helm chart directory.

Configuration Parameters

This section includes information about the configuration parameters of OCSEPP.

Configurable Custom Values

Global

Parameter	Description	Mandatory (M)/ Optional(O)	Default value
dockerRegistry	Docker registry name	M	helm-gateway-repo
dbCredSecretName	Kubernetes Secret containing DB credentials	M	ocsepp-mysql-cred
nameSpace	NameSpace where secret is deployed	M	seppsvc
mysql.primary.host	Mysql Primary hostname or IP	M	sepp-mysql-svc
mysql.primary.port	Mysql Primary port	M	3306
mysql.secondary.host	Mysql Secondary hostname or IP	M	sepp-mysql-svc
mysql.secondary.host	Mysql Secondary port	M	3306
seppDbName	Name of Sepp database	M	seppdb
nfName	The value of nfName is specified as ocnf which is stands of Oracle NF	M	sepp
nrfClientNfManagementEnable	Global control to enable/ disable deployment of NF Management service	M	true

Parameter	Description	Mandatory (M)/ Optional(O)	Default value
envJaegerAgentHost	Jaeger tracing host	O	"occne-tracer-jaeger-agent.occne-infra"
envJaegerAgentPort	Jaeger tracing port	O	6831
nrfClientNodePort	Provide value for NodePort	O	0
imageServiceDetector	Readiness-Detector image details with tag	M	nrf-client/readiness-detector:helm_nrfclient_tag
configServerEnable	Service Enable or not	M	true
configServerFullNameOverride	Config-Server Service. Shall be used as {{ ReleaseName }}-configServerFullNameOverride	M	ocpm-config
envMysqlHost	Mysql host	M	sepp-mysql-svc (refers to database which nrfclient will connect)
envMysqlPort	Mysql port	M	3306
appinfoServiceEnable	lobal Control to disable appinfo service	O	true
deploymentNrfClientService.envNfNamespace	If no services are to be monitored, envNfNamespace,envNfType ,envConsumeSvcName can be left blank	O	
deploymentNrfClientService.envNfType	Services to be monitored by performance service nftype	O	
deploymentNrfClientService.envConsumeSvcName	Services to be monitored by performance service name	O	
deploymentNrfClientService.envEgressGatewayFullnameOverride	Egress gateway Host. Shall be used as {{ ReleaseName }}-envEgressGatewayFullnameOverride	M	plmn-egress-gateway
deploymentNrfClientService.envEgressGatewayPort	Egress gateway Port	M	8080
deploymentNrfClientService.nfApiRoot.nodeSelectorEnabled	nodeSelector enabling or disabling	O	false
deploymentNrfClientService.nfApiRoot.nodeSelectorKey	nodeSelector enabling or disabling	O	zone
deploymentNrfClientService.nfApiRoot.nodeSelectorValue	Schedule on node having this value	O	app
privilegedDbCredSecretName	K8s Secret containing Database/user/password for DB Hooks for creating tables	M	ocsepp-mysql-cred

Parameter	Description	Mandatory (M)/ Optional(O)	Default value
releaseDbName	Mysql Release Database Name	M	seppdb
localProfile.name	SEPP Local Profile Name	M	SEPP-1
localProfile.plmn.mcc	SEPP Local MCC	M	311
localProfile.plmn.mnc	SEPP Local MNC	M	282
localProfile.domain	SEPP Local Domain	M	oracle.com
localProfile.interPlmnFqdn	SEPP FQDN for Inter PLMN Access	M	sepp1.inter.oracle.com
localProfile.intraPlmnFqdn	SEPP FQDN for Intra PLMN Access	M	10.75.236.42:30053
localProfile.supportedSecurityCapabilityList	SEPP Supported Security capability (Only TLS is supported in this release)	M	TLS
localProfile.apiPrefix	SEPP apiPrefix	O	
localProfile.retryInterval	SEPP Audit retry interval (For handshake Retry)	M	300000 (In milli seconds)
localProfile.maxRetry	SEPP Audit Max retry count (for handshake retry), Default is -1 means infinite	M	-1 (-1 means no limit on retry count. Mean infinite.)
localProfile.nfInstanceId	SEPP NF Instance Id.	M	sepp1

cn32f-svc

SL. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	image.repository	Repo location of image	M	reg-1:5000
2	image.name	Name of image	M	ocsepp-cn32f-svc
3	image.tag	Tag of image	M	1.4.0
4	image.pullPolicy	This setting indicates if the image needs to be pulled or not	M	Always
5	replicaCount	Number of replicas for the pod	M	1
6	minAvailable	Number minimum available of replicas.	M	1
7	minReplicas	Minimum Number of Relicas	M	1
8	maxReplicas	Maximum num of replicas of pod	M	3
9	log.root	Root log level	M	WARN
10	log.sepp	Sepp sepecific log level	M	INFO
11	resources.limit.cpu	Resource Requirements(limit of cpu)	M	2

SL. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
12	resources.limit.memory	Resource Requirements(limit of memory)	M	2
13	resources.requests.cpu	Resource Requirements(requested cpu)	M	1
14	resources.requests.memory	Resource Requirements(requested memory)	M	1
15	resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	M	50
16	jaegerTracingEnabled	Enable Jaeger trace	O	false
17	bodyInTraceEnabled	Enable Jaeger trace for Body	O	false
18	openTracing.jaeger.udpSender.host	Jaeger host	O	occne-tracer-jaeger-agent.occne-infra
19	openTracing.jaeger.udpSender.port	Jaeger port	O	6831
20	openTracing.jaeger.logSpans	Jaeger port	O	false
21	openTracing.jaeger.probabilisticSamplingRate	Trace capture in percentage	O	0.5 (Note: it means 50%)
22	nrfconfiguration.service.type	Kind of Service that will be used for this Deployment	O	
23	service.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Service	O	
24	service.customExtension.anOtations	Custom Annotations that needs to be added to nrfconfiguration specific Services	O	
25	deployment.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Deployment	O	
25	deployment.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Deployment	O	

pn32c-svc

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	image.repository	Repo location of image	M	reg-1:5000
2	image.name	Name of image	M	ocsepp-pn32c-svc
3	image.tag	Tag of image	M	1.4.0
4	image.pullPolicy	This setting indicates if the image needs to be pulled or not	M	Always
5	minReplicas	Minimum Number of Relicas	M	1
6	maxReplicas	Maximum num of replicas of pod	M	5
7	log.root	Root log level	M	WARN
8	log.sepp	Sepp sepecific log level	M	WARN
9	resources.limit.cpu	Resource Requirements(limit of cpu)	M	2
10	resources.limit.memory	Resource Requirements(limit of memory)	M	2Gi
11	resources.requests.cpu	Resource Requirements(requested cpu)	M	1
12	resources.requests.memory	Resource Requirements(requested memory)	M	1Gi
13	resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	M	50
14	jaegerTracingEnabled	Enable Jaeger trace	O	false
15	bodyInTraceEnabled	Enable Jaeger trace for Body	O	false
16	openTracing.jaeger.udpSender.host	Jaeger host	O	occne-tracer-jaeger-agent.occne-infra
17	openTracing.jaeger.udpSender.port	Jaeger port	O	6831
18	openTracing.jaeger.logSpans		O	false
19	openTracing.jaeger.probabilisticSamplingRate	Trace capture in percentage	O	0.5 (Note: it means 50%)
20	nrfconfiguration.service.type	Kind of Service that will be used for this Deployment	O	
21	service.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Service	O	

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
22	service.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Services	O	
23	deployment.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Deployment	O	
24	deployment.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Deployment	O	

cn32f-svc

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	image.repository	Repo location of image	M	reg-1:5000
2	image.name	Name of image	M	ocsepp-cn32f-svc
3	image.tag	Tag of image	M	1.4.0
4	image.pullPolicy	This setting indicates if the image needs to be pulled or not	M	Always
7	minReplicas	Minimum Number of Relicas	M	1
8	maxReplicas	Maximum num of replicas of pod	M	5
9	log.root	Root log level	M	WARN
10	log.sepp	Sepp sepecific log level	M	WARN
11	resources.limit.cpu	Resource Requirements(limit of cpu)	M	4
12	resources.limit.memory	Resource Requirements(limit of memory)	M	4Gi
13	resources.requests.cpu	Resource Requirements(requested cpu)	M	2
14	resources.requests.memory	Resource Requirements(requested memory)	M	2Gi
15	resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	M	50
16	jaegerTracingEnabled	Enable Jaeger trace	O	false
17	bodyInTraceEnabled	Enable Jaeger trace for Body	O	false
18	openTracing.jaeger.udpSender.host	Jaeger host	O	occne-tracer-jaeger-agent.occne-infra

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
19	openTracing.jaeger.udpSender.port	Jaeger port	O	6831
20	openTracing.jaeger.logSpans	To enable the span	O	false
21	openTracing.jaeger.probabilisticSamplingRate	Trace capture in percentage	O	0.5 (Note: it means 50%)
22	nrfconfiguration.service.type	Kind of Service that will be used for this Deployment	O	
23	service.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Service	O	
24	service.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Services	O	
25	deployment.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Deployment	O	
26	deployment.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Deployment	O	

pn32f-svc

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	image.repository	Repo location of image	M	reg-1:5000
2	image.name	Name of image	M	ocsepp-pn32f-svc
3	image.tag	Tag of image	M	1.4.0
4	image.pullPolicy	This setting indicates if the image needs to be pulled or not	M	Always
7	minReplicas	Minimum Number of Relicas	M	1
8	maxReplicas	Maximum num of replicas of pod	M	5
9	log.root	Root log level	M	WARN
10	log.sepp	Sepp sepecific log level	M	WARN
11	resources.limit.cpu	Resource Requirements(limit of cpu)	M	4
12	resources.limit.memory	Resource Requirements(limit of memory)	M	4Gi
13	resources.requests.cpu	Resource Requirements(requested cpu)	M	2

