Oracle® Communications

Cloud Native Configuration Console Network Impact Report

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Oracle Communications Cloud Native Configuration Console Network Impact Report, Release 24.1.1

F90671-02

Contents

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Acronyms

The following table provides information about the acronyms and terminologies used in the document:

Table Acronyms

Acronym	Definition
AD	Active Directory
ASM	Aspen Service Mesh
BSF	Oracle Communications Cloud Native Core, Binding Support Function
cnDBTier	Oracle Communications Cloud Native Core, cnDBTier
CNC Console	Oracle Communications Cloud Native Configuration Console
CNE	Oracle Communications Cloud Native Core, Cloud Native Environment
CS	Common Service
CRUD Operations	CREATE, READ, UPDATE, DELETE
OCNADD	Oracle Communications Network Analytics Data Director
ECDSA	Elliptic Curve Digital Signature Algorithm
EIR	Equipment Identity Register
HTTPS	Hypertext Transfer Protocol Secure
IAM	Identity Access Management
KPI	Key Performance Indicator
M-CNCC	Manager CNC Console or mCncc is a CNC Console instance which manages multiple A-CNCC and local instances. **Non OCI**: M-CNCC has two components M-CNCC IAM and M-CNCC Core **OCI**: M-CNCC has only M-CNCC Core component. M-CNCC IAM is substituted with OCI IAM.
M-CNCC IAM	Manager CNC Console IAM or M-CNCC IAM (also known as mCncc Iam) is an IAM component of M-CNCC. M-CNCC IAM contains M-CNCC IAM Ingress Gateway and M-CNCC IAM back-end microservices.
M-CNCC Core	Manager CNC Console Core or M-CNCC Core (also known as mCncc Core) is a core component of M-CNCC that provides GUI and API access portal for accessing NF and OCCNE common services. M-CNCC Core contains M-CNCC Core Ingress Gateway and M-CNCC Core back-end microservices.
A-CNCC Core	Agent CNC Console is a CNCC Core instance which manages local NF(s) and local OCCNE common services(s). A-CNCC is managed by M-CNCC. A-CNCC contains A-CNCC Core Ingress Gateway. A-CNCC has no IAM component. A-CNCC is also known as A-CNCC Core or aCncc Core.

Table (Cont.) Acronyms

Acronym	Definition
M-CNCC Kubernetes cluster	Kubernetes cluster hosting M-CNCC
mTLS	Mutual Transport Layer Security
OCNWDAF	Oracle Communications Networks Data Analytics Function
Instance	NF or CNE common service managed by either M-CNCC Core or A-CNCC Core.
Site	Kubernetes Cluster
CS	CNE Common Services like Grafana, Kibana, Jaeger, Prometheus, Alertmanager and so on.
MC	Multi Cluster. In multi cluster, a single CNCC can manage NF instances that accessess different Kubernetes clusters.
MO	Mananged Objects
MOS	My Oracle Support
LDAP	Lightweight Directory Access Protocol
LDAPS	Lightweight Directory Access Protocol (Over SSL)
NRF	Oracle Communications Cloud Native Core, Network Repository Function
OCNF	Oracle Communications Network Function
OSDC	Oracle Software Delivery Cloud
OSO	Oracle Communications Operations Services Overlay
OCI	Oracle Cloud Infrastructure
PROVGW	Provisioning Gateway
REST API	Representational State Transfer Application Programming Interface
SCP	Oracle Communications Cloud Native Core, Service Communication Proxy
SAML	Security Assertion Markup Language
SBA	Service Based Architecture
SEPP	Oracle Communications Cloud Native Core, Security Edge Protection Proxy
TLS	Transport Layer Security
UDR	Oracle Communications Cloud Native Core, Unified Data Repository
UE	User Equipment
URI	Subscriber Location Function
SSO	Single Sign On

What's New in this Guide

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

Release 24.1.1 - F90671-02, December 2024

The following section are updated in 24.1.1:

- CNC Console Compatibility Matrix
- Common Services Load Lineup
- Software Requirements
- Orchestration
- Supported Upgrade and Rollback Paths
- Helm

Release 24.1.0 - F90671-01, April 2024

The following section are updated in 24.1.0:

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

1 Introduction

1.1 Purpose and Scope

The purpose of this document is to highlight the changes made in CNC Console from Release 23.4.x to 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 CNC Console 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 24.1.1

There is no change in the compatibility matrix in this release.

