

Oracle® Communications

Cloud Native Configuration Console User Guide



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ORACLE®

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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 access different Kubernetes clusters.
MO	Managed 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 - F90672-03, December 2024

Updated the [Types of Logs](#) and [Examples of Logs](#) sections to check the M-CNCC IAM KC Audit event logs.

Release 24.1.0 - F90672-02, May 2024

- Added a note for support of N-2 NF versions in the [CNC Console Compatibility Matrix](#).

Release 24.1.0 - F90672-01, April 2024

- Added details on support for OCCM in the [Support for Network Functions](#) section.
- Updated the following sections with details on support for NEF:
 - [Support for Network Functions](#)
 - Added the following metrics:
 - * [M-CNCC Core NEF Requests](#)
 - * [M-CNCC Core NEF Responses](#)
 - * [A-CNCC Core NEF Requests](#)
 - * [A-CNCC Core NEF Responses](#)
 - Updated the following KPIs:
 - * [M-CNCC Core Requests](#)
 - * [A-CNCC Core Requests](#)
 - * [M-CNCC Core Responses](#)
 - * [A-CNCC Core Responses](#)
 - * [M-CNCC Core Success Rate](#)
 - * [A-CNCC Core Success Rate](#)
 - * [M-CNCC Core Error Rate](#)
 - * [A-CNCC Core Error Rate](#)
- Added or updated the following sections with details about CNC Console OCI deployment:
 - [OCI Password Policy](#)
 - [OCI Users](#)
 - [OCI Groups](#)
 - [OCI SAML Integration](#)
 - [For OCI Deployment](#)
 - [OCI Active Directory Integration](#)
 - [CNC Console Logs](#)
 - [CNC Console Metrics](#)
 - [CNC Console Alerts on OCI](#)

- [CNC Console Metric Dashboards on OCI](#)
- [CNC Console KPIs](#)

1

Introduction

The Cloud Native Configuration Console (CNC Console) is a single screen solution to configure and manage Network Functions (NFs).

The CNC Console has the following modules:

- **CNC Console Core (CNCC Core):** CNCC Core acts as Graphical User Interface (GUI) or Application Programming Interface (API) portal for NFs and Oracle Communications Cloud Native Environment (OCCNE) common services. CNCC Core module is the part of CNC Console that integrates with other cloud native core network functions.
- **CNC Console Identity and Access Management (CNCC IAM):** CNCC IAM acts as local identity provider and as a broker for external identity provider. CNCC IAM module includes the required authentication and authorization procedures such as creating and assigning roles to users.

Oracle Cloud Infrastructure (OCI)

CNC Console supports deployment on Oracle Cloud Infrastructure (OCI).

Oracle Cloud Infrastructure (OCI) is a set of complementary cloud services that enable you to build and run a range of applications and services in a highly available hosted environment. OCI provides high-performance compute capabilities (as physical hardware instances) and storage capacity in a flexible overlay virtual network that is securely accessible from your on-premises network.

OCI provides a single point platform for all Oracle products. Thus, deploying the CNC NFs on the OCI allows operational efficiency. In addition to this, the OCI also provides reduced Total Cost of Ownership (TCO), better performance, resource utilization, and persistence.

For more information, see [Oracle Cloud Infrastructure Documentation](#) and *Oracle Communications Cloud Native Core OCI Adaptor, NF Deployment on OCI Guide*.

Note

The CNC Console Core (CNCC Core) module is applicable for OCI deployment. CNC Console IAM is not applicable for OCI deployment. OCI IAM is used instead.

1.1 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 24.1.0

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
OCNWDAF	24.1.x
PROVGW	24.1.x
OCCM	24.1.x
OCI Adaptor	24.1.x

1.2 Reference

Refer to the following documents for more information:

- *Oracle Communications Cloud Native Core, Service Communication Proxy User Guide*
- *Oracle Communications Cloud Native Core, Network Repository Function User Guide*
- *Oracle Communications Cloud Native Core, Policy User Guide*
- *Oracle Communications Cloud Native Core, Unified Data Repository User Guide*
- *Oracle Communications Cloud Native Core, Binding Support Function User Guide*
- *Oracle Communications Cloud Native Core, Security Edge Protection Proxy User Guide*
- *Oracle Communications Cloud Native Core, Network Slice Selection Function User Guide*
- *Oracle Communications Cloud Native Core, Network Repository Function Installation, Upgrade, and Fault Recovery Guide*
- *Oracle Communications Cloud Native Core, Service Communication Proxy Installation Guide*
- *Oracle Communications Cloud Native Core, Unified Data Repository Installation, Upgrade, and Fault Recovery Guide*

- *Oracle Communications Cloud Native Core, Binding Support Function Installation Guide*
- *Oracle Communications Cloud Native Core, Policy Installation Guide*
- *Oracle Communications Cloud Native Core, Security Edge Protection Proxy Installation Guide*
- *Oracle Communications Cloud Native Core, Network Slice Selection Function Installation Guide*
- *Oracle Communications Networks Data Analytics Installation and Fault Recovery Guide*
- *Oracle Communications Cloud Native Core, Certificate Management User Guide*
- *Oracle Communications Cloud Native Core, Certificate Management Installation, Upgrade, and Fault Recovery Guide*

2

CNC Console Features

This section describes the features supported by CNC Console.

2.1 Support for Network Functions

CNC Console GUI provides a user interface to configure and manage the following Network Functions (NFs):

Oracle Communications Cloud Native Core, Binding Support Function (BSF)

BSF provides the following functions:

- Allows PCF users to register, update, and remove the binding information.
- Allows NF consumers to retrieve the binding information.

CNC Console provides an interface to configure global and service parameters in BSF.

For more information about configuring parameters, see the *Configuring BSF Using CNC Console* section in *Oracle Communications Cloud Native Core, Binding Support Function User Guide*.

Note

: The performance and capacity of the CNC Console system may vary based on the call model, feature or interface configuration, and underlying CNE and hardware environment.

Oracle Communications Network Analytics Data Director (OCNADD)

OCNADD is a Network Data Broker (NDB) in the 5G core network. It receives the network traffic data from various sources such as 5G NFs, Non-5G nodes, and third-party producers, and sends the filtered and consolidated data securely to the subscribed consumers, which are third party consumer applications or platforms.

Data collection is a complex task in a 5G Service Based Architecture (SBA). The data is collected to provide meaningful insights to the customers. The OCNADD can filter, replicate, aggregate data, and route these data feeds to third party consumers who have subscribed to the feeds. OCNADD ensures data security, low latency, and redundancy while collecting and processing the data feeds. The OCNADD enables the Communications Service Providers (CSP) to correlate and transform the acquired data as per their data feed configuration to create comprehensive dashboards and Key Performance Indicators (KPIs). This enables them to achieve meaningful insights about all functions in the 5G network. This information can be used for monetizing, providing good quality service for the user, reducing downtime, ensuring easy network scalability, and minimizing losses. The OCNADD generated data feed can be beneficial for monitoring and troubleshooting during a network failure. OCNADD is a crucial function that aids in creating self-healing networks.

Oracle Communications Cloud Native Core, Network Repository Function (NRF)

NRF provides the following functions:

- Maintains the profiles of the available NF instances and their supported services in the 5G core network.
- Allows consumer NF instances to discover other provider's NF instances in the 5G core network.
- Allows NF instances to track the status of other NF instances.
- Provides OAuth2 based Access Token service for consumer NF authorization.
- Provides specific NF Type selection based on subscriber identity.
- Supports forwarding of messages from one NRF to another NRF.
- Supports georedundancy to ensure service availability.

The NRF interacts with every other NF in the 5G core network and it supports the above functions through the following services:

- Management Service
- Discovery Service
- Access Token Service

CNC Console provides an interface to configure global and service parameters in NRF.

For more information about configuring parameters, see the *Configuring NRF Using CNC Console* section in *Oracle Communications Cloud Native Core, Network Repository Function User Guide*.

Oracle Communications Cloud Native Core, Network Slice Selection Function (NSSF)

NSSF provides the following functions:

Network slices allow the users to select customized networks with different functionalities (such as mobility) and performance requirements (such as latency, availability, and reliability). Network slices differ in features supported and NF optimizations. In such cases, network slices may have different S-NSSAIs with different slice and service types. The user can deploy instances of multiple network slices delivering the same features but for different groups of User Equipments (UEs). These instances deliver different committed services as they are dedicated to a customer. The network slices may have different S-NSSAIs with the same slice or service type but different slice differentiators. The NSSF fulfills the requirement for determining the individual NF pertaining to a slice.

NSSF is a functional element that supports the following functionalities:

- NSSF enables the Access and Mobility Management Function (AMF) to perform initial registration and Protocol Data Unit (PDU) session establishment.
- AMF can retrieve NRF, NSI ID, and target AMFs as part of UE initial registration and PDU establishment procedure.
- NSSF uses an NF Service Consumer (AMF) to update the S-NSSAIs that AMF supports and notifies of any changes in the status.
- NSSF selects the network slicing instance (NSI) and determines the authorized Network Slice Selection Assistance Information (NSSAIs) and AMF to serve the UE.
- NSSF interaction with NRF allows retrieving specific NF services to be used for registration request.

NSSF provides the following information when queried by the AMF:

- Allowed NSSAIs
- Configured NSSAIs
- Restricted NSSAIs
- Candidate AMF List (in case of registration)
- Network Slice instance ID (for PDU session establishment)
- Slice-level NRF information (for PDU Connectivity)

NSSF supports the above functions through the following NSSF services:

- NS Selection service (Nnssf_NSSelection): This service is used by an NF Service Consumer (AMF) to retrieve the information related to network slice. It enables network slice selection in the serving Home Public Land Mobile Network (HPLMN).
- NS Availability Service (Nnssf_NSAvailability): This service stores and maintains list of supported S-NSSAIs per TA. It allows NF service Consumer (AMF) to update and subscribe the above data and get notifications for any addition or deletion of supported S-NSSAIs.

Oracle Communications Networks Data Analytics Function (NWDAF)

The NWDAF enables the operator to collect and analyze the data in the network through an analytics function. The 5G technology requires prescriptive analytics to drive closed-loop automation and self-healing networks. In a 5G network, the consumers of data are 5G NFs, Application Functions (AFs), and Operations, Administration, and Maintenance (OAM) and the data producers are NFs. The NWDAF supports the following functions:

- NWDAF collects data from Access and Mobility Management Function (AMF), Session Management Function (SMF), and Network Repository Function (NRF) in the network. The data is collected directly from the NFs or through the Network Exposure Function (OCNEF).
- The NWDAF is designed to provide analytics information to consumer such as NFs, AFs and OAM.

A 5G network contains a vast number of devices and sensors generating an enormous amount of data. The NWDAF function allows the Communications Service Providers (CSPs) to efficiently monitor, manage, automate, and optimize their network operations by the data collected and analytics generated across the network. The NWDAF also helps the CSPs in achieving the operational efficiency and provides an enhanced service experience.

The analytics information provided by the NWDAF is either statistical information based on past events or predictive information. This analytics information is used to balance the resources on the network. The NWDAF can predict the User Equipment (UE) location and also detect if the UE is in an abnormal location. Based on the collected analytics information, the CSPs can roll out new services or modify the existing services without waiting for a maintenance window in the network. This ensures significantly fewer chances of network experiencing downtime.

An NWDAF consumer can avail analytics information for different analytic events. Alternatively, the consumers can subscribe or unsubscribe for specific analytics information as a one-time event or periodically get notified when a specifically defined event (for example, a threshold is breached) is detected.

The NRF discovers the NWDAF instances for the NF consumers in the network. The NWDAF information can also be locally configured on the NF consumers. The NWDAF selection function in the consumer NF selects an NWDAF instance among available NWDAF instances. Different NWDAF instances present in the 5G network can be configured to provide a specific type of analytics information. This information about the NWDAF instance is described in the

NWDAF profile stored in the NRF. The consumer NFs that need specific analytics types query the NRF and include the Analytics ID based on the required data.

Oracle Communications Cloud Native Core, Converged Policy (Policy)

Policy is an NF for policy control decision and flow based charging control. It consists of the following functions:

- Policy rules for application and service data flow detection, gating, QoS, and flow based charging to the Session Management Function (SMF).
- Access and Mobility Management related policies to the Access and Mobility Management Function (AMF).
- UE Route Selection Policies (URSP) rules to User Equipment (UE) through AMF.
- Access to subscription information relevant for policy decisions in a Unified Data Repository (UDR).
- Network control for service data flow detection, gating, and Quality of Service (QoS).
- Flow based charging towards the Policy and Charging Enforcement Function (PCEF).
- Receiving session and media related information from Application Function (AF) and informing AF of traffic plane events.
- Provision of Policy and Charging Control (PCC) Rules to Policy and Charging Enforcement Function (PCEF) through the Gx reference point.

Policy supports the above functions through the following services:

- Session Management Service
- Access and Mobility Service
- Policy Authorization Service
- User Equipment (UE) Policy Service
- PCRF Core Service

CNC Console provides an interface to configure policies and manageable objects in Policy.

For more information about configuring parameters, see the *Configuring CNC Policy Using CNC Console* section in *Oracle Communications Cloud Native Core, Policy User Guide*.

Provisioning Gateway (PROVGW)

Oracle Provisioning Gateway (PROVGW) for Subscriber Location Function (SLF) is implemented as a cloud native function. It supports:

- HTTP1.1 over TLS.
- Custom entities or fields in UDR mode over SOAP/XML interface.
- Conversion of requests as defined in SEC.yaml configurations for SOAP/XML interface in UDR mode.
- Auditor functionality in SLF mode.
- OAM interface and configuration APIs to configure Ingress Gateway, Egress Gateway, and other Provisioning Gateway microservices.

It has two modes, which are as follows:

- SLF mode: This mode is applicable when Provisioning Gateway is deployed with UDR for SLF usecase. You can configure Provisioning Gateway to connect to multiple segments of SLF, where each segment has two SLFs. This mode offers an HTTP2 based secured

REST/JSON interface (through Ingress Gateway API) for SLF data provisioning. It relays the request received by the provisioning client (e.g. MTAS) to multiple 5G UDR or SLF segments. The response received from each UDR or SLF segment is then consolidated and the final response is sent to the provisioning system.

You can deploy multiple Provisioning Gateways in the same segment or across multiple segments, where each one is stateless and does not interact with each other. If one of the Provisioning Gateway goes down, MTAS can use second Provisioning Gateway instance to continue provisioning SLF data on UDR.

- UDR mode: This mode is applicable when deployed with UDR for converged policy database solution. In this mode, Provisioning Gateway supports SOAP/XML interface, which is similar to 4G UDR.

Oracle Communications Cloud Native Core, Service Communication Proxy (SCP)

SCP provides the following functionalities to other 5G Network Functions (NFs):

- Routing/Selection: Routing rules, refresh cache, and handle application failures and redirects.
 - Dynamic Discovery: The 5G topology is determined from Network Repository Function (NRF) and creation of routing rules.
 - Static Configuration: Enables NF Profiles configuration.
- Load Balancing: Load balancing based on static capacity, NF Type, NF Specific, and NF Priority as mentioned in the NF Profile.
- NF Subscription: Subscription for all NF types.
- Circuit Breaking: Initiated on a per FQDN basis when outstanding transactions exceed a configurable value.
- Message Priority: Message Priority assignment and override based on the 3GPP-SBI-Message-Priority header.
- Congestion and Overload: Uniform load balancing and routing strategy across the network and protects the pod from overload related to various system resources.

CNC Console provides an interface to configure the SCP features.

For more information about configuring parameters, see the *Configuring SCP Using CNC Console* section in *Oracle Communications Cloud Native Core, Service Communication Proxy User Guide*.

Oracle Communications Cloud Native Core, Security Edge Protection Proxy (SEPP)

SEPP supports the following functionalities:

- Protects application layer control plane messages and sensitive data between two NFs belonging to different PLMNs that use the N32 interface to communicate with each other. The N32 interface is used between the SEPPs of a VPLMN and a HPLMN in roaming scenarios. 3GPP has specified N32 to be considered as two separate interfaces: N32-c and N32-f.
 - N32-c is the control plane interface between the SEPPs for performing the initial handshake and negotiating the parameters to be applied for the actual N32 message forwarding.
 - N32-f is the forwarding interface between the SEPPs, that is used for forwarding the communication between the Network Function (NF) service consumer and the NF service producer after applying the application level security protection.

- Provides secure communication of Inter PLMN messages from Consumer NF to Producer NF using TLS protection mode (HTTP over TLS).
- Supports configuration of roaming partner profiles using REST API.
- Performs mutual authentication and negotiation of cipher suites with the SEPP in the roaming partner's network.
- Handles key management aspects that involve setting up the required cryptographic keys needed for securing messages on the N32 interface between two SEPPs.
- Provides a single point of access and control to internal NFs.
- Validates inbound traffic as to whether it is from an authorized external PLMN.
- Supports cross-layer validation of source and destination addresses and identifiers to provide anti-spoofing capabilities.

CNC Console provides an interface to configure different services in SEPP.

For more information about configuring parameters, see the *Configuring SEPP Using CNC Console* section in *Oracle Communications Cloud Native Core, Security Edge Protection Proxy User Guide*.

Oracle Communications Cloud Native Core, Unified Data Repository (UDR)

Oracle's 5G UDR:

- Leverages a common Oracle Communications Cloud Native Framework.
- Is compliant with 3GPP 29.505 Release 15 specifications UDM.
- Is compliant with 3GPP 29.519 Release 16 (backward compatible with Release 15) specifications for PCF.
- Has tiered architecture providing separation between the connectivity, business logic, and data layers.
- Uses Oracle MySQL NDB Cluster CGE Edition as backend database in the Data Tier.
- Registers with NRF in the 5G network so that the other NFs in the network can discover UDR through NRF.
- Registers UDR with services like DR-SERVICE and GROUP-ID-MAP.

CNC Console provides an interface to configure global and service parameters in UDR.

For more information about configuring parameters, see the *Configuring UDR Using CNC Console* section in *Oracle Communications Cloud Native Core, Unified Data Repository User Guide*.

Oracle Communications Cloud Native Core, Certificate Management (OCCM)

Oracle Communications Cloud Native core, Certificate Management (OCCM) is an automated solution for managing the certificates needed for Oracle 5G Network Functions (NFs). OCCM constantly monitors and renews the certificates based on their validity or expiry period.

As 3GPP recommends using separate certificates based on the client or server mode and the type of workflow, it leads to many certificates in the network. Automated certificate management eliminates any possibilities of network disruption due to expired certificates. In SBA network deployments, the Network Functions (NFs) are required to support multiple operator certificates for different purposes and interfaces. This amounts to hundreds of certificates in the network with varying validity periods and difficulty in monitoring and renewing the certificates manually. Therefore, automation of certificate management becomes important to avoid network disruptions due to expired certificates.

OCCM integrates with the Certificate Authority(s) using Certificate Management Protocol Version 2 (CMPv2) and RFC4210 to facilitate the following certificate management operations:

- Operator-initiated certificate creation
- Operator-initiated certificate recreation
- Automatic certificate monitoring and renewal

CNC Console provides an interface to configure different services in OCCM. For more information, see *OCCM Supported Features* in the *Oracle Communications Cloud Native Core, Certificate Management User Guide*.

Oracle Communications Cloud Native Core, Network Exposure Function (NEF)

Oracle Communications Cloud Native Core, Network Exposure Function (NEF) is a key component of the 5G Service Based Architecture. It provides a platform to securely expose the network services and capabilities offered by the 5G Network Functions (NFs) to either third-party applications or the internal Application Functions (AFs). Located between the 5G core network and third-party applications or AFs, NEF enables the external application administrators to customize the network for providing innovative services to their end-users. The applications communicate through NEF to access the internal data of the 5G core network.

NEF performs the following functions:

- Facilitates robust and secure exposure of network services, such as voice, data connectivity, charging, subscriber data, IoT, and so on to trusted third-party applications or AFs.
- Provides programmable environment access of 5G network to both internal and external application administrators through a set of northbound RESTful APIs.
- Enables AF to securely provide information to 3GPP network to authenticate, authorize, and assist in throttling the AF.
- Translates the information received from the AF to the internal 3GPP NFs, and vice versa.
- Provides support to expose information collected from other 3GPP NFs to the AF.
- Monitors User Equipment (UEs) related events present in the 5G system and makes the event information available for external exposure. For example, monitoring of user location and services.

CNC Console provides an interface to configure different services in NEF. For more information, see *Oracle Communications Cloud Native Core, Network Exposure Function User Guide*.

Managing CNC Console Support for NF GUI

Observe

For information on Metrics and KPIs, see [CNC Console Metrics](#), and [CNC Console KPIs](#) sections.

Maintain

If you encounter alerts at system or application levels, see [CNC Console Alerts](#) section for resolution steps.

In case the alert still persists, perform the following:

1. **Collect the logs:** For more information on how to collect logs, see [CNC Console Logs](#).

2. **Raise a service request:** See [My Oracle Support](#) for more information on how to raise a service request.

2.2 Support for CNE Common Services

Note

Not applicable for OCI deployment.

CNC Console Common Services GUI provides an option to enable cards (hyperlinks) for CNE Common services and OSO services.

When CNC Console is integrated with common services, it provides an additional layer of security through authentication and authorization for common services that don't have their own authentication mechanism. CNC Console also provides the user a single login for all common services as per your assigned roles.

CNC Console Common Services GUI provides an option to enable cards (hyperlinks) for OCCNE Common services such as Grafana, Kibana, Jaeger, Prometheus, AlertManager, Promxy, OpenSearch, and Jaeger-ES.

OSO Common Services

CNC Console Common Services GUI also provides an option to enable cards (hyperlinks) for OSO services such as Prometheus and AlertManager.

Managing Common Service Support (OSO Cards and CNE Cards)

Enable and Configure

Prometheus and Alertmanager GUIs can be accessed using the CNC Console. For more information on accessing Prometheus and Alertmanager GUIs using CNC Console, refer to *Oracle Communications Cloud Native Configuration Console User Guide*.

Observe

For information on Metrics and KPIs, see [CNC Console Metrics](#), and [CNC Console KPIs](#) sections.

Maintain

If you encounter alerts at system or application levels, see [CNC Console Alerts](#) section for resolution steps.

In case the alert still persists, perform the following:

1. **Collect the logs:** For more information on how to collect logs, see [CNC Console Logs](#).
2. **Raise a service request:** See [My Oracle Support](#) for more information on how to raise a service request.

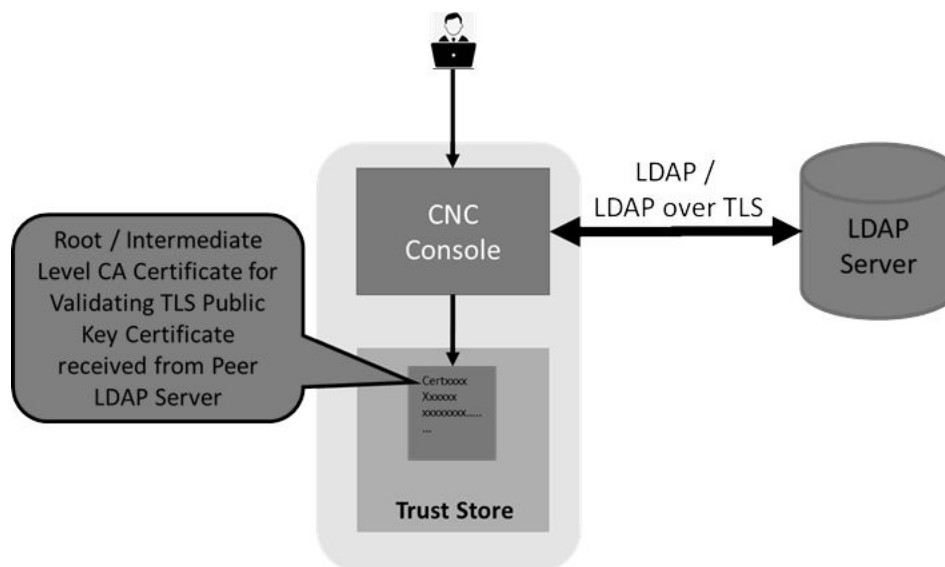
2.3 LDAP Integration

Note

For OCI: See the [OCI Active Directory Integration](#) section.

The Lightweight Directory Access Protocol (LDAP) is a protocol that defines the technique for accessing the directory data.

Figure 2-1 LDAP



The CNC Console IAM is used as an integration platform to connect it into existing Lightweight Directory Access Protocol (LDAP) and Active Directory (AD) servers.

CNC Console IAM can combine existing external user databases having user and credential details. You can integrate the CNC Console IAM to perform validation of these user credentials and pull in the identity information.

CNC Console IAM provides LDAP over TLS support to securely communicate with external LDAP and active directory servers.

CNC Console IAM also supports Lightweight Directory Access Protocol Secure (LDAPS) between the client and server to make the communication secure.

Managing LDAP Integration

Enable and Configure

For enabling and configuring LDAP integration feature, see [Integrating CNC Console LDAP Server with CNC Console IAM](#)

Observe

For information on Metrics and KPIs, see [CNC Console Metrics](#), and [CNC Console KPIs](#) sections.

Maintain

If you encounter alerts at system or application levels, see [CNC Console Alerts](#) section for resolution steps.

In case the alert still persists, perform the following:

1. **Collect the logs:** For more information on how to collect logs, see [CNC Console Logs](#).
2. **Raise a service request:** See [My Oracle Support](#) for more information on how to raise a service request.

