Oracle® Communications

Cloud Native Configuration Console Network Impact Report

Release 23.4.4
F87106-05
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Oracle Communications Cloud Native Configuration Console Network Impact Report, Release 23.4.4

F87106-05

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 M-CNCC (also known as mCncc) is a CNCC instance which manages local CNE common service(s) and remote Agent CNC Console (s) (A-CNCC). M-CNCC has two components: M-CNCC IAM and M-CNCC Core.
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.
M-CNCC Kubernetes cluster	Kubernetes cluster hosting M-CNCC
mTLS	Mutual Transport Layer Security
OCNWDAF	Oracle Communications Networks Data Analytics Function

Table (Cont.) Acronyms

Acronym	Definition
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
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 23.4.x.

Release 23.4.4 - F87106-05, December 2024

- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the Component Load Lineup section to provide compatible versions of components.
- Updated the orchestration details in the Orchestration section.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.3.
- Updated the Helm section.

Release 23.4.3 - F87106-04, October 2024

- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the Component Load Lineup section to provide compatible versions of components.
- Updated the orchestration details in the Orchestration section.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.3.
- Updated the Helm section.

Release 23.4.2 - F87106-03, July 2024

- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the Component Load Lineup section to provide compatible versions of components.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.2.

Release 23.4.1 - F87106-02, April 2024

- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the orchestration details in the Orchestration section.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.1.

Release 23.4.1 - F87106-02, April 2024

- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the orchestration details in the Orchestration section.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.1.

Release 23.4.0 - F87106-01, December 2023

- Updated the release versions in the Purpose and Scope section.
- Updated the Compatibility Matrix section to provide information on CNC Console compatibility with latest NF versions.
- Updated the Component Load Lineup section to provide compatible versions of components.
- Updated the Software Requirements section to provide the software requirements.
- Updated the orchestration details in the Orchestration section.
- Updated the CNC Console Features section to provide information on supported NF versions and documentation enhancements.
- Updated the Supported Upgrade and Rollback Paths section to provide information on upgrade and rollback paths for CNC Console 23.4.0
- Updated the Helm section.
- Updated the REST API section.
- Updated the Observability section.

1 Introduction

1.1 Purpose and Scope

The purpose of this document is to highlight the changes made in CNC Console from Release 23.3.x to Release 23.4.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 23.4.x. To know the list of all the supported versions, see Oracle Communications Cloud Native Core Release Notes.

Release 23.4.4

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

Release 23.4.3

The following table lists the versions of added or updated components in release 23.4.3:

Table 1-1 Compatibility Matrix

Network Functions	Compatible Versions
BSF	23.4.x
NRF	23.4.x
NSSF	23.4.x
Policy	23.4.x
SCP	23.4.x
SEPP	23.4.x
UDR	23.4.x

CNC Console is compatible with the following components:

Table 1-2 Compatibility Matrix

Components	Compatible Versions
OCNADD	23.4.x
CNE	23.4.x, 23.3.x, 23.2.x
cnDBTier	23.4.x, 23.3.x, 23.2.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
OCNWDAF	23.4.x

Table 1-2 (Cont.) Compatibility Matrix

Components	Compatible Versions
PROVGW	23.4.x
OCCM	23.4.x

Release 23.4.2

The following table lists the versions of added or updated components in release 23.4.2:

Table 1-3 Compatibility Matrix

Network Functions	Compatible Versions
BSF	23.4.x
NRF	23.4.x
NSSF	23.4.x
Policy	23.4.x
SCP	23.4.x
SEPP	23.4.x
UDR	23.4.x

CNC Console is compatible with the following components:

Table 1-4 Compatibility Matrix

Components	Compatible Versions
OCNADD	23.4.x
CNE	23.4.x, 23.3.x, 23.2.x
cnDBTier	23.4.x, 23.3.x, 23.2.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
OCNWDAF	23.4.x
PROVGW	23.4.x
OCCM	23.4.x

Release 23.4.1

The following table lists the versions of added or updated components in release 23.4.1:

Table 1-5 Compatibility Matrix

Network Functions	Compatible Versions
BSF	23.4.x
NRF	23.4.x
NSSF	23.4.x
Policy	23.4.x
SCP	23.4.x

Table 1-5 (Cont.) Compatibility Matrix

Network Functions	Compatible Versions
SEPP	23.4.x
UDR	23.4.x

CNC Console is compatible with the following components:

Table 1-6 Compatibility Matrix

Components	Compatible Versions
OCNADD	23.4.x
CNE	23.4.x, 23.3.x, 23.2.x
cnDBTier	23.4.x, 23.3.x, 23.2.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
OCNWDAF	23.4.x
PROVGW	23.4.x
OCCM	23.4.x

Release 23.4.0

The following table lists the versions of added or updated components in release 23.4.0:

Table 1-7 Compatibility Matrix

Network Functions	Compatible Versions
BSF	23.4.x
NRF	23.4.x
NSSF	23.4.x
Policy	23.4.x
SCP	23.4.x
SEPP	23.4.x
UDR	23.4.x

CNC Console is compatible with the following components:

Table 1-8 Compatibility Matrix

Components	Compatible Versions
OCNADD	23.4.x
CNE	23.4.x, 23.3.x, 23.2.x
cnDBTier	23.4.x, 23.3.x, 23.2.x
CDCS	23.4.x, 23.3.x, 23.2.x
OSO	23.3.x, 23.2.x, 22.3.x
ASM	1.14.6-am1, 1.11.8-am1. 1.9.8-am1

Table 1-8 (Cont.) Compatibility Matrix

Components	Compatible Versions
OCNWDAF	23.4.x
PROVGW	23.4.x
OCCM	23.4.x

1.3 Common Services Load Lineup

This section lists the versions of added or updated common services in release 23.4.x. To know the list of all the supported versions, see Oracle Communications Cloud Native Core Release Notes.

Release 23.4.4

There is no change in the common services in this release.

Release 23.4.3

The following table lists the versions of added or updated common services in release 23.4.3:

Table 1-9 Common Services Load Lineup

Common Service	Version
Debug-tool	23.4.3
Helm Test	23.4.3
Ingress Gateway	23.4.10

Release 23.4.2

The following table lists the versions of added or updated common services in release 23.4.2:

Table 1-10 Common Services Load Lineup

Common Service	Version
Debug-tool	23.4.2
Helm Test	23.4.2
Ingress Gateway	23.4.7

Release 23.4.1

The following table lists the versions of added or updated common services in release 23.4.1:

Table 1-11 Common Services Load Lineup

Common Service	Version
Debug-tool	23.4.0
Helm Test	23.4.0
Ingress Gateway	23.4.3

Release 23.4.0

The following table lists the versions of added or updated common services in release 23.4.0:

Table 1-12 Common Services Load Lineup

Common Service	Version
Debug-tool	23.4.0
Helm Test	23.4.0
Ingress Gateway	23.4.3

1.4 Software Requirements

This section lists the added or updated software required to install CNC Console release 23.4.x. For more information about software requirements, see *Oracle communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*

Release 23.4.4

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

Release 23.4.3

The following table lists the versions of added or updated software required to install release 23.4.3:

Table 1-13 Software Requirements

Software	Version
Kubernetes	1.27.5
HELM	3.12.3
Podman	4.4.1
Prometheus	2.44.0

Release 23.4.2

The following table lists the versions of added or updated software required to install release 23.4.2:

Table 1-14 Software Requirements

Software	Version
Kubernetes	1.27.5
HELM	3.12.3
Podman	4.4.1
Prometheus	2.44.0

Release 23.4.1

The following table lists the versions of added or updated software required to install release 23.4.1:

Table 1-15 Software Requirements

Software	Version
Kubernetes	1.27.5
HELM	3.12.3
Podman	4.4.1
Prometheus	2.44.0

Release 23.4.0

The following table lists the versions of added or updated software required to install release 23.4.0:

Table 1-16 Software Requirements

Software	Version
Kubernetes	1.27.5
HELM	3.12.3
Podman	4.4.1
Prometheus	2.44.0

1.5 Orchestration

This section provides information about orchestration changes in release 23.4.x.

Release 23.4.4

There is no change in the orchestration in this release.

Release 23.4.3

Table 1-17 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.*
Changes in the custom_values.yaml file	No	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 CNCC resource information.
Changes in the CSAR package	No	No changes are made. **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

Table 1-17 (Cont.) Orchestration

Orchestration Changes	Status	Notes
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.*

Release 23.4.2

The following table provides information about orchestration changes in release 23.4.2.

Table 1-18 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.*
Changes in the custom_values.yaml file	No	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 CNCC resource information.
Changes in the CSAR package	No	No changes are made. **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.
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.*

Release 23.4.1

The following table provides information about orchestration changes in release 23.4.1.

Table 1-19 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.*
Changes in the custom_values.yaml file	No	No changes are made.
Changes in the resource information for custom_values.yaml file	No	No changes in CNCC resource information.
Changes in the CSAR package	No	No changes are made. **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.
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.*

Release 23.4.0

The following table provides information about orchestration changes in release 23.4.0.

Table 1-20 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.*

Changes in the custom_values.yaml file	Yes	In custom values file option is provided to enable CNCC Deployment on an IPv6 Setup under cncc-iam.kc.preferIpv6Stack.enabled. By default set false indicating IPv4 preference.
		