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
14	resources.requests.memory	Resource Requirements(requested memory)	M	2Gi
15	resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	M	50
16	jaegerTracingEnabled	Enable Jaeger trace	O	false
17	bodyInTraceEnabled	Enable Jaeger trace for Body	O	false
18	openTracing.jaeger.udpSender.host	Jaeger host	O	occne-tracer-jaeger-agent.occne-infra
19	openTracing.jaeger.udpSender.port	Jaeger port	O	6831
20	openTracing.jaeger.logSpans	To enable the span	O	false
21	openTracing.jaeger.probabilisticSamplingRate	Trace capture in percentage	O	0.5 (Note: it means 50%)
22	nrfconfiguration.service.type	Kind of Service that will be used for this Deployment	O	
23	service.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Service	O	
24	service.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Services	O	
25	deployment.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Deployment	O	
26	deployment.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Deployment	O	

config-mgr-svc

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	image.repository	Repo location of image	M	reg-1:5000
2	image.name	Name of image	M	ocsepp-config-mgr-svc
3	image.tag	Tag of image	M	1.4.0
4	image.pullPolicy	This setting indicates if the image needs to be pulled or not	M	Always
5	log.root	Root log level	M	WARN
6	log.sepp	Sepp sepecific log level	M	WARN

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
7	resources.limit.cpu	Resource Requirements(limit of cpu)	M	2
8	resources.limit.memory	Resource Requirements(limit of memory)	M	2Gi
9	resources.requests.cpu	Resource Requirements(requested cpu)	M	1
10	resources.requests.memory	Resource Requirements(requested memory)	M	1Gi
11	nrfconfiguration.service.type	Kind of Service that will be used for this Deployment	O	
12	service.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Service	O	
13	service.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Services	O	
14	deployment.customExtension.labels	Custom Labels that needs to be added to nrfconfiguration specific Deployment	O	
15	deployment.customExtension.annotations	Custom Annotations that needs to be added to nrfconfiguration specific Deployment	O	

Ingress Gateway

Table 3-1 n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
cmName	To enable the span	O	ingressgateway
prefix	When set to some value then that value will be used in the names of resources along with release name	M	'n32'
global.publicHttpSignalingPort	Http Signalling port	M	80
gloabl.publicHttpsSignallingPort	Https Signalling port	M	443
gloabl.serviceAccountName	Service Account name	O	
global.type	type of service	M	LoadBalancer (Note: Possible values are ClusterIP, NodePort, LoadBalancer and ExternalName)

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
global.metalLbIpAllocationEnabled	Enable or disable IP Address allocation from Metallb Pool	O	true
global.metalLbIpAllocationAnnotation	Address Pool Annotation for Metallb	O	"metallb.universe.tf/ address-pool: signaling"
global.staticIpAddressEnabled	If Static load balancer IP needs to be set, then set staticIpAddressEnabled flag to true and provide value for staticIpAddress Else random IP will be assigned by the metalLB from its IP Pool	O	false
global.staticIpAddress	StaticIp	O	10.75.212.60
global.staticNodePortEnabled	Node Port Enabled	O	true
global.staticHttpNodePort	Http Node Port	M	30075
global.staticHttpsNodePort	Https Node Port	M	30043
image.name	Image name of ingress gateway	O	ocingress_gateway
image.tag	Image Tag name of ingress gateway	O	helm-gateway-tag
image.pullPolicy	Image Pull Policy	O	Always
initContainersImage.name	Image name of initContainer	O	configurationinit
initContainersImage.tag	Image tag name of initContainer	O	helm-gateway-config-tag
initContainersImage.pullPolicy	Image Pull Policy	O	Always
updateContainersImage.name	Image name of updateContainer	O	configurationupdate
updateContainersImage.tag	Image tag name of updateContainer	O	helm-gateway-config-tag
updateContainersImage.pullPolicy	Image Pull Policy	O	Always
service.ssl.tlsVersion	TLS Version	M	TLSv1.2
service.ssl.privateKey.k8SecretName	Name of the privatekey secret	M	ocsepp-n32-secret
service.ssl.privateKey.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.privateKey.rsa.fileName	rsa private key file name	M	rsa_private_key_pkcs1.pem

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
service.ssl.privateKey.ecdsa.fileName	ecdsa private key file name	M	ssl_ecdsa_private_key.pem
service.ssl.certificate.k8SecretName	Name of the certificate secret	M	ocsepp-n32-secret
service.ssl.certificate.k8NameSpace	Namespace of certificate	M	seppsvc
service.ssl.certificate.rsa.fileName	rsa certificate key file name	M	ocsepp.cer
service.ssl.certificate.ecdsa.fileName	ecdsa certificate key file name	M	ssl_ecdsa_certificate.crt
service.ssl.caBundle.k8SecretName	Name of the caBundle secret	M	ocsepp-n32-secret
service.ssl.caBundle.k8NameSpace	Namespace of private	M	seppsvc
service.ssl.caBundle.fileName	rsa private key file name	M	caroot.cer
service.ssl.keyStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-n32-secret
service.ssl.keyStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.keyStorePassword.fileName	File name that has password for keyStore	M	key.txt
service.ssl.trustStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-n32-secret
service.ssl.trustStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.trustStorePassword.fileName	File name that has password for trustStore	M	trust.txt
service.ssl.initialAlgorithm	Algorithm based on the certificate	M	RSA256
service.customExtension.labels	Custom Labels that needs to be added to sepp specific Service	O	
service.customExtension.annotations	Custom Annotations that needs to be added to sepp specific Services	O	
deployment.customExtension.labels	Custom Labels that needs to be added to sepp specific deployment	O	
deployment.customExtension.annotations	Custom Annotations that needs to be added to sepp specific deployment	O	

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
ports.containerPort	ContainerPort represents a network port in a single container	O	8081
ports.containersslPort	Ssl port of the container	O	8443
ports.actuatorPort	ActuatorPort	O	9090
log.level.root	Log level for root logs	O	WARN
log.level.ingress	Log level for ingress logs	O	WARN
log.level.oauth	Log level for oauth logs	O	WARN
log.level.updateContainer	log.level.updateContainer	O	WARN
log.level.cncc.security	Log level for cncc logs	O	WARN
log.traceIdGenerationEnabled	TraceId Generation is Enabled	O	true
resources.limits.cpu	CPU Limit	O	4
resources.limits.initServiceCpu	Init Container CPU Limit	O	0.5
resources.limits.updateServiceCpu	Update Container CPU Limit	O	0.5
resources.limits.memory	Memory Limit	O	4Gi
resources.limits.updateServiceMemory	Update Container Memory Limit	O	0.5Gi
resources.limits.initServiceMemory	int Container Memory Limit	O	0.5Gi
resources.requests.cpu	CPU for requests	O	2
resources.requests.initServiceCpu	Init Container CPU for requests	O	0.5
resources.requests.updateServiceCpu	Update Container CPU for requests	O	0.5
resources.requests.memory	Memory for requests	O	2Gi
resources.requests.updateServiceMemory	Update Container Memory for requests	O	0.5Gi
resources.requests.initServiceMemory	Init Container Memory for requests	O	0.5Gi
resources.target.averageCpuUtil		O	80
minAvailable	Number of Pods must always be available, even during a disruption	O	1

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
minReplicas	Min replicas to scale to maintain an average CPU utilization	O	1
maxReplicas	Max replicas to scale to maintain an average CPU utilization	O	5
jaegerTracingEnabled	Enable jaeger tracing	O	false
openTracing.jaeger.udpSender.host	Jaeger Host	O	occne-tracer-jaeger-agent.occne-infra
openTracing.jaeger.udpSender.port	Jaeger Port	O	6831
openTracing.jaeger.probabilisticSampler	Trace capture in percentage	O	0.5
allowedCipherSuites	Allowed Ciphers	O	- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA25 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
cipherSuites	Supported Cipher Suites in Ingress	O	- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
initssl	Enabling it generates key and trust store for https support	O	true
enableIncomingHttp	Enabling it for incoming http request	O	false
enableIncomingHttps	Enabling it for incoming https request	O	true
enableOutgoingHttps	Enabling it for outgoing https request	O	false
needClientAuth	This must be true if client certificate identity is required in the header x-custom-ingress-client-identity	O	true
rateLimiting.enabled	Ratelimiting feature enabled	O	false
routeRateLimiting.enabled	Route based ratelimiting feature enabled	O	false
globalIngressRateLimiting.enabled	Global rate limiting is enabled	O	false
globalIngressRateLimiting.duration	Iterations of time duration(In seconds) for which bucketCapacity and refillRate are reset.	O	1
globalIngressRateLimiting.burstCapacity	Holds maximum number of tokens in the bucket for the given duration	O	1

Table 3-1 (Cont.) n32-ingress-gateway

Name	Description	Mandatory(M)/ Optional(O)	Default Value
globalIngressRateLimiting.refillRate	Number of tokens to be added to the bucket for the given duration	O	1

plmn-ingress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
cmName	Name of the config-map	O	ingressgateway
prefix	When set to some value then that value will be used in the names of resources along with release name	M	'plmn'
global.publicHttpSignalingPort	Http Signalling port	M	80
gloabl.publicHttpsSignallingPort	Https Signalling port	M	443
gloabl.serviceAccountName	Service Account name	O	
global.type	type of service	M	LoadBalancer (Note: Possible values are ClusterIP, NodePort, LoadBalancer and ExternalName)
global.metalLbIpAllocationEnabled	Enable or disable IP Address allocation from Metallb Pool	O	true
global.metalLbIpAllocationAnnotation	Address Pool Annotation for Metallb	O	"metallb.universe.tf/address-pool: signaling"
global.staticIpAddressEnabled	If Static load balancer IP needs to be set, then set staticIpAddressEnabled flag to true and provide value for staticIpAddress Else random IP will be assigned by the metalLB from its IP Pool	O	false
global.staticIpAddress	StaticIp	O	10.75.212.60
global.staticNodePortEnabled	Node Port Enabled	O	true
global.staticHttpNodePort	Http Node Port	M	30075
global.staticHttpsNodePort	Https Node Port	M	30043
image.name	Image name of ingress gateway	O	ocingress_gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
image.tag	Image Tag name of ingress gateway	O	helm-gateway-tag
image.pullPolicy	Image Pull Policy	O	Always
initContainersImage.name	Image name of initContainer	O	configurationinit
initContainersImage.tag	Image tag name of initContainer	O	helm-gateway-config-tag
initContainersImage.pullPolicy	Image Pull Policy	O	Always
updateContainersImage.name	Image name of updateContainer	O	configurationupdate
updateContainersImage.tag	Image tag name of updateContainer	O	helm-gateway-config-tag
updateContainersImage.pullPolicy	Image Pull Policy	O	Always
service.ssl.tlsVersion	TLS Version	M	TLSv1.2
service.ssl.privateKey.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.privateKey.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.privateKey.rsa.fileName	rsa private key file name	M	rsa_private_key_pkcs1.pem
service.ssl.privateKey.ecdsa.fileName	ecdsa private key file name	M	ssl_ecdsa_private_key.pem
service.ssl.certificate.k8SecretName	Name of the certificate secret	M	ocsepp-plmn-secret
service.ssl.certificate.k8NameSpace	Namespace of certificate	M	seppsvc
service.ssl.certificate.rsa.fileName	rsa certificate key file name	M	ocsepp.cer
service.ssl.certificate.ecdsa.fileName	ecdsa certificate key file name	M	ssl_ecdsa_certificate.crt
service.ssl.caBundle.k8SecretName	Name of the caBundle secret	M	ocsepp-plmn-secret
service.ssl.caBundle.k8NameSpace	Namespace of private	M	seppsvc
service.ssl.caBundle.fileName	rsa private key file name	M	caroot.cer
service.ssl.keyStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.keyStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.keyStorePassword.fileName	File name that has password for keyStore	M	key.txt