2.4 SAML 2.0 Integration

Note

For OCI: See the [OCI SAML Integration](#) section.

SAML (Security Assertion Markup Language) enables applications to authenticate a user using an identity provider. CNC Console can broker identity providers based on the SAML v2.0 protocol.

Managing SAML 2.0 Integration with CNC Console

Enable and Configure

For enabling and configuring SAML 2.0 feature integration with CNC Console, see [Integrating SAML SSO with CNC Console IAM](#) section.

Observe

For information on Metrics and KPIs, see [CNC Console Metrics](#), and [CNC Console KPIs](#) sections.

Maintain

If you encounter alerts at system or application levels, see [CNC Console Alerts](#) section for resolution steps.

In case the alert still persists, perform the following:

1. **Collect the logs:** For more information on how to collect logs, see [CNC Console Logs](#).
2. **Raise a service request:** See [My Oracle Support](#) for more information on how to raise a service request.

2.5 Logging Support

Note

Logging for CNC Console IAM is not applicable for OCI deployment.

The CNC Console logs are categorized into the following types:

- Regular logs
- Audit logs
- Security logs

Regular Logs

These logs contain all kinds of error messages, warnings, or other events written within the application which provide logical, high level information about the application and ongoing events.

Example:

```
{"level": "INFO", "message": "Started GatewayApplication in 10.748 seconds (JVM running for 12.825)"}
{"level": "INFO", "message": "Creating plain httpClient"}
{"level": "INFO", "message": "Creating plain restTemplate"}
{"level": "ERROR", "message": "Can't get cfgs of topic public.dynamic.datamodel, exception is:\n javax.ws.rs.ProcessingException: java.net.ConnectException: Connection refused (Connection refused)"}

```

Audit Logs

These logs contain user related information and the activity within the system.

Security Logs

These logs contain the header, payload, method, scheme, URI, and other details for all requests and the corresponding responses.

Disabling Security Logs

By default, **Security Log** is enabled for both *CCNC Core* and *CNCC IAM*. To disable, set *securityLogEnabled* flag to **false** in *custom-core_values.yaml* and *custom-iam_values.yaml* files.

```
# CNCC configuration
cncc:
  enabled: false
  enablehttp1: false
  securityLogEnabled: false

```

Log Levels

The log level indicates the level of the logs.

The default log levels for CNC Console Core are as follows:

```
ingress-gateway:
  log:
    level:
      cncc:
        root: WARN
        audit: INFO
        security: INFO
```

The default log levels for CNC Console IAM are as follows:

```
ingress-gateway:
  log:
    level:
      cncc:
        root: WARN
        security: INFO
```

Managing Security Logs and Audit Logs

Enable and Configure

For enabling and configuring Security Logs and User Activity Logs, see [CNC Console Logs](#) section.

Observe

For information on Metrics and KPIs, see [CNC Console Metrics](#), and [CNC Console KPIs](#) sections.

Maintain

If you encounter alerts at system or application levels, see [CNC Console Alerts](#) section for resolution steps.

In case the alert still persists, perform the following:

1. **Collect the logs:** For more information on how to collect logs, see [CNC Console Logs](#).
2. **Raise a service request:** See [My Oracle Support](#) for more information on how to raise a service request.

2.6 Support for Multi Cluster Deployment

Note

Not supported for OCI deployment.

Multicluster deployment is a method of deploying an application on or across multiple Kubernetes clusters for improving availability, isolation, and scalability.

Support for Multicluster Deployment for NFs

CNC Console supports NF deployment across Kubernetes clusters using Manager CNC Console IAM (M-CNCC IAM), Manager CNC Console Core (M-CNCC Core), and Agent CNC Console Core (A-CNCC Core). In a multicluster deployment, CNC Console can manage NFs and OCCNE common services deployed in remote Kubernetes clusters.

Support for Multiple Instances of NFs within a cluster

CNC Console supports multiple instances of NFs within a Kubernetes cluster using Manager CNC Console IAM (M-CNCC IAM), Manager CNC Console Core (M-CNCC Core), and Agent CNC Console Core (A-CNCC Core).

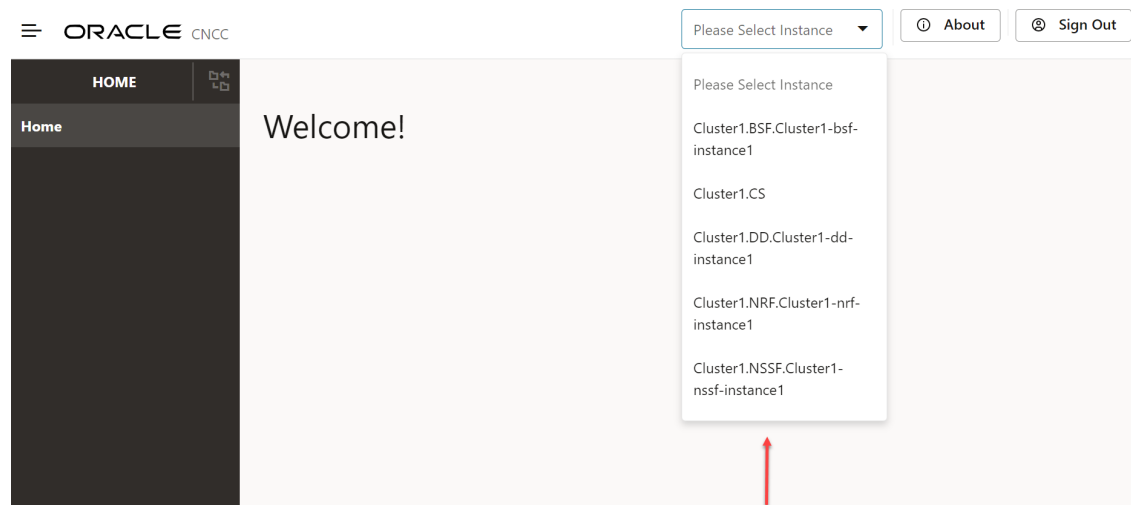
Support for multicluster deployment mTLS configuration is added to provide secure communication between CNC Console Master and Agent.

Selecting the Instance

CNC Console multicluster deployment has introduced a drop-down on header pane for selecting the instance.

Values configured in M-CNCC Core instances section get displayed in the drop down. The naming convention used for instance drop-down display is <owner>.<type>.<instance id>

Figure 2-2 Selecting the Instance



Once the user selects the required instance from the drop-down, the corresponding menu gets loaded.

Figure 2-3 Loading the Menu



The common service instances configured in the instances section gets displayed in the drop-down.



For more details on multicluster configurations, see *CNC Console Multi-Cluster Configurations* section in *Oracle Communications Cloud Native Configuration Console, Installation, Upgrade, and Fault Recovery Guide*.

2.7 cnDBTier Integration

CNC Console is integrated with cnDBTier in a containerized Oracle Communications Cloud Native Environment. For more information, see *Oracle Communications cnDBTier Installation Guide*.

2.8 TLS Certificate Support

Transport Layer Security (TLS) certificates or Secure Sockets Layer (SSL) are essential to securing internet browser connections and transactions through data encryption. TLS or SSL is the standard security technology that works behind the scenes to keep the online transactions and logins secure. HTTPS provides secure and encrypted communication. It ensures that the information you send and receive, such as passwords, or personal data, is protected from being intercepted by malicious parties. HTTPS achieves this security through TLS. CNC Console supports one-way TLS and mTLS (mutual TLS). With one-way TLS, only the website you're connecting to is verified, ensuring that your data is securely transmitted to the server. With mTLS, both your device, and the website verify each others identities, adding an extra layer of trust and security to the communication. mTLS provides a stronger authentication process to ensure that you're securely connecting to the intended website, and not falling victim to impersonation or man-in-the-middle attacks.

This feature enables the extension of identity validation from the Transport layer to the Application layer. It also provides a mechanism to validate the NF FQDN presence in TLS certificate as added by the Service Mesh against the NF Profile FQDN present in the request.

Steps to Enable HTTPS

Certificate Creation

To create certificate, you must have the following files:

- ECDSA private key and CA signed certificate of OCNRF (if initial algorithm is ES256)
- Rivest, Shamir, Adleman (RSA) private key and CA signed certificate of OCNRF (if initial algorithm is RSA256)
- TrustStore password file
- KeyStore password file
- CA certificate

Secret Creation

Run the following command to create a secret:

```
$ kubectl create secret generic occnccaccesstoken-secret --from-file=ecdsa_private_key_pkcs8.pem --from-file=rsa_private_key_pkcs1.pem --from-file=trustStorePassword.txt --from-file=keyStorePassword.txt --from-file=ecdsa_ocncc_certificate.crt --from-file=rsa_ocncc_certificate.crt -n occncc
```

Certificate and Key Exchange

Once the connection is established between the client and the server, they can send messages securely to each other using the agreed algorithm and keys. The TLS handshake has the following phases:

- Hello
- Certificate Exchange
- Key Exchange

The client generates a random key to be used for the main symmetric algorithm. The client encrypts the key using an algorithm also agreed upon the server's public key (found on its SSL certificate). The client sends this encrypted key to the server, where it is decrypted using the server's private key. The parties are notified that they are talking to the right person, and have secretly agreed on a key to symmetrically encrypt the data that they are about to send each other. The HTTP requests and responses can be sent by forming a plain text message, and then encrypting and sending it. The other party is the only one who knows how to decrypt this message, and so man-in-the-middle attackers are unable to read or modify any requests that they may intercept.

CNC Console supports the following cipher suites:

- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
- TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256

2.9 Service Mesh Communication

Note

Not applicable for OCI deployment.

CNC Console leverages the Istio or Envoy service mesh (Aspen Service Mesh) for all internal and external communication. The service mesh integration provides Console-NF communication and allows API gateway to co-work with service mesh. The service mesh integration supports these services by deploying a special sidecar proxy in the environment to intercept all network communication between microservices.

For more information, see *CNC Console Configuration to Support ASM and OSO in Oracle Communications Cloud Native Configuration Console Installation and Upgrade Guide*.

2.10 Support for IPv4 or IPv6

CNC Console can be deployed on CNE that supports dual stack networking. Applications or NFs can establish connections with pods and services in a Kubernetes cluster using IPv4 or IPv6. CNC Console can be configured to use either IPv4 or IPv6. By default, IPv4 is used if no configuration is provided.

2.11 CNC Console GUI Session Timeout

The duration (in seconds) before a CNC Console GUI session times out and the user has to log in again can be configured using the `ingress-gateway.cncc.core.sessionTimeout` parameter in the `custom_values.yaml` file.

By default, the session time out value is set to 1800 seconds. However, you can set it to any value between 300 and 7200 seconds.

Note

The value of the CNC Console IAM SSO session idle timeout configuration is not considered for CNC Console Core session management.

2.12 Network Policies

Note

Not applicable for OCI deployment.

Network Policies are an application-centric construct that allow you to specify how a pod communicates with various network entities. They create pod-level rules to control communication between cluster pods and services, and determine which pods and services can access one another inside a cluster.

Previously, the pods under CNC Console deployment could be contacted by any other pods in the Kubernetes cluster without any restrictions. Now, Network Policies provide namespace-level isolation, which allow secure communications to and from CNC Console with rules defined in the respective network policies. Network policies enforce access restrictions for all the applicable data flows, except communication from Kubernetes node to pod for invoking container probe. For example, CNC Console internal microservices cannot be contacted directly by any other pods.

Managing Support for Network Policies

Enable

To use this feature, network policies must be applied to the namespace where CNC Console is applied.

Configure

You can configure this feature using Helm. For information about Configuring Network Policy for CNC Console Deployment, see *Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide*.

Observe

There are no specific metrics and alerts required for the Support of Network Policy functionality.

3

Logging into CNC Console

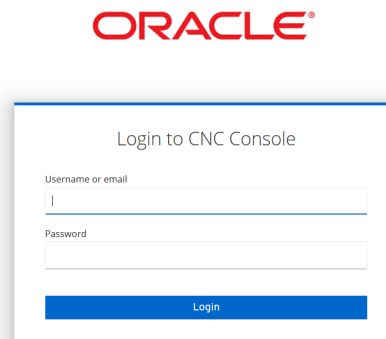
Logging into CNC Console GUI for Non-OCI Deployment

The following is the procedure to log in to CNC Console:

1. Open any browser.
2. Enter the URL: ***http://<host name>:<port number>***.
where, *host name* is cncc-mcore-ingress-ip and *port number* is cncc-mcore-ingressport.

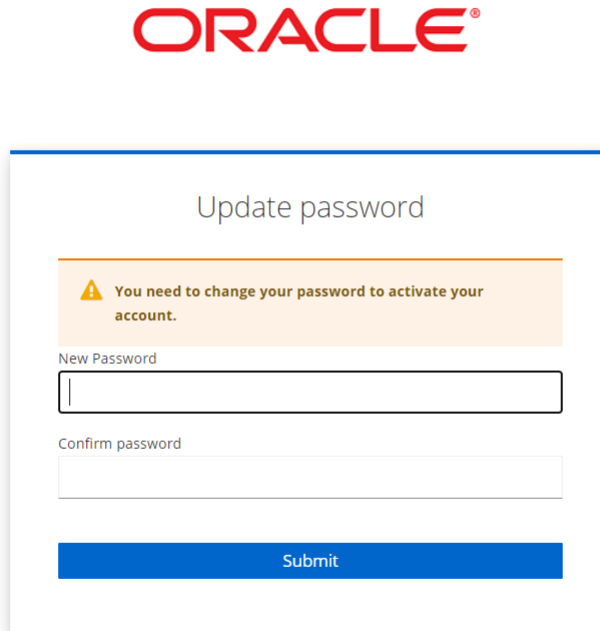
The following screen appears:

Figure 3-1 CNC Console Login



3. Enter valid credentials.
4. Click **Login**. The welcome page of the CNC Console interface appears.
5. After the first login, you will be prompted to change password.

Figure 3-2 Update Password



Update password

⚠ You need to change your password to activate your account.

New Password

Confirm password

Submit

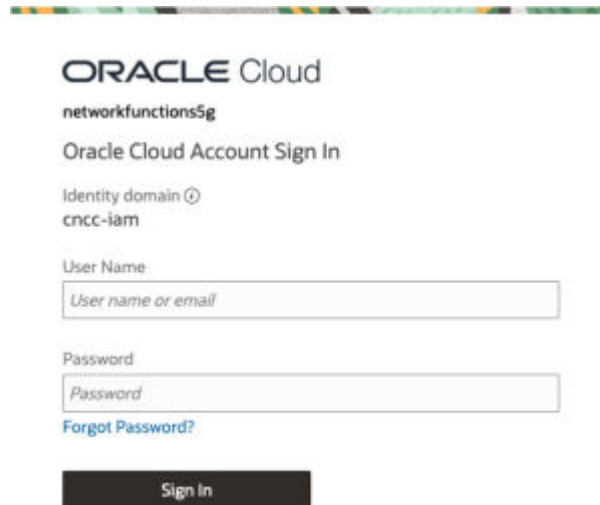
Note

To configure CNC Console IAM, see [Configuring CNC Console IAM](#) section.

Logging into CNC Console GUI in OCI deployment

The following is the procedure to log in to CNC Console:

1. Open any browser.
2. Enter the M-CNCC Core URL ***http://<host name>:<port number>***.
3. Enter valid credentials.

Figure 3-3 Login page

ORACLE Cloud

networkfunctions5g

Oracle Cloud Account Sign In

Identity domain ⓘ
cncc-iam

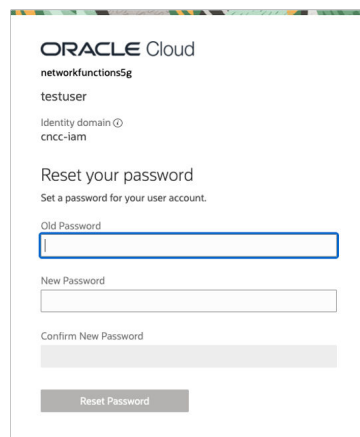
User Name

Password

[Forgot Password?](#)

Sign In

4. Click **Sign In**.
5. Upon signing in you will be prompted to change your password.

Figure 3-4 Reset password

ORACLE Cloud

networkfunctions5g

testuser

Identity domain ⓘ
cncc-iam

Reset your password

Set a password for your user account.

Old Password

New Password

Confirm New Password

Reset Password

6. Click **Reset Password**.
7. You will be redirected to the CNC Console Core welcome page.

Note

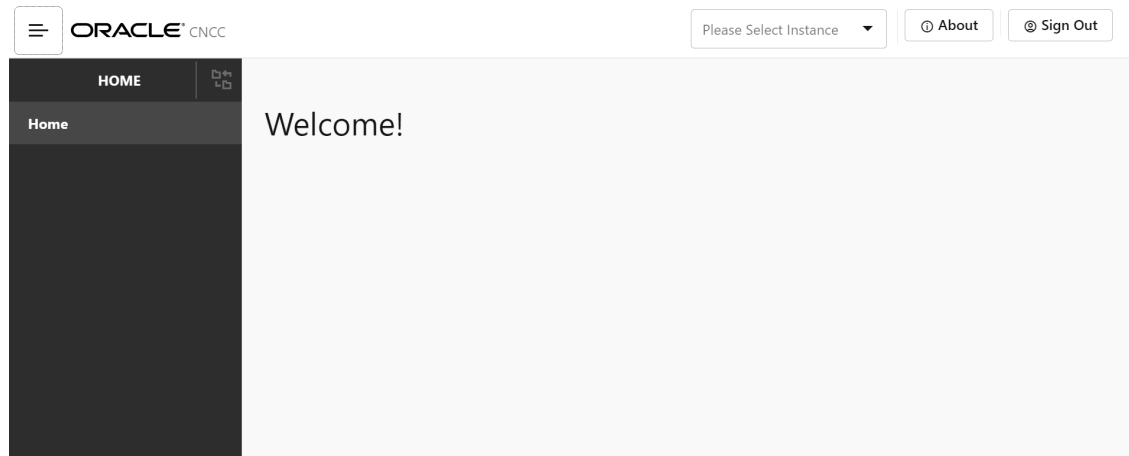
If any issues are identified while accessing the CNC Console GUI, see the *Oracle Communications Cloud Native Configuration Console Troubleshooting Guide*.

3.1 CNC Console Dashboard

This section provides an overview of the CNC Console Dashboard.

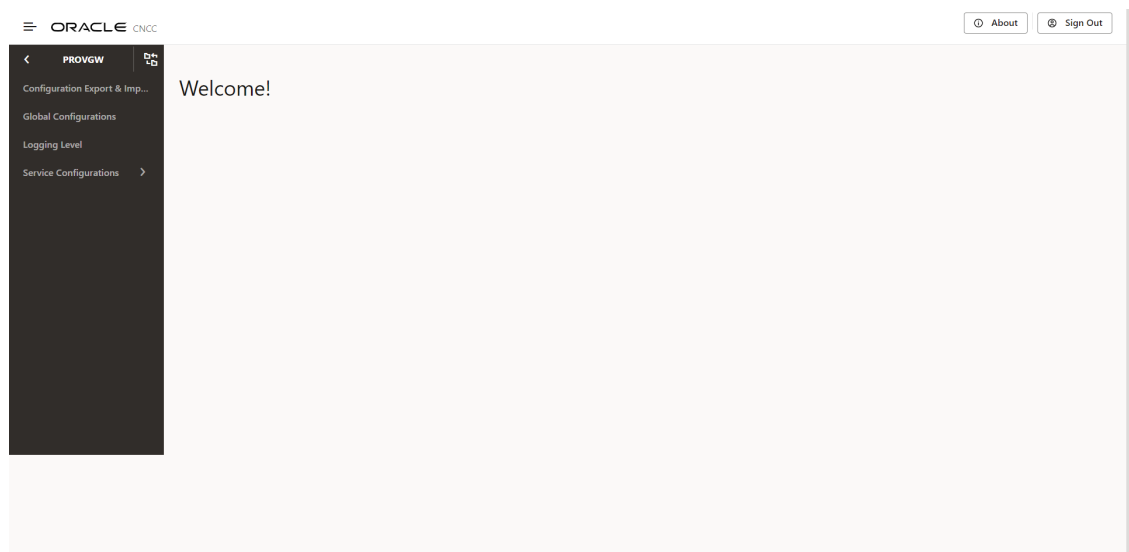
After the user logs in, the following welcome page of CNC Console appears:

Figure 3-5 CNC Console Welcome Page



- **Top Ribbon**-The top ribbon contains the following:
 - **Instance selection drop-down list**- To select the NF instance from the list.
 - **About**- Conveys the product name and the version of the Interface.
 - **Sign Out**- To sign out from the Console.
- **Left Pane - NFs and Configurations:**
The left pane displays the selected Network Function and the configurations.
- **Right Pane - Details View:**
The right pane displays the configurable parameters that can be updated in the selected NFs.
- **Other dashboard options:**

Figure 3-6 Dashboard Options



- The **Menu Hierarchy** button shows the navigation path from the home screen to the current menu item.
- The **Application Navigation** button allows the user to collapse the left pane and display full screen.
- The **Back Icon** allows the user to navigate to the Home menu. The screen does not get refreshed automatically. User must click Home or NF menu to view the updated screen.

4

Configuring CNC Console IAM

Note

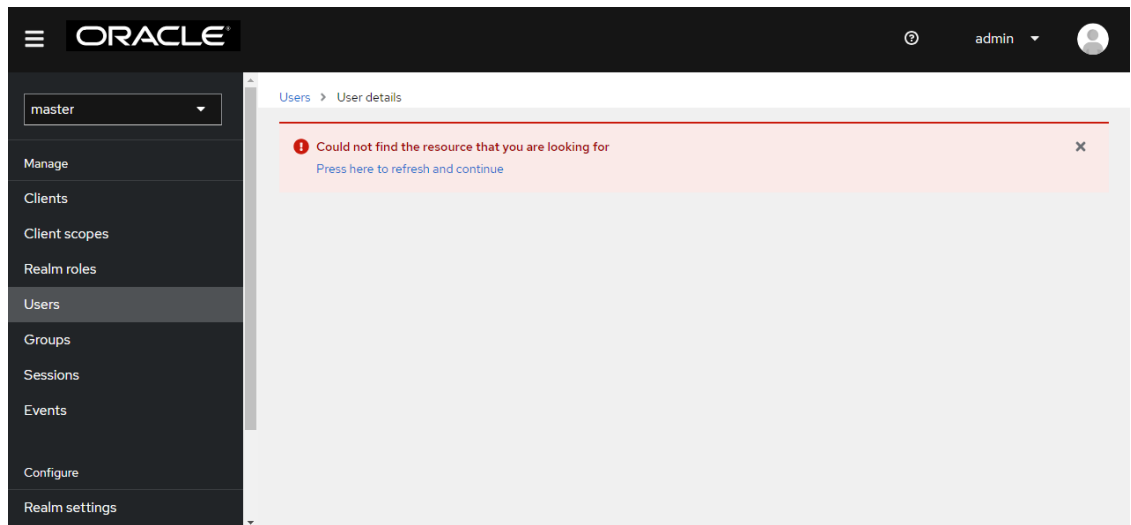
Not applicable for OCI deployment.

This section provides details on how to configure CNC Console IAM.

Restricted Actions on CNC Console IAM

You can only perform those actions that are listed in the *Oracle Communications Cloud Native Configuration Console User Guide* using CNC Console IAM. The following error message appears if you try to perform a restricted action:

Figure 4-1 Restricted Actions Error Message



Click the **Press here to refresh and continue** link to reload CNC Console IAM.

4.1 Role Based Access Control in CNC Console IAM

Role-Based Access Control (RBAC) is one of the main methods for advanced access control. It enables you to restrict network access to authorized users based on their assigned roles.

Role

A Role is a collection of permissions that you can apply to users. Roles are defined according to the authority and responsibility of the users within the organization. Using roles makes it easier to add, remove, and update permissions to the users.

Composite Role

A Composite Role is a collection of one or more additional roles grouped together.

4.1.1 Types of Roles in CNC Console

Role Based Access Control (RBAC) is controlled by Identity and Access Management (IAM) functionality provided by CNC Console IAM.

The following roles are predefined in the CNC Console IAM:

- **ADMIN Level**
Role: ADMIN

The user assigned with this role can access all the NF and CS resources within the CNC Console. The admin user can perform create, read, update, and delete operations. For example, the admin user can read, add, update, or delete MOS configurations for any NF and CS supported CNC Console application. The admin user can also be assigned to the Composite roles which contain all NF and CS level roles.

 Note

CNC Console IAM is managed by an admin who is the single user. You can't have more than one admin user per IAM instance.

- **NF Level**

The user assigned with this role can perform read and write operations for the assigned NFs. NF level roles are classified into:

- **<NF>_READ:** With this permission, the assigned user can perform the read operation for NFs.
For example, If user has POLICY_READ role, then the user can only read configurations of any MOS configurations within the Policy and cannot write or update or delete any record.
- **<NF>_WRITE:** With this permission, the assigned user can perform create, read, update, and delete operations for NFs. For example, if user has POLICY_WRITE then the user can read or write or update or delete any MOS configurations within the NF.