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

Network Functions	Compatible Versions
BSF	24.1.x
NRF	24.1.x
NSSF	24.1.x
Policy	24.1.x
SCP	24.1.x
SEPP	24.1.x
UDR	24.1.x
NEF	24.1.x

CNC Console is compatible with the following components:

Table 1-2 Compatibility Matrix

Components	Compatible Versions
OCNADD	24.1.x
CNE	24.1.x, 23.4.x, 23.3.x
cnDBTier	24.1.x, 23.4.x, 23.3.x
CDCS	23.4.x, 23.3.x, 23.2.x
OSO	23.4.x, 23.3.x, 23.2.x
ASM	1.14.6-am1, 1.11.8-am1, 1.9.8-am1

Table 1-2 (Cont.) Compatibility Matrix

Components	Compatible Versions
OCNWDAF	24.1.x
PROVGW	24.1.x
OCCM	24.1.x
OCI Adaptor	24.1.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.

Release 24.1.1

The following table lists the versions of added or updated common services in release 24.1.1:

Table 1-3 Common Services Load Lineup

Common Service	Version
Debug-tool	24.1.3
Helm Test	24.1.2
Ingress Gateway	24.1.10

Release 24.1.0

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

Table 1-4 Common Services Load Lineup

Common Service	Version
Debug-tool	24.1.1
Helm Test	24.1.1
Ingress Gateway	24.1.5

1.4 Software Requirements

This section lists the added or updated software required to install CNC Console release 24.1.x. For more information about software requirements, see *Oracle communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*

Release 24.1.1

There is no change in the software requirements in this release.

Release 24.1.0

The following table lists the versions of added or updated software required to install release 24.1.0:

Table 1-5 Software Requirements

Software	Version
Kubernetes	1.28.6
HELM	3.13.2
Podman	4.4.1
Prometheus	2.50.1

1.5 Orchestration

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

Release 24.1.1

The following table provides information about orchestration changes in release 24.1.1.

Table 1-6 Orachestration

Orchestration Changes	Status	Notes
Support for in-service upgrade	Yes	The console microservices are single pod. For information about upgrade and rollback, see Upgrading CNC Console and Rolling Back CNC Console sections in *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*
Changes in the custom_values.yaml file	Yes	For information about changes in the `custom_values.yaml` file, see Helm section.
Changes in the resource information for custom_values.yaml file	No	• No changes in CNC Console resource information.
Changes in the CSAR package	Yes	• CSAR package is updated as per latest release. Note: For more information on specific CSAR changes, contact My Oracle Support.
Changes in Role-Based Access Control (RBAC) policy	No	No changes. For more information, see *Oracle Communications Cloud Native Configuration Console User Guide.*
Changes in Life Cycle Management (LCM) Operations	No	No new LCM operations are added.
Helm Test Support	Yes	Helm Test is supported. For more information, see Performing Helm Test section in *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*

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

Table 1-7 Orchestration

Orchestration Changes	Status	Notes
Support for in-service upgrade	Yes	The console microservices are single pod. For information about upgrade and rollback, see Upgrading CNC Console and Rolling back CNC Console section in *Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*

Table 1-7 (Cont.) Orchestration

Orchestration Changes	Status	Notes

Changes in the custom_values.yaml file	Yes	1. In custom values file option is provided to enable OCI IAM for CNC Console Deployment on an OCI environment.
		a. global.oci-iam.enabled is set false and global.cncc-iam.enabled is set true by default, meaning deployment in non OCI environment.
		b. global.oci-iam.enabled to be set true and global.cncc-iam.enabled to be set false for deployment in OCI environment.
		`global:`
		`# For Single/Multi cluster deployment,`
		`# - either of the IAMs has to be enabled.`
		`# - both IAMs cannot be enabled/disabled.`
		`# For Agent only,`
		`# - IAMs are disabled.`
		`# Enable OCI IAM for Identity Access Management when deployment is on OCI.`
		`oci-iam:`
		`enabled: false`
		`existingSecret: oci-iam-secret`
		`cncc-iam:`
		`enabled: true`
		2. In custom values file options are provided to set the kc log level under cncc-iam.kc.log.level.
		`cncc-iam:`
		`kc:`
		`#Option to enable/disable kc log and for setting log level`
		`log:`
		`level: WARN`
		3. Cipher TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 is deprecated as its a weak cipher.