Name	Description	Mandatory (M)/ Optional(O)	Default Value
service.ssl.trustStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.trustStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.trustStorePassword.fileName	File name that has password for trustStore	M	trust.txt
service.ssl.initialAlgorithm	Algorithm based on the certificate	M	RSA256
service.customExtension.labels	Custom Labels that needs to be added to sepp specific Service	O	
service.customExtension.annotations	Custom Annotations that needs to be added to sepp specific Services	O	
deployment.customExtension.labels	Custom Labels that needs to be added to sepp specific deployment	O	
deployment.customExtension.annotations	Custom Annotations that needs to be added to sepp specific deployment	O	
ports.containerPort	ContainerPort represents a network port in a single container	O	8081
ports.containersslPort	Ssl port of the container	O	8443
ports.actuatorPort	ActuatorPort	O	9090
log.level.root	Log level for root logs	O	WARN
log.level.ingress	Log level for ingress logs	O	WARN
log.level.oauth	Log level for oauth logs	O	WARN
log.level.updateContainer	Log level for update container logs	O	WARN
log.level.cncc.security	Log level for cncc logs	O	WARN
log.traceIdGenerationEnabled	TraceId Generation is Enabled	O	true
resources.limits.cpu	CPU Limit	O	4
resources.limits.initServiceCpu	Init Container CPU Limit	O	0.5
resources.limits.updateServiceCpu	Update Container CPU Limit	O	0.5
resources.limits.memory	Memory Limit	O	4Gi
resources.limits.updateServiceMemory	Update Container Memory Limit	O	0.5Gi
resources.limits.initServiceMemory	int Container Memory Limit	O	0.5Gi
resources.requests.cpu	CPU for requests	O	2

Name	Description	Mandatory (M)/ Optional(O)	Default Value
resources.requests.initServiceCpu	Init Container CPU for requests	O	0.5
resources.requests.updateServiceCpu	Update Container CPU for requests	O	0.5
resources.requests.memory	Memory for requests	O	3Gi
resources.requests.updateServiceMemory	Update Container Memory for requests	O	0.5Gi
resources.requests.initServiceMemory	Init Container Memory for requests	O	0.5Gi
resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	O	80
minAvailable	Number of Pods must always be available, even during a disruption	O	1
minReplicas	Min replicas to scale to maintain an average CPU utilization	O	1
maxReplicas	Max replicas to scale to maintain an average CPU utilization	O	5
jaegerTracingEnabled	Enable jaeger tracing	O	false
openTracing.jaeger.udpSender.host	Jaeger Host	O	occne-tracer-jaeger-agent.occne-infra
openTracing.jaeger.udpSender.port	Jaeger Port	O	6831
openTracing.jaeger.probabilisticSampler	Trace capture in percentage	O	0.5

Name	Description	Mandatory (M)/ Optional(O)	Default Value
allowedCipherSuites	Allowed Ciphers		- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA25 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
cipherSuites	Supported Cipher Suites in Ingress	O	- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
initssl	Enabling it generates key and trust store for https support	O	true
enableIncomingHttp	Enabling it for incoming http request	O	true

Name	Description	Mandatory (M)/ Optional(O)	Default Value
enableIncomingHttps	Enabling it for incoming https request	O	true
enableOutgoingHttps	Enabling it for outgoing https request	O	false
needClientAuth	This must be true if client certificate identity is required in the header x-custom-ingress-client-identity	O	true
rateLimiting.enabled	Ratelimiting feature enabled	O	false
routeRateLimiting.enabled	Route based ratelimiting feature enabled	O	false
globalIngressRateLimiting.enabled	Global rate limiting is enabled	O	false
globalIngressRateLimiting.duration	Iterations of time duration(In seconds) for which bucketCapacity and refillRate are reset.	O	1
globalIngressRateLimiting.burstCapacity	Holds maximum number of tokens in the bucket for the given duration	O	1
globalIngressRateLimiting.refillRate	Number of tokens to be added to the bucket for the given duration	O	1

Egress Gateway

Table 3-2 n32-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
cmName	Name of the configmap	O	egressgateway
prefix	When set to some value then that value will be used in the names of resources along with release name	M	plmn
serviceEgressGateway.port	Egress gw port	M	8080
serviceEgressGateway.sslPort	SSL Port	M	8442
serviceEgressGateway.actuatorPort	Actuator Port	M	9090
deploymentEgressGateway.image	Image name of ingress gateway	O	ocingress_gateway
deploymentEgressGateway.imageTag	Image Tag name of ingress gateway	O	helm-gateway-tag
deploymentEgressGateway.pullPolicy	Image Pull Policy	O	Always

Table 3-2 (Cont.) n32-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
initContainersImage.name	Image name of initContainer	O	configurationinit
initContainersImage.tag	Image tag name of initContainer	O	helm-gateway-config-tag
initContainersImage.pullPolicy	Image Pull Policy	O	Always
updateContainersImage.name	Image name of updateContainer	O	configurationupdate
updateContainersImage.tag	Image tag name of updateContainer	O	helm-gateway-config-tag
updateContainersImage.pullPolicy	Image Pull Policy	O	Always
initssl	Enabling it generates key and trust store for https support	O	true
enableIncomingHttps	Enabling it for incoming http request	O	false
enableOutgoingHttps	Enabling it for incoming https request	O	true
log.level.root	Log level for root logs	O	WARN
log.level.egress	Log level for ingress logs	O	WARN
log.level.oauth	Log level for oauth logs	O	WARN
log.level.updateContainer	Log level for update container logs	O	WARN
service.type	Service type	M	ClusterIP
service.ssl.tlsVersion	TLS Version	M	TLSv1.2
service.ssl.privateKey.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.privateKey.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.privateKey.rsa.fileName	rsa private key file name	M	rsa_private_key_pkcs1.pem
service.ssl.privateKey.ecdsa.fileName	ecdsa private key file name	M	ssl_ecdsa_private_key.pem
service.ssl.certificate.k8SecretName	Name of the certificate secret	M	ocsepp-plmn-secret
service.ssl.certificate.k8NameSpace	Namespace of certificate	M	seppsvc
service.ssl.certificate.rsa.fileName	rsa certificate key file name	M	ocsepp.cer
service.ssl.certificate.ecdsa.fileName	ecdsa certificate key file name	M	ssl_ecdsa_certificate.crt
service.ssl.caBundle.k8SecretName	Name of the caBundle secret	M	ocsepp-plmn-secret
service.ssl.caBundle.k8NameSpace	Namespace of private	M	seppsvc

Table 3-2 (Cont.) n32-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
service.ssl.caBundle.fileName	rsa private key file name	M	caroot.cer
service.ssl.keyStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.keyStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.keyStorePassword.fileName	File name that has password for keyStore	M	key.txt
service.ssl.trustStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.trustStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.trustStorePassword.fileName	File name that has password for trustStore	M	trust.txt
service.ssl.initialAlgorithm	Algorithm based on the certificate	M	RSA256
service.customExtension.labels	Custom Labels that needs to be added to sepp specific Service	O	
service.customExtension.annotations	Custom Annotations that needs to be added to sepp specific Services	O	
deployment.customExtension.labels	Custom Labels that needs to be added to sepp specific deployment	O	
deployment.customExtension.annotations	Custom Annotations that needs to be added to sepp specific deployment	O	

Table 3-2 (Cont.) n32-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
allowedCipherSuites	Allowed Ciphers		- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA25 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
cipherSuites	Supported Cipher Suites in Ingress	O	- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
jaegerTracingEnabled	Enable jaeger tracing	O	false

Table 3-2 (Cont.) n32-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
openTracing.jaeger.udpSender.host	Jaeger Host	O	occne-tracer-jaeger-agent.occne-infra
openTracing.jaeger.udpSender.port	Jaeger Port	O	6831
openTracing.jaeger.probabilisticSampler	Trace capture in percentage	O	0.5
resources.limits.cpu	CPU Limit	O	4
resources.limits.initServiceCpu	Init Container CPU Limit	O	0.5
resources.limits.updateServiceCpu	Update Container CPU Limit	O	0.5
resources.limits.memory	Memory Limit	O	4Gi
resources.limits.updateServiceMemory	Update Container Memory Limit	O	0.5Gi
resources.limits.initServiceMemory	int Container Memory Limit	O	0.5Gi
resources.requests.cpu	CPU for requests	O	2
resources.requests.initServiceCpu	Init Container CPU for requests	O	0.5
resources.requests.updateServiceCpu	Update Container CPU for requests	O	0.5
resources.requests.memory	Memory for requests	O	2Gi
resources.requests.updateServiceMemory	Update Container Memory for requests	O	0.5Gi
resources.requests.initServiceMemory	Init Container Memory for requests	O	0.5Gi
resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	O	80
minAvailable	Number of Pods must always be available, even during a disruption	O	1
minReplicas	Min replicas to scale to maintain an average CPU utilization	O	1
maxReplicas	Max replicas to scale to maintain an average CPU utilization	O	5

plmn-egress-gateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
cmName	Name of configmap	O	egressgateway