- **CS Level**

Role: CS_WRITE

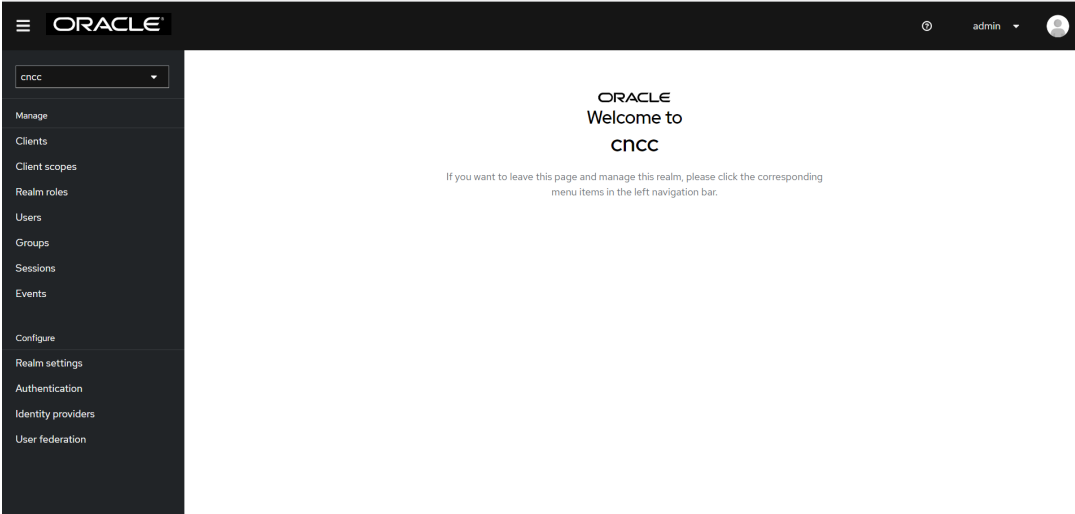
The user assigned with this role has access to all the common services and can perform create, read, update, and delete (CRUD) operations.

The user can read, add, update, or delete MOS configurations for all common services such as Grafana, Kibana, Jaeger, Prometheus, Alertmanager, Promxy, OpenSearch, and Jaeger-ES supported by CNC Console application. For example, if user has CS_WRITE then, the user can read or write or update or delete any MOS configurations in common services.

4.1.2 Accessing Roles in CNC Console Applications

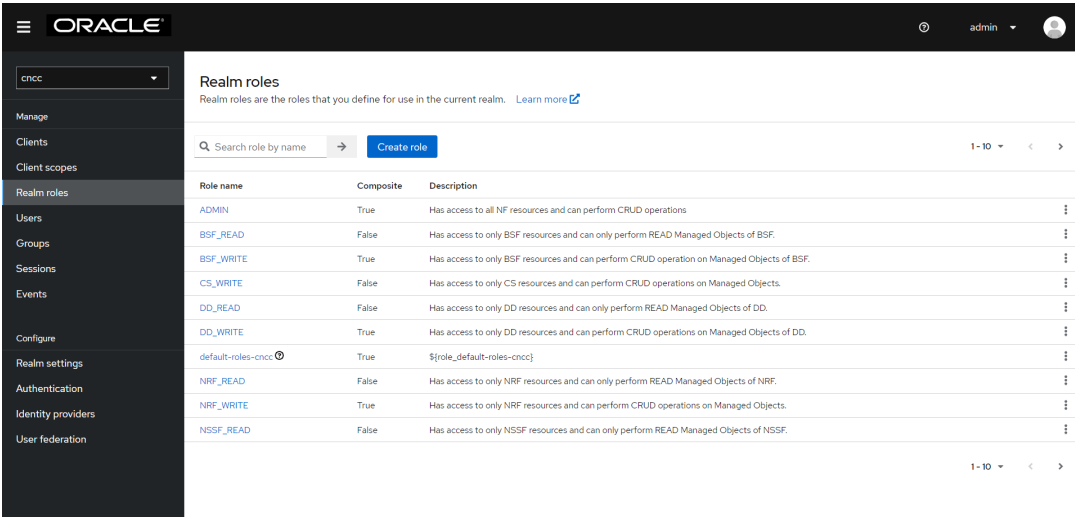
1. Log into CNC Console IAM using Admin credentials and select the CNCC Realm. The following screen appears:

Figure 4-2 Realm Settings



2. To access or view the available roles, click **Realm Roles** on the left pane. The defined roles are available on the right pane.

Figure 4-3 Realm Roles



Note

For information on multicluster roles, see **CNC Console Multicluster Deployment Roles** under **CNC Console IAM Post Installation Steps** section in *Oracle Communication Cloud Native Configuration Console Installation and Upgrade Guide*.

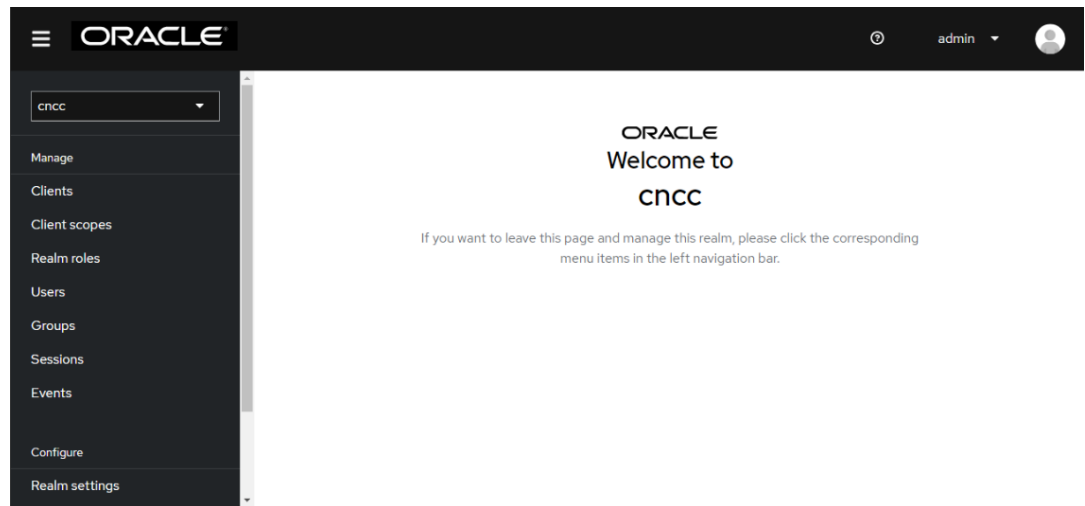
4.1.3 Updating Admin Password in CNC Console IAM

This section describes how to update the admin password in CNC Console IAM.

CNC Console provides support to change the CNC Console IAM password. To update password:

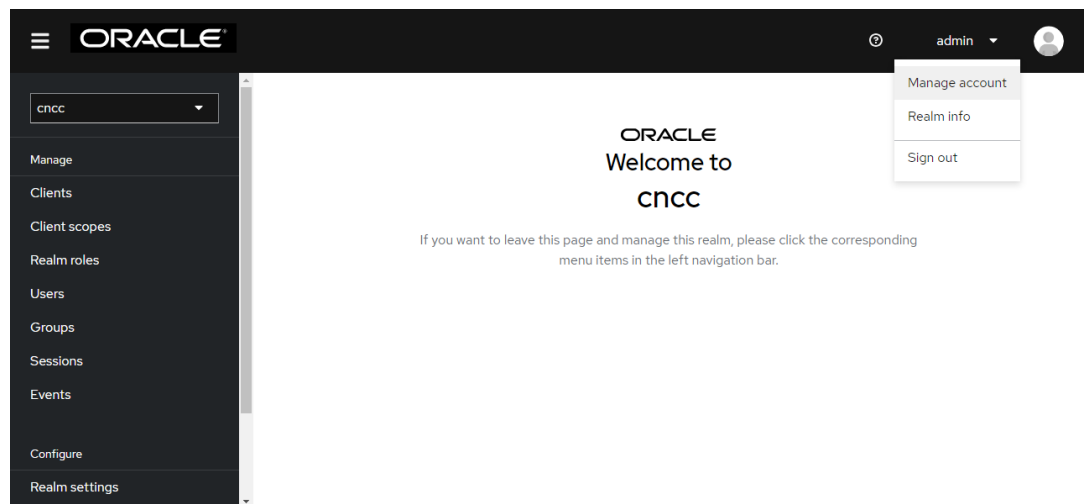
1. Login to CNC Console IAM and click **admin**.

Figure 4-4 Log in to CNC Console IAM

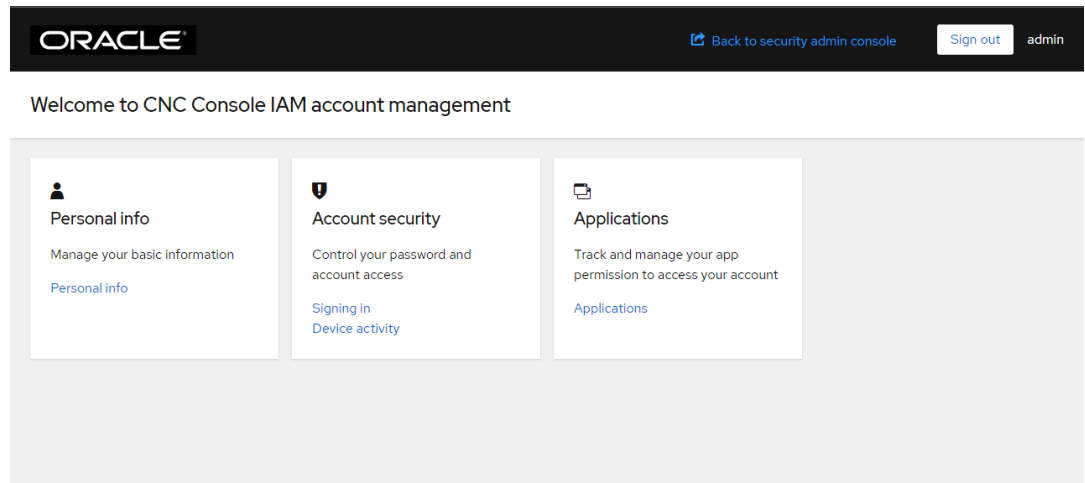


2. Click **Manage account** from the admin list.

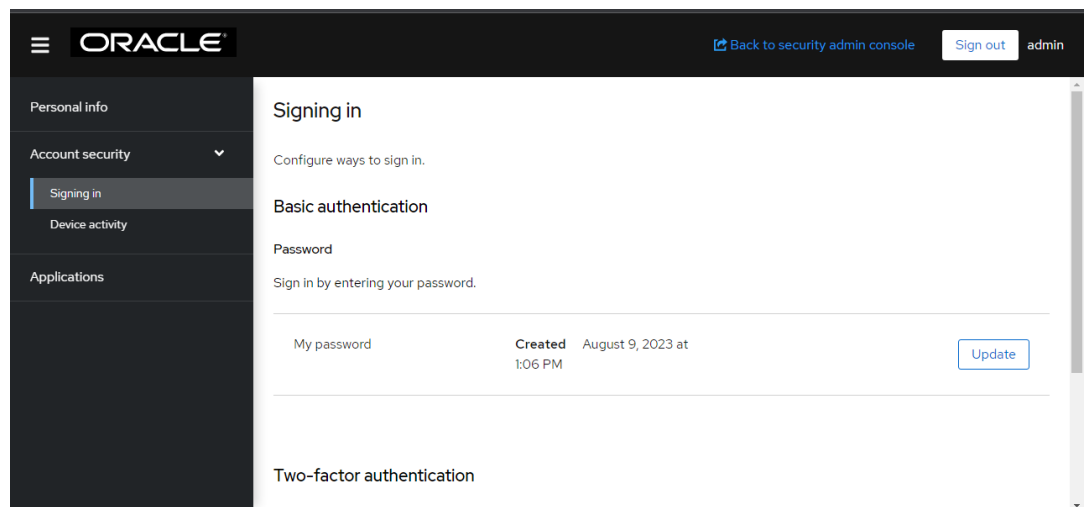
Figure 4-5 Manage Account



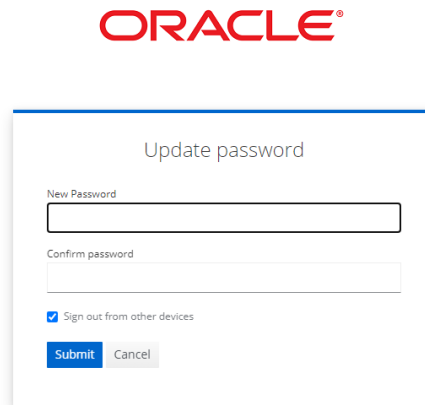
3. Click the **Account security** card.

Figure 4-6 Account Security

4. Click **Update**.

Figure 4-7 Update Password

5. Update your password on the update password screen, and click **Submit**.

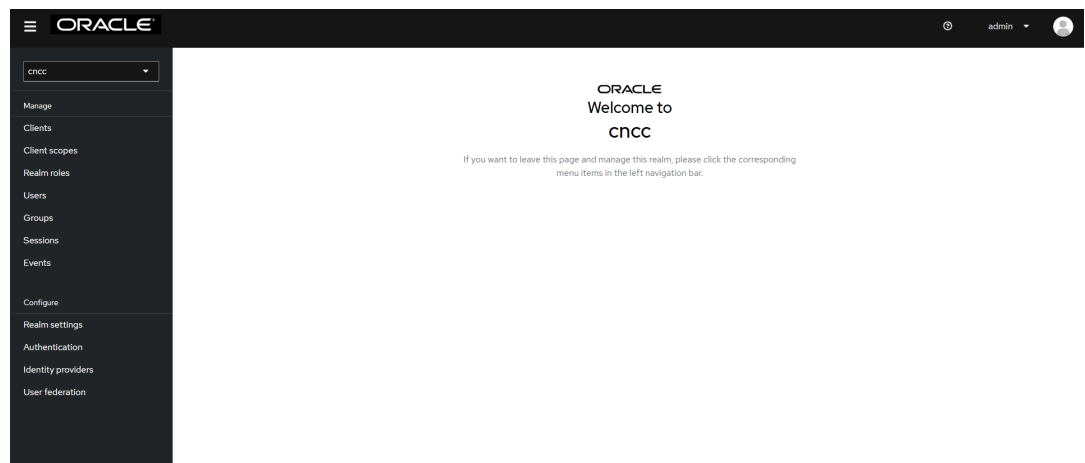
Figure 4-8 Update Password ScreenThe image shows the Oracle 'Update password' screen. At the top is the Oracle logo. Below it, the title 'Update password' is centered. There are two input fields: 'New Password' and 'Confirm password'. Below these fields is a checkbox labeled 'Sign out from other devices' which is checked. At the bottom are two buttons: 'Submit' (in blue) and 'Cancel' (in grey).

4.1.4 Creating or Updating User Password in CNC Console IAM

This section describes how to create or update the user password in CNC Console IAM.

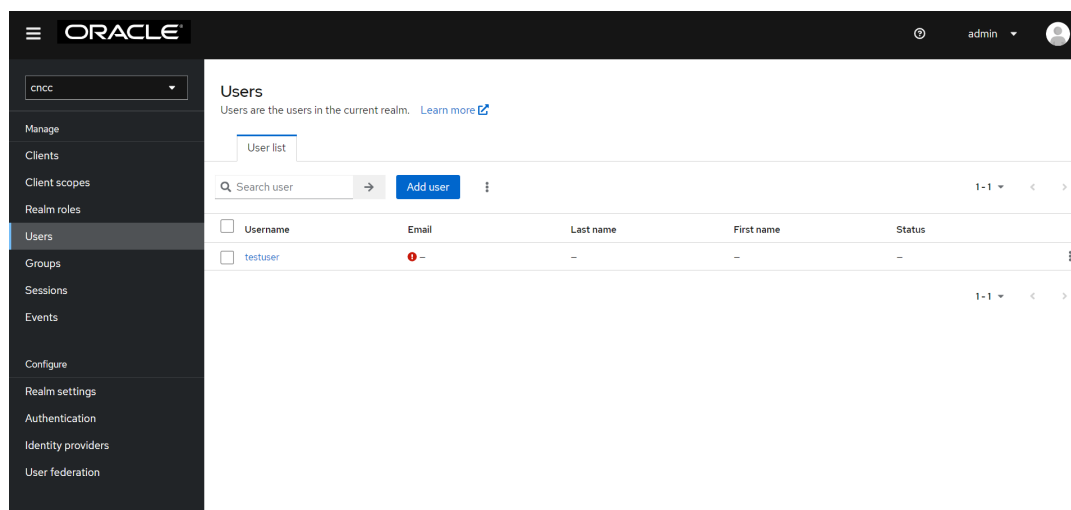
Perform the following steps to create or update the user password:

1. Select the **cncc** Realm

Figure 4-9 Realm Settings

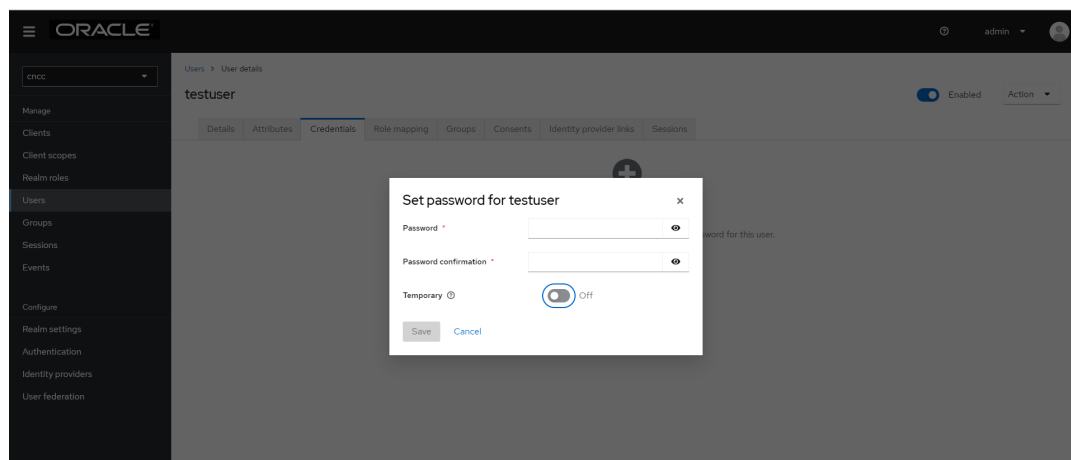
2. Click **Users** on the left pane to view all users.

Figure 4-10 Users



3. Click the **Username** of the user to update the credentials.
4. Under the **Credentials** tab, click **Set Password**, set **Temporary** to **OFF**, and update the **Password**.

Figure 4-11 Credentials



4.1.5 Password Policies for CNC Console Users

The following password policies have been enabled for all CNC Console users:

Policy	Description	Value
Expire Password	The number of days the password is valid before a new password is required.	30
Special Characters	The minimum number of special characters required in the password string.	1

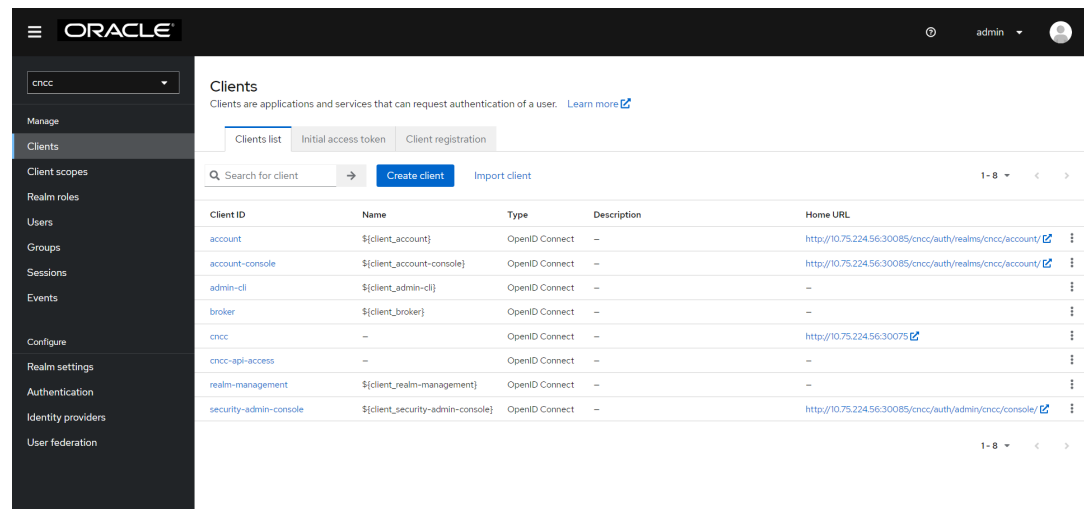
Policy	Description	Value
Uppercase Characters	The minimum number of uppercase characters required in the password string.	1
Lowercase Characters	The minimum number of lowercase characters required in the password string.	1
Digits	The minimum number of numerical digits required in the password string.	1
Not Recently Used	Prevents a recently used password from being reused.	5
Not Username	The password cannot match the username.	ON

4.2 Configuring the CNC Console Redirection URL

After successfully deploying CNC Console IAM, the administrator must perform the following steps to configure the CNC Console redirection URL:

1. Log into CNC Console IAM using admin credentials provided during installation.
2. On the left pane, select **Clients** and on the right pane select the **cncc** Client ID.

Figure 4-12 Clients Screen



3. Enter CNC Console Core Ingress URI in the **Root URL** field and **Save**.

<scheme>://<cncc-mcore-ingress IP/FQDN>:<cncc-core-ingress Port>

Note

Valid Redirect URIs is prepopulated, only root URL needs to be configured as part of the post installation procedure.

Figure 4-13 Redirection URL

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a navigation menu with options like 'Manage', 'Clients', 'Client scopes', 'Realm roles', 'Users', 'Groups', 'Sessions', 'Events', 'Configure', 'Realm settings', 'Authentication', 'Identity providers', and 'User federation'. The main content area is titled 'cncc - OpenID Connect' and has a sub-header 'Clients are applications and services that can request authentication of a user.' Below this are tabs for 'Settings', 'Roles', 'Client scopes', 'Sessions', and 'Advanced'. The 'Settings' tab is selected, showing 'General Settings' and 'Access settings'. The 'General Settings' section includes fields for 'Client ID' (cncc), 'Name', and 'Description', and a toggle for 'Always display in UI' (Off). The 'Access settings' section includes fields for 'Root URL' (http://10.xx.xx.xx:30075), 'Home URL', and 'Valid redirect URIs' (/login/oauth2/code/cncc-iam, /). A 'Save' button is at the bottom.

4.3 Users in CNC Console IAM

This section includes:

- [Creating the users](#)
- [Viewing the Users](#)
- [Assigning the roles to the users](#)

Note

For the details on setting or updating the admin password, see [Updating Admin Password in CNC Console IAM](#).

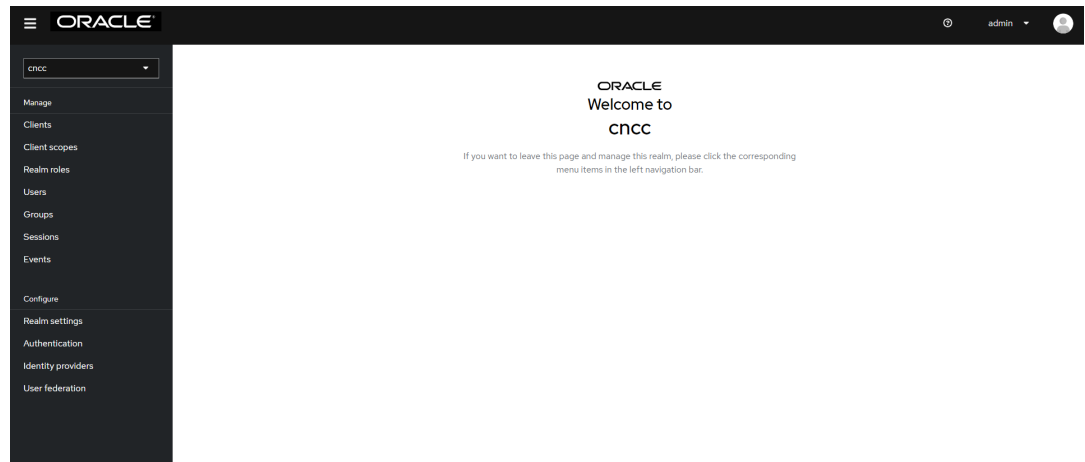
Note

For the details about setting or updating the user password, see [Creating or Updating User Password in CNC Console IAM](#).