Table 1-7 (Cont.) Orchestration

Orchestration Changes	Status	Notes

		In custom values file this cipher is removed from ingress-gateway.cipherSuites from cncc-iam, mcncc-core and acncc-core sections.
		
		`cncc-iam:`
		`  ingress-gateway:`
		`  cipherSuites:`
		`  -`
		`TLS_DHE_RSA_WITH_AES_256_GCM_SHA38`
		`4`
		
		`mcncc-core:`
		`  ingress-gateway:`
		`  cipherSuites:`
		`  -`
		`TLS_DHE_RSA_WITH_AES_256_GCM_SHA38`
		`4`
		
		`acncc-core:`
		`  ingress-gateway:`
		`  cipherSuites:`
		`  -`
		`TLS_DHE_RSA_WITH_AES_256_GCM_SHA38`
		`4`

Changes in the resource information for custom_values.yaml file	Yes	• No changes in CNC Console resource information. • cnDBTier resource profile is updated under occncc_dbtier_custom_values.yaml as per Console need.
Changes in the CSAR package	Yes	CSAR package is updated to include OCI specific deployment files. Here is the list of new files added under Scripts folder: • occncc_oci_metric_dashboard_24.1.0.zip having dashboard files specific to OCI deployment. • occncc_oci_alertrules_24.1.0.zip having alert files specific to OCI deployment. • occncc_oci_groups_24.1.0.csv having roles definition for OCI deployment. 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
Changes in Life Cycle Management (LCM) Operations	No	No new LCM operations are added.

Table 1-7 (Cont.) Orchestration

Orchestration Changes	Status	Notes
Helm Test Support	Yes	Helm Test is supported. For more information, see Performing Helm Test section in *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*

1.6 CNC Console Resource Requirement

This section lists the resource requirements to install and run CNC Console.

Release 24.1.1

There is no change in the resource requirements in this release.

Release 24.1.0

CNC Console and cnDBTier Resource Usage Guidelines

This section explains the guidelines for CNC Console and cnDBTier resource usage guidelines.

> **Note**
>
> **For OCI:**
>
> - In the OCI environment, the M-CNCC IAM DB is not applicable but M-CNCC Core DB is applicable, and therefore, there are no changes to the database requirement. The CNC Console and cnDBTier Resource Usage table remains valid.
> - In the CNC Console and cnDBTier Resource Usage table, only Model 1 and Model 2 are supported for OCI deployment.

> **Note**
>
> In case of deployment using shared DBTier between NF and Console, you must include Console DB Profile sizing in NF DB Profile sizing.

> **Note**
>
> - DBProfile replica count to be updated as per GR setup.
> - Depending on GR setup of two, three, or four site choose replica count two, four, or six for **SQL** (ndbmysqld).