Name	Description	Mandatory (M)/ Optional(O)	Default Value
prefix	When set to some value then that value will be used in the names of resources along with release name	M	plmn
serviceEgressGateway.port	Egress gw port	M	8080
serviceEgressGateway.sslPort	SSL Port	M	8442
serviceEgressGateway.actuatorPort	Actuator Port	M	9090
deploymentEgressGateway.image	Image name of ingress gateway	O	ocingress_gateway
deploymentEgressGateway.imageTag	Image Tag name of ingress gateway	O	helm-gateway-tag
deploymentEgressGateway.pullPolicy	Image Pull Policy	O	Always
initContainersImage.name	Image name of initContainer	O	configurationinit
initContainersImage.tag	Image tag name of initContainer	O	helm-gateway-config-tag
initContainersImage.pullPolicy	Image Pull Policy	O	Always
updateContainersImage.name	Image name of updateContainer	O	configurationupdate
updateContainersImage.tag	Image tag name of updateContainer	O	helm-gateway-config-tag
updateContainersImage.pullPolicy	Image Pull Policy	O	Always
initssl	Enabling it generates key and trust store for https support	O	true
enableIncomingHttps	Enabling it for incoming http request	O	false
enableOutgoingHttps	Enabling it for incoming https request	O	true
log.level.root	Log level for root logs	O	WARN
log.level.egress	Log level for ingress logs	O	WARN
log.level.oauth	Log level for oauth logs	O	WARN
log.level.updateContainer	Log level for update container logs	O	WARN
service.type	Service type	M	ClusterIP
service.ssl.tlsVersion	TLS Version	M	TLSv1.2
service.ssl.privateKey.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.privateKey.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.privateKey.rsa.fileName	rsa private key file name	M	rsa_private_key_pkcs1.pem

Name	Description	Mandatory (M)/ Optional(O)	Default Value
service.ssl.privateKey.ecdsa.fileName	ecdsa private key file name	M	ssl_ecdsa_private_key.pem
service.ssl.certificate.k8SecretName	Name of the certificate secret	M	ocsepp-plmn-secret
service.ssl.certificate.k8NameSpace	Namespace of certificate	M	seppsvc
service.ssl.certificate.rsa.fileName	rsa certificate key file name	M	ocsepp.cer
service.ssl.certificate.ecdsa.fileName	ecdsa certificate key file name	M	ssl_ecdsa_certificate.crt
service.ssl.caBundle.k8SecretName	Name of the caBundle secret	M	ocsepp-plmn-secret
service.ssl.caBundle.k8NameSpace	Namespace of private	M	seppsvc
service.ssl.caBundle.fileName	rsa private key file name	M	caroot.cer
service.ssl.keyStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.keyStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.keyStorePassword.fileName	File name that has password for keyStore	M	key.txt
service.ssl.trustStorePassword.k8SecretName	Name of the privatekey secret	M	ocsepp-plmn-secret
service.ssl.trustStorePassword.k8NameSpace	Namespace of privatekey	M	seppsvc
service.ssl.trustStorePassword.fileName	File name that has password for trustStore	M	trust.txt
service.ssl.initialAlgorithm	Algorithm based on the certificate	M	RSA256
service.customExtension.labels	Custom Labels that needs to be added to sepp specific Service	O	
service.customExtension.annotations	Custom Annotations that needs to be added to sepp specific Services	O	
deployment.customExtension.labels	Custom Labels that needs to be added to sepp specific deployment	O	
deployment.customExtension.annotations	Custom Annotations that needs to be added to sepp specific deployment	O	

Name	Description	Mandatory (M)/ Optional(O)	Default Value
allowedCipherSuites	Allowed Ciphers		- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA25 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
cipherSuites	Supported Cipher Suites in Ingress	O	- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256 - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
jaegerTracingEnabled	Enable jaeger tracing	O	false
openTracing.jaeger.udpSender.host	Jaeger Host	O	occne-tracer-jaeger-agent.occne-infra

Name	Description	Mandatory (M)/ Optional(O)	Default Value
openTracing.jaeger.udpSender.port	Jaeger Port	O	6831
openTracing.jaeger.probabilisticSampler	Trace capture in percentage	O	0.5
resources.limits.cpu	CPU Limit	O	4
resources.limits.initServiceCpu	Init Container CPU Limit	O	0.5
resources.limits.updateServiceCpu	Update Container CPU Limit	O	0.5
resources.limits.memory	Memory Limit	O	4Gi
resources.limits.updateServiceMemory	Update Container Memory Limit	O	0.5Gi
resources.limits.initServiceMemory	int Container Memory Limit	O	0.5Gi
resources.requests.cpu	CPU for requests	O	2
resources.requests.initServiceCpu	Init Container CPU for requests	O	0.5
resources.requests.updateServiceCpu	Update Container CPU for requests	O	0.5
resources.requests.memory	Memory for requests	O	2Gi
resources.requests.updateServiceMemory	Update Container Memory for requests	O	0.5Gi
resources.requests.initServiceMemory	Init Container Memory for requests	O	0.5Gi
resources.target.averageCpuUtil	Resource Requirements(avg cpu utilisation)	O	80
minAvailable	Number of Pods must always be available, even during a disruption	O	1
minReplicas	Min replicas to scale to maintain an average CPU utilization	O	1
maxReplicas	Max replicas to scale to maintain an average CPU utilization	O	5

Nrfclient

nrf-client

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	configmapApplicationConfig.profile	This config map is for providing inputs to NRF-Client	M	**|- [appcfg] primaryNrfApiRoot= http://10.75.236.102:31294 (This ip:port is nrf server ip and it's ingress gateway port)** secondaryNrfApiRoot= retryAfterTime=PT120S nrfClientType=SEPP nrfClientSubscribeTypes= appProfiles= [{"nfInstanceId":"9faf1bbc-6e4a-4454-a507-aef01a101a06","nfType":"SEPP","nfStatus":"REGISTERED","fqdn":"sepp11.lab.oracle.com","scheme":"http"}] enableF3=true enableF5=true renewalTimeBeforeExpiry=3600 validityTime=30 enableSubscriptionAutoRenewal=true acceptAdditionalAttributes=false retryForCongestion=5 supportedDataSetId= enableVirtualNrfResolution=false virtualNrfFqdn=nrf.oracle.com virtualNrfScheme=http virtualNrfPort= enableNrfRetry=true maxNrfRetries=3 enableNrfAlternateRouting=true alternateRoutingErrorCodes=500,503 useAlternateScpOnAlternateRouting=
2	nrf-client-nfmanagement.image	NRF Client Microservice image name	M	nrf-client
3	nrf-client-nfmanagement.imageTag	NRF Client Microservice image tag	M	helm_nrfclient_tag
4	nrf-client-nfmanagement.envJaegerSamplerParam	Trace capture in percentage	M	1
5	nrf-client-nfmanagement.envJaegerSamplerType	Trace Sampler Type	M	ratelimiting

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
6	nrf-client-nfmanagement.envJaegerServiceName	Jaeger Service Name	M	nrf-client-nfmanagement
7	nrf-client-nfmanagement.replicas	replicas for nf management pods	M	1
8	nrf-client-nfmanagement.cpuLimit	maximum cpu limit	M	1
9	nrf-client-nfmanagement.cpuRequest	maximum cpu limit to which it can be requested	M	1
10	nrf-client-nfmanagement.memoryRequest	amount of memory requested	M	1Gi
11	nrf-client-nfmanagement.memoryLimit	maximum memory limit to which it can be requested	M	1Gi
12	nrf-client-nfmanagement.type	Exposes the service on cluster internal ip	O	ClusterIP

config-server

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	enabled	service can be enabled or disabled	M	true
2	image	image name	M	occnp/oc-config-serve
3	imageTag	image tag	M	helm_nrfclient_config_server_tag
4	fullNameOverride	image name override	M	config-server
5	envJaegerServiceName	image tag	M	occne-tracer-jaeger-agent.occne-infra
6	nfInstanceId	This is the NfInstanceId of NF that will get deployed. This shall be used in the profile being registered	M	9faf1bbc-6e4a-4454-a507-aef01a101a06
7	envMysqlDatabase	Mysql Config Server Databse Name for creating necessary tables	M	seppdb
8	replicas	number of replicas for config-server pod	M	1
9	nodeSelectorEnabled	Enable of Disable nodeSelector to schedule pod on particular node	O	false

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
10	nodeSelectorKey	schedule pod on node having this key	O	zone
11	nodeSelectorValue	schedule pod on node having this key	O	app
12	resources.limits.cpu	maximum cpu limit to which it can be requested	M	1
13	resources.limits.memory	maximum memory limit to which it can be requested	M	1Gi
14	resources.requests.cpu	amount of vcpu requested	O	0.5
15	resources.requests.memory	memory requested	O	0.5Gi
16	servicePcfConfig.type	Exposes the service on NodePort	O	NodePort

appinfo

S. No	Parameter	Description	Mandatory (M)/ Optional(O)	Default Value
1	enabled	To Enable of Disable the service	M	true
2	image	image name been used	M	app_info
3	imageTag	image tag that is been used	M	helm_nrfclient_app_info_tag
4	replicas	the replica count for appinfo	M	1
5	debug	Log Level to DEBUG	M	true
6	serviceAccountName	service Account Name	M	''
7	core_services.sepp	Service to be monitored by appinfo is none so, default value is empty	M	[ ]
8	infraServices:	As don't want to monitor infra services, so it is blank	M	[ ]

4
Upgrading SEPP

This section includes information about upgrading an existing SEPP deployment.

When you attempt to upgrade an existing SEPP deployment, the running set of containers and pods are replaced with the new set of containers and pods. However, If there is no change in the pod configuration, the running set of containers and pods are not replaced.

If you need to change any configuration then change the `ocsepp-custom-values-1.4.0.yaml` file with new values.

> **Note:**
>
> It is advisable to create a backup of the file before changing any configuration.

> **Caution:**
>
> Upgrading SEPP within same release supports only configuration changes.