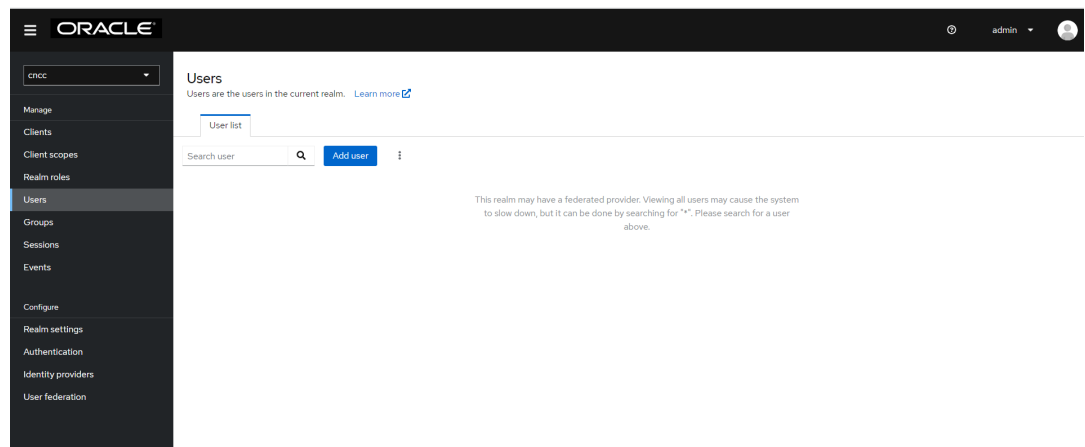
4.3.1 Creating the Users

Perform the following procedure to create users:

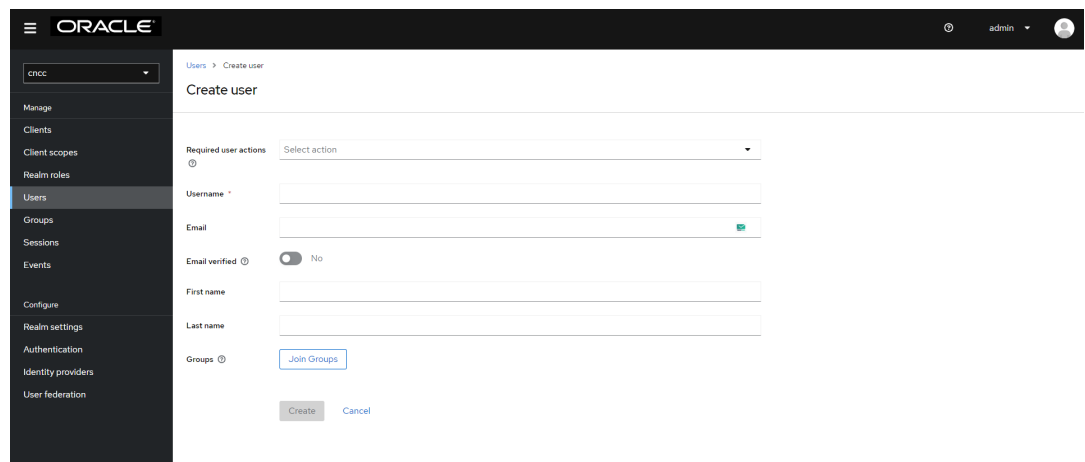
1. Select the **cncc** Realm.

Figure 4-14 CNCC Realm

- Click **Users** under **Manage** on the left pane and click **Add user** on the right pane.

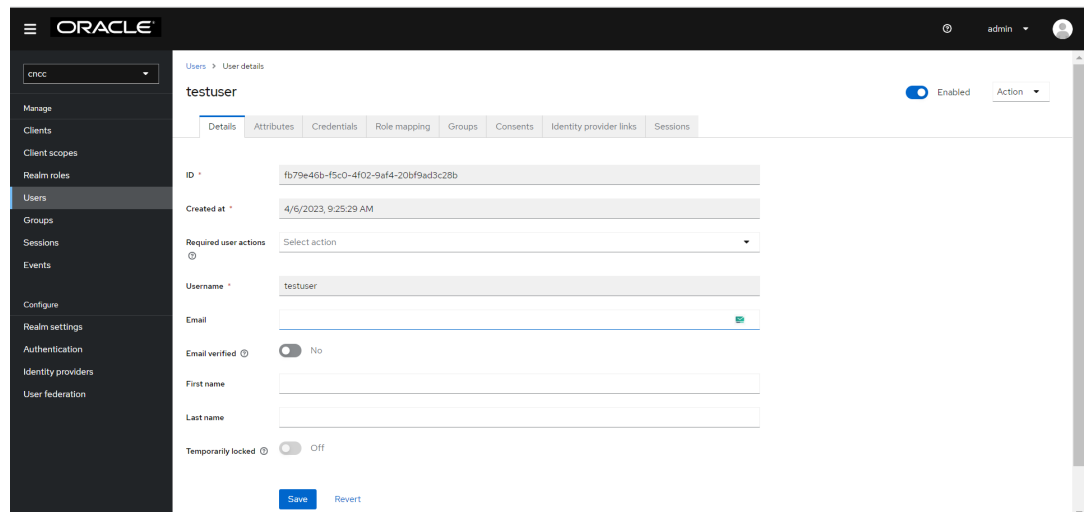
Figure 4-15 Add User

- The **Add user** screen appears. Add the user details and click **Create**.

Figure 4-16 User Details

- The user has been created and the user details screen appears.

Figure 4-17 New User Created

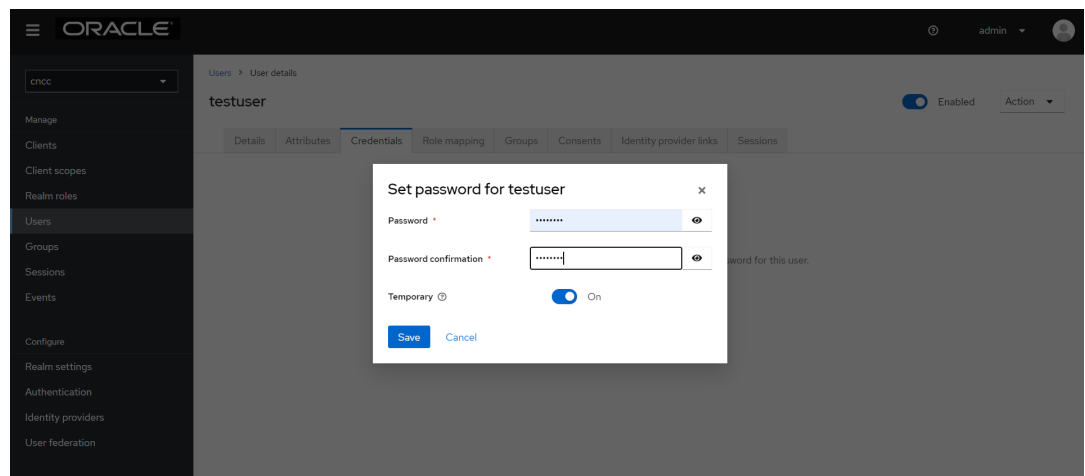


- Go to the **Credentials** tab and click **Set Password** to set the password for that user. Enable the **Temporary** flag to prompt the user to change their password when they login for the first time to CNC Console GUI.

Note

You are recommended to enable the **Temporary** flag for security.

Figure 4-18 Set Password



Note

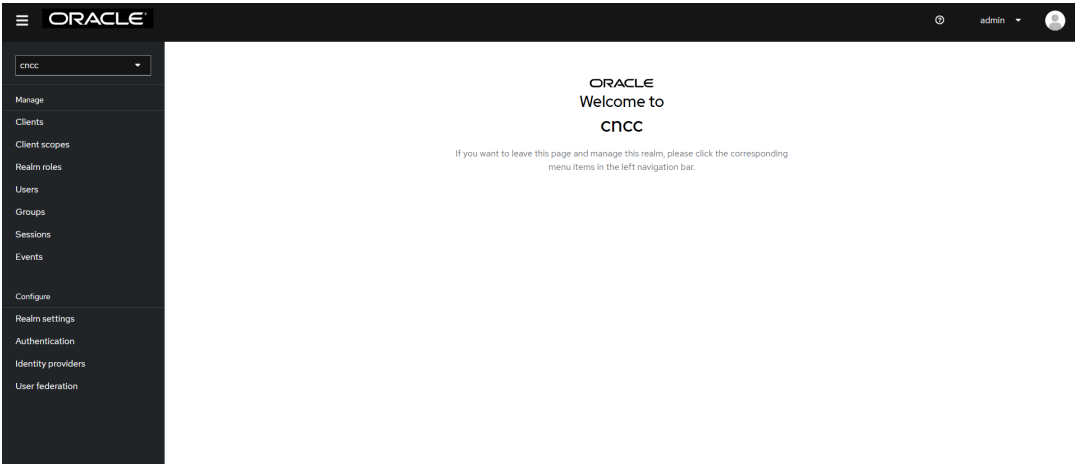
Setting the **Temporary** flag **ON** prompts the user change the password when logging in to the CNC Console for the first time.

4.3.2 Viewing the Users

Perform the following procedure to view users:

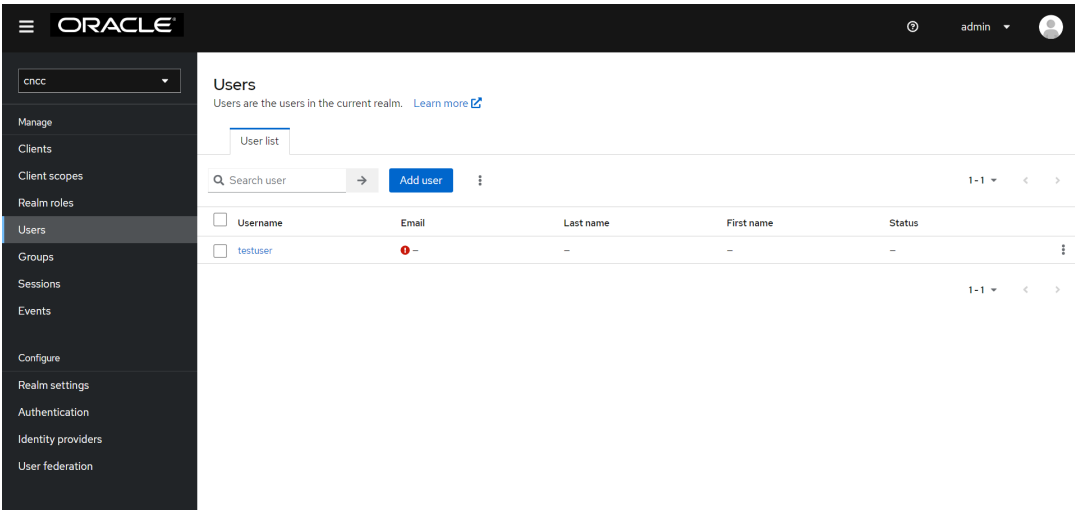
1. Select the **CNCC** Realm.

Figure 4-19 CNCC Realm



2. Select **Users** under **Manage** from the left pane to view all users.

Figure 4-20 View All Users

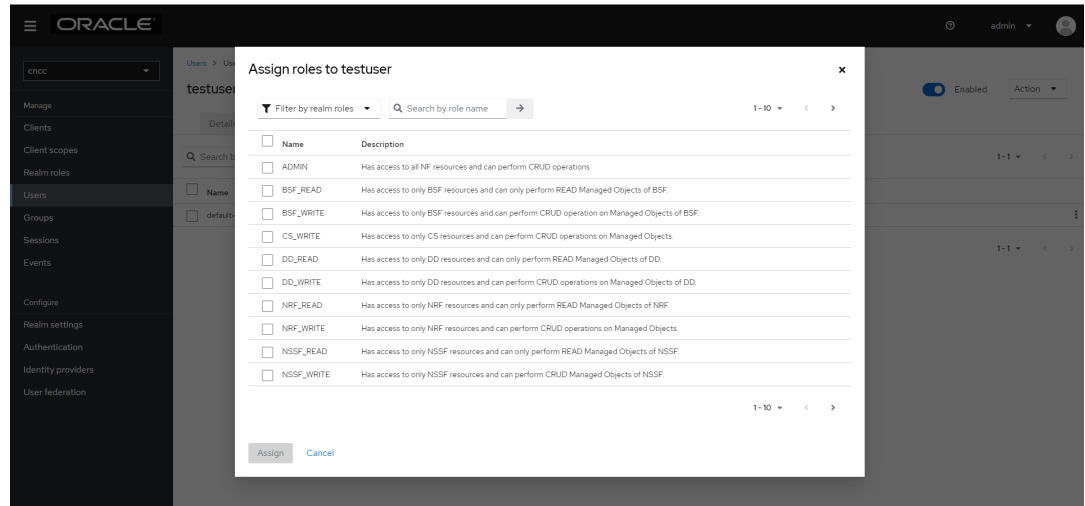


The list of users and their details appears in the right pane.

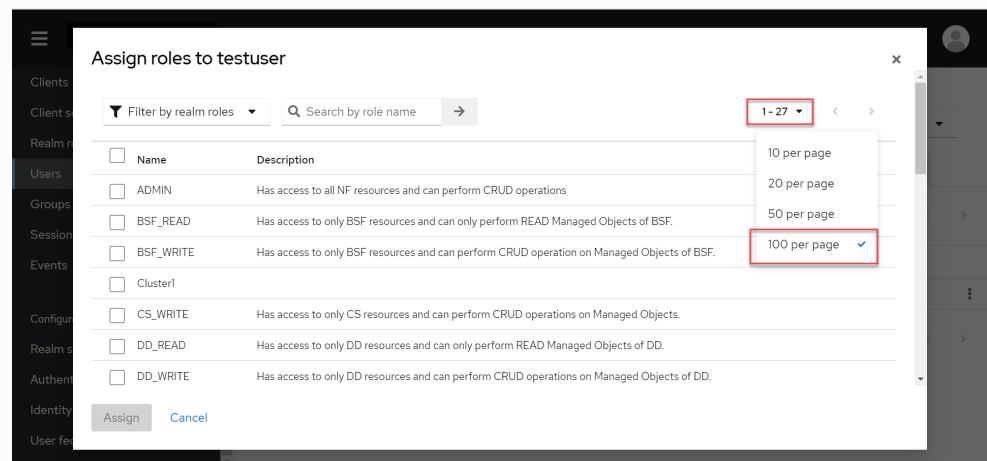
4.3.3 Assigning Roles to the User

Perform the following procedure to assign roles to the user:

1. Select a user. Navigate to the **Role Mappings** tab and click **Assign Role** to assign the user role.

Figure 4-21 Assign Roles**Note**

You must change number of entries displayed per page from the pagination drop-down to **100 per page** to view all the entries.

Figure 4-22 Display 100 Entries per Page

- The selected roles will be assigned to the user.

4.4 CNC Console SAML SSO Integration

4.4.1 Integrating SAML SSO with CNC Console IAM

Overview

Security Assertion Markup Language (SAML) is an open standard that allows identity providers (IdP) to pass authorization credentials to service providers (SP). The identity provider authenticates the user and returns the assertion information about the authenticated user and the authentication event to the application. Using SSO, if the user tries to access any other application that uses the same identity provider for user authentication, the user does not need to login again. This is the principle of SSO (Single Sign On).

① Note

CNC Console supports SAML 2.0.

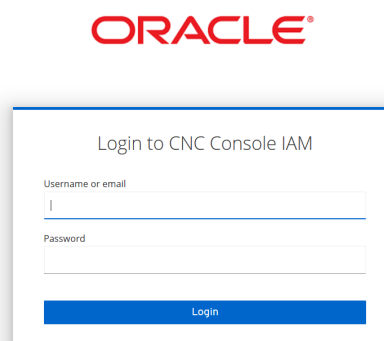
Configuring SAML Identity Provider in CNC Console IAM

Perform the following procedure to configure SAML identity provider

1. Log in to CNC Console IAM Console using admin credentials provided during CNC Console IAM installation.

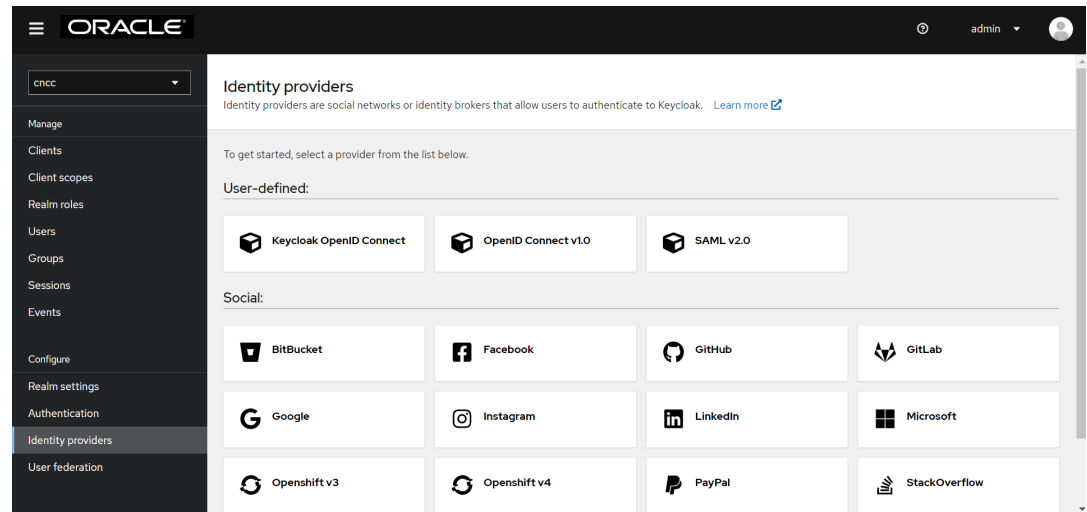
`http://<cncc-iam-ingress-extrenal-ip>:<cncc-iam-ingress-service-port>`
Example: `http://cncc-iam-ingress-gateway.cncc.svc.cluster.local:30085/`

Figure 4-23 Login screen



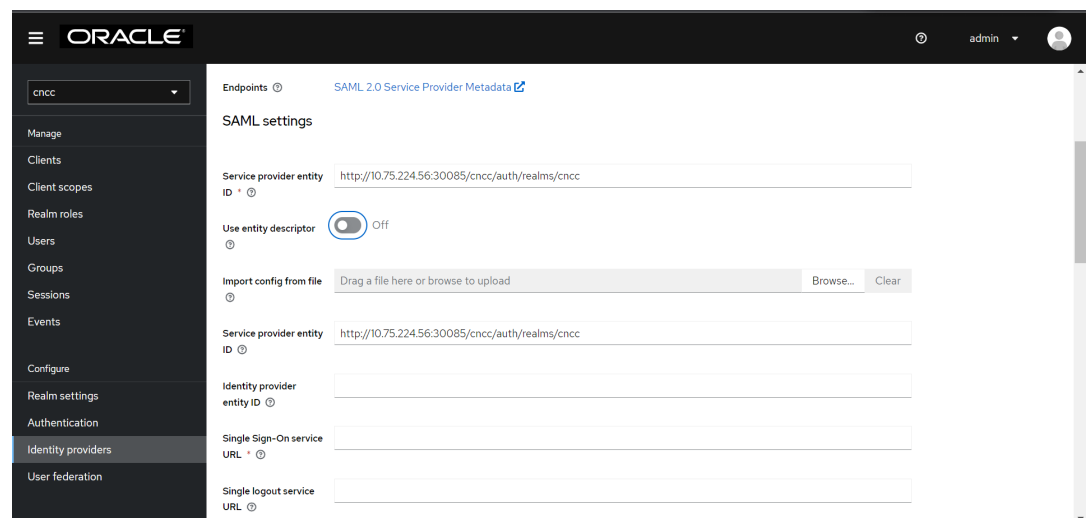
2. Click the **cncc** realm and click **Identity providers** tab on the left pane. **Identity providers** screen appears on the right pane.

Figure 4-24 Identity Provider Screen



3. Click the **SAML v2.0** button under **User-defined**. The **Add SAML Provider** screen appears.

Figure 4-25 SAML Settings



Note

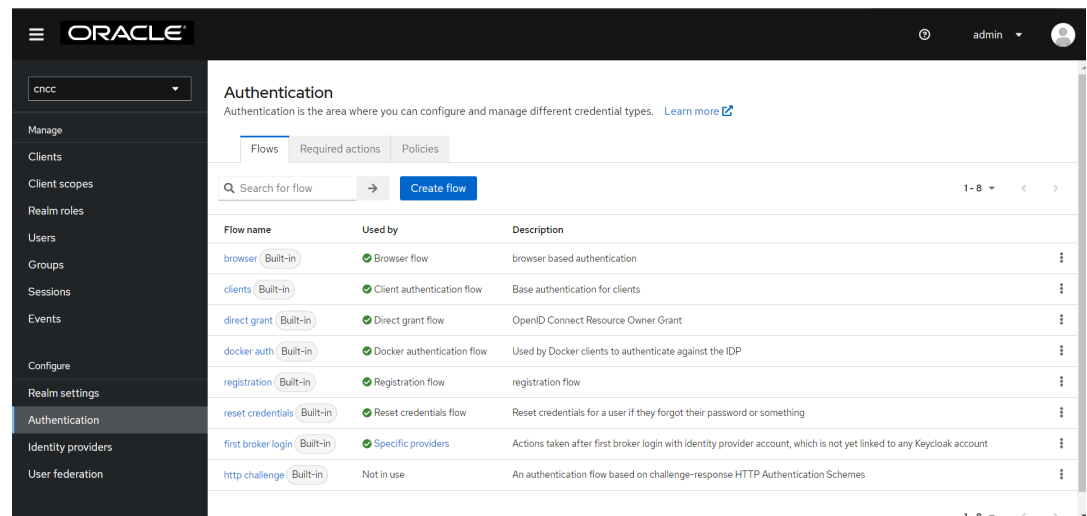
- Give an appropriate name for the **Display Name** field.
- To import the metadata file exported from SAML client in the IdP, disable the **Use Entity descriptor** flag, and upload the file from the **Browse** button of "Import from config file".

Click **Import** and **Save**. The other required fields populate automatically.

Perform the following procedure to configure the IdP manually, if you are facing difficulty in importing the metadata file from the IdP Client:

- a. Navigate to the **Identity providers** screen and click **SAML v2.0**.
 - b. Set the value of **Single Sign-On Service URL** to the URL of the preferred IdP.
Example: <IP/FQDN>:<PORT>/auth/realms/master/protocol/saml (URI for their preferred IdP where SAML AuthnRequest will be sent).
 - c. Set the value of **Single Logout Service URL**.
Example: <IP/FQDN>:<PORT>/auth/realms/master/protocol/saml (URI for their preferred IdP where logout requests must be sent).
 - d. If the IdP supports *HTTP POST* binding methods, enable **HTTP-POST Binding Response**, **HTTP-POST Binding Logout** and **HTTP-POST Binding for AuthnRequest** flags. By default, HTTP-Redirect will be used.
 - e. If the IdP is sending signed Assertions, set **Want Assertions Signed** to **ON**.
 - f. Set **Validate Signature** to **ON**.
 - g. Provide value for **Validating X509 Certificates** (If you are using Keycloak as an IdP, use the certificate from **master** realm -> Realm Settings -> Keys).
 - h. Click **Add**.
- IdP is now configured manually.
4. To create custom **First Login Flow**, click **Authentication** tab on the left pane. The **Authentication** screen appears.

Figure 4-26 Authentication



5. Click **Create Flow** on the right pane. The **Create Flow** screen appears.

Figure 4-27 Create Flow

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a dark sidebar with a menu including 'Manage', 'Clients', 'Client scopes', 'Realm roles', 'Users', 'Groups', 'Sessions', 'Events', 'Configure', 'Realm settings', 'Authentication' (highlighted), 'Identity providers', and 'User federation'. The main content area is titled 'Authentication > Create flow'. Below the title, it says 'You can create a top level flow within this from'. There are three input fields: 'Name' with the value 'Simple Login Flow', 'Description' (empty), and 'Flow type' with a dropdown menu showing 'Basic flow'. At the bottom of the form are two buttons: 'Create' (in blue) and 'Cancel' (in light blue).

Enter the appropriate name and click **Create**.

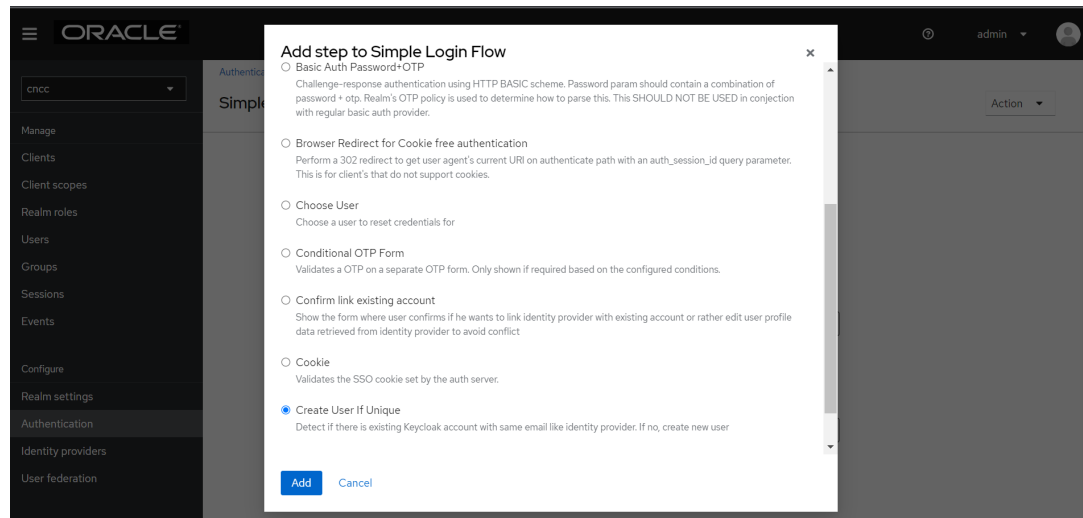
6. The **Simple Login Flow** screen appears. Click **Add execution** on the right pane.

Figure 4-28 Simple Login Flow

The screenshot shows the 'Simple Login Flow' details page in the Oracle Cloud Native Configuration Console. A green notification banner at the top right says 'Flow created'. The page title is 'Simple Login Flow' with a status 'Not in use' and an 'Action' dropdown. In the center, there is a large plus icon and the text 'No steps'. Below this, it says 'You can start defining this flow by adding a sub-flow or an execution'. There are two sections: 'Add an execution' with a description 'Execution can have a wide range of actions, from sending a reset email to validating an OTP' and an 'Add execution' button; and 'Add a sub-flow' with a description 'Sub-Flows can be either generic or form. The form type is used to construct a sub-flow that generates a single flow for the user. Sub-flows are a special type of execution that evaluate as successful depending on how the executions they contain evaluate.' and an 'Add sub-flow' button. The left sidebar is the same as in Figure 4-27.