		`cncc-iam:`
		`  kc:`
		`  preferIpv6Stack:`
		`  enabled: false`

Table 1-20 (Cont.) Orchestration

Orchestration Changes	Status	Notes
Changes in the resource information for custom_values.yaml file	Yes	• No changes in CNCC resource information. • cnDBTier resource profile is updated under occncc_dbtier_custom_values.yaml as per Console need. For more information, see cnDBTier Profile section in the *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide.*
Changes in the CSAR package	No	No Changes are made. **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.
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 23.4.4

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

Release 23.4.3

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

CNC Console and cnDBTier Resource Usage Guidelines

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

> **Note**
>
> In case of deployment using shared DBTier between NF and CNC Console, you must include CNC 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 1-21 CNC Console and cnDBTier Resource Usage

Deployment Model	cnDBTier Usage	cnDBTier Resource Profile	CNC Console Resources
Model 1 - Single Cluster, Single Instance (dedicated CNC Console for each NF in a cluster)	CNC Console and NF have a single shared cnDBTier • Manager IAM and Manager Core on same Kubernetes cluster use shared cnDBTier	• DBProfile • Agent Core on a same Kubernetes cluster doesn't have any cnDBTier dependency. For deployment using CNC Console and NF shared cnDBTier, the NF's cndbtier_custom_values .yaml file includes CNC Console DBTier resources. **Note:** If NF does not provide the cndbtier_custom_values .yaml file, then see cnDBTier Profiles for CNC Console DBTier resource.	• For CNC Console Single Cluster Deployment Resource usage, see CNC Console Resource Requirement
Model 2 - Single Cluster, Multiple Instances (One CNC Console for many NFs/Instances in a cluster)	Dedicated cnDBTier for CNC Console • Manager IAM and Manager Core on same Kubernetes cluster use shared cnDBTier	• DBProfile • Agent Core on a same Kubernetes cluster doesn't have any cnDBTier dependency. For details, see cnDBTier Profiles	• For CNC Console Single Cluster Deployment Resource usage, see CNC Console Resource Requirement

Table 1-21 (Cont.) CNC Console and cnDBTier Resource Usage

Deployment Model	cnDBTier Usage	cnDBTier Resource Profile	CNC Console Resources
Model 3 - Multiple Clusters, Single Instance. (Multiple clusters with single NF/ Instance in each cluster, M-CNCC/A-CNCC sitting in same/different clusters)	CNC Console and NF have a single shared cnDBTier • Manager IAM and Manager Core on same Kubernetes cluster use shared cnDBTier	• Manager - DBProfile • Agent Core on a remote Kubernetes cluster doesn't have any cnDBTier dependency. For deployment using CNC Console and NF shared cnDBTier, the NF's cndbtier_custom_values .yaml file includes CNC Console DBTier resources. **Note:** If NF does not provide the cndbtier_custom_values .yaml file, then see cnDBTier Profiles for CNC Console DBTier resource.	• 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 cnDBTier for CNC Console per Kubernetes cluster • Manager IAM and Manager Core on same Kubernetes cluster use single CNC Console cnDBTier	• Manager - DBProfile • Agent Core on a remote Kubernetes cluster doesn't have any cnDBTier dependency. For 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.

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 1-22 Resource Usage for CNC Console Single Cluster Deployment

Component	Limits		Requests	
	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 1-23 Resource Usage for CNC Console Multicluster Deployment

Component	Limits		Requests	
	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
*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 1-24 CNC Console Manager Only Deployment

Component	Limits		Requests	
	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 1-25 CNC Console Agent Only Deployment

Component	Limits		Requests	
	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 1-26 CNC Console Manager with Agent Deployment

Component	Limits		Requests	
	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 1-27 CNCC Common Resource Usage

Microservice Name	Containers	Limits		Requests		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 1-28 M-CNCC IAM Resource Usage

Microservice Name	Containers	Limits		Requests		Comments
		CPU	Memory	CPU	Memory	
cncc-iam-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_config_hook not used in IAM
cncc-iam-kc-http	kc	2	2	2	2	

Table 1-28 (Cont.) M-CNCC IAM Resource Usage

Microservice Name	Containers	Limits		Requests		Comments
		CPU	Memory	CPU	Memory	
	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 1-29 M-CNCC Core Resource Usage

Microservice Name	Containers	Limits		Requests		Comments
		CPU	Memory	CPU	Memory	
cncc-mcore-ingress-gateway	ingress-gateway	2	2	2	2	

Table 1-29 (Cont.) M-CNCC Core Resource Usage

Microservice Name	Containers	Limits		Requests		Comments
		CPU	Memory	CPU	Memory	
	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 1-30 A-CNCC Core Resource Usage

Microservice Name	Containers	Limits		Requests		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 23.4.x features.

Support Latest Version of NFs

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

- SCP 23.4.x
- NRF 23.4.x
- UDR 23.4.x
- POLICY 23.4.x
- BSF 23.4.x
- SEPP 23.4.x
- NSSF 23.4.x
- DD 23.4.x
- NWDAF 23.4.x
- OCCM 23.4.x

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.*

Release 23.4.4

No changes are made in this release.