Table 1-8 CNC Console and cnDBTier Resource Usage

Deployment Model	cnDBTier Usage	DBTier Resource Profile	Console Resources
Model 1 - Single Cluster, Single Instance (dedicated Console for each NF in a cluster)	Console and NF have a single shared DBTier • M-CNCC on same Kubernetes cluster use shared DBTier	• DBProfile • A-CNCC on a same Kubernetes cluster does not have any DBTier dependency. For the details, see cnDBTier Profiles	• For CNC Console Single Cluster Deployment Resource usage, see CNC Console Resource Requirement
Model 2 - Single Cluster, Multiple Instances (One Console for many NFs/ Instances in a cluster)	Dedicated DBTier for Console • M-CNCC on same Kubernetes cluster use single Console DBTier	• DBProfile • A-CNCC on a same Kubernetes cluster does not have anyDBTier dependency. For the details, see cnDBTier Profiles	• For CNC Console Single Cluster Deployment Resource usage, see CNC Console Resource Requirement
Model 3 - Multiple Clusters, Single Instance. (Multiple clusters with single NF/ Instance in each cluster, M-CNCC/A-CNCC sitting in same/different clusters)	Console and NF have a single shared DBTier • M-CNCC on same Kubernetes cluster use shared DBTier	• Manager - DBProfile • A-CNCC on a remote Kubernetes cluster does not have any DBTier dependency. For the details, see cnDBTier Profiles	• For CNC Console Manager with Agent Deployment, see CNC Console Resource Requirement • For CNC Console Manager Only Deployment, see CNC Console Resource Requirement • For CNC Console Agent Only Deployment, see CNC Console Resource Requirement
Model 4 - Multiple Clusters, Multiple Instances (Multiple clusters with multiple NF/Instance in each cluster, M-CNCC/A-CNCC sitting in same/ different clusters)	Dedicated DBTier for Console per Kubernetes cluster • M-CNCC on same Kubernetes cluster use single Console DBTier	• Manager - DBProfile • A-CNCC on a remote Kubernetes cluster does not have any DBTier dependency. For the details, see cnDBTier profiles	• For CNC Console Manager with Agent Deployment, see CNC Console Resource Requirement • For CNC Console Manager Only Deployment , see CNC Console Resource Requirement • For CNC Console Agent Only Deployment , see CNC Console Resource Requirement

> **Note**
>
> - Time synchronization is required between Kubernetes nodes across cluster for functioning of CNC Console security procedures.
> - Ensure NTP sync before proceeding with M-CNCC IAM, M-CNCC Core, and A-CNCC Core installation.

Resource Usage for CNC Console Deployment
Resource usage for CNC Console Single Cluster and Multicluster deployment is listed in the following tables.

> **Note**
>
> The M-CNCC IAM Resource component is not applicable in OCI deployment.

Resource Usage for CNC Console Single Cluster Deployment
Single Cluster Deployment includes M-CNCC IAM, M-CNCC Core and A-CNCC Core components. It also includes common resource needed for manager or agent deployment.

Table 1-9 Resource Usage for CNC Console Single Cluster Deployment

Component	Max		Min	
	CPU	Memory (Gi)	CPU	Memory (Gi)
M-CNCC IAM	4.5	4.5	4.5	4.5
M-CNCC Core	4	4	4	4
A-CNCC Core	2	2	2	2
CNCC Common Resource	2	2	2	2
Total	12.5	12.5	12.5	12.5

Formula

Total Resource = M-CNCC IAM Resource + M-CNCC Core Resource + A-CNCC Core Resource + CNCC Common Resource

Resource Usage for CNC Console Multicluster Deployment
Multicluster Deployment will include M-CNCC IAM and M-CNCC Core components in Manager cluster. A-CNCC Core component shall be deployed in Manager cluster if there is a local NF.

A-CNCC Core is needed in each Agent cluster for managing local NF. CNC Console Common Resource is a common resource needed for manager or agent deployment.

Table 1-10 Resource Usage for CNC Console Multicluster Deployment

Component	Max		Min	
	CPU	Memory (Gi)	CPU	Memory (Gi)
M-CNCC IAM	4.5	4.5	4.5	4.5
M-CNCC Core	4	4	4	4
A-CNCC Core	2	2	2	2

Table 1-10 (Cont.) Resource Usage for CNC Console Multicluster Deployment

CNCC Common Resource	2	2	2	2
*No Of Agents In Other Clusters	2			
Total	18.5	18.5	18.5	18.5

* Assumed number of Agents (A-CNCC Core deployments) for the calculation

Formula to calculate total resource usage:

Total Resource = M-CNCC IAM Resource + M-CNCC Core Resource + Common Resources + (No Of Agents In Other Clusters x (CNCC Common Resource + A-CNCC Core Resource))

CNC Console Manager Only Deployment
The following table shows resource requirement for manager only deployment. In this case, agent will be deployed in separate cluster.

Table 1-11 CNC Console Manager Only Deployment

Component	Max		Min	
	CPU	Memory (Gi)	CPU	Memory (Gi)
M-CNCC IAM	4.5	4.5	4.5	4.5
M-CNCC Core	4	4	4	4
A-CNCC Core	0	0	0	0
CNCC Common Resource	2	2	2	2
Total	10.5	10.5	10.5	10.5

CNC Console Agent Only Deployment
The following table shows resource requirement for agent only deployment, in this case manager will be deployed in separate cluster.