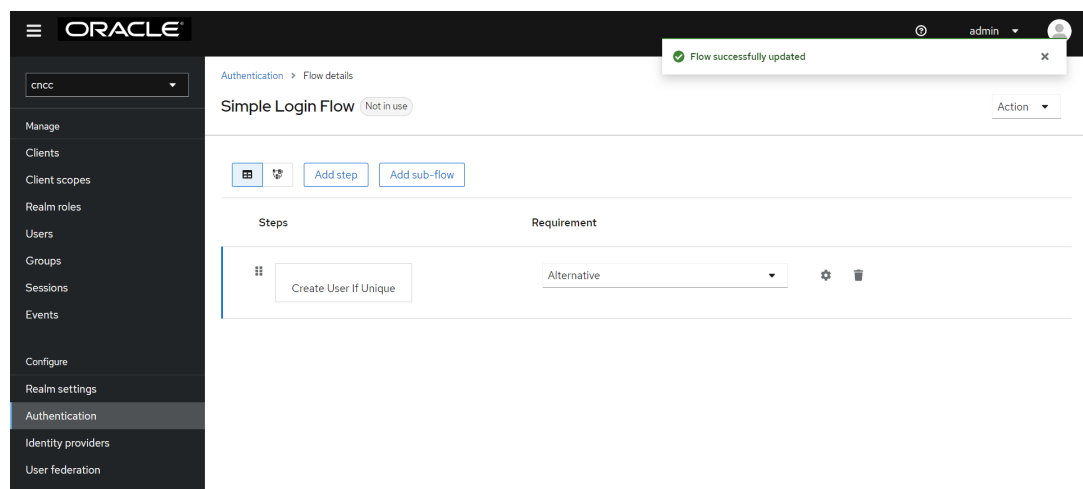
7. Select **Create User If Unique**, and click **Add**.

Figure 4-29 Add Step to Simple Login Flow



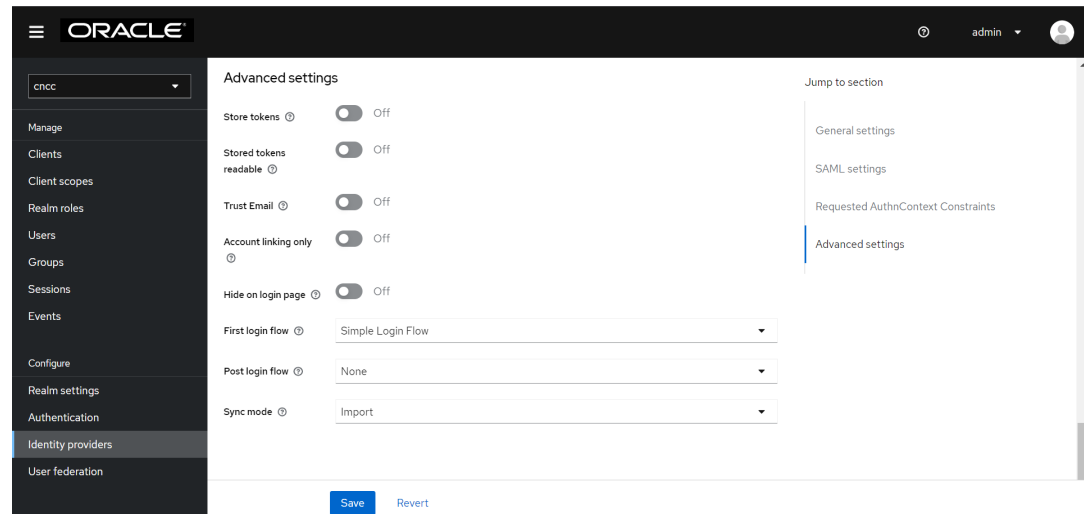
8. You will be redirected to **Authentication** page. From **Requirement** section, select **Alternative**.

Figure 4-30 Authentication



9. Click **Identity providers** in the left pane. Click the name of the Identity provide created in the previous steps, and scroll down to **Advanced Settings**. Select the custom flow from **First Login Flow** drop-down list.

Figure 4-31 Advanced Settings

10. Click **Save**.

The above screen appears. Now the SAML Idp roles must be mapped with CNC Console IAM API roles.

Note**CNC Console IAM(SP) Configuration in IdP**

In a SAML based SSO Implementation, the IdP needs to send SAML assertions towards a Service Provider (CNC Console IAM in this case) endpoint.

Use the following CNC Console endpoint in the IdP:

`http://<IP/FQDN>:<PORT>/cncc/auth/realms/cncc/broker/saml/endpoint`

Example:

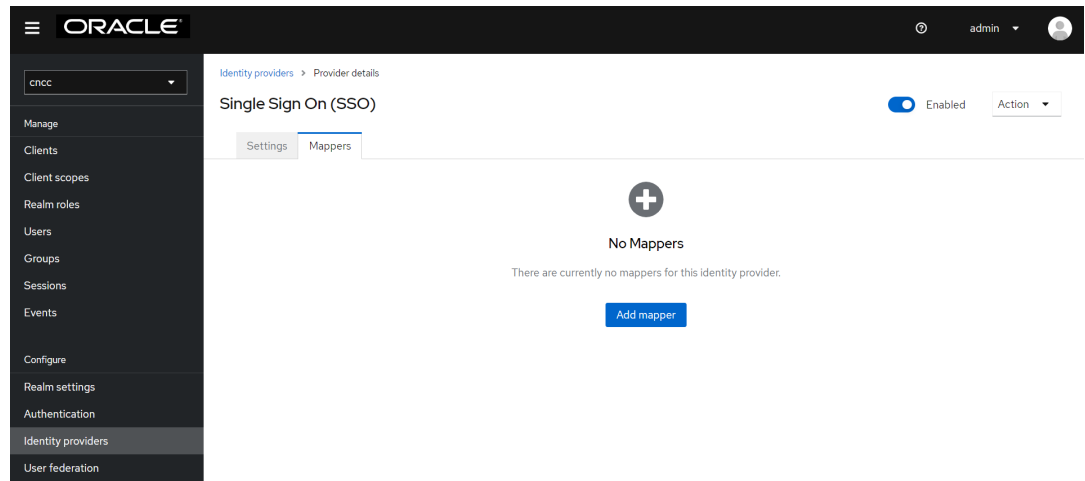
`http://cncc-iam-ingress-gateway.cncc.svc.cluster.local:30085/cncc/auth/realms/cncc/broker/saml/endpoint`

Mapping SAML IdP roles with CNC Console IAM API roles

Perform the following procedure to map SAML IdP roles with CNC Console IAM API roles:

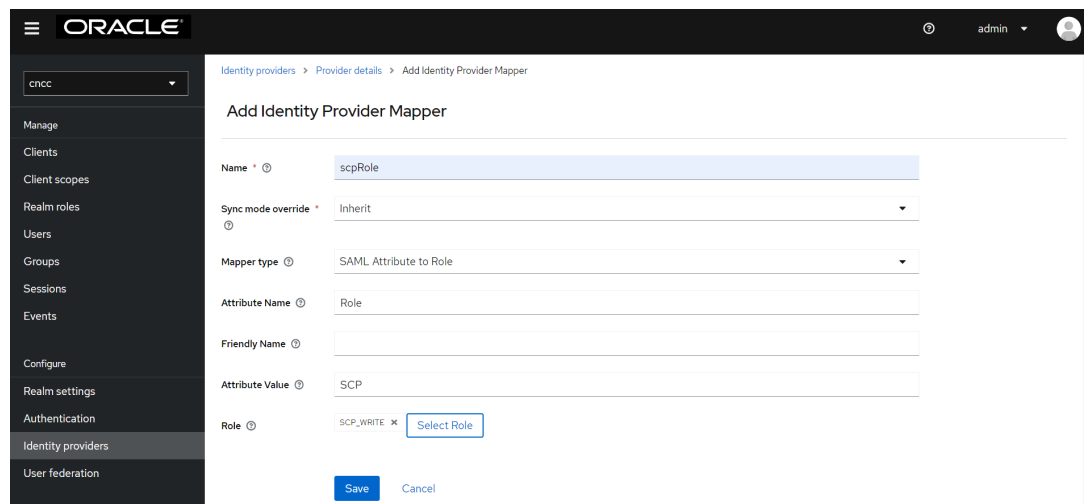
1. After saving SAML IdP configurations in CNC Console IAM, select **Identity providers** on the left pane and click the name of your identity provider. Click **Mappers** tab on the right pane. Click **Add Mapper**.

Figure 4-32 Single Sign On

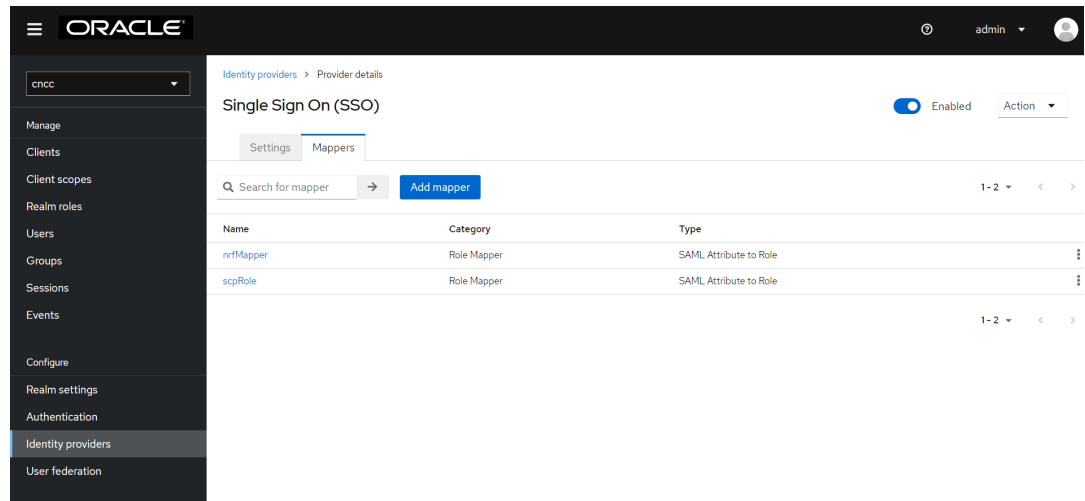


2. The **Add Identity Provider Mapper** screen appears.

Figure 4-33 Add Identity Provider Mapper



- Give an appropriate name for the Identity Provider Mapper in the **Name** field.
- Select 'SAML Attribute to Role' from **Mapper Type** drop-down.
- Enter the **Attribute Value** as the one of the roles added in SAML IdP. For example: 'NRF', 'SCP', etc.
- Click **Select Role** to select the API roles to be enabled for this mapping.
- Click **Assign**. Then click **Save**

Figure 4-34 Single Sign On

You can create as many mapping as required.

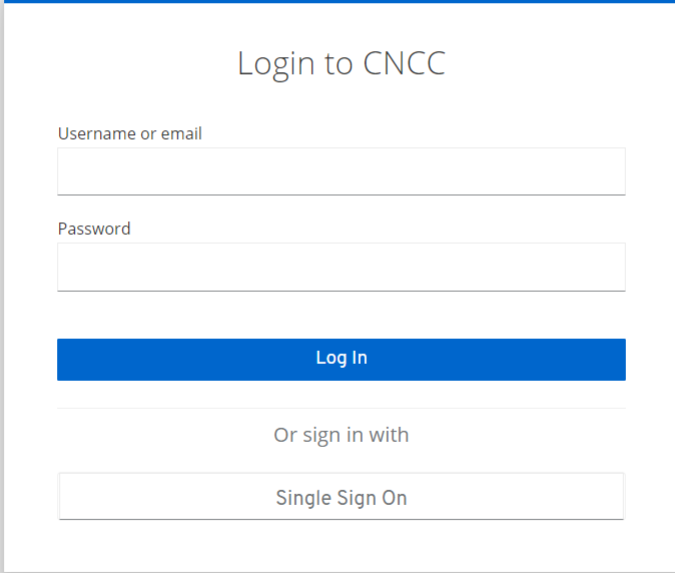
Accessing CNC Console Core Application

Perform the following procedure to access the CNC Console application:

1. Log in to CNC Console Core, and browse to the application using hostname and port. The user is redirected to CNC Console IAM (broker).

`http://<cncc-core-ingress-extrenal-ip>:<cncc-iam-ingress-service-port>`

Example: `http://cncc-core-ingress-gateway.cncc.svc.cluster.local:30075/`



Login to CNCC

Username or email

Password

Log In

Or sign in with

Single Sign On

2. Click **Single Sign On** to authenticate using SAML SSO. The user is redirected to SAML IdP log in. Enter user details to access CNC Console Core application.

4.5 Integrating CNC Console LDAP Server with CNC Console IAM

Overview

CNC Console IAM can be used as an integration platform to connect to existing LDAP and Active Directory servers.

User Federation in CNC Console IAM lets the user sync users and groups from LDAP and Active Directory servers, and assign roles respectively.

CNC Console IAM provides an option to configure a secured connection URL to your LDAP store.

For example: ``ldaps://myhost.com:636'`

CNC Console IAM uses SSL for communication with the LDAP server. The truststore must be properly configured on the CNC Console IAM server side, otherwise CNC Console IAM cannot trust the SSL connection to LDAP.

Sample LDAP Idif File

```
dn: dc=oracle,dc=org
objectclass: top
objectclass: domain
```

```
objectclass: extensibleObject
dc: oracle

dn: ou=groups,dc=oracle,dc=org
objectclass: top
objectclass: organizationalUnit
ou: groups

dn: ou=people,dc=oracle,dc=org
objectclass: top
objectclass: organizationalUnit
ou: people

dn: uid=ben,ou=people,dc=oracle,dc=org
objectclass: top
objectclass: person
objectclass: organizationalPerson
objectclass: inetOrgPerson
cn: Ben Alex
sn: Alex
uid: ben
userPassword: benspass

dn: uid=bob,ou=people,dc=oracle,dc=org
objectclass: top
objectclass: person
objectclass: organizationalPerson
objectclass: inetOrgPerson
cn: Bob Hamilton
sn: Hamilton
uid: bob
userPassword: bobspass

dn: uid=joe,ou=people,dc=oracle,dc=org
objectclass: top
objectclass: person
objectclass: organizationalPerson
objectclass: inetOrgPerson
cn: Joe Smeth
sn: Smeth
uid: joe
userPassword: joespass

dn: cn=admin,ou=groups,dc=oracle,dc=org
objectclass: top
objectclass: groupOfUniqueNames
cn: admin
uniqueMember: uid=ben,ou=people,dc=oracle,dc=org
ou: admins

dn: cn=scp,ou=groups,dc=oracle,dc=org
objectclass: top
objectclass: groupOfUniqueNames
cn: scp
uniqueMember: uid=ben,ou=people,dc=oracle,dc=org
uniqueMember: uid=joe,ou=people,dc=oracle,dc=org
```

```

ou: scpusers

dn: cn=nrf,ou=groups,dc=oracle,dc=org
objectclass: top
objectclass: groupOfUniqueNames
cn: nrf
uniqueMember: uid=ben,ou=people,dc=oracle,dc=org
uniqueMember: uid=bob,ou=people,dc=oracle,dc=org
ou: nrfusers

```

4.5.1 Grouping the LDAP Mapper and Assigning the Roles

When an LDAP Federation provider is created, CNC Console IAM provides a set of built-in mappers for this provider. Users can change the set and create a new mapper, or update and delete existing ones.

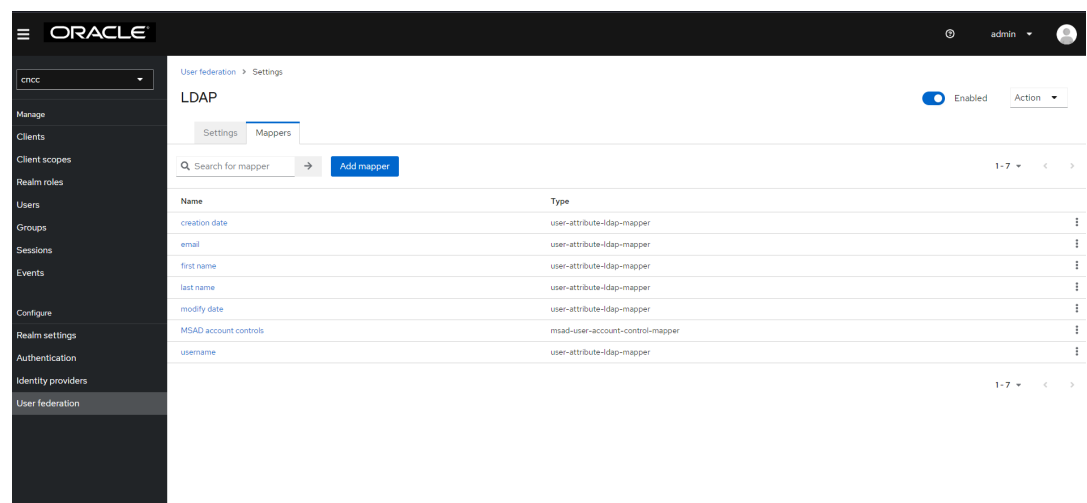
Group Mapper

The Group Mapper allows you to configure group mappings from LDAP into CNC Console IAM group mappings. Group mapper can be used to map LDAP groups from a particular branch of an LDAP tree into groups in CNC Console IAM. It also propagates user-group mappings from LDAP into user-group mappings in CNC Console IAM.

Perform the following procedure to add the group mapper and assign the roles:

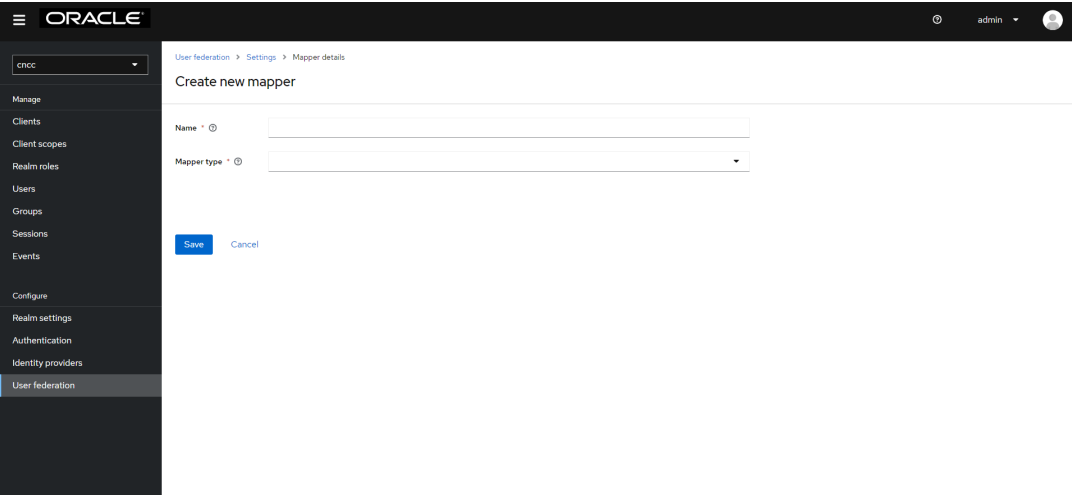
1. Under **Configure** in the left pane, click **User Federation**. Click **Idap** and select the **Mappers** tab, and then click **Add Mapper**.

Figure 4-35 LDAP Mapper Page



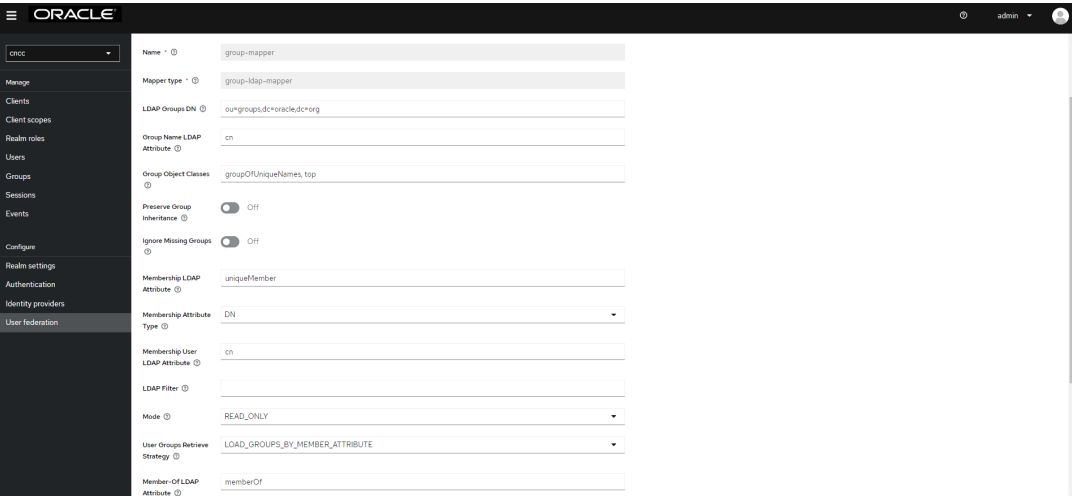
2. The **Create New Mapper** page appears. Give an appropriate name for the field **Name**. Select group-ldap-mapper as **Mapper Type** drop-down menu. Click **Save**.

Figure 4-36 User Federation Mapper Page



The following screen appears:

Figure 4-37 LDAP Mapper Filled Form



Note

When selected, default values will be set by CNC Console IAM. However, you must change some values based on your LDAP records.

- 3. Click **Save**.

Figure 4-38 Save

- Click the name of your mapper. Under the Action menu, click **Sync LDAP Groups to Keycloak**. The success message appears with the number of groups imported and so on.

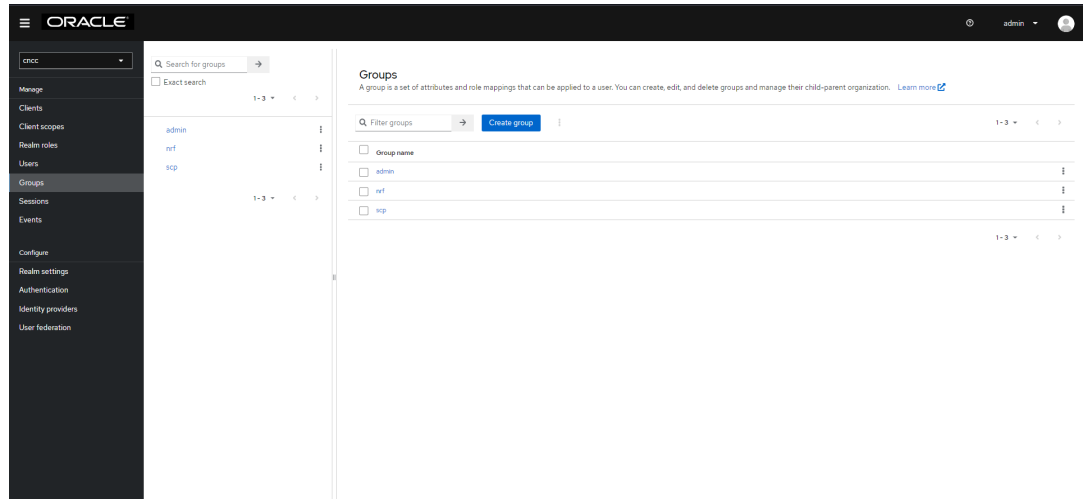
Figure 4-39 Group Mapper

Note

If this step fails, then you might need to look through the troubleshooting section and check the CNC Console IAM logs in debug mode. See the *Oracle Communication Cloud Native Configuration Console Troubleshooting Guide* and see [CNC Console Logs](#) for further details.

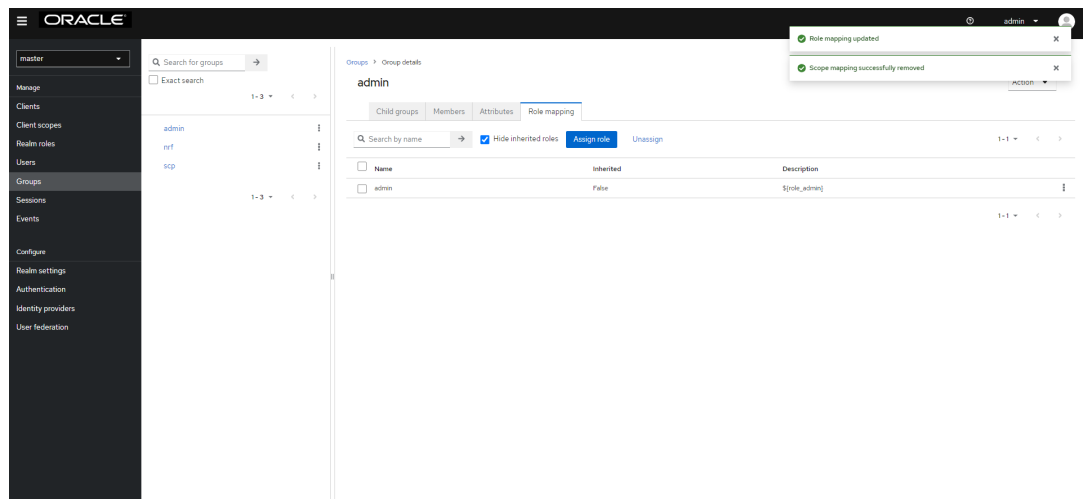
- Select the **Groups** in the left pane to view all groups.