Execute the following command to upgrade an existing SEPP deployment:

```
$ helm upgrade <release> <helm chart> [--version <OCSEPP version>] -f
      <ocsepp_customized_values.yaml>
```

For example:

```
$ helm upgrade <release> <helm chart> [--version <OCSEPP version>] -f
ocsepp-custom-values-1.4.0.yaml
```

To check the status of the upgrade, execute:

```
helm status <helm-release>
```

For example: `helm status ocsepp`

Table 4-1 Parameters and Definitions during SEPP Upgrade

Parameters	Definitions
`<helm chart>`	It is the name of the chart that is of the form `<repository/ocsepp>`. For example: `reg-1/ocsepp or cne-repo/ocsepp`
`<release>`	It can be found in the output of `helm list` command

In case of backout:

1. Check the history of helm deployment:
   `helm history <helm_release>`
2. Rollback to the required revision:
   `helm rollback <release name> <revision number>`

5
Uninstall SEPP

To delete the SEPP deployment, execute the following commands:

1. Execute command to uninstall SEPP deployment:

   For **helm 2** parameters:

   ```
   helm del --purge <helm-release>
   ```

   Example:

   ```
   helm del --purge ocsepp
   ```

   For **helm 3** parameters:

   ```
   helm3 uninstall <helm-release> --namespace <ocsepp kubernetes
   namespace>
   ```

   Example:

   ```
   helm3 uninstall ocsepp --namespace ocsepp
   ```

2. Execute the following command to delete kubernetes namespace :

   ```
   kubectl delete namespace <sepp_namespace>
   ```

   Example:

   ```
   kubectl delete namespace seppsvc
   ```

3. Delete all the gw secrets.

6
SEPP Troubleshooting Information

This section provides information to troubleshoot the common error which can be encountered during the installation and upgrade of SEPP:

- Error Trigger based debugging
- The environment is not working as expected
- Debugging of SEPP Installation while Installing using helm
- SEPP installation issues
- Debugging General CNE
- Collect the SEPP Logs to check the error scenarios

Error Trigger based debugging

The following table lists the SEPP Alarms, cause for the errors and the solution:

Event	Type	Severity	Cause of the error	Steps to get out of error scenario
SEPPCn32cHandshakeFailureAlert	Alert	Major	Handshake procedure has failed on Consumer sepp for peer sepp.	Check for handshake failure reason. Based on the handshake failure reason, configure roaming partner profile. If error is at TCP level, then check fqdn/ip/certificates in gateways. Re-Initiate the handshake procedure.
SEPPPn32cHandshakeFailureAlert	Alert	Major	Handshake procedure has failed on Producer sepp for peer sepp.	Check for handshake failure reason. Based on the handshake failure reason, configure roaming partner profile properly.
SEPPN32fRoutingFailure	Alert	Warning	N32f service not able to forward message	Check whether context is established between sepps. If not, then initiate the handshake procedure first.
SEPPPodMemoryUsageAlert	Alert	Warning	Pod memory usage is above threshold (70%)	
SEPPPodCpuUsageAlert	Alert	Warning	Pod CPU usage is above threshold (70%)	

The environment is not working as expected

Problem: The environment is not working as expected.

Solution:

1. Check if kubectl is installed and working as expected.
2. Check if `kubectl version` command works: This must display the versions of client and server.
3. Check if `$ kubectl create namespace test` command works.
4. Check if `kubectl delete namespace test` command works.
5. Check if Helm is installed and working as expected.
6. Check if `helm version` command works: This must display the versions of client and server.

Debugging of Installation while Installing using helm

Problem: The user is getting the error: *failed to parse ocsepp-custom-values-1.4.0.yaml: error converting YAML to JSON: yaml.*

Solution:

Verify the following:

1. The `ocsepp-custom-values-1.4.0.yaml` may not be created properly.
2. The tree structure may not be followed.
3. There may be tab spaces in the file.
4. Verify that the `ocsepp-custom-values-1.4.0.yaml` is proper

   Refer *Security Edge Protection Proxy (SEPP) Cloud Native Installation Guide .*
5. If there is no error, helm installation will be deployed.

   Helm status can be checked using following command :

   ```
   helm status <helm release name>
   ```

SEPP Installation issues

Problem: The SEPP installation is not successful.

Solution:

1. Verify if SEPP specific pods are working as expected by executing the following command:
   `kubectl get pods -n <ocsepp _namespace>`

   Check whether all the pods are up and running.

   Sample output:

   ```
   NAME                                                READY   STATUS
   RESTARTS      AGE
   ocsepp-appinfo-7687997858-2vn4r                     1/1     Running
   0           20m
   ```

```
ocsepp-cn32c-svc-845f689879-r8zcr             1/1     Running
0          20m
ocsepp-cn32f-svc-6655cdf7bc-8sxrl             1/1     Running
0          20m
ocsepp-config-mgr-svc-6c8c5c968d-qqd4f        1/1     Running
0          20m
ocsepp-n32-egress-gateway-76bdbc7546-t7msc    2/2     Running
0          20m
ocsepp-n32-ingress-gateway-5545f455c-br2cv    2/2     Running
0          20m
ocsepp-ocpm-config-854dd8b7b5-j2lgg           1/1     Running
0          20m
ocsepp-plmn-egress-gateway-655886df4f-b9rl6   2/2     Running
0          20m
ocsepp-plmn-ingress-gateway-6586fbfc59-9f4lx  2/2     Running
0          20m
ocsepp-pn32c-svc-55d5748b76-p6p4t             1/1     Running
0          20m
ocsepp-pn32f-svc-846558995b-5wvpt             1/1     Running
0          20m
ocsepp-sepp-nrf-client-nfmanagement
            -7c94cf8dbf-lxbsb                 1/1     Running
0          20m
```

2. If status of any pod is shown as `ImagePullBackOff` or `ErrImagePull` then it can be due to:
   a. Incorrect ImageName provided in `ocsepp-custom-values-1.4.0.yaml`. Then, double check the image name and tags in `ocsepp-custom-values-1.4.0.yaml`.
   b. Docker registry is incorrectly configured.
   Then, check docker registry is properly configured in all master and slave nodes.
3. If RESTARTS count of the pods is continuously increasing, then it can happen due to the following reasons:
   a. MySQL primary and secondary hosts may not be configured properly in `ocsepp-custom-values-1.4.0.yaml`
   b. MySQL servers may not be configured properly according to the pre-installation steps mentioned in *Security Edge Protection Proxy (SEPP) Cloud Native Installation Guide* .

Debugging General CNE

Problem: The environment is not working as expected

Solution:

Execute the command `kubectl get events -n <ocsepp_namespace>`to get all the events related to a particular namespace.

Collect the SEPP Logs to check the error scenarios

Problem: The error scenarios are checked by collecting the SEPP logs.

Solution:

The following commands must be executed to get the logs from sepp specific pods:

1. Fetch the list of all pods by executing `kubectl get pods -n <ocsepp_namespace>`
2. Collect the logs from the pod and redirect to file by executing `kubectl logs <pod_name> -n <ocsepp_namespace> > <Log File>`

Example:

```
kubectl logs ocsepp-nsselection-57cff5665c-skk4l -n ocsepp >
ocsepp_logs1.log
```

DNS Configuration for Inter PLMN FQDN Resoultion

The following sections describe how to configure DNS Server for Inter PLMN FQDN resolution. The steps are as follows:

Kubernetes Coredns configuration to route to external DNS

1. Execute the following command to edit k8s coredns configmap with external DNS Server to resolve FQDN not part of k8s cluster.

   ```
   kubectl -n kube-system edit configmap coredns
   ```

2. Add below to cordns configmap where domain.com is plmn domain.

   ```
   domain.com:53 {
   errors
   cache 30
   forward .  dns-serverip
   }
   ```

   Sample coredns configmap file:

   ```
   apiVersion: v1
   data:
     Corefile: |
       .:53 {
           errors
           health
           ready
           kubernetes nike in-addr.arpa ip6.arpa {
             pods insecure
             upstream /etc/resolv.conf
             fallthrough in-addr.arpa ip6.arpa
           }
           prometheus :9153
           forward . /etc/resolv.conf {
             prefer_udp
           }
           cache 30
           loop
           reload
           loadbalance
       }
       domain.com:53 {
           errors
           cache 30
           forward .  10.75.121.11
       }
   ```

```
kind: ConfigMap
metadata:
  annotations:
    kubectl.kubernetes.io/last-applied-configuration: |
      {"apiVersion":"v1","data":{"Corefile":".:53 {\n
errors\n    health\n    ready\n    kubernetes nike in-
addr.arpa ip6.arpa {\n      pods insecure\n      upstream /etc/
resolv.conf\n      fallthrough in-addr.arpa ip6.arpa\n    }
\n    prometheus :9153\n    forward . /etc/resolv.conf
{\n      prefer_udp\n    }\n    cache 30\n    loop\n
reload\n    loadbalance\n}\n"},"kind":"ConfigMap","metadata":
{"annotations":{},"labels":{"addonmanager.kubernetes.io/
mode":"EnsureExists"},"name":"coredns","namespace":"kube-system"}}
  creationTimestamp: "2020-05-27T18:43:13Z"
  labels:
    addonmanager.kubernetes.io/mode: EnsureExists
  name: coredns
  namespace: kube-system
  resourceVersion: "1314"
  selfLink: /api/v1/namespaces/kube-system/configmaps/coredns
  uid: 63a51c75-6b40-4dbb-b45e-30a22788097f
```