Table 1-12 CNC Console Agent Only Deployment

Component	Max		Min	
	CPU	Memory (Gi)	CPU	Memory (Gi)
M-CNCC IAM	0	0	0	0
M-CNCC Core	0	0	0	0
A-CNCC Core	2	2	2	2
CNCC Common Resource	2	2	2	2
Total	4	4	4	4

CNC Console Manager with Agent Deployment
The following table shows resource requirement for manager with agent deployment, in this case agent will be deployed along with manager to manage local NF.

This manager can manage agents deployed in other clusters.

Table 1-13 CNC Console Manager with Agent Deployment

Component	Max		Min	
	CPU	Memory (Gi)	CPU	Memory (Gi)
M-CNCC IAM	4.5	4.5	4.5	4.5
M-CNCC Core	4	4	4	4
A-CNCC Core	2	2	2	2
CNCC Common Resource	2	2	2	2
Total	12.5	12.5	12.5	12.5

CNC Console Component wise Resource Usage

Table 1-14 CNCC Common Resource Usage

Microservice Name	Containers	Max		Min		Comments
		CPU	Memory	CPU	Memory	
hookJobResources	NA	2	2	2	2	Common Hook Resource
helm test	cncc-test	0	0	0	0	Uses hookJobResources
Total		2	2	2	2	

> **Note**
>
> - Debug tool resources are not considered in the calculation. Debug tool resources usage is per pod, if debug tool is enabled for more than one pod then max 1vCPU and 2Gi Memory per pod is needed.
> - Service Mesh (ASM) sidecar resources are not considered in the calculation. Service Mesh sidecar resources usage is per pod, that is, if Service Mesh is enabled and sidecar is injected, then max 1vCPU and 1Gi Memory per pod is needed.

Table 1-15 M-CNCC IAM Resource Usage

Microservice Name	Containers	Max		Min		Comments
		CPU	Memory	CPU	Memory	
cncc-iam-ingress-gateway	ingress-gateway	2	2	2	2	

Table 1-15 (Cont.) M-CNCC IAM Resource Usage

Microservice Name	Containers	Max		Min		Comments
		CPU	Memory	CPU	Memory	
	init-service*	0	0	0	0	Applicable when HTTPS is enabled. *Init-service container's resources are not counted because the container gets terminated after initialization completes.
	common_config_hook	0	0	0	0	common_config_hook not used in IAM
cncc-iam-kc-http	kc	2	2	2	2	
	init-service*	0	0	0	0	Optional, used for enabling LDAPS. *Init-service container's resources are not counted because the container gets terminated after initialization completes.
	healthcheck	0.5	0.5	0.3	0.3	
	cnnc-iam--pre-install	0	0	0	0	Uses hookJobResources
	cnnc-iam-pre-upgrade	0	0	0	0	Uses hookJobResources
	cnnc-iam-post-install	0	0	0	0	Uses hookJobResources
	cnnc-iam-post-upgrade	0	0	0	0	Uses hookJobResources
Total		4.5	4.5	4.5	4.5	

Table 1-16 M-CNCC Core Resource Usage

Microservice Name	Containers	Max		Min		Comments
		CPU	Memory	CPU	Memory	
cncc-mcore-ingress-gateway	ingress-gateway	2	2	2	2	
	init-service*	0	0	0	9	Applicable when HTTPS is enabled. *Init-service container's resources are not counted because the container gets terminated after initialization completes.
	common_config_hook*	0	0	0	0	Common Configuration Hook container creates databases which are used by Common Configuration Client. *common_config_hook container's resources are not counted because the container gets terminated after initialization completes.
cncc-mcore-cmservice	cmservice	2	2	2	2	
	validation-hook	0	0	0	0	Uses common hookJobResources
Total		4	4	4	4	

Table 1-17 A-CNCC Core Resource Usage

Microservice Name	Containers	Max		Min		Comments
		CPU	Memory	CPU	Memory	
cncc-acore-ingress-gateway	ingress-gateway	2	2	2	2	
	init-service*	0	0	0	0	Applicable when HTTPS is enabled. *Init-service container's resources are not counted because the container gets terminated after initialization completes.
	common_config_hook*	0	0	0	0	Common Configuration Hook container creates databases which are used by Common Configuration Client. *Init-service container's resources are not counted because the container gets terminated after initialization completes.
	validation-hook	0	0	0	0	Uses common hookJobResources
Total		2	2	2	2	

2 CNC Console Features

This section provides a high-level overview of the CNC Console 24.1.x features.