Figure 4-40 Groups



- Click any group and click **Edit**. The following tabs appear: **Child groups**, **Attributes**, **Role Mappings**, and **Members**.

Figure 4-41 Role mapping to LDAP Group



- Select the **Role Mapping** tab to see a list of roles that are predefined in CNC Console IAM.
- Select one or more roles from **Available Roles** and assign it to the group. For example, if group admin is assigned the role 'ADMIN' role, it means that any user who belongs to the admin group will be automatically be assigned the admin role. This allows them to access all the NF resources of CNC console that it supports.
- When you're done, you can test authentication and authorization by logging into the CNC Console GUI.

Note

- When the user password is updated from CNC Console IAM and sent to LDAP, it is always sent in plain-text. This is different from updating the password to the built-in CNC Console IAM database, where hashing and salting is applied to the password before it is sent to the DB. In the case of LDAP, CNC Console IAM relies on the LDAP server to provide hashing and salting to passwords.
- Most LDAP servers (Microsoft Active Directory, RHDS, FreeIPA) provide this by default. Some servers (OpenLDAP, ApacheDS) may store the passwords in plain text by default, and the user must explicitly enable password hashing for them.

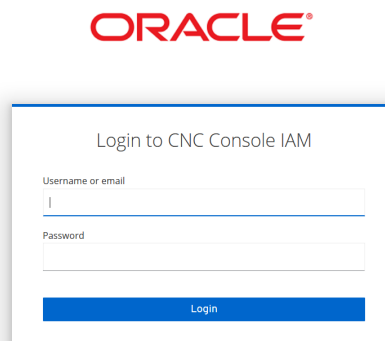
4.5.2 Configuring User Federation with CNC Console IAM

This section provides information about configuring user federation with CNC Console IAM (LDAP Server integration).

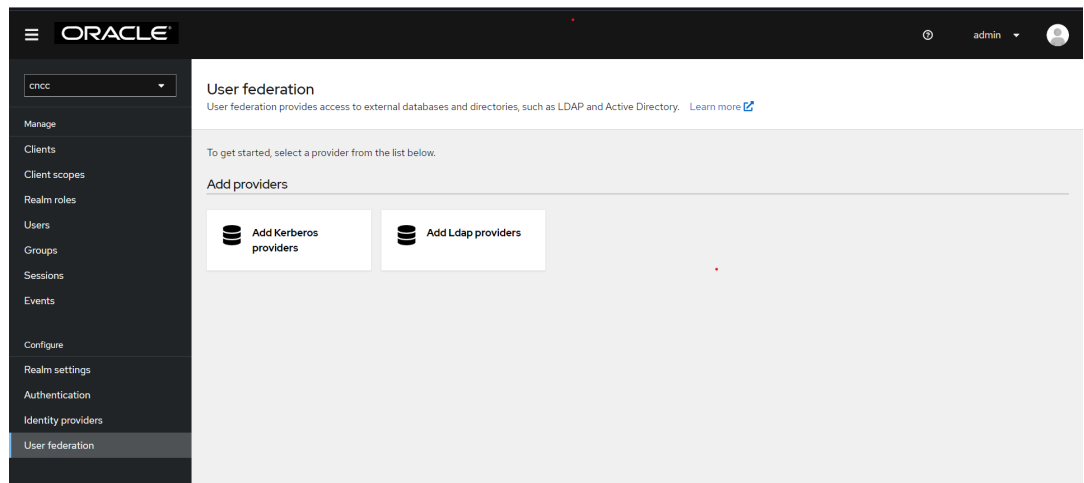
To configure user federation:

1. Login to CNC Console IAM console **http://<cncc-iam-ingress-ip>:<cncc-iam-ingress-port>** using admin credentials provided during CNC Console IAM installation.

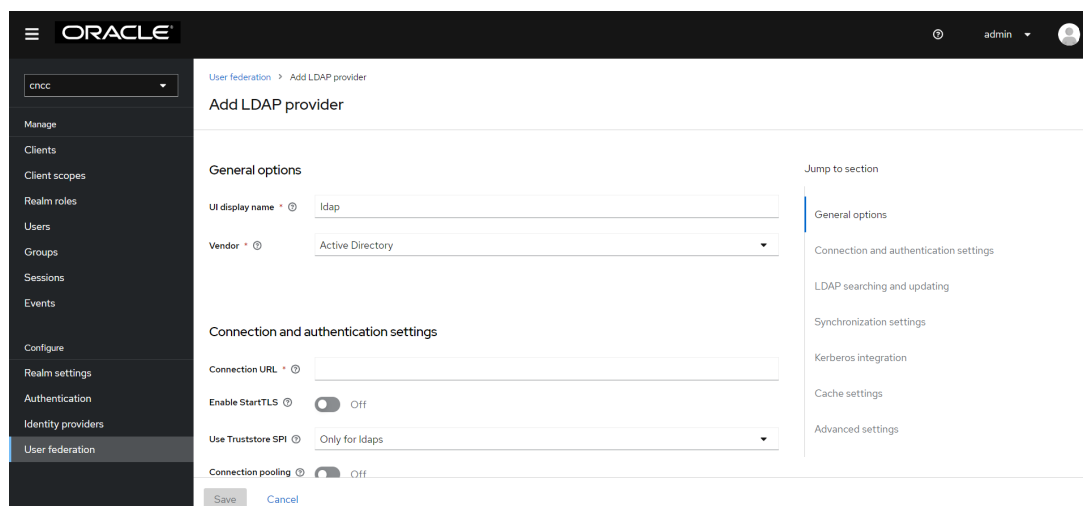
Figure 4-42 Login Screen



2. Click **Realm Settings** and click **Add realm** under **Cncc**. Click **User Federation** on the left pane. The **User Federation** screen appears in the right pane.

Figure 4-43 User Federation

3. Click **Add LDAP providers**. The following page will automatically open a form to fill in your LDAP connection parameters. The form will be initially empty as shown below:

Figure 4-44 Add LDAP providers

4. Enter the values for the following fields:
 - **UI Display Name:** Enter the display name.
 - **Vendor:** Enter the LDAP server provider name for the company.

Note

This usually populates the defaults for many fields. However, in case the user has a different setup than the defaults, the correct values must be provided. Current setup is **Spring embedded LDAP**, so select the last option 'Other' from the drop-down list.

- Provide your company LDAP server details in the **Connection URL** field, in the same way as you provided for *ldap-ldif* file already. That is, the connection URL (hostname

prefixed with `ldap://` OR when LDAP Secure connection enabled (LDAPS) hostname prefix should be `ldaps://`, and the port.

Figure 4-45 General Options

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a navigation menu with options like Manage, Clients, Client scopes, Realm roles, Users, Groups, Sessions, Events, Configure, Realm settings, Authentication, Identity providers, and User federation. The main content area is titled 'General options' and contains the following fields:

- UI display name:** ldap
- Vendor:** Other
- Connection and authentication settings:**
 - Connection URL:** ldap://10.75.224.56:32042
 - Enable StartTLS:** Off
 - Use Truststore SPI:** Only for ldaps
 - Connection pooling:** Off
 - Connection timeout:** (empty field)

At the bottom are 'Save' and 'Cancel' buttons. On the right, a 'Jump to section' menu lists: General options, Connection and authentication settings, LDAP searching and updating, Synchronization settings, Kerberos integration, Cache settings, and Advanced settings.

- If your LDAP is secured then select **simple** from the **Bind Type** drop-down, and add the admin bind username and password, or select Bind-type as **none**. Sample data for the field Bind DN: **"cn=admin,dc=oracle,dc=org"**
- Click **Test Connection** and **Test Authentication**. Both these tests will be successful.
- Proceed to the **Edit Mode** drop-down list. Select **READ_ONLY**.
- In most cases, the **UUID LDAP attribute** value is set as entry UUID. If you do not have a suitable value, use an alternate unique identifier.
- Click **Test Connection** and **Test Authentication**.

Figure 4-46 User Federation

The screenshot shows the Oracle Cloud Native Configuration Console interface for the 'User Federation' section. The left navigation menu is the same as in Figure 4-45. The main content area is titled 'User Federation' and contains the following fields:

- Connection pooling:** Off
- Connection timeout:** (empty field)
- Bind type:** simple
- Bind DN:** cn=admin,dc=oracle,dc=org
- Bind credentials:** (empty field with a password icon)
- LDAP searching and updating:**
 - Edit mode:** READ_ONLY
 - Users DN:** ou=people,dc=oracle,dc=org
 - Username LDAP attribute:** uid
 - RDN LDAP attribute:** uid
 - UUID LDAP attribute:** entryUUID

At the bottom are 'Save' and 'Cancel' buttons. On the right, a 'Jump to section' menu lists: General options, Connection and authentication settings, LDAP searching and updating, Synchronization settings, Kerberos integration, Cache settings, and Advanced settings.

- The default setting for **Import Users** is **ON**. Change it to **OFF** to disable user sync.
 - Set Cache policy as **NO_CACHE**.
5. After populating the required fields, the following screen appears:

Figure 4-47 User Federation

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a navigation menu with options: Manage, Clients, Client scopes, Realm roles, Users, Groups, Sessions, Events, Configure, Realm settings, Authentication, Identity providers, and User federation (selected). The main content area is titled 'User Federation' and contains several sections: 'LDAP attribute' with a text input 'entryUUID', 'User object classes' with a text input 'inetOrgPerson, organizationalPerson, person, top', 'User LDAP filter' with a text input, 'Search scope' with a dropdown menu set to 'One Level', 'Read timeout' with a text input, 'Pagination' with a toggle switch set to 'Off', 'Synchronization settings' with 'Import users' and 'Sync Registrations' both set to 'On', 'Batch size' with a text input, 'Periodic full sync' with a toggle switch set to 'Off', and 'Periodic changed users sync' with a toggle switch set to 'Off'. At the bottom is a 'Kerberos integration' section. On the right side, there is a 'Jump to section' sidebar with links: General options, Connection and authentication settings, LDAP searching and updating (highlighted), Synchronization settings, Kerberos integration, Cache settings, and Advanced settings. At the bottom of the main content area are 'Save' and 'Cancel' buttons.

6. Click **Save**.

Figure 4-48 User Federation

The screenshot shows the Oracle Cloud Native Configuration Console interface, specifically the 'Kerberos integration' and 'Cache settings' sections. The navigation menu on the left is the same as in Figure 4-47. The main content area shows 'Kerberos integration' with 'Allow kerberos authentication' and 'Use Kerberos for password authentication' both set to 'Off'. Below this is the 'Cache settings' section with 'Cache policy' set to 'NO_CACHE'. At the bottom is the 'Advanced settings' section with 'Enable the LDAPv3 password modify extended operation', 'Validate password policy', and 'Trust email' all set to 'Off'. A 'Query Supported Extensions' button is located below the 'Trust email' toggle. On the right side, the 'Jump to section' sidebar is the same as in Figure 4-47, but 'Synchronization settings' is highlighted. At the bottom of the main content area are 'Save' and 'Cancel' buttons.

5

Configuring OCI IAM

5.1 OCI SAML Integration

Overview

SAML (Security Assertion Markup Language) enables applications to authenticate a user using an identity provider. The identity provider authenticates the user and returns the assertion information about the authenticated user and the authentication event to the application. If the user tries to access any other application that uses the same identity provider for user authentication, the user doesn't need to log in a second time, and will be granted access. This is the principle of SSO (Single Sign On).

Adding a SAML Identity Provider in OCI IAM

OCI IAM Console allows adding a SAML 2.0 identity provider (IdP) to an identity domain, so that authenticated users from the IdP can access Oracle Cloud Infrastructure resources and cloud applications.

For more information, see the Managing a SAML Identity Provider section in [Oracle Cloud Infrastructure Documentation](#).

Note

- After following the steps from the above guide, the SAML IdP is configured, but any user created in SAML IdP must be created in OCI IAM to allow a successful login.
- To directly log in to CNC Console Core using SAML IdP, SAML JIT (Just-In-Time) must be configured.
- Role Mappings are also configured as a part of JIT (Just-In-Time).

JIT (Just-In-Time) Configuration in OCI IAM

OCI IAM allows setting up a SAML identity provider (IdP) that uses Just-In-Time (JIT) provisioning for an identity domain.

For information on assigning identity providers to policy, see the Adding a SAML Just-in-Time Identity Provider section in [Oracle Cloud Infrastructure Documentation](#).

Figure 5-1 JIT Provisioning

Configure Just-in-time (JIT) provisioning

When the user's account does not exist in the identity domain...

☒ Create a new identity domain user
Creates a new user account in this identity domain with data from the IdP. Mapped attributes in the new user account will be set to values from the SAML assertion.

When the user's account already exists in the identity domain...

☒ Update the existing identity domain user
Merges data from the IdP with data in this identity domain for the matched user account. Values in mapped user attributes will be overwritten with values from the SAML assertion.

Map user attributes

Map a user's attribute value received from the IdP to a corresponding attribute value for the user in the identity domain.

IdP user attribute type	IdP user attribute name	Maps to	Identity domain user attribute
☐	NameID	→	userName
☐	name	→	familyName

0 selected Showing 2 items

Save changes Cancel

Configuration Example:

The **NameID** value to the **userName** is the default mapping, and the **name** to **familyName** mapping is configured by the user.

In this configuration, OCI IAM looks for the **name** attribute in the assertions coming from SAML IdP, as follows:

```
curl --location --request PUT 'http://{host}:{port}/occm-config/v1/occm/
logging' \
--header 'oc-cncc-id: Cluster1' \
--header 'oc-cncc-instance-id: Cluster1-occm-instance1' \
--header 'Authorization: Bearer eyJhbG...Yh8bJI_Owc_nb_hA' \
--header 'Content-Type: application/json' \
--data-raw '{
  "appLogLevel":"INFO",
  "packageLogLevel":[
    {
      "packageName":"root",
      "logLevelForPackage":"ERROR"
    }
  ]
}'<saml:AttributeStatement>
  <saml:Attribute FriendlyName="name"
    Name="name"
    NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-
format:basic">
    <saml:AttributeValue xmlns:xs="http://www.w3.org/2001/XMLSchema"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
      xsi:type="xs:string">SamlUser</
saml:AttributeValue>
  </saml:Attribute>
```

Note

The user must ensure that the SAML IdP is populating these attributes in the assertions, otherwise JIT configuring will not work, and the SAML SSO Authentication will fail.

In role mapping, since OCI IAM reads roles as groups, we have assigned 'Group membership attribute name' as **groups**.

After this, CNC Console (OCI IAM) Groups can be mapped to the IdP Groups as per in the following screenshot:

Figure 5-2 Sample Role Mapping

Activating or Deactivating an Identity Provider

For information on activating or deactivating an identity provider, see the Activating or Deactivating an Identity Provider section in [Oracle Cloud Infrastructure Documentation](#).

Assigning Identity Providers to the Policy

For information on assigning identity providers to policy, see the Assigning Identity Providers to the Policy section in [Oracle Cloud Infrastructure Documentation](#).

Testing an Identity Provider

For information on testing an identity provider, see the Testing an Identity Provider section in [Oracle Cloud Infrastructure Documentation](#).

Updating an Identity Provider

For information on updating an identity provider, see the Updating an Identity Provider section in [Oracle Cloud Infrastructure Documentation](#).

5.2 OCI Password Policy

Overview

Password policies let you define a set of criteria for user passwords in an identity domain in IAM. The criteria are enforced when a user creates their password for an identity domain.

These password policies govern the passwords associated with the users created in a particular identity domain, or the passwords of users present in a user group of a particular domain.

Managing Password Policies in OCI IAM

For information on managing password policies in OCI IAM, see the Managing Password Policies section in [Oracle Cloud Infrastructure Documentation](#).

Default Password Policy

If no custom policy is defined, then OCI default password policy (**Custom**) will be applied.

 Note

If required, OCI recommends the user to review each and every criteria, and modify the existing or create new password policy according to their own requirements.

Policy Criteria	Description	Value
Password length (minimum)	The minimum number of characters that the password must contain.	12
Password length (maximum)	The maximum number of characters a password can contain. A password can't exceed 500 characters.	40
Expires after (days)	The number of days until the password expires. Setting this option to 0 means that the password never expires.	120
Account lock threshold	The number of consecutive, unsuccessful login attempts into the identity domain after which the user account is locked. If you enter 0, then the user's account is never locked.	5
Enable automatic account unlock	Automatically unlocks the locked user accounts after the configured duration has passed.	Enabled

Automatically unlock account after (minutes)	The amount of time (in minutes), after which locked user accounts unlock automatically. You can set a value ranging between 5 minutes and 24 hours.	30
Previous passwords remembered	The number of unique new passwords that a user must use before a previously used password can be reused.	4
Alphabetic (minimum)	The number of alphabetical characters that the password must contain.	0
Numeric (minimum)	The number of numeric characters that the password must contain.	1
Special (minimum)	The number of special characters that the password must contain.	0
Lowercase (minimum)	The number of lowercase characters that the password must contain.	1
Uppercase (minimum)	The number of uppercase characters that the password must contain.	1
Unique (minimum)	The number of unique characters that the password must contain. Increasing the number of unique characters in a password can increase password strength by avoiding repetitive sequences that are easily guessed.	0
Repeated (maximum)	The number of repeated characters that are allowed for the password. Limiting the use of repeating characters in a password provides extra security by preventing users from creating passwords that are easy to guess, such as the same character repeated several times.	0
Starts with an alphanumeric character	Select this checkbox to force the first character of all passwords to be an alphanumeric character.	No

Required characters		The alphanumeric or special characters that the password must contain are separated by commas.	None
Password must not contain	The user's first name	Prevents the user's first name from being used as all or part of the password.	Enabled
	The user's last name	Prevents the user's last name from being used as all or part of the password.	Enabled
	The username	Prevents the username from being used as all or part of the password.	Enabled
Characters not allowed		The alphanumeric or special characters that aren't allowed in the password are separated by commas.	None
Whitespaces		Prevents whitespace characters from being used as part of a password. A whitespace character is a character that represents horizontal space. For example, for the display name of John Smith, the space between "John" and "Smith" is a whitespace character.	None
Dictionary words		Screens all passwords for words that can be found in a dictionary and prohibits those words.	None

5.3 OCI Groups

Overview

Access management for resources is a critical function for any organization. Role-based access control (RBAC) helps you manage who has access to resources, what they can do with those resources, and the areas they can access.

Role-based access control (RBAC)

RBAC restricts network access based on a person's role within an organization, and has become one of the main methods for advanced access control. The roles in RBAC refer to the levels of access that employees have to the network.

Role

A role is a collection of permissions that you can apply to users. Using roles makes it easier to add, remove, and adjust permissions, than assigning permissions to users individually. As your user base increases in scale and complexity, roles become particularly useful.

Note

Role(s) are referred as Group(s) in OCI IAM.

5.3.1 CNC Console Groups

In CNC Console, RBAC is controlled by Oracle Cloud Infrastructure Identity Access Management (OCI IAM).

Groups related to CNC Console applications are defined in OCI IAM.

NF Level Groups

NF level groups are divided further into:

- `<NF>_READ`
- `<NF>_WRITE`

`<NF>` is placeholder. For example, if CNC Console supports *POLICY* and *SCP* NFs, then **POLICY_READ**, **POLICY_WRITE**, **SCP_READ** and **SCP_WRITE** groups would be defined for CNC Console application in OCI IAM.

<NF>_READ:

Users that are assigned this group can read configurations from all Managed Objects (MOs) within an NF.

Allowed Operations: READ

NFs: One particular NF

For example, if user has `POLICY_READ`, then

- they can read configurations of any MOs within an NF.
- they cannot write, update, or delete any record.

<NF>_WRITE:

Users that are assigned this group can access one particular NF, and perform CREATE, DELETE, and UPDATE operations.

Note

READ operation is not allowed with `<NF>_WRITE` group. To update any MO's configuration, the user must be assigned both `<NF>_READ` and `<NF>_WRITE` groups.

Allowed Operations: CREATE, UPDATE, and DELETE

NFs: One particular NF

For example, if a user is assigned `POLICY_WRITE` group, then they can create, update, and delete any MO's configurations within the NF, as long as the user is also assigned the `POLICY_READ` group.

5.3.2 Managing Groups in OCI IAM

For information on managing groups in OCI IAM, see the Managing Groups section in [Oracle Cloud Infrastructure Documentation](#).

5.3.3 Import and Export of Groups in OCI IAM

Note

For information on transferring data, see the Transferring Data section in [Oracle Cloud Infrastructure Documentation](#).

5.3.3.1 Import Groups

For information on importing groups, see the Importing Groups section in [Oracle Cloud Infrastructure Documentation](#).

Note

Use the `oci_ocncc_groups_<version>.csv` file provided with the CNC Console release package for importing Groups.

5.3.3.2 Export Groups

For information on exporting groups, see the Exporting Groups section in [Oracle Cloud Infrastructure Documentation](#).

5.3.4 View Groups

To view groups:

1. Log in to **OCI Console**.
2. Open the navigation menu and click **Identity & Security**. Under **Identity**, click **Groups**. A list of the groups in your tenancy appears.

Figure 5-3 View Groups

	Name	Description	Created
☐	BSF_READ	-	Thu, Mar 7, 2024, 15:59:45 UTC
☐	POLICY_WRITE	-	Thu, Mar 7, 2024, 15:59:28 UTC
☐	POLICY_READ	-	Thu, Mar 7, 2024, 15:59:20 UTC
☐	NRF_WRITE	-	Thu, Mar 7, 2024, 15:59:08 UTC
☐	NRF_READ	-	Thu, Mar 7, 2024, 15:58:59 UTC
☐	SEPP_WRITE	-	Thu, Mar 7, 2024, 15:58:51 UTC
☐	SEPP_READ	-	Thu, Mar 7, 2024, 15:58:42 UTC
☐	NEF_WRITE	-	Thu, Mar 7, 2024, 15:58:33 UTC
☐	NEF_READ	-	Thu, Mar 7, 2024, 15:58:22 UTC
☐	SCP_WRITE	-	Thu, Mar 7, 2024, 15:58:08 UTC
☐	SCP_READ	-	Thu, Mar 7, 2024, 15:57:58 UTC

5.3.5 Assigning Groups to User Using CSV

Prerequisite

The following prerequisites are required for assigning groups to users using CSV:

1. CNC Groups must be created within OCI IAM.
2. Users must be present within the OCI IAM.

Procedure

Perform the following procedure to assign groups to users using CSV:

1. Export the existing groups.
2. Update the users in User Members column in the groups.csv file.

Note

For multiple users use semi-colons (;) to separate the users.
For example. Robin; David

3. Save the CSV file.
4. Import the groups using groups.csv.

5.4 OCI Users

5.4.1 Managing Users

For information on managing users in OCI deployment, see the Managing Users section in [Oracle Cloud Infrastructure Documentation](#).

5.4.2 Managing User Credentials in OCI IAM

For information on managing user credentials, see the Changing Users Password section in [Oracle Cloud Infrastructure Documentation](#).

5.4.3 Import and Export of User in OCI IAM

This section describes the procedure import and export users in OCI IAM.

① Note

For more details, see the Transferring Data section in [Oracle Cloud Infrastructure Documentation](#).

5.4.3.1 Import Users

For information on importing users, see the Importing Users section in [Oracle Cloud Infrastructure Documentation](#).

5.4.3.2 Export User

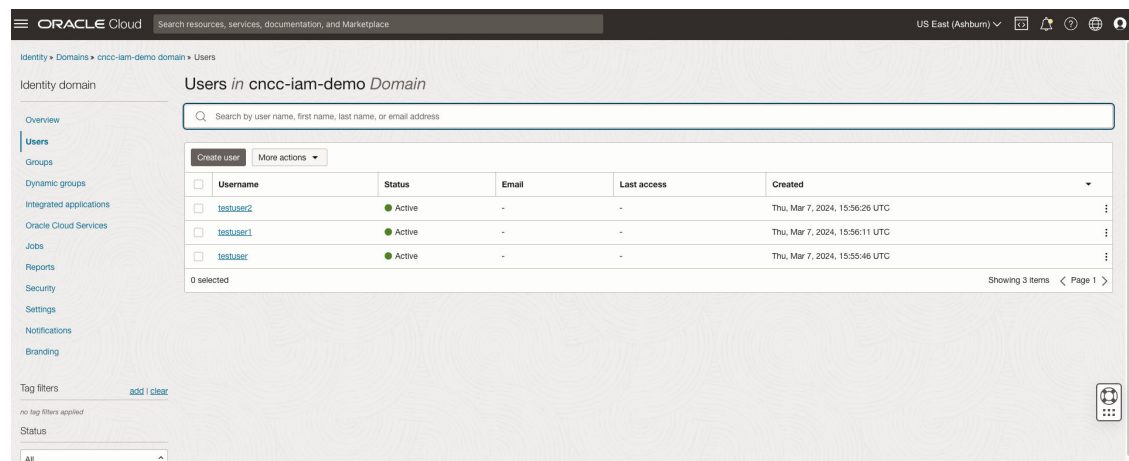
For information on exporting users, see the Exporting Users section in [Oracle Cloud Infrastructure Documentation](#).

5.4.4 View Users in OCI IAM

To view users:

1. Log in to **OCI Console**.
2. Open the navigation menu and click **Identity & Security**. Under **Identity**, click **Users**. A list of the users in your tenancy appears.

Figure 5-4 View Users



5.5 OCI Active Directory Integration

Overview

Active Directory (AD) stores information about objects on the network and makes this information easy for administrators and users to find and use. Active Directory uses a structured data store as the basis for a logical and hierarchical organization of directory information.

