Oracle® Communications

Cloud Native Core, Certificate Management Network Impact Report

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Oracle Communications Cloud Native Core, Certificate Management Network Impact Report, Release 24.1.0

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Acronyms

The following table lists the acronyms and the terminologies used in the document:

Table Acronyms and Terminologies

Acronym	Definition
3GPP	3rd Generation Partnership Project
API	Application Programming Interface
CCA	Client Credentials Assertions
CMP	Certificate Management Protocol
CNC	Cloud Native Core
CNC Console	Cloud Native Configuration Console
OCCM	Oracle Communications Certificate Management
CA	Certification Authority is a trusted entity that issues Secure Sockets Layer (SSL) certificates. CAs are also called issuer in this document.
DNS	Domain Name Server
EE	End Entity
ECC	Elliptic Curve Cryptography
HSM	Hardware Security Module
IDP	Identity Provider
LCM	Life Cycle Management
PKI	Public Key Infrastructure
RA	Registration Authority
RSA	Rivest-Shamir-Adleman
SAN	Subject Alternative Name
URI	Uniform Resource Indicator
URN	Uniform Resource Name
CMP Identity Key	Private Key used by Certificate Management to sign the CMPv2 requests and establish trust between Certificate Management and CA.
CMP Identuty Certificate	Certificate that corresponds to and certifies the CMP Identity Key. It is included in the CMPv2 requests for authentication by CA.

What's New in This Guide

This section introduces the documentation updates for release 24.1.x.

Release 24.1.0 - F90676-01, April 2024

The following sections have been updated in this release

- Purpose and Scope
- OCCM Compatibility Matrix
- Common Services Load Lineup
- Orchestration
- Resource Requirements
- Software Requirements
- Features
- Supported Upgrade and Rollback Paths
- Helm
- REST API
- CNC Console
- Metrics
- Alerts
- KPIs

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Introduction

1.1 Purpose and Scope

The purpose of this document is to highlight the changes made in OCCM in Release 24.1.x. These changes may have an impact on the customer network operations and should be considered by the customer while planning the deployment.

1.2 OCCM Compatibility Matrix

This section lists the versions of added or updated components in release 24.1.x To know the list of all the supported versions, see Oracle Communications Cloud Native Core Release Notes.

Release 24.1.0

The following table lists the versions of added or updated components in release 24.1.0:

Table 1-1   Compatibility Matrix

Components	Compatible Versions
CNE	24.1.x, 23.4.x, 23.3.x
CDCS	23.4.x, 23.3.x

1.3 Common Services Load Lineup

This section lists the versions of added or updated common services in release 24.1.x. To know the list of all the supported versions, see Oracle Communications Cloud Native Core Release Notes.

The following table lists the versions of added or updated common services in release 24.1.0:

Table 1-2   Common Services Load Lineup

Common Service	Version
Helm Test	24.1.1
Debug Tool	24.1.1

1.4 Software Requirements

This section lists the software that must be installed before installing OCCM:

Install the following software before installing OCCM:

Table 1-3   Preinstalled Software

Software	Version
Kubernetes	1.28.6
Helm	3.12.3
Podman	4.4.1

To check the current Helm and Kubernetes version installed in the CNE, run the following commands:

```
 kubectl version
```

```
 helm version
```

The following software are available if OCCM is deployed in CNE. If you are deploying OCCM in any other cloud native environment, these additional software must be installed before installing OCCM. To check the installed software, run the following command:

```
helm ls -A
```

The list of additional software items, along with the supported versions and usage, is provided in the following table:

Table 1-4   Additional Software

Software	Version
containerd	1.7.1
Calico	3.26.4
MetalLB	0.13.11
Prometheus	2.50.1
Grafana	9.5.3
Jaeger	1.52.0
Istio	1.18.2
Kyverno	1.9.0
cert-manager	1.12.4
Oracle OpenSearch	2.3.0
Oracle OpenSearch Dashboard	2.3.0
Fluentd OpenSearch	1.16.2
Velero	1.12.0

1.5 Orchestration

This section provides information about orchestration changes in release 24.1.x.