Release 23.4.3

No changes are made in this release.

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

Documentation Enhancements

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

- **Support for cnDBTier Read Operations:** CNC Console GUI supports cnDBTier READ operations and enabling cnDBTier Menu for Console. As part of this feature, authentication and authorization of API and GUI requests, metrics, alerts, and KPIs are now supported. For more information see the *Oracle Communications Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide* and *Oracle Communications Cloud Native Configuration Console User Guide.*

- **Support for OCCM:** CNC Console supports Oracle Communications Cloud Native Core Certificate Management (OCCM). As part of CNC Console and OCCM integration, features such as authentication and authorization of API and GUI requests, metrics, alerts, and KPIs are now supported. For more information see the *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 23.4.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	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
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

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

Deployment Models	Policy	BSF	SCP	UDR	NRF	SEPP	NSSF	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
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

CNC Console Release 23.4.4

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 23.4.3.

Table 3-2 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.4.x, 23.3.x, 23.2.x	23.4.x

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 23.4.4.

Table 3-3 Supported Rollback Path

Source CNC Console release	Target CNC Console release
23.4.x	23.4.x, 23.3.x, 23.2.x

CNC Console Release 23.4.3

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 23.4.3.

Table 3-4 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.4.x, 23.3.x, 23.2.x	23.4.x

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 23.4.3.

Table 3-5 Supported Rollback Path

Source CNC Console release	Target CNC Console release
23.4.x	23.4.x, 23.3.x, 23.2.x

CNC Console Release 23.4.2

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 23.4.2.

Table 3-6 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.4.0, 23.3.x, 23.2.x	23.4.x

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 23.4.2.

Table 3-7 Supported Rollback Path

Source CNC Console release	Target CNC Console release
23.4.x	23.4.x, 23.3.x, 23.2.x

CNC Console Release 23.4.1

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 23.4.1.

Table 3-8 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.4.0, 23.3.x, 23.2.x	23.4.x

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 23.4.1.

Table 3-9 Supported Rollback Path

Source CNC Console release	Target CNC Console release
23.4.x	23.4.0, 23.3.x, 23.2.x

CNC Console Release 23.4.0

Supported Upgrade Path

The following table provides information about supported upgrade path for CNC Console Release 23.4.0.

Table 3-10 Supported Upgrade Path

Source CNC Console release	Target CNC Console release
23.3.x, 23.2.x	23.4.0

Supported Rollback Path

The following table provides information about supported rollback path for CNC Console Release 23.4.0.

Table 3-11 Supported Rollback Path

Source CNC Console release	Target CNC Console release
23.4.0	23.3.x, 23.2.x

4 Configuration

4.1 Helm

The following helm parameters are added or updated in CNC Console Release 23.4.x.

Release 23.4.4

There are no changes in the Helm parameters in this release.

Release 23.4.3

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

IAM KC Log Level Change

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

- This means the *root log-level* for 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 an option to enable additional settings in M-CNCC IAM by setting below mentioned flag to true in *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
```

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

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

1. In custom values file option is provided to enable CNC Console Deployment on an IPv6 Setup under cncc-iam.kc.preferIpv6Stack.enabled. By default set false indicating IPv4 preference.

```
cncc-iam:
  kc:
    preferIpv6Stack:
      enabled: false
```

2. In custom values file startupProbe options are introduced under mcncc-core.cmservice.startupProbe.

```
mcncc-core:
  cmservice:
    startupProbe:
      initialDelaySeconds: 60
      timeoutSeconds: 3
      periodSeconds: 15
      successThreshold: 1
      failureThreshold: 3
```

4.2 REST API

All REST API information has been moved from the *Oracle Communications Cloud Native Configuration Console User Guide* to the *Oracle Communications Cloud Native Configuration Console REST Specifications Guide* in CNC Console Release 23.4.x.

Release 23.4.4

No changes are made in this release.

Release 23.4.3

No changes are made in this release.

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

No additional REST APIs were added in this release.

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 23.4.x

Release 23.4.4

No changes are made in this release.

Release 23.4.3

No changes are made in this release.

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

Metrics expressions are updated to included OCCM and cnDBTier

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 23.4.x

Release 23.4.4

No changes are made in this release.

Release 23.4.3

No changes are made in this release.

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

KPI expressions are updated to included OCCM and cnDBTier

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

5.3 Alerts

The following alerts are updated in CNC Console 23.4.x

Release 23.4.4

No changes are made in this release.

Release 23.4.3

No changes are made in this release.

Release 23.4.2

No changes are made in this release.

Release 23.4.1

No changes are made in this release.

Release 23.4.0

There are no updates to alerts in this release.

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