Prerequisites

The following prerequisites are required for OCI active directory integration:

1. Running Active Directory.
2. Groups must be created in Active Directory following the CNC Console group name format, and user's must be assigned to the groups.

① Note

To create CNC Console groups, see [OCI Groups](#).

5.5.1 Setting Up a Microsoft Active Directory Bridge

For information on how to install active directory bridge, see the Setting Up a Microsoft Active Directory Bridge section in the [Oracle Cloud Infrastructure Documentation](#).

5.5.2 Setting Up A Microsoft Active Directory Bridge With SSL Enabled

For information on setting up a microsoft active directory bridge with SSL enabled, see the Setting Up a Microsoft Active Directory Bridge section in the [Oracle Cloud Infrastructure Documentation](#).

① Note

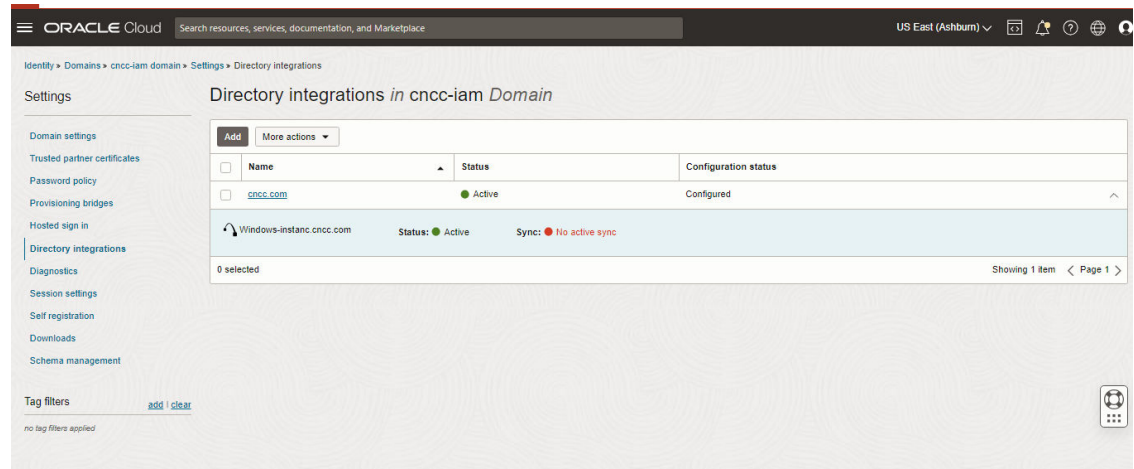
You must enable the **Use SSL** flag while providing the active directory credentials.

5.5.3 Importing Users and Groups From Active Directory

Prerequisite

You must perform the following prerequisites before importing users and groups:

1. Active Directory Bridge must be configured.
2. Active Directory Bridge must be in active state.

Figure 5-5 Directory integration in cncc-iam Domain**Note**

If active directory bridge is not configure or the status is inactive, see the Setting Up a Microsoft Active Directory Bridge section in the [Oracle Cloud Infrastructure Documentation](#).

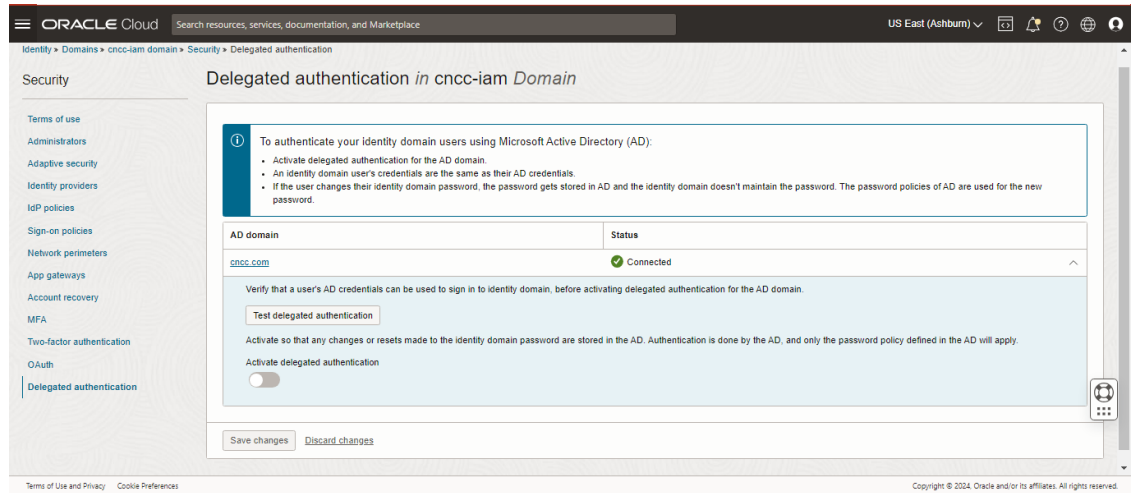
Procedure

To import users from active directory, see the Importing Users from Active Directory section in the [Oracle Cloud Infrastructure Documentation](#).

5.5.4 Setting up Delegated Authentication

To set up delegated authentication:

1. Log in To **OCI Console**.
2. Open the navigation menu and click **Identity & Security**. Under **Identity**, click **Domains**.
3. Click **Security**.
4. Click **Delegated Authentication**.
5. Click **Test Delegated Authentication**.
6. Provide active directory user credentials.
7. Enable **Activate Delegate Authentication**.

Figure 5-6 Delegated Authentication in CNC Console IAM Domain

6

Accessing NF Configurations Through Curl and Postman

6.1 For Non OCI Deployment

This section describes how CNC Console accesses NF resources through curl or postman.

6.1.1 Generate Access Tokens

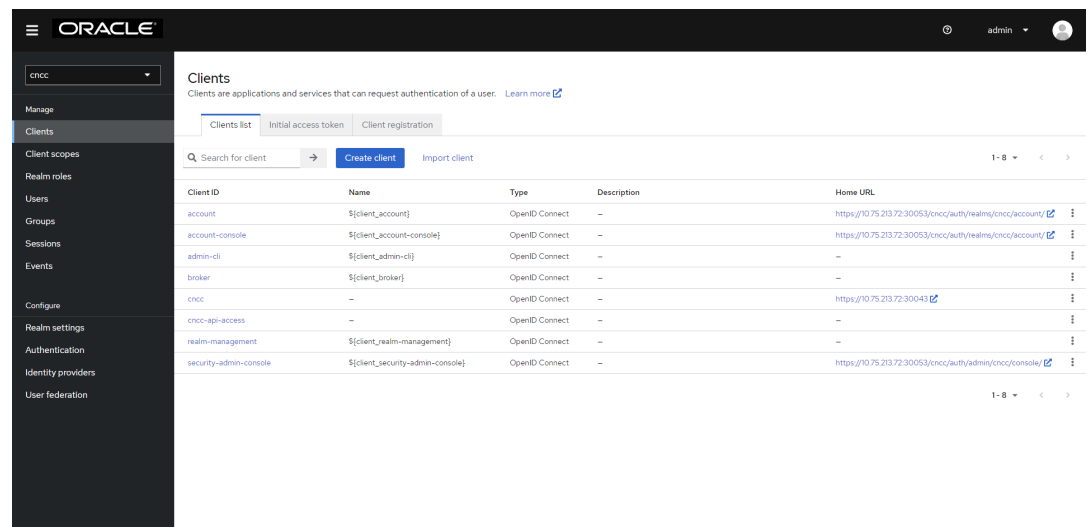
CNC Console IAM provides a REST API for generating and refreshing access tokens.

You must use the *cncc-api-access* client for accessing NF resources through REST APIs. For security reasons, **Direct Access Grants Enabled** is set to OFF by default.

Perform the following steps to set **Direct Access Grants Enabled** to ON:

1. Log in to CNC Console IAM with valid credentials.
2. Click the **cncc** realm.
3. On the right pane, click **Clients**. The following screen appears:

Figure 6-1 Clients



Client ID	Name	Type	Description	Home URL
account	\$(client_account)	OpenID Connect	—	https://10.75.213.72:30053/cncc/auth/realms/cncc/account/
account-console	\$(client_account-console)	OpenID Connect	—	https://10.75.213.72:30053/cncc/auth/realms/cncc/account/
admin-cli	\$(client_admin-cli)	OpenID Connect	—	—
broker	\$(client_broker)	OpenID Connect	—	—
cncc	—	OpenID Connect	—	https://10.75.213.72:30043/
cncc-api-access	—	OpenID Connect	—	—
realm-management	\$(client_realm-management)	OpenID Connect	—	—
security-admin-console	\$(client_security-admin-console)	OpenID Connect	—	https://10.75.213.72:30053/cncc/auth/admin/cncc/console/

4. Click **cncc-api-access**. The following screen appears:

Figure 6-2 cncc-api-access

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a navigation menu with options like 'Manage', 'Clients', 'Client scopes', 'Realm roles', 'Users', 'Groups', 'Sessions', 'Events', 'Configure', 'Realm settings', 'Authentication', 'Identity providers', and 'User federation'. The main panel displays the 'cncc-api-access' client details under the 'Settings' tab. The 'General Settings' section includes fields for 'Client ID' (cncc-api-access), 'Name', 'Description', and 'Always display in UI' (toggled off). The 'Access settings' section includes fields for 'Root URL', 'Home URL', and 'Valid redirect URIs'. A 'Jump to section' sidebar on the right lists 'General Settings', 'Access settings', 'Capability config', 'Login settings', and 'Logout settings'.

5. Navigate to the Capability config section in the Settings tab and select the **Direct Access Grants** checkbox. Click **Save**.

Figure 6-3 Direct Access Grants

The screenshot shows the Oracle Cloud Native Configuration Console interface. On the left is a navigation menu with options like 'Manage', 'Clients', 'Client scopes', 'Realm roles', 'Users', 'Groups', 'Sessions', 'Events', 'Configure', 'Realm settings', 'Authentication', 'Identity providers', and 'User federation'. The main panel displays the 'cncc-api-access' client details under the 'Settings' tab. The 'Capability config' section is active, showing 'Client authentication' and 'Authorization' toggled off. Under 'Authentication flow', the 'Direct access grants' checkbox is checked. The 'Login settings' section includes a 'Login theme' dropdown set to 'Choose...', and 'Consent required' and 'Display client on screen' toggled off. At the bottom are 'Save' and 'Revert' buttons. A 'Jump to section' sidebar on the right lists 'General Settings', 'Access settings', 'Capability config', 'Login settings', and 'Logout settings'.

Perform the following procedure to generate the access tokens:

1. Acquire an access token from CNC Console IAM by sending a POST request to the following URL:
`http://${cncc-iam-ingress-external-ip}:${cncc-iam-ingress-service-port}/cncc/auth/realms/${realm}/protocol/openid-connect/token`

For example:

`http://10.75.182.79:8080/cncc/auth/realms/cncc/protocol/openid-connect/token`

2. The body of the request must be *x-www-form-urlencoded* as follows:

```
'client_id': 'your_client_id',
'username': 'your_username',
'password': 'your_password',
'grant_type': 'password'
```

Example:

```
'client_id': 'cncc-api-access',
'username': 'user1',
'password': '*****',
'grant_type': 'password'
```

3. The curl command to access the token is as follows:

```
curl --location --request POST 'http://${cncc-iam-ingress-extrenal-ip}:${cncc-iam-ingress-service-port}/cncc/auth/realms/cncc/protocol/openid-connect/token' \
--header 'Content-Type: application/x-www-form-urlencoded' \
--data-urlencode 'grant_type=password' \
--data-urlencode 'username=user1' \
--data-urlencode 'password=<password value>' \
--data-urlencode 'client_id=cncc-api-access'
```

4. In response, you will get an **access_token** and a **refresh_token**. The response is as follows:

```
{
  "access_token":
  "eyJhbGciOiJIUzI1NiIsI....._LcCZYwDQJTTloj2PJ8y1Wj09l2Q",
  "expires_in": 300,
  "refresh_expires_in": 1800,
  "refresh_token":
  "eyJhbGciOiJIUzI1NiIsI.....ldUIiwia2lkIiA6ICI3YTFlYvKPF-ZIg",
  "token_type": "bearer",
  "not-before-policy": 0,
  "session_state": "6c42d978-14ac-4793-a1e3-789cfbdb2b74",
  "scope": "email profile"
}
```

Note

M-CNCC IAM IP or FQDN which is used to generate access token, and M-CNCC IAM IP or FQDN which is specified in *custom-cncc_values.yaml* must be the same.

6.1.2 Refresh Access Tokens

Perform the following procedure to refresh the access tokens:

If the access token has expired, it can be refreshed by sending a POST request to the same URL as above. The POST method must have the refresh token instead of username and password. The format is as follows:

```
'client_id': 'your_client_id',
'refresh_token': refresh_token_from_previous_request,
'grant_type': 'refresh_token'
```

Example:

```
'client_id': 'cncc-api-access',
'refresh_token':
'eyJhbGciOiJIUzI1NiIs ....ldUIiwia2lkIiA6ICI3YTFlYVVKPF-ZIg',
'grant_type': 'refresh_token'
```

In response, you will receive a new **access_token** and **refresh_token**.

6.1.3 Accessing NF Resources

Perform the following procedure to access NF resources:

To access NF resources, you must use the access token in every request to an NF resource by placing it in the Authorization header.

The following headers must be included while sending the API request:

- Authorization: The access token should be used in every request to a NF resource by placing it in the *Authorization* header
- oc-cncc-id: M-CNCC uses the oc-cncc-id header to find the agent or master owning the instance.
- oc-cncc-instance-id: A-CNCC Core (or M-CNCC Core) uses the oc-cncc-instance-id header to find the NF instance for routing.

Using the CNC Console IAM API, the following headers must be passed in curl or postman request while accessing NF resource:

```
curl --location --request GET 'http://${cncc-mcore-ingress-external-ip}:${cncc-mcore-ingress-service-port}/<NF API URI>' \
--header 'oc-cncc-id: oc-cncc-id value' \
--header 'oc-cncc-instance-id: oc-cncc-instance-id value' \
--header 'Authorization: Bearer <token>'
```

For example, using SCP Canary Release API, the following headers must be passed in curl or postman request while accessing NF resource:

```
curl --location --request GET 'http://${cncc-mcore-ingress-external-ip}:${cncc-mcore-ingress-service-port}/ocscp/scpc-configuration/v1/canaryrelease ' \
--header 'oc-cncc-id: Cluster1' \
--header 'oc-cncc-instance-id: Cluster1-scp-instance1' \
--header 'Authorization: Bearer <token>'
```

6.2 For OCI Deployment

Overview

OCI IAM provides a secure option for direct API access to CNC Console resources by providing an OCI IAM access token.

This section provides details on the following token generation and CNC Console-NF Resource access.

- Access tokens
- Refresh tokens
- NF Resource Access

6.2.1 Access Token Generation Using User Credentials

Access Token Generation Using User Credentials

Acquire the access token from OCI IAM by triggering the following POST request:

```
curl --location --request POST 'https://<oci-iam-domain-url>/oauth2/v1/token' \
--header 'Content-Type: application/x-www-form-urlencoded' \
--header 'Authorization: Basic <Base64 encoding of client credentials>' \
--data-urlencode 'grant_type=password' \
--data-urlencode 'username=testuser' \
--data-urlencode 'password=*****' \
--data-urlencode 'scope=urn:opc:idm:__myscopes__ offline_access'
```

The attributes used in this request are:

Attribute	Description
<oci-iam-domain-url>	OCI IAM Domain URL. For more information, see the Identity Access Management section in the <i>Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide</i> .

<Base64 encoding of client credentials>

- 1. For information on getting clientId and clientSecret, see the Access ClientId and ClientSecret for Confidential Application section in *Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide*.
- 2. Base64 encoding of client credentials

language	bash
title	Command to encode client credentials in base64

Format:

'clientId:clientSecret'

Command:

echo -n 'clientId:clientSecret' | base64

For Example:

echo -n 'asdfxxxxq3rF:Q3r4fsdxxxxxxfv' | base64
YXNkZnEzckY6UTNyNGZzZGZ2

grant_type

The way to gets an access token.

Value: password

username

Username of the OCI IAM user used for login.

password

Password of the OCI IAM user used for login.

scope

The way to limit the amount of access that is granted to an access token.

Values:

- 1. urn:opc:oidm:__myscopes__
- 2. offline_access

In response, we'll get an *access_token* and *refresh_token*.

```
{
  "access_token":
"eyJhbGciOiJSUzI1NiIsI....._LcCZYwDQJJTloj2PJ8y1Wj09l2Q",
  "expires_in": 300,
  "token_type": "bearer",
  "refresh_token":
"AgAgYWEyMzQ5MGM4YTRj.....FEgVm3XXS_y05UzUHIwrdlyQtsc="
}
```

6.2.2 Access Token Generation Using Refresh Token

Access token generation using Refresh Token

Acquire the access token from OCI IAM by triggering the following POST request:

```
curl --location --requestPOST 'https://<oci-iam-domain-url>/oauth2/v1/token' \
--header 'Content-Type: application/x-www-form-urlencoded' \
--header 'Authorization: Basic <Base64 encoding of client credentials in the
format "clientId:clientSceret">' \
--data-urlencode 'grant_type=refresh_token' \
--data-urlencode 'refresh_token=<refresh_token>'
```

The attributes used in this request are these

Attribute	Description
<oci-iam-domain-url>	OCI IAM Domain URL. For information on identity and access management, see the OCI Identity and Access Management section in the <i>Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide</i> .

- <Base64 encoding of client credentials>
1. For information on getting clientId and clientSecret, see the Access ClientId and ClientSecret for Confidential Application section in *Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide*.

2. Base64 encoding of client credentials

language	bash
title	Command to encode client credentials in base64.

Format:

```
'clientId:clientSecret'
```

Command:

```
echo -n 'clientId:clientSecret' |
base64
```

For example:

```
echo -n
'asdfxxxxq3rF:Q3r4fsdxxxxxxfv' |
base64
YXNkZnEzckY6UTNyNGZzZGZ2
```

grant_type	The way to get an access token. Value: refresh_token
refresh_token	The actual refresh_token received while generating access_token as part of Access Token generation using User Credentials.

In response, we'll get an *access_token* and *refresh_token*.

```
{
  "access_token":
"eyJhbGciOiJSUzI1NiIsI....._LcCZYwDQJTTloj2PJ8y1Wj09l2Q",
  "expires_in": 300,
  "token_type": "bearer",
  "refresh_token":
"AgAgYWEyMzQ5MGM4YTRj.....FEgVm3XXS_y05UzUHIwrdlyQtsc="
}
```

Note

By default, access tokens expire after one hour. This expiry period can be changed in the configuration of the trusted application you configured in OCI IAM. Once your access token expires, you will need to refresh it. You can use the refresh token that was provided to you with your access token.

6.2.3 NF Resource Access Through CNC Console

NF Resource Access via CNC Console

Trigger the following request to access NF resource via CNC Console:

```
curl --location --request GET 'http://
<cncc_mcore_igw_url>:<cncc_mcore_igw_port>/<nf_resource_path>' \
--header 'oc-cncc-id: <oc-cncc-id>' \
--header 'oc-cncc-instance-id: <oc-cncc-instance-id>' \
--header 'Authorization: Bearer <oci_iam_access_token>'
```

For example:

```
curl --location --request GET 'http://
<cncc_mcore_igw_url>:<cncc_mcore_igw_port>/ocscp/scpc-configuration/v1/
canaryrelease ' \
--header 'oc-cncc-id: Cluster1' \
--header 'oc-cncc-instance-id: Cluster1-scp-instance1' \
--header 'Authorization: Bearer
eyJhbGciOiJSUzI1NiIsI....._LcCZYwDQJTTloj2PJ8y1Wj09l2Q'
```

The attributes used in this request are these

Attribute	Description
<oci-iam-access-token>	OCI IAM Access token of the OCI IAM User. See Access Token generation using User Credentials.
<cncc_mcore_igw_url>	CNC Console Manager Ingress Gateway URL. See the Accessing M-CNCC Core section in the <i>Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide</i> .
<oc-cncc-id>	Unique M-CNCC ID per site or cluster (global.self.cnccld). See the CNC Console Instance Configuration Options section in the <i>Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide</i> .
<oc-cncc-instance-id>	Unique Instance ID of NF per site or cluster (global.instances). See the CNC Console Instance Configuration Options section in the <i>Oracle Communication Cloud Native Configuration Console Installation, Upgrade, and Fault Recovery Guide</i> .
<nf_resource_path>	Request path to NF resource.

7

CNC Console Metrics

This section provides the information about CNC Console Metrics.

Note

Two sample dashboards are provided - one supporting CNE 1.8 or lower, and one supporting CNE Prometheus HA (OCCNE 1.9.x and higher versions.x and higher versions)

- CNC Console Metric Dashboard file: occncc_metric_dashboard_<version>.json
- CNC Console Metric Dashboard file supporting CNE Prometheus HA: occncc_metric_dashboard_promha_<version>.json

Note

Prometheus HA supported CNE (OCCNE 1.9.x and higher versions.x and higher versions) tags and labels are renamed as shown in below table

CNE 1.8.0 or previous section	Prometheus HA supported CNE (OCCNE 1.9.x and higher versions.x and higher versions)
kubernetes_namespace	namespace
kubernetes_pod_name	pod
container_name	container

Consider updating tags mentioned in following sections of the document as suggested above for Prometheus HA supported CNE

- CNC Console IAM Metrics
- CNC Console Core Metrics
- CNC Console KPIs
- CNC Console Alerts

Dimension Description

The following table describes the different types of metric dimensions:

Table 7-1 CNC Console Dimension Descriptions

Dimension	Description	Values
Method	Http method	GET, PUT, POST, DELETE, PATCH

Table 7-1 (Cont.) CNC Console Dimension Descriptions

Dimension	Description	Values
Route_Path	Path predicate that matched the current request	NF specific routes
InstanceIdentifier	Identifier for ingress gateway	cncc-iam_ingressgateway, cncc-mcore_ingressgateway, cncc-acore_ingressgateway
InstanceId	ID for NF Instances	Cluster1-scp-instance1, Cluster1-nrf-instance1
ResourcePath	Http url	
ResourceType	NF type being accessed	SCP, NRF...
UserId	Id of the user	
UserName	Name of the user	

7.1 CNC Console IAM Metrics

This section provides the information about the CNC Console IAM Metrics.

Note

Not applicable for OCI deployment.