The following table provides information about orchestration changes in release 24.1.0.

Table 1-5 Orchestration

Orchestration Changes	Status	Notes
Support for in-service upgrade	Yes	Upgrade and Rollback is supported. Note that OCCM microservices are single pod.

Table 1-5 (Cont.) Orchestration

Orchestration Changes	Status	Notes

Changes in the custom_values.yaml file	Yes	1. occm_custom_values.yaml is updated to include tls configurations. These two flags are introduced occmConfig.cmp.config.tls.enableX509StrictCheck and occmConfig.cmp.config.tls.ignoreCriticalEx
		`occmConfig:`
		`  cmp:`
		`    config:`
		`      tls:`
		`enableX509StrictCheck: true #This field when set false "-x509_strict" will not be included in openssl cmp cmd for strict checking of the X.509 certificates.`
		`ignoreCriticalExtensionsCheck: false #This field when set true "-ignore_critical" will be included in openssl cmp cmd for checking of X.509 certificate critical extensions.`
		2. OCCM network policy occm_network_policy_custom_values_<version>.yaml file is updated to include namespaceSelector in allow-ingress-from-cncc-pods policy.
		`# Allow ingress traffic from cncc pods`
		`- metadata:`
		`    name: allow-ingress-from-cncc-pods`

Table 1-5 (Cont.) Orchestration

Orchestration Changes	Status	Notes

		` spec:`
		`  podSelector:`
		`   matchLabels:`
		
		`app.kubernetes.io/`
		`part-of: occm`
		`  policyTypes:`
		`  - Ingress`
		`  ingress:`
		`  - from:`
		`   -`
		`namespaceSelector:`
		
		`matchLabels: { }`
		`     ##`
		`kubernetes.io/`
		`metadata.name: cncc-`
		`ns`
		`   - podSelector:`
		
		`matchLabels:`
		
		`app.kubernetes.io/`
		`app-name: cncc`

Changes in the resource information for custom_values.yaml file	No	No changes are made.
Changes in the CSAR package	No	No changes are made. CSAR package is supported. Note: For more information on specific CSAR changes, please contact My Oracle Support.
Changes in Role-Based Access Control (RBAC) policy	No	No changes are made. OCCM deployment needs Service Account. Appropriate permissions must be assigned to OCCM using Kubernetes Service Account, Role and Role Binding, based on the selected deployment model.
Changes in Life Cycle Management (LCM) Operations	No	No changes are made. OCCM deployment using helm install and CDCS is supported.
Helm Test Support	Yes	Helm test is supported.

1.6 Resource Requirements

This section lists the resource requirements to install and run OCCM.

Resource Profile

Table 1-6 Resource Profile

Microservice Name	Pod Replica	Limits			Requests		
		CPU	**Memory (Gi)**	**Ephimeral Storage (Mi)**	**CPU**	**Memory (Gi)**	**Ephimeral Storage (Mi)**
OCCM	1	2	2	1102	2	12	57
Helm Test	1	0.5	0.5	1102	0.5	0.5	57
Total		**2.5**	**2.5**	**2204**	**2.5**	**2.5**	**114**

Note

- Helm Test Job - This job is implemented on demand when Helm test command is run. It will run the Helm test and stops after completion. These are short-lived jobs that get terminated after the work is done. So, they are not part of active deployment resource but need to be considered only during Helm test procedures.
- Troubleshooting Tool (Debug tool) Container - If Troubleshooting Tool Container Injection is enabled during OCCM deployment or upgrade, this container will be injected to OCCM pod. These containers will stay till pod or deployment exists. Debug tool resources are not considered in the calculation. Debug tool resources usage is per pod. If debug tool is enabled, then max 0.5vCPU and 0.5Gi memory per OCCM pod is needed.

2 Features

This chapter lists the added or updated features in release 24.1.x. For more information about the features, see *Oracle Communications Cloud Native Core Certificate Management User Guide.*

Release 24.1.0

The OCCM documentation has been updated with the following features:

- **HTTPs support for CA communication:** OCCM has now enabled HTTPs support for connections between OCCM and CA. With this feature, OCCM, as a client, will validate the certificate presented by CA during the TLS handshake.