Support Latest Version of NFs

CNC Console provides support for the following NFs, OCCM, and Data Director:

- SCP 24.1.x
- NRF 24.1.x
- UDR 24.1.x
- POLICY 24.1.x
- BSF 24.1.x
- SEPP 24.1.x
- NSSF 24.1.x
- NEF 24.1.x
- DD 24.1.x
- NWDAF 24.1.x
- OCCM 24.1.x

For more information, see *Oracle Communications Cloud Native Configuration Console Installation and Upgrade Guide* and *Oracle Communications Cloud Native Configuration Console User Guide.*

Release 24.1.1

No new features or feature enhancements have been introduced in this release.

Release 24.1.0

Documentation Enhancements

The CNC Console documentation has been updated with the following enhancements:

- **Deployment in OCI using OCI Adaptor:** CNC Console can now be deployed on Oracle Cloud Infrastructure (OCI). This feature covers integration of OCI IAM capabilities with CNC Console and validation of NF GUI screens through CNC Console. For more information see the *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide, Oracle Communications Cloud Native Configuration Console Troubleshooting Guide, Oracle Communications Cloud Native Configuration Console REST Specifications Guide,* and *Oracle Communications Cloud Native Configuration Console User Guide.*
- **Integration with Network Exposure Function (NEF) (Excluding CAPIF Integration):** CNC Console now supports NEF. As a part of this feature, authentication and authorization of API and GUI requests, metrics, alerts, and KPIs are now supported. For more information, see *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide* and *Oracle Communications Cloud Native Configuration Console User Guide.*

3
Supported Upgrade and Rollback Paths

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 24.1.x.

CNC Console Deployment Support Matrix
The following table provides details on support of Console deployment features models for various network functions:

Table 3-1 CNC Console Deployment Model Matrix

Deployment Models	Policy	BSF	SCP	UDR	NRF	SEPP	NSSF	NEF	DD	PROVGW	NWDAF	OCCM
Model 1 - Single Cluster, Single Instance (Dedicated Console for each NF in a cluster)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Model 2 - Single Cluster, Multiple Instances (One Console for many NFs/ Instances in a cluster)	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Table 3-1 (Cont.) CNC Console Deployment Model Matrix

Deployment Models	Policy	BSF	SCP	UDR	NRF	SEPP	NSSF	NEF	DD	PROVGW	NWDAF	OCCM
Model 3 - Multiple Clusters, Single Instance (Multiple clusters with single NF/ Instance in each cluster, M-CNCC/ A-CNCC sitting in same/ different clusters)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Model 4 - Multiple Clusters, Multiple Instances (Multiple clusters with multiple NF/ Instance in each cluster, M-CNCC/ A-CNCC sitting in same/ different clusters)	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

CNC Console Release 24.1.1

Supported Upgrade Path
The following table provides information about supported upgrade path for CNC Console Release 24.1.1.

Table 3-2 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
24.1.0, 23.4.x, 23.3.x	24.1.1

Supported Rollback Path
The following table provides information about supported rollback path for CNC Console Release 24.1.1.

Table 3-3 Supported Rollback Path

Source CNC Console release	Target CNC Console release
24.1.1	24.1.0, 23.4.x, 23.3.x

CNC Console Release 24.1.0

Supported Upgrade Path
The following table provides information about supported upgrade path for CNC Console Release 24.1.0.

Table 3-4 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.4.x, 23.3.x	24.1.0

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 24.1.0.

Table 3-5 Supported Rollback Path

Source CNC Console release	Target CNC Console release
24.1.0	23.4.x, 23.3.x

4 Configuration

4.1 Helm

The following helm parameters are added or updated in CNC Console Release 24.1.x.