7.1.1 M-CNCC IAM Requests

Table 7-2 M-CNCC IAM Requests

Metric Details	Total number of requests received by M-CNCC IAM
Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway"} For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.2 M-CNCC IAM Response

Table 7-3 M-CNCC IAM Response

Metric Details	Total number of responses sent by M-CNCC IAM
----------------	--

Table 7-3 (Cont.) M-CNCC IAM Response

Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway"} For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.3 M-CNCC IAM Success Responses

Table 7-4 M-CNCC IAM Success Responses

Metric Details	Total number of success responses (2xx) for M-CNCC IAM
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"2.*"} For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.4 M-CNCC IAM 5xx Responses

Table 7-5 M-CNCC IAM 5xx Responses

Metric Details	Total number of error responses (5xx) for M-CNCC IAM
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"5.*"} For OCI: Not Applicable

Table 7-5 (Cont.) M-CNCC IAM 5xx Responses

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.5 M-CNCC IAM 4xx Responses

Table 7-6 M-CNCC IAM 4xx Responses

Metric Details	Total number of error responses (4xx) for M-CNCC IAM
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.*"} For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.6 M-CNCC IAM Error Responses

Table 7-7 M-CNCC IAM Error Responses

Metric Details	Total number of error responses for M-CNCC IAM
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.* 5.*"} For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.7 M-CNCC IAM Access Token Request

Table 7-8 M-CNCC IAM Access Token Request

Metric Details	Total number of access token requests received for M-CNCC IAM
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token"}</code> <i>Group by user: (CNE 1.8 or older)</i> <code>sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token"})</code> <i>Group by user: (OCCNE 1.9.x and higher versions)</i> <code>sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token"})</code> For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.8 M-CNCC IAM Access Token Granted

Table 7-9 M-CNCC IAM Access Token Granted

Metric Details	Total number of access token granted for M-CNCC IAM
----------------	---

Table 7-9 (Cont.) M-CNCC IAM Access Token Granted

Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status="200 OK"}</code> <i>Group by user: (CNE 1.8 or older)</i> <code>sum</code> <code>by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name)</code> <code>(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status="200 OK"})</code> <i>Group by user: (OCCNE 1.9.x and higher versions)</i> <code>sum</code> <code>by(Status,Method,namespace,ResourceType,UserId,UserName,pod)</code> <code>(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status="200 OK"})</code> For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.9 M-CNCC IAM Access Token Not Granted

Table 7-10 M-CNCC IAM Access Token Not Granted

Metric Details	Total number of access token not granted for M-CNCC IAM
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status=~"4.* 5.*"}</code> <i>Group by user: (CNE 1.8 or older)</i> <code>sum</code> <code>by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name)</code> <code>(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status=~"4.* 5.*"})</code> <i>Group by user: (OCCNE 1.9.x and higher versions)</i> <code>sum</code> <code>by(Status,Method,namespace,ResourceType,UserId,UserName,pod)</code> <code>(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/protocol/openid-connect/token",Status=~"4.* 5.*"})</code> For OCI: Not Applicable

Table 7-10 (Cont.) M-CNCC IAM Access Token Not Granted

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.1.10 M-CNCC IAM User Login Failure Responses

Table 7-11 M-CNCC IAM User Login Failure Responses

Metric Details	Total number of user login failure at M-CNCC IAM
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/login-actions/authenticate",Status="200 OK"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/login-actions/authenticate",Status="200 OK"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/master/login-actions/authenticate",Status="200 OK"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2 M-CNCC Core Metrics

This section provides the information about the M-CNCC Core Metrics:

7.2.1 M-CNCC Core Requests

Table 7-12 M-CNCC Core Requests

Metric Details	Total number of requests received by M-CNCC Core
Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway"} For OCI: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.2 M-CNCC Core Responses

Table 7-13 M-CNCC Core Responses

Metric Details	Total number of responses for M-CNCC Core requests
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway"} For OCI: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.3 M-CNCC Core Success Responses

Table 7-14 M-CNCC Core Success Responses

Metric Details	Total number of success responses (2xx) for CNCC Core requests
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Table 7-14 (Cont.) M-CNCC Core Success Responses

Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.4 M-CNCC Core 5xx Responses

Table 7-15 M-CNCC Core 5xx Responses

Metric Details	Total number of error responses (5xx) for M-CNCC Core requests
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"5.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"5*",ResourcePath=~"*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.5 M-CNCC Core 4xx Responses

Table 7-16 M-CNCC Core 4xx Responses

Metric Details	Total number of error responses (4xx) for M-CNCC Core requests
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Table 7-16 (Cont.) M-CNCC Core 4xx Responses

Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.6 M-CNCC Core Error Responses

Table 7-17 M-CNCC Core Error Responses

Metric Details	Total number of error responses sent for M-CNCC Core requests
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.7 M-CNCC Core Access Token Request

Table 7-18 M-CNCC Core Access Token Request

Metric Details	Total number of access token requests received for M-CNCC Core
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Table 7-18 (Cont.) M-CNCC Core Access Token Request

Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.8 M-CNCC Core Access Token Granted Responses

Table 7-19 M-CNCC Core Access Token Granted Responses

Metric Details	Total number of access token granted for M-CNCC Core
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"}) For OCI: Not Applicable

Table 7-19 (Cont.) M-CNCC Core Access Token Granted Responses

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.9 M-CNCC Core Access Token Not Granted Responses

Table 7-20 M-CNCC Core Access Token Granted Responses

Metric Details	Total number of access token not granted for M-CNCC Core
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.10 M-CNCC Core User Login Failure Responses

Table 7-21 M-CNCC Core User Login Failure Responses

Metric Details	Total number of user login failure at M-CNCC Core
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Table 7-21 (Cont.) M-CNCC Core User Login Failure Responses

Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/login-actions/authenticate",Status="200 OK"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/login-actions/authenticate",Status="200 OK"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/login-actions/authenticate",Status="200 OK"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.11 M-CNCC Core User Authorization Failure Responses

Table 7-22 M-CNCC Core User Authorization Failure Responses

Metric Details	Total number of authorization failure responses while accessing NF services at M-CNCC Core
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Table 7-22 (Cont.) M-CNCC Core User Authorization Failure Responses

Metric Filter	<pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"}</pre> <i>Group by user: (CNE 1.8 or older)</i> <pre>sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"})</pre> <i>Group by user: (OCCNE 1.9.x and higher versions)</i> <pre>sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"})</pre> For OCI: <pre>oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status="403 FORBIDDEN",ResourceType!="UNKNOWN"}.groupBy(Status,Method,namespace,ResourceType,UserId,UserName,nodeName).sum()</pre>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.12 M-CNCC Core BSF Requests

Table 7-23 M-CNCC Core BSF Requests

Metric Details	Total number of requests received by M-CNCC Core for BSF
Metric Filter	<pre>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/bsfapi/.*"}</pre> Multiple Route_path: <pre>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*"}</pre> For OCI: <pre>oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*bsfapi* *oc-bsf-configuration* *bsf*"}. </pre>

Table 7-23 (Cont.) M-CNCC Core BSF Requests

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.13 M-CNCC Core BSF Responses

Table 7-24 M-CNCC Core BSF Responses

Metric Details	Total number of responses sent by M-CNCC Core for BSF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/bsfapi/.*"}</code> Multiple ResourcePath: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*bsfapi* *oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.14 M-CNCC Core DD Requests

Table 7-25 M-CNCC Core DD Requests

Metric Details	Total number of requests received by M-CNCC Core for DD
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Table 7-25 (Cont.) M-CNCC Core DD Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnadd/.*/ocnaddapi/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*ocnadd* *ocnaddapi*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.2.15 M-CNCC Core DD Responses

Table 7-26 M-CNCC Core DD Responses

Metric Details	Total number of responses sent by M-CNCC Core for DD
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/ocnadd/.*/ocnaddapi/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",Route_path=~".*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.2.16 M-CNCC Core PROVGW Requests

Table 7-27 M-CNCC Core PROVGW Requests

Metric Details	Total number of requests received by M-CNCC Core for PROVGW
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Table 7-27 (Cont.) M-CNCC Core PROVGW Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~"\.*provgw-config.*\.*provgw.*\}"</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*provgw-config .*provgw*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.17 M-CNCC Core PROVGW Responses

Table 7-28 M-CNCC Core PROVGW Responses

Metric Details	Total number of responses sent by CNCC Core for PROVGW
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*provgw-config.*\.*provgw.*\}"</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",Route_path=~".*provgw-config .*provgw*",k8Namespace="cncc-ns"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.18 M-CNCC Core NRF Responses

Table 7-29 M-CNCC Core NRF Responses

Metric Details	Total number of responses sent by M-CNCC Core for NRF
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Table 7-29 (Cont.) M-CNCC Core NRF Responses

Metric Filter	Single Route_path: <pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nrf-configuration/v1/*"}</pre> Multiple Route_path: <pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nrf-configuration/*.**/nrf-state-data/*.**/ocnrf-swagger/*.**/nrf-status-data/*.**/nrf/nf-common-component/*.**/nrf-configuration/v1/*.*"}</pre> For OCI: <pre>oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",Route_path=~".*nrf-configuration/v1*.*nrf-state-data*.*ocnrf-swagger*.*nrf-status-data*.*nrf/nf-common-component*",k8Namespace="cncc-ns"}.sum()</pre>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.2.19 M-CNCC Core NRF Requests

Table 7-30 M-CNCC Core NRF Requests

Metric Details	Total number of requests received by M-CNCC Core for NRF
Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nrf-configuration/v1/*.*"} Multiple Route_path: <pre>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nrf-configuration/v1/*.**/nrf-state-data/*.**/ocnrf-swagger/*.**/nrf-status-data/*.**/nrf/nf-common-component/*.*"}</pre> For OCI: <pre>oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*nrf-configuration/v1*.*nrf-state-data*.*ocnrf-swagger*.*nrf-status-data*.*nrf/nf-common-component*",k8Namespace="cncc-ns"}.sum()</pre>

Table 7-30 (Cont.) M-CNCC Core NRF Requests

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.20 M-CNCC Core NSSF Requests

Table 7-31 M-CNCC Core NSSF Requests

Metric Details	Total number of requests received by M-CNCC Core for NSSF
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nssf-configuration/.*/nssf/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*nssf-configuration/*nssf*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.21 M-CNCC Core NSSF Responses

Table 7-32 M-CNCC Core NSSF Responses

Metric Details	Total number of responses sent by M-CNCC Core for NSSF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nssf-configuration/.*/nssf/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*nssf-configuration/*nssf*",k8Namespace="cncc-ns"}.</code> <code>sum()</code>

Table 7-32 (Cont.) M-CNCC Core NSSF Responses

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.22 M-CNCC Core NWDAF Requests

Table 7-33 M-CNCC Core NWDAF Requests

Metric Details	Total number of requests received by M-CNCC Core for NWDAF
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~\".*ocnwdaf.* .ocnwdafapi.*\"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~\".*mcore_ingressgateway\",Route_path=~\".*ocnwdaf.* .ocnwdafapi.*\"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.23 M-CNCC Core NWDAF Responses

Table 7-34 M-CNCC Core NWDAF Responses

Metric Details	Total number of responses sent by M-CNCC Core for NWDAF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*ocnwdaf.* .ocnwdafapi.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~\".*mcore_ingressgateway\",Status=~\"2*\",Route_path=~\".*ocnwdaf.* .ocnwdafapi.*\",k8Namespace="cncc-ns\"}.sum()</code>

Table 7-34 (Cont.) M-CNCC Core NWDAF Responses

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.24 M-CNCC Core POLICY Requests

Table 7-35 M-CNCC Core POLICY Requests

Metric Details	Total number of requests received by M-CNCC Core for POLICY
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/policyapi/."} }</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/policyapi/. .*oc-cnpolicy-configuration/. .*pcf/."} }</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*policyapi .*oc-cnpolicy-configuration .*pcf*"} .sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.25 M-CNCC Core POLICY Responses

Table 7-36 M-CNCC Core POLICY Responses

Metric Details	Total number of responses sent by M-CNCC Core for POLICY
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Table 7-36 (Cont.) M-CNCC Core POLICY Responses

Metric Filter	Single ResourcePath: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/policyapi/.*"}</code> Multiple ResourcePath: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*policyapi *oc-cnpolicy-configuration *pcf*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • HttpVersion • InstanceIdentifier • Method • Route_path • Scheme • Status • ResourcePath • ResourceType • UserId • UserName • AuthenticationType
Metric Type	Counter

7.2.26 M-CNCC Core SCP Responses

Table 7-37 M-CNCC Core SCP Responses

Metric Details	Total number of responses sent by M-CNCC Core for SCP
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/ocscp/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*ocscp*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName

Table 7-37 (Cont.) M-CNCC Core SCP Responses

Metric Type	Counter
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7.2.27 M-CNCC Core SCP Requests

Table 7-38 M-CNCC Core SCP Requests

Metric Details	Total number of requests received by M-CNCC Core for SCP
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocscp/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocscp*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.28 M-CNCC Core SEPP Requests

Table 7-39 M-CNCC Core SEPP Requests

Metric Details	Total number of requests received by M-CNCC Core for SEPP
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp-configuration/.*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp-configuration/.*/sepp/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*sepp-configuration*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.29 M-CNCC Core SEPP Responses

Table 7-40 M-CNCC Core SEPP Responses

Metric Details	Total number of responses sent by M-CNCC Core for SEPP
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/sepp-configuration/."}}</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/sepp-configuration/.*/sepp/."}}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdIdentifier=~".*mcore_ingressgateway",Status=~".*2*",Route_path=~".*sepp-configuration* *sepp*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.2.30 M-CNCC Core UDR Requests

Table 7-41 M-CNCC Core UDR Requests

Metric Details	Total number of requests received by M-CNCC Core for UDR
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nudr-config/."}}</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/."}}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdIdentifier=~".*mcore_ingressgateway",Route_path=~".*nudr-dr-prov* *nudr-dr-mgm* *nudr-group-id-map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*"}}.sum()</code>

Table 7-41 (Cont.) M-CNCC Core UDR Requests

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.31 M-CNCC Core UDR Responses

Table 7-42 M-CNCC Core UDR Responses

Metric Details	Total number of responses sent by M-CNCC Core for UDR
Metric Filter	Single ResourcePath: <pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nudr-dr-prov/.*"}</pre> Multiple ResourcePath: <pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*"}</pre> For OCI: <pre>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",Route_path=~".*nudr-dr-prov *nudr-dr-mgm *nudr-group-id-map-prov *slf-group-prov *n5g-eir-prov *nudr-config *udr/nf-common-component*",k8Namespace="cncc-ns"}.sum()</pre>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.32 M-CNCC Core cnDBTier Requests

Table 7-43 M-CNCC Core cnDBTier Requests

Metric Details	Total number of requests received by M-CNCC Core for cnDBTier
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Table 7-43 (Cont.) M-CNCC Core cnDBTier Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~"\.*ocdbtier.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocdbtier.*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.33 M-CNCC Core cnDBTier Responses

Table 7-44 M-CNCC Core cnDBTier Responses

Metric Details	Total number of responses sent by M-CNCC Core for cnDBTier
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*ocdbtier.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocdbtier.*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.34 M-CNCC Core OCCM Requests

Table 7-45 M-CNCC Core OCCM Requests

Metric Details	Total number of requests received by M-CNCC Core for OCCM
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Table 7-45 (Cont.) M-CNCC Core OCCM Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*occm-config.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*occm-config.*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.35 M-CNCC Core OCCM Responses

Table 7-46 M-CNCC Core OCCM Responses

Metric Details	Total number of responses sent by M-CNCC Core for OCCM
Metric Filter	<code>c_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*occm-config.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",Route_path=~".*occm-config*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.2.36 M-CNCC Core NEF Requests

Table 7-47 M-CNCC Core NEF Requests

Metric Details	Total number of requests received by M-CNCC Core for NEF
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Table 7-47 (Cont.) M-CNCC Core NEF Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nef-configuration/.*/nef/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nef-configuration/.*/nef/.*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.2.37 M-CNCC Core NEF Responses

Table 7-48 M-CNCC Core NEF Responses

Metric Details	Total number of responses sent by M-CNCC Core for NEF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/nef-configuration/.*/nef/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*/nef-configuration/.*/nef/.*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3 A-CNCC Core Metrics

This section provides the information about the A-CNCC Core Metrics:

7.3.1 A-CNCC Core Requests

Table 7-49 A-CNCC Core Requests

Metric Details	Total number of requests received by A-CNCC Core
Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway"} For OCI: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.2 A-CNCC Core Responses

Table 7-50 A-CNCC Core Responses

Metric Details	Total number of responses for A-CNCC Core requests
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway"} For OCI: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.3 A-CNCC Core Success Responses

Table 7-51 A-CNCC Core Success Responses

Metric Details	Total number of success responses (2xx) for A-CNCC Core requests
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Table 7-51 (Cont.) A-CNCC Core Success Responses

Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.4 A-CNCC Core 5xx Responses

Table 7-52 A-CNCC Core 5xx Responses

Metric Details	Total number of error responses (5xx) for A-CNCC Core requests
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"5.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"5.*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.5 A-CNCC Core 4xx Responses

Table 7-53 A-CNCC Core 4xx Responses

Metric Details	Total number of error responses (4xx) for A-CNCC Core requests
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Table 7-53 (Cont.) A-CNCC Core 4xx Responses

Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.*"} For OCI: oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Status=~"4*",ResourcePath=~"*",k8Namespace="cncc-ns"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.6 A-CNCC Core Error Responses

Table 7-54 A-CNCC Core Error Responses

Metric Details	Total number of error responses sent for A-CNCC Core requests
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*"} For OCI: oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*",k8Namespace="cncc-ns"}.sum()
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.7 A-CNCC Core Access Token Request

Table 7-55 A-CNCC Core Access Token Request

Metric Details	Total number of access token requests received for A-CNCC Core
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Table 7-55 (Cont.) A-CNCC Core Access Token Request

Metric Filter	oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.8 A-CNCC Core Access Token Granted Responses

Table 7-56 A-CNCC Core Access Token Granted Responses

Metric Details	Total number of access token granted for A-CNCC Core
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status="200 OK"}) For OCI: Not Applicable

Table 7-56 (Cont.) A-CNCC Core Access Token Granted Responses

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.9 A-CNCC Core Access Token Not Granted Responses

Table 7-57 A-CNCC Core Access Token Not Granted Responses

Metric Details	Total number of access token not granted for A-CNCC Core
Metric Filter	oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"} <i>Group by user: (CNE 1.8 or older)</i> sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"}) <i>Group by user: (OCCNE 1.9.x and higher versions)</i> sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",ResourcePath="/cncc/auth/realms/cncc/protocol/openid-connect/token",Status=~"4.* 5.*"}) For OCI: Not Applicable
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.10 A-CNCC Core User Authorization Failure Responses

Table 7-58 A-CNCC Core User Authorization Failure Responses

Metric Details	Total number of authorization failure responses while accessing NF services at A-CNCC Core
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"}</code> <i>Group by user: (CNE 1.8 or older)</i> <code>sum by(Status,Method,kubernetes_namespace,ResourceType,UserId,UserName,kubernetes_pod_name) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"})</code> <i>Group by user: (OCCNE 1.9.x and higher versions)</i> <code>sum by(Status,Method,namespace,ResourceType,UserId,UserName,pod) (oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="403 FORBIDDEN", ResourceType!="UNKNOWN"})</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status="403 FORBIDDEN",ResourceType!="UNKNOWN"}.groupBy(Status,Method,namespace,ResourceType,UserId,UserName,nodeName).sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.11 A-CNCC Core SCP Requests

Table 7-59 A-CNCC Core SCP Requests

Metric Details	Total number of requests received by A-CNCC Core for SCP
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/ocscp/."} }</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",ResourcePath=~"*ocscp"} .sum()</code>

Table 7-59 (Cont.) A-CNCC Core SCP Requests

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.12 A-CNCC Core SCP Responses

Table 7-60 A-CNCC Core SCP Responses

Metric Details	Total number of responses sent by A-CNCC Core for SCP
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/ocscp/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",ResourcePath=~".*ocscp*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.13 A-CNCC Core NRF Requests

Table 7-61 A-CNCC Core NRF Requests

Metric Details	Total number of requests received by A-CNCC Core for NRF
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Table 7-61 (Cont.) A-CNCC Core NRF Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nrf-configuration/v1/.*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nrf-configuration/v1* *nrf-state-data* *ocnrf-swagger* *nrf-status-data* *nrf/nf-common-component*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.14 A-CNCC Core NRF Responses

Table 7-62 A-CNCC Core NRF Responses

Metric Details	Total number of responses sent by A-CNCC Core for NRF
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nrf-configuration/v1/.*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nrf-configuration/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*/nrf-configuration/v1/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nrf-configuration/v1* *nrf-state-data* *ocnrf-swagger* *nrf-status-data* *nrf/nf-common-component*",k8Namespace="cncc-ns"}.</code>

Table 7-62 (Cont.) A-CNCC Core NRF Responses

Dimensions	- Host - Method - Route_Path - InstanceIdentifier - InstanceId - ResourcePath - ResourceType - UserId - UserName
Metric Type	Counter

7.3.15 A-CNCC Core UDR Requests

Table 7-63 A-CNCC Core UDR Requests

Metric Details	Total number of requests received by A-CNCC Core for UDR
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nudr-config/*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nudr-dr-prov/* .*nadr-dr-mgm/* .*nadr-group-id-map-prov/* .*slf-group-prov/* .*nadr-config/* .*udr/nf-common-component/* .*n5g-eir-prov/*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*nadr-dr-prov/* .*nadr-dr-mgm/* .*nadr-group-id-map-prov/* .*slf-group-prov/* .*n5g-eir-prov/* .*nadr-config/* .*udr/nf-common-component*"}.sum()</code>
Dimensions	- Host - Method - Route_Path - InstanceIdentifier - InstanceId - ResourcePath - ResourceType - UserId - UserName
Metric Type	Counter

7.3.16 A-CNCC Core UDR Responses

Table 7-64 A-CNCC Core UDR Responses

Metric Details	Total number of responses sent by A-CNCC Core for UDR
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Table 7-64 (Cont.) A-CNCC Core UDR Responses

Metric Filter	Single Route_path: <pre>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nudr-dr-prov/*"} Multiple Route_path: oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nudr-dr-prov/*.**/nudr-dr-mgm/*.**/nudr-group-id-map-prov/*.**/slf-group-prov/*.**/nudr-config/*.**/udr/nf-common-component/*.**/n5g-eir-prov/*.*"} For OCI: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nudr-dr-prov* *nudr-dr-mgm* *nudr-group-id-map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*",k8Namespace="cncc-ns"}.sum()</pre>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.17 A-CNCC Core POLICY Requests

Table 7-65 A-CNCC Core POLICY Requests

Metric Details	Total number of requests received by A-CNCC Core for POLICY
Metric Filter	Single Route_path: <pre>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/policyapi/*"} Multiple Route_path: oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/policyapi/*.**/oc-cnpolicy-configuration/*.**/pcf/*.*"} For OCI: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",ResourcePath=~"*policyapi* *oc-cnpolicy-configuration* *pcf*"}.</pre>

Table 7-65 (Cont.) A-CNCC Core POLICY Requests

Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.18 A-CNCC Core POLICY Responses

Table 7-66 A-CNCC Core POLICY Responses

Metric Details	Total number of responses sent by A-CNCC Core for POLICY
Metric Filter	Single Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/policyapi/."} }</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/."} }</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",ResourcePath=~".*policyapi *oc-cnpolicy-configuration *pcf*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.19 A-CNCC Core BSF Requests

Table 7-67 A-CNCC Core BSF Requests

Metric Details	Total number of requests received by A-CNCC Core for BSF
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Table 7-67 (Cont.) A-CNCC Core BSF Requests

Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/bsfapi/."}}</code> Multiple Route_path: <code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/."}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*bsfapi *oc-bsf-configuration *bsf*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.20 A-CNCC Core BSF Responses

Table 7-68 A-CNCC Core BSF Responses

Metric Details	Total number of responses sent by A-CNCC Core for BSF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/bsfapi/."}}</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/."}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",ResourcePath=~".*bsfapi *oc-bsf-configuration *bsf*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.21 A-CNCC Core SEPP Requests

Table 7-69 A-CNCC Core SEPP Requests

Metric Details	Total number of requests received by A-CNCC Core for SEPP
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/sepp-configuration/.*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/sepp-configuration/.*/sepp/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Route_path=~".*sepp-configuration *sepp*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.22 A-CNCC Core SEPP Responses

Table 7-70 A-CNCC Core SEPP Responses

Metric Details	Total number of responses sent by A-CNCC Core for SEPP
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/sepp-configuration/.*"}</code> Multiple Route_path: <code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/sepp-configuration/.*/sepp/.*"}</code>
Dimensions	• Host • HttpVersion • InstanceIdentifier • Method • Route_path • Scheme • Status • ResourcePath • ResourceType • UserId • UserName • AuthenticationType

Table 7-70 (Cont.) A-CNCC Core SEPP Responses

Metric Type	Counter
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7.3.23 A-CNCC Core NSSF Requests

Table 7-71 A-CNCC Core NSSF Requests

Metric Details	Total number of requests received by CNCC Core A-for NSSF
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nssf-configuration/.*/nssf/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nssf-configuration/*nssf*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.24 A-CNCC Core NSSF Responses

Table 7-72 A-CNCC Core NSSF Responses

Metric Details	Total number of responses sent by A-CNCC Core for NSSF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nssf-configuration/.*/nssf/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nssf-configuration/*nssf*",k8Namespace="cncc-ns"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • UserName
Metric Type	Counter

7.3.25 A-CNCC Core DD Requests

Table 7-73 A-CNCC Core DD Requests

Metric Details	Total number of requests received by A-CNCC Core for DD
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/ocnadd/.*/ocnaddapi/.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*ocnadd* *ocnaddapi*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.26 A-CNCC Core DD Responses

Table 7-74 A-CNCC Core DD Responses

Metric Details	Total number of responses sent by A-CNCC Core for DD
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/ocnadd/.*/ocnaddapi/.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.27 A-CNCC Core PROVGW Requests

Table 7-75 A-CNCC Core PROVGW Requests

Metric Details	Total number of requests received by A-CNCC Core for PROVGW
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~\".*provgw-config.* .provgw.*\"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*provgw-config *provgw*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.28 A-CNCC Core PROVGW Responses

Table 7-76 A-CNCC Core PROVGW Responses

Metric Details	Total number of responses sent by A-CNCC Core for PROVGW
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*provgw-config.* .provgw.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*provgw-config *provgw*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.29 A-CNCC Core NWDAF Requests

Table 7-77 A-CNCC Core NWDAF Requests

Metric Details	Total number of requests received by A-CNCC Core for NWDAF
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~\".*ocnwda.*\".*ocnwdaapi.*\"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~\"*acore_ingressgateway\",Route_path=~\"*ocnwda* *ocnwdaapi*\"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.30 A-CNCC Core NWDAF Responses

Table 7-78 A-CNCC Core NWDAF Responses

Metric Details	Total number of responses sent by A-CNCC Core for NWDAF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*ocnwda.*\".*ocnwdaapi.*\"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~\"*acore_ingressgateway\",Status=~\"2*\",Route_path=~\"*ocnwda* *ocnwdaapi*\",k8Namespace="cncc-ns\"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.31 A-CNCC Core cnDBTier Requests

Table 7-79 A-CNCC Core cnDBTier Requests

Metric Details	Total number of requests received by A-CNCC Core for cnDBTier
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~\".*ocdbtier.*\"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"ocdbtier"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.32 A-CNCC Core cnDBTier Responses

Table 7-80 A-CNCC Core cnDBTier Responses

Metric Details	Total number of responses sent by A-CNCC Core for cnDBTier
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*ocdbtier.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"ocdbtier"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.33 A-CNCC Core OCCM Requests

Table 7-81 A-CNCC Core OCCM Requests

Metric Details	Total number of requests received by A-CNCC Core for OCCM
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*occm-config.*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*occm-config*"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.34 A-CNCC Core OCCM Responses

Table 7-82 A-CNCC Core OCCM Responses

Metric Details	Total number of responses sent by A-CNCC Core for OCCM
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*occm-config.*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.</code> <code>sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.35 A-CNCC Core NEF Requests

Table 7-83 A-CNCC Core NEF Requests

Metric Details	Total number of requests received by CNCC Core A-for NEF
Metric Filter	<code>oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nef-configuration/.*/nef/*"}</code> For OCI: <code>oc_ingressgateway_http