Sample values.yaml file

This section provides information about the configurable parameters and values defined in the custom values.yaml template file. The following sample illustrates the ocsepp-custom-values_1.4.0 yaml file:

```
# Copyright 2020 (C), Oracle and/or its affiliates. All rights reserved.
# # Default values for ocsepp.
# # This is a YAML-formatted file.
# # Declare variables to be passed into your templates

#################################################################################
###################################
#            Section Start: global attributes           #
#################################################################################
###################################
global:
  # Docker registry name for all the gateways(n32-ingress-gateway, plmn-
ingress-gateway, n32-egress-gateways, plmn-egress-gateway)
  dockerRegistry:  helm-gateway-repo

  # Kubernetes Secret containing DB credentials
  dbCredSecretName: 'ocsepp-mysql-cred'

  # NameSpace where secret is deployed
  nameSpace: seppsvc

  # MYSQL configurable params
  mysql:
    primary:
      host: "sepp-mysql-svc"
      port: 3306
    secondary:
      host: "sepp-mysql-svc"
      port: 3306
  # Name of Sepp database
  seppDbName: "seppdb"

#*********************************************************************
***
# ********  Sub-Section Start:  Gateways Global Parameters
***************
#*********************************************************************
***

#*********************************************************************
***
# ********  Sub-Section Finish:  Gateways Global Parameters
**************
#*********************************************************************
***

#*********************************************************************
```

```
***
# ********  Sub-Section Start:  NrfClint Global Parameters
***************
#**********************************************************************
***

#**********************************************************************
***
# ********  Sub-Section Finish:  NrfClint Global Parameters
**************
#**********************************************************************
***
  # The value of nfName is specified as ocnf which is stands of Oracle
NF.
  # nfName is used as a prefix in serivce names of nrf client's service
and other services it connects to for eg appinfo, config server etc.
  nfName: sepp
  # Global control to enable/disable deployment of NF Management
service.
  nrfClientNfManagementEnable: true
  # Jaeger tracing host
  envJaegerAgentHost: ''
  # Jaeger tracing port
  envJaegerAgentPort: 6831
  # Provide value for NodePort
  nrfClientNodePort: 0
  # Readiness-Detector image details with tag
  imageServiceDetector: nrf-client/readiness-detector:helm-nrfclient-tag

  configServerEnable: true
  # Config-Server Service. Shall be used as {{ ReleaseName }}-
configServerFullNameOverride
  configServerFullNameOverride: ocpm-config
  # Mysql Host
  envMysqlHost: 'sepp-mysql-svc'
  # Mysql Port
  envMysqlPort: '3306'
  # Mysql Secret Name
  #dbCredSecretName: 'ocsepp-mysql-cred'
  # Mysql Config Server Databse Name
  # Global Control to disable appinfo service
  appinfoServiceEnable: true
  # Deployment Specific configuration
  deploymentNrfClientService:
    # Services to be monitored by performance service
    # If no services are to be monitored,
envNfNamespace,envNfType,envConsumeSvcName can be left blank
    envNfNamespace: ''
    envNfType: ''
    envConsumeSvcName: ''
    # Egress gateway Host. Shall be used as {{ ReleaseName }}-
envEgressGatewayFullnameOverride
    envEgressGatewayFullnameOverride: plmn-egress-gateway
    # Egress gateway Port
    envEgressGatewayPort: "8080"
```

```
    # Callback URI to receive Notifications from NRF
    nfApiRoot:
    nodeSelectorEnabled: false
    nodeSelectorKey: zone
    nodeSelectorValue: app
  # K8s Secret containing Database/user/password for DB Hooks for
creating tables
  privilegedDbCredSecretName: 'ocsepp-mysql-cred'
  # Mysql Release Database Name
  releaseDbName: 'seppdb'

#**************************************************************************
***
## ********  Sub-Section Start:  Local Sepp Profile
************************
##**************************************************************************
****

  localProfile:
    name: "SEPP-1"
    plmn:
      mcc: "311"
      mnc: "282"
    domain: "oracle.com"
    interPlmnFqdn: "sepp1.inter.oracle.com"
    intraPlmnFqdn: "ocsepp-plmn-ingress-gateway.seppsvc"
    supportedSecurityCapabilityList:
     - "TLS"
    apiPrefix:  ""
    retryInterval: 300000
    maxRetry: -1
    nfInstanceId: "9faf1bbc-6e4a-4454-a507-aef01a101a06"

#**************************************************************************
***
## ********  Sub-Section Finish:  Local Sepp Profile
**********************
##**************************************************************************
****


############################################################
#            Section End  : global attributes           #
############################################################


#############################################################################
###
#            Section Start : n32-ingress-gateway Micro service
attributes  #
#############################################################################
###

n32-ingress-gateway:
```

```
  cmName: ingressgateway

  prefix: 'n32'

  global:
    # port on which SEPP's n32-ingress-Gateway service is exposed
    # If httpsEnabled is false, this Port would be HTTP/2.0 Port
(unsecured)
    # If httpsEnabled is true, this Port would be HTTPS/2.0 Port
(secured SSL)
    publicHttpSignalingPort: 80
    publicHttpsSignallingPort: 443
    serviceAccountName: ''
    #Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: LoadBalancer
    #Enable or disable IP Address allocation from Metallb Pool
    metalLbIpAllocationEnabled: true

    #Address Pool Annotation for Metallb
    metalLbIpAllocationAnnotation: "metallb.universe.tf/address-pool:
signaling"
    #If Static load balancer IP needs to be set, then set
staticIpAddressEnabled flag to true and provide value for
staticIpAddress
    #Else random IP will be assigned by the metalLB from its IP Pool
    staticIpAddressEnabled: false
    staticIpAddress: 10.75.212.60
    #If Static node port needs to be set, then set
staticNodePortEnabled flag to true and provide value for staticNodePort
    #Else random node port will be assigned by K8
    staticNodePortEnabled: false
    staticHttpNodePort: 30075
    staticHttpsNodePort: 30043


  image:
    # image name
    name: ocingress_gateway
    # tag name of image
    tag: helm-gateway-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always

  initContainersImage:
    # inint Containers image name
    name: configurationinit
    # tag name of init Container image
    tag: helm-gateway-config-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always

  updateContainersImage:
    # update Containers image name
    name: configurationupdate
```

```
    # tag name of update Container image
    tag: helm-gateway-config-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always

  service:
    ssl:
      tlsVersion: TLSv1.2

      privateKey:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: rsa_private_key_pkcs1.pem
        ecdsa:
          fileName: ssl_ecdsa_private_key.pem

      certificate:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: ocsepp.cer
        ecdsa:
          fileName: ssl_ecdsa_certificate.crt

      caBundle:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: caroot.cer

      keyStorePassword:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: key.txt

      trustStorePassword:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: trust.txt
      initialAlgorithm: RSA256

    # Labels and Annotations that are specific to service
ingressgateway are added here.
    customExtension:
      labels: {}
      annotations: {}

    # Labels and Annotations that are specific to deployment
ingressgateway are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  ports:
```

```
  # ContainerPort represents a network port in a single container
  containerPort: 8081
  containersslPort: 8443
  actuatorPort: 9090

#Set the root log level
log:
  level:
    root: WARN
    ingress: WARN
    oauth: WARN
    updateContainer: WARN
    cncc:
      security: WARN
  traceIdGenerationEnabled: true

# Resource details
resources:
  limits:
    cpu: 4
    initServiceCpu: 0.5
    updateServiceCpu: 0.5
    memory: 4Gi
    updateServiceMemory: 0.5Gi
    initServiceMemory: 0.5Gi
  requests:
    cpu: 2
    initServiceCpu: 0.5
    updateServiceCpu: 0.5
    memory: 2Gi
    updateServiceMemory: 0.5Gi
    initServiceMemory: 0.5Gi
  target:
    averageCpuUtil: 80


# Number of Pods must always be available, even during a disruption.
minAvailable: 1
# Min replicas to scale to maintain an average CPU utilization
minReplicas: 1
# Max replicas to scale to maintain an average CPU utilization
maxReplicas: 5

# enable jaeger tracing
jaegerTracingEnabled: false

openTracing :
  jaeger:
    udpSender:
      # udpsender host
      host: "occne-tracer-jaeger-agent.occne-infra"
      # udpsender port
      port: 6831
    probabilisticSampler: 0.5
```

```
  allowedCipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

  cipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256



#################################################################################
  # To Initialize SSL related infrastructure in init/update container
  initssl: true
  #Server Configuration for http and https support
  enableIncomingHttp: false
  enableIncomingHttps: true
  enableOutgoingHttps: false
  needClientAuth: true

#################################################################################
  rateLimiting:
    enabled: false
  routeRateLimiting:
    enabled: false
  globalIngressRateLimiting:
    enabled: false
    duration: 1 # in seconds
    burstCapacity: 1
    refillRate: 1

#################################################################################
###
#            Section End : n32-ingress-gateway Micro service
attributes  #
#################################################################################
###

#################################################################################
###
#            Section Start : n32-egress-gateway Micro service
attributes  #
#################################################################################
###
n32-egress-gateway:

  #Configmap name should be same as Spring boot application name
  cmName: egressgateway
```

```
  prefix: 'n32'

  serviceEgressGateway:
    port: 8080
    sslPort: 8442
    actuatorPort: 9090
  deploymentEgressGateway:
    image: ocegress_gateway
    imageTag: helm-gateway-tag
    pullPolicy: Always

  initContainersImage:
    name: configurationinit
    tag: helm-gateway-config-tag
    pullPolicy: Always

  updateContainersImage:
    name: configurationupdate
    tag: helm-gateway-config-tag
    pullPolicy: Always


  #HTTPS Configuration#####################
  #
  initssl: true
  enableIncomingHttps: false
  #enable true only if "initssl" --> true
  enableOutgoingHttps: true
  ########################################

  log:
    level:
      root: WARN
      egress: WARN
      oauth: WARN
      updateContainer: WARN

  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    ssl:
      tlsVersion: TLSv1.2
      #supportedCipherSuiteList: TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
      privateKey:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: rsa_private_key_pkcs1.pem
        ecdsa:
          fileName: ssl_ecdsa_private_key.pem

      certificate:
        k8SecretName: ocsepp-n32-secret
```

```
        k8NameSpace: seppsvc
        rsa:
          fileName: ocsepp.cer
        ecdsa:
          fileName: ssl_ecdsa_certificate.crt

      caBundle:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: caroot.cer

      keyStorePassword:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: key.txt

      trustStorePassword:
        k8SecretName: ocsepp-n32-secret
        k8NameSpace: seppsvc
        fileName: trust.txt

      initialAlgorithm: RSA256

    # Labels and Annotations that are specific to service egressgateway
are added here.
    customExtension:
      labels: {}
      annotations: {}

    # Labels and Annotations that are specific to service egressgateway
are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  # enable jaeger tracing