Release 24.1.1

1. **M-CNCC IAM KC Log Level Changes**
   By default, the log level of M-CNCC IAM KC is set to **WARN,org.keycloak.events:DEBUG**

   This means the *root log-level* is set to **WARN** and the *org.kecyalok.events* package is set to **DEBUG**

```
kc:
 log:
   level: WARN,org.keycloak.events:DEBUG
```

2. **Configuring M-CNCC IAM to enable additional settings**
   CNC Console provides the option to enable additional settings in M-CNCC IAM. To enable additional settings in M-CNCC IAM, the following flag must be enabled in the `occncc_custom_values_<version>.yaml` file.

   The additional settings include some of the configuration settings such as authentication settings to configure password policies.

```
cncc-iam:
  global:
    iamSettingEnabled: false
```

CNC Console Release 24.1.0

1. In custom values file option is provided to enable OCI IAM for CNC Console Deployment on an OCI environment.
   a. `global.oci-iam.enabled` is set false and `global.cncc-iam.enabled` is set true by default, meaning deployment in non OCI environment.
   b. `global.oci-iam.enabled` to be set true and `global.cncc-iam.enabled` to be set false for deployment in OCI environment.

```
global:

  # For Single/Multi cluster deployment,
  #   - either of the IAMs has to be enabled.
  #   - both IAMs cannot be enabled/disabled.
  # For Agent only,
  #   - IAMs are disabled.
```

```
    # Enable OCI IAM for Identity Access Management when deployment is on
  OCI.
    oci-iam:
      enabled: false
      existingSecret: oci-iam-secret
    cncc-iam:
      enabled: true
```

2. In custom values file options are provided to set the kc log level under `cncc-iam.kc.log.level`

```
cncc-iam:

  kc:
    #Option to enable/disable kc log and for setting log level
    log:
      level: WARN
```

3. Cipher TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 is deprecated as its a weak cipher.
   In custom values file this cipher is removed from ingress-gateway.cipherSuites from cncc-iam, mcncc-core and acncc-core sections.

```
cncc-iam:
  ingress-gateway:
    cipherSuites:
      - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384

mcncc-core:
  ingress-gateway:
    cipherSuites:
      - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384

acncc-core:
  ingress-gateway:
    cipherSuites:
      - TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
```

For more information on the parameters, see *Oracle Communications Cloud Native Configuration Console Installation and Upgrade Guide.*

4.2 REST API

The following updated are made in the *Oracle Communications Cloud Native Configuration Console REST Specifications Guide* in release 24.1.x:

Release 24.1.1

There are no REST API changes in this release.

Release 24.1.0

- REST Specifications documentation is updated to include console deployment on OCI.

For more information on the REST API parameters, see *Oracle Communications Cloud Native Configuration Console REST Specifications Guide*.

5 Observability

5.1 Metrics

The following metrics are updated in CNC Console 24.1.x

Release 24.1.1

There are no updates to metrics in this release.

CNC Console Release 24.1.0

- Metrics expressions are updated to included NEF.
- Details are added to indicate Metrics expressions applicable for OCI deployment.
- OCI specific dashboard files are included in package.
- CSAR package is updated to include OCI specific deployment files under Scripts folder:
  - `occncc_oci_metric_dashboard_promha_24.1.0.zip` having dashboard files specific to OCI deployment.

For more information on the metrics, see *Oracle Communications Cloud Native Configuration Console User Guide.*

5.2 KPIs

The following KPIs are updated in CNC Console 24.1.x

Release 24.1.1

There are no updates to KPIs in this release.

CNC Console Release 24.1.0

- KPI expressions are updated to included NEF.
- Details are added to indicate KPIs applicable for OCI deployment.

For more information on the KPIs, see *Oracle Communications Cloud Native Configuration Console User Guide.*

5.3 Alerts

Release 24.1.1

There are no updates to alerts in this release.

CNC Console Release 24.1.0

- User guide is updated to add details to indicate alerts applicable for OCI deployment.
- OCI specific alert files are included in package.

- CSAR package is updated to include OCI specific deployment files under Scripts folder:
  - `occncc_oci_alertrules_24.1.0.zip` having alert files specific to OCI deployment.

For more information on the Alerts, see *Oracle Communications Cloud Native Configuration Console User Guide.*