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Supported Upgrade and Rollback Paths

This chapter lists the supported upgrade and rollback paths in release 24.1.x. For more information about upgrade and rollback, see *Oracle Communications Cloud Native Core Certificate Management Installation, Upgrade, and Fault Recovery Guide.*

OCCM 24.1.x

Supported Upgrade Paths

The following table lists the supported upgrade path in release 24.1.x:

Table 3-1   Supported Upgrade Paths

Source OCCM Release	Target OCCM Release
23.4.x	24.1.x

Supported Rollback Paths

The following table lists the supported rollback path in release 24.1.x:

Table 3-2   Supported Rollback Paths

Source OCCM Release	Target OCCM Release
24.1.x	23.4.x

4 Configuration

This chapter lists the configuration changes in release 24.1.x.

4.1 Helm

This section lists the Helm parameter changes in release 24.1.x. For more information about the Helm parameters, see *Oracle Communications Cloud Native Core Certificate Management Installation, Upgrade, and Fault Recovery Guide.*

Release 24.1.0

The following are the Helm parameters changes in release 24.1.0:

1. occm_custom_values.yaml is updated to include TLS configurations. These two flags are introduced `occmConfig.cmp.config.tls.enableX509StrictCheck` and `occmConfig.cmp.config.tls.ignoreCriticalExtensionsCheck`.

   ```
   occmConfig:
     cmp:
       config:
         tls:
           enableX509StrictCheck: true #This field when set false "-
   x509_strict" will not be included in openssl cmp cmd for strict checking
   of the X.509 certificates.
           ignoreCriticalExtensionsCheck: false #This field when set true "-
   ignore_critical" will be included in openssl cmp cmd for checking of X.509
   certificate critical extensions.
   ```

2. OCCM network policy occm_network_policy_custom_values_<version>.yaml file is updated to include namespaceSelector in allow-ingress-from-cncc-pods policy.

   ```
   # Allow ingress traffic from cncc pods
   - metadata:
       name: allow-ingress-from-cncc-pods
     spec:
       podSelector:
         matchLabels:
           app.kubernetes.io/part-of: occm
       policyTypes:
       - Ingress
       ingress:
       - from:
         - namespaceSelector:
             matchLabels: { }
             ## kubernetes.io/metadata.name: cncc-ns
         - podSelector:
             matchLabels:
               app.kubernetes.io/app-name: cncc
   ```

4.2 REST API

This section lists the REST API changes in release 24.1.x. For more information about the REST APIs, see *Oracle Communications Cloud Native Core Certificate Management REST Specification Guide*.

Release 24.1.0

- Issuer Configuration is updated to include TLS config.
- Certificate configuration is updated to include ecCurve SECP256r1.
- SECP256k1 is removed as its few bits weaker.

4.3 CNC Console

This section lists the CNC Console changes in release 24.1.x. For more information about the CNC Console, see *Oracle Communications Cloud Native Core, Certificate Management User Guide*.

Release 24.1.0

- Issuer Configuration is updated to include TLS configuration.

GUI screens for OCCM APIs are available and have been documented in the *Oracle Communications Cloud Native Core Certificate Management User Guide*.

5 Observability

This chapter lists the observability changes in release 23.4.x.

5.1 Metrics

This section lists the added or updated metrics in release 24.1.x. For more information about metrics, see *Oracle Communications Cloud Native Core Certificate Management User Guide*.

Release 24.1.0

There are no updates in this release.

5.2 Alerts

This section lists the added or updated alerts in release 24.1.x. For more information about alerts, see *Oracle Communications Cloud Native Core Certificate Management User Guide*.

Release 24.1.0

There are no updates in this release

5.3 KPIs

This section lists the added or updated KPIs in release 24.1.x. For more information about KPIs, see *Oracle Communications Cloud Native Core Certificate Management User Guide*.

Release 24.1.0

Dashboard is updated to introduce Certificate Error table and Certificate Readiness Status is updated to include Failed Certificate count.