  jaegerTracingEnabled: false

  openTracing :
    jaeger:
      udpSender:
        # udpsender host
        host: "occne-tracer-jaeger-agent.occne-infra"
        # udpsender port
        port: 6831
      probabilisticSampler: 0.5

  resources:
    limits:
      cpu: 4
      initServiceCpu: 0.5
      updateServiceCpu: 0.5
      memory: 4Gi
      updateServiceMemory: 0.5Gi
```

```
      initServiceMemory: 0.5Gi
    requests:
      cpu: 2
      initServiceCpu: 0.5
      updateServiceCpu: 0.5
      memory: 2Gi
      updateServiceMemory: 0.5Gi
      initServiceMemory: 0.5Gi
    target:
      averageCpuUtil: 80


  # Number of Pods must always be available, even during a disruption.
  minAvailable: 1
  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5

  allowedCipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

  cipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

#############################################################################
###
#            Section End : n32-egress-gateway Micro service attributes
#
#############################################################################
###

#############################################################################
###
#            Section Start :plmn-ingress-gateway Micro service
attributes  #
#############################################################################
###

plmn-ingress-gateway:

  cmName: ingressgateway

  prefix: 'plmn'
```

```
  global:
    # port on which SEPP's ingress-Gateway service is exposed
    # If httpsEnabled is false, this Port would be HTTP/2.0 Port
(unsecured)
    # If httpsEnabled is true, this Port would be HTTPS/2.0 Port
(secured SSL)
    publicHttpSignalingPort: 80
    publicHttpsSignallingPort: 443
    serviceAccountName: ''
    #Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: LoadBalancer
    #Enable or disable IP Address allocation from Metallb Pool
    metalLbIpAllocationEnabled: true

    #Address Pool Annotation for Metallb
    metalLbIpAllocationAnnotation: "metallb.universe.tf/address-pool:
signaling"
    #If Static load balancer IP needs to be set, then set
staticIpAddressEnabled flag to true and provide value for
staticIpAddress
    #Else random IP will be assigned by the metalLB from its IP Pool
    staticIpAddressEnabled: false
    staticIpAddress: 10.75.212.60

    #If Static node port needs to be set, then set
staticNodePortEnabled flag to true and provide value for staticNodePort
    #Else random node port will be assigned by K8
    staticNodePortEnabled: false
    staticHttpNodePort: 30085
    staticHttpsNodePort: 30053

  image:
    # image name
    name: ocingress_gateway
    # tag name of image
    tag: helm-gateway-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always

  initContainersImage:
    # inint Containers image name
    name: configurationinit
    # tag name of init Container image
    tag: helm-gateway-config-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always

  updateContainersImage:
    # update Containers image name
    name: configurationupdate
    # tag name of update Container image
    tag: helm-gateway-config-tag
    # Pull Policy - Possible Values are:- Always, Always, Never
    pullPolicy: Always
```

```
  service:
    ssl:
      tlsVersion: TLSv1.2

      privateKey:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: rsa_private_key_pkcs1.pem
        ecdsa:
          fileName: ssl_ecdsa_private_key.pem

      certificate:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: ocsepp.cer
        ecdsa:
          fileName: ssl_ecdsa_certificate.crt

      caBundle:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: caroot.cer

      keyStorePassword:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: key.txt

      trustStorePassword:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: trust.txt

      initialAlgorithm: RSA256

    # Labels and Annotations that are specific to service
ingressgateway are added here.
    customExtension:
      labels: {}
      annotations: {}

  # Labels and Annotations that are specific to deployment
ingressgateway are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  ports:
    # ContainerPort represents a network port in a single container
    containerPort: 8081
    containersslPort: 8443
```

```
  actuatorPort: 9090

#Set the root log level
log:
  level:
    root: WARN
    ingress: WARN
    oauth: WARN
    updateContainer: WARN
    cncc:
      security: WARN
  traceIdGenerationEnabled: true

# Resource details
resources:
  limits:
    cpu: 4
    initServiceCpu: 0.5
    updateServiceCpu: 0.5
    memory: 4Gi
    updateServiceMemory: 0.5Gi
    initServiceMemory: 0.5Gi
  requests:
    cpu: 2
    initServiceCpu: 0.5
    updateServiceCpu: 0.5
    memory: 2Gi
    updateServiceMemory: 0.5Gi
    initServiceMemory: 0.5Gi
  target:
    averageCpuUtil: 80



# Number of Pods must always be available, even during a disruption.
minAvailable: 1
# Min replicas to scale to maintain an average CPU utilization
minReplicas: 1
# Max replicas to scale to maintain an average CPU utilization
maxReplicas: 5

# enable jaeger tracing
jaegerTracingEnabled: false

openTracing :
  jaeger:
    udpSender:
      # udpsender host
      host: "jaeger-agent.cne-infra"
      # udpsender port
      port: 6831
    probabilisticSampler: 0.5

allowedCipherSuites:
  - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
```

```
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

  cipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256


##########################################################################
  # To Initialize SSL related infrastructure in init/update container
  initssl: true
  #Server Configuration for http and https support
  enableIncomingHttp: true
  enableIncomingHttps: true
  enableOutgoingHttps: false
  needClientAuth: true

##########################################################################

  rateLimiting:
    enabled: false
  routeRateLimiting:
    enabled: false
  globalIngressRateLimiting:
    enabled: false
    duration: 1 # in seconds
    burstCapacity: 1
    refillRate: 1

##########################################################################
###
#            Section End : plmn-ingress-gateway Micro service
attributes  #
##########################################################################
###

##########################################################################
###
#            Section Start :plmn-egress-gateway Micro service
attributes  #
##########################################################################
###

plmn-egress-gateway:

  #Configmap name should be same as Spring boot application name
  cmName: egressgateway
  #Enabled to get RBAC permission for k8s apiserver communication
```

```
  prefix: 'plmn'

  serviceEgressGateway:
    port: 8080
    sslPort: 8442
    actuatorPort: 9090
  deploymentEgressGateway:
    image: ocegress_gateway
    imageTag:  helm-gateway-tag
    pullPolicy: Always

  initContainersImage:
    name: configurationinit
    tag: helm-gateway-config-tag
    pullPolicy: Always

  updateContainersImage:
    name: configurationupdate
    tag: helm-gateway-config-tag
    pullPolicy: Always


  #HTTPS Configuration#####################
  #
  initssl: true
  enableIncomingHttps: false
  #enable true only if "initssl" --> true
  enableOutgoingHttps: true
  ########################################

  #SCP Configuration
  scp:
    # Default scheme applicable when 3gpp-sbi-target-apiroot header is
missing
    scpDefaultScheme: https
    # Change this to false when scp integration is not required
    scpIntegrationEnabled: false
    # Set this flag to true if re-routing to multiple SCP instances is
to be enabled.
    scpRerouteEnabled: false
    instances:
      scpSets:
        - setId: 0
          httpConfigs:
          - host: localhost
            port: 101
            apiPrefix: "/"   # Change this value to corresponding
prefix "/" is not expected to be provided along.
          httpsConfigs:
          - host: localhost
            port: 4431
            apiPrefix: "/"

  #Enabling this will make the service type default to ClusterIP
```

```
  headlessServiceEnabled: false

  log:
    level:
      root: WARN
      egress: WARN
      oauth: WARN
      updateContainer: WARN

  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    ssl:
      tlsVersion: TLSv1.2
      #supportedCipherSuiteList: TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
      privateKey:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: rsa_private_key_pkcs1.pem
        ecdsa:
          fileName: ssl_ecdsa_private_key.pem

      certificate:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        rsa:
          fileName: ocsepp.cer
        ecdsa:
          fileName: ssl_ecdsa_certificate.crt

      caBundle:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: caroot.cer

      keyStorePassword:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: key.txt

      trustStorePassword:
        k8SecretName: ocsepp-plmn-secret
        k8NameSpace: seppsvc
        fileName: trust.txt

      initialAlgorithm: RSA256

    # Labels and Annotations that are specific to service
ingressgateway are added here.
    customExtension:
      labels: {}
      annotations: {}
```

```
  # Labels and Annotations that are specific to deployment gressgateway
are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  #Route configuration
  #Use this only when requests are routed to SCP
  #Please note double quotes to be enclosed for values of httpsScpOnly
and httpRuriOnly
  globalretry:
    enabled: false  #globalretry can be enabled only when
scpRerouteEnabled flag is set to true.
    retries: 2

  routesConfig:
  - id: scp_direct1
    uri: https://dummy.dontchange1
    path: /npcf/**
    order: 2
    httpsScpOnly: "false"
    httpRuriOnly: "false"
    scpSetId: 0 #If this field is not specified, then default value of
0 will be picked
    alternateScpOnReroute: false
    filterName1: ScpFilter
    filterName2:
      name: ScpRetry
      retries: 1
      methods: GET, POST, PUT, DELETE, PATCH
      statuses: BAD_REQUEST, INTERNAL_SERVER_ERROR, BAD_GATEWAY,
NOT_FOUND

  # Resource details
  resources:
    limits:
      cpu: 4
      initServiceCpu: 0.5
      updateServiceCpu: 0.5
      memory: 4Gi
      updateServiceMemory: 0.5Gi
      initServiceMemory: 0.5Gi
    requests:
      cpu: 2
      initServiceCpu: 0.5
      updateServiceCpu: 0.5
      memory: 2Gi
      updateServiceMemory: 0.5Gi
      initServiceMemory: 0.5Gi
    target:
      averageCpuUtil: 80


  # Number of Pods must always be available, even during a disruption.
```

```
  minAvailable: 1
  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5

  # enable jaeger tracing
  jaegerTracingEnabled: false

  openTracing :
    jaeger:
      udpSender:
        # udpsender host
        host: "occne-tracer-jaeger-agent.occne-infra"
        # udpsender port
        port: 6831
      probabilisticSampler: 0.5

  allowedCipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

  cipherSuites:
    - TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
    - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
    - TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
    - TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

#########################################################################
###
#            Section End :plmn-egress-gateway Micro service attributes
#
#########################################################################
###

#########################################################################
###
#            Section Start :pn32f-svc Micro service attributes  #
#########################################################################
###
pn32f-svc:
  image:
    repository: reg-1:5000
    name: ocsepp-pn32f-svc
    tag: helm-tag
    pullPolicy: Always

  log:
    root: WARN
```

```
    sepp: WARN

  # Engineering Configuration:
  resources:
    limits:
      cpu: 4
      memory: 4Gi
    requests:
      cpu: 2
      memory: 2Gi
    target:
      averageCpuUtil: 70

  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5


  # Engineering Configuration:
  # Labels and Annotations that are specific to service nfRegistration
are added here.
  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    customExtension:
      labels: {}
      annotations: {}
  # Labels and Annotations that are specific to deployment
nfRegistration are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  #Jaeger Tracing
  jaegerTracingEnabled: false
  bodyInTraceEnabled: false
  openTracing:
    jaeger:
      udpSender:
        host: "occne-tracer-jaeger-agent.occne-infra"
        port: 6831
      logSpans: false
      probabilisticSamplingRate: 0.5


  configs:
    is3gppSbiTargetApiRootSchemeHttp: true

##########################################################################
###
#            Section End :pn32f-svc Micro service attributes  #
##########################################################################
```

```
###

#############################################################################
###
#            Section Start :cn32f-svc Micro service attributes  #
#############################################################################
###

cn32f-svc:

  image:
    repository: reg-1:5000
    name: ocsepp-cn32f-svc
    tag: helm-tag
    pullPolicy: Always

  log:
    root: WARN
    sepp: WARN

  # Engineering Configuration:
  resources:
    limits:
      cpu: 4
      memory: 4Gi
    requests:
      cpu: 2
      memory: 2Gi
    target:
      averageCpuUtil: 70

  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5


  # Engineering Configuration:
  # Labels and Annotations that are specific to service nfRegistration
are added here.
  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    customExtension:
      labels: {}
      annotations: {}
  # Labels and Annotations that are specific to deployment
nfRegistration are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  #Jaeger Tracing
```

```
  jaegerTracingEnabled: false
  bodyInTraceEnabled: false
  openTracing:
    jaeger:
      udpSender:
        host: "occne-tracer-jaeger-agent.occne-infra"
        port: 6831
      logSpans: false
      probabilisticSamplingRate: 0.5

#########################################################################
###
#            Section End :cn32f-svc Micro service attributes  #
#########################################################################
###

#########################################################################
###
#            Section Start :cn32c-svc Micro service attributes  #
#########################################################################
###

cn32c-svc:
  image:
    repository: reg-1:5000
    name: ocsepp-cn32c-svc
    tag: helm-tag
    pullPolicy: Always

  log:
    root: WARN
    sepp: WARN

  # Engineering Configuration:
  resources:
    limits:
      cpu: 2
      memory: 2Gi
    requests:
      cpu: 1
      memory: 1Gi
    target:
      averageCpuUtil: 70

  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5


  # Engineering Configuration:
  # Labels and Annotations that are specific to service nfRegistration
are added here.
  service:
    # Specify type of service - Possible values are :- ClusterIP,
```

```
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    customExtension:
      labels: {}
      annotations: {}
  # Labels and Annotations that are specific to deployment
nfRegistration are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  #Jaeger Tracing
  jaegerTracingEnabled: false
  bodyInTraceEnabled: false
  openTracing:
    jaeger:
      udpSender:
        host: "occne-tracer-jaeger-agent.occne-infra"
        port: 6831
      logSpans: false
      probabilisticSamplingRate: 0.5
#################################################################################
###
#            Section End :cn32c-svc Micro service attributes  #
#################################################################################
###

#################################################################################
###
#            Section Start :pn32c-svc Micro service attributes  #
#################################################################################
###

pn32c-svc:
  image:
    repository: reg-1:5000
    name: ocsepp-pn32c-svc
    tag: helm-tag
    pullPolicy: Always

  log:
    root: WARN
    sepp: WARN

  # Engineering Configuration:
  resources:
    limits:
      cpu: 2
      memory: 2Gi
    requests:
      cpu: 1
      memory: 1Gi
    target:
      averageCpuUtil: 70
```

```
  # Min replicas to scale to maintain an average CPU utilization
  minReplicas: 1
  # Max replicas to scale to maintain an average CPU utilization
  maxReplicas: 5


  # Engineering Configuration:
  # Labels and Annotations that are specific to service nfRegistration
are added here.
  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    customExtension:
      labels: {}
      annotations: {}
  # Labels and Annotations that are specific to deployment
nfRegistration are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

  #Jaeger Tracing
  jaegerTracingEnabled: false
  bodyInTraceEnabled: false
  openTracing:
    jaeger:
      udpSender:
        host: "occne-tracer-jaeger-agent.occne-infra"
        port: 6831
      logSpans: false
      probabilisticSamplingRate: 0.5

##########################################################################
###
#            Section End :pn32c-svc Micro service attributes  #
##########################################################################
###

##########################################################################
###
#            Section Start :config-mgr-svc Micro service attributes  #
##########################################################################
###

config-mgr-svc:

  image:
    repository: reg-1:5000
    name: ocsepp-config-mgr-svc
    tag: helm-tag
    pullPolicy: Always
  # Engineering Configuration:
```

```
  # Resource details
  resources:
    limits:
      cpu: 2
      memory: 2Gi
    requests:
      cpu: 1
      memory: 1Gi

  log:
    root: WARN
    sepp: WARN

  # Engineering Configuration:
  # Labels and Annotations that are specific to service nfRegistration
are added here.
  service:
    # Specify type of service - Possible values are :- ClusterIP,
NodePort, LoadBalancer and ExternalName
    type: ClusterIP
    customExtension:
      labels: {}
      annotations: {}

  # Labels and Annotations that are specific to deployment
nfRegistration are added here.
  deployment:
    customExtension:
      labels: {}
      annotations: {}

#############################################################################
###
#            Section End :config-mgr-svc Micro service attributes  #
#############################################################################
###

#############################################################################
###
#            Section Start :NRF Client  Micro services   #
#############################################################################
###

nrfclient:
  nrf-client:
     # This config map is for providing inputs to NRF-Client
     configmapApplicationConfig:
        # Config-map to provide inputs to Nrf-Client
        # primaryNrfApiRoot - Primary NRF Hostname and Port
        # SecondaryNrfApiRoot - Secondary NRF Hostname and Port
        # retryAfterTime - Default downtime(in Duration) of an NRF
detected to be unavailable.
        # nrfClientType - The NfType of the NF registering
        # nrfClientSubscribeTypes - the NFType for which the NF wants
to subscribe to the NRF.
```

```
        # appProfiles - The NfProfile of the NF to be registered with
NRF.
        # enableF3 - Support for 29.510 Release 15.3
        # enableF5 - Support for 29.510 Release 15.5
        # renewalTimeBeforeExpiry - Time Period(seconds) before the
Subscription Validity time expires.
        # validityTime - The default validity time(days) for
subscriptions.
        # enableSubscriptionAutoRenewal - Enable Renewal of
Subscriptions automatically.
        # acceptAdditionalAttributes - Enable additionalAttributes as
part of 29.510 Release 15.5
        # retryForCongestion - The duration(seconds) after which nrf-
client should retry to a NRF server found to be congested.
        # supportedDataSetId - The data-set value to be used in
queryParams for NFs autonomous/on-demand discovery. e.g. data-set=POLICY
        # enableVirtualNrfResolution- enable virtual NRF session retry
by Alternate routing service
        # virtualNrfFqdn - virtual NRF FQDN used to query static list
of route
        # virtualNrfScheme - http or https
        # virtualNrfPort - port number
        # enableNrfRetry - enable NRF retry
        # enableNrfAlternateRouting - enable NRF alternate routing
service.
        # alternateRoutingErrorCodes - set alternate routing  error
codes
        # useAlternateScpOnAlternateRouting - enable use SCP on
alternate routing service
        profile: |-
           [appcfg]
           primaryNrfApiRoot= http://10.75.236.102:31294
           secondaryNrfApiRoot=
           retryAfterTime=PT120S
           nrfClientType=SEPP
           nrfClientSubscribeTypes=
           appProfiles= [{"nfInstanceId":"9faf1bbc-6e4a-4454-a507-
aef01a101a06","nfType":"SEPP","nfStatus":"REGISTERED","fqdn":"ocsepp-
plmn-ingress-gateway.seppsvc","scheme":"http"}]
           enableF3=true
           enableF5=true
           renewalTimeBeforeExpiry=3600
           validityTime=30
           enableSubscriptionAutoRenewal=true
           acceptAdditionalAttributes=false
           retryForCongestion=5
           supportedDataSetId=
           enableVirtualNrfResolution=false
           virtualNrfFqdn=nrf.oracle.com
           virtualNrfScheme=http
           virtualNrfPort=
           enableNrfRetry=true
           maxNrfRetries=3
           enableNrfAlternateRouting=true
           alternateRoutingErrorCodes=500,503
```

```
            useAlternateScpOnAlternateRouting=

     # Deployment specific configuration for Nrf-Client Management
Microservice
     nrf-client-nfmanagement:
        # NRF Client Microservice image name
        image: nrf-client
        # NRF Client Microservice image tag
        imageTag: helm_nrfclient_tag
        envJaegerSamplerParam: '1'
        envJaegerSamplerType: ratelimiting
        envJaegerServiceName: nrf-client-nfmanagement
        # Resource Details
        replicas: 1
        cpuRequest: 0.5
        cpuLimit: 1
        memoryRequest: 0.5Gi
        memoryLimit: 1Gi
        type: ClusterIP

  # Details of Config-server microservice
  config-server:
     enabled: true
     fullNameOverride: "config-server"
     envJaegerServiceName: occne-tracer-jaeger-agent.occne-infra
     # This is the NfInstanceId of NF that will get deployed. This
shall be used in the profile being registered.
     nfInstanceId: '9faf1bbc-6e4a-4454-a507-aef01a101a06'
     # Mysql Config Server Databse Name
     envMysqlDatabase: seppdb
     # Replicas for Config server - This is exact value without scaling
     replicas: 1
     nodeSelectorEnabled: false
     nodeSelectorKey: zone
     nodeSelectorValue: app
     # Resource details
     resources:
      limits:
        cpu: 1
        memory: 1Gi
      requests:
        cpu: 0.5
        memory: 0.5Gi
     servicePcfConfig:
         type: NodePort

  # Details of appinfo microservices
  appinfo:
     enabled: true
     image: app_info
     imageTag: helm_nrfclient_app_info_tag
     pullPolicy: Always
      # Replicas for Appinfo - This is exact value without scaling
     replicas: 1
     # Set Log Level to DEBUG. If false, Log Level shall be INFO
```

```
      debug: true
      serviceAccountName: ''
      resources:
       limits:
         cpu: 200m
         memory: 1Gi
       requests:
         cpu: 200m
         memory: 1Gi
      # Service to be monitored by appinfo
      core_services:
        sepp: []
      # nFType in core_services must consist of nfType used in nrfclient
profile.
      #Examples-1 NRF with all services listed
      #core_services:
      #  nrf:
      #  - "ocnrf-nfRegistration"
      #  - "ocnrf-nfSubscription"
      #Example-2 NRF without listing any services
      #core_services:
      #  nrf: []

      # Infrastructure services
      # If using occne 1.4 or if you don't want to monitor infra
services such as db-monitor service then the below mentioned
      # attribute 'infraServices' should be uncommented and empty array
should be passed as already mentioned.
      # If infraServices is not set, by default appinfo shall monitor
status of db-monitor-svc and db-replication-svc.
      infraServices: []
#########################################################################
###
#            Section End  :NRF Client  Micro services   #
#########################################################################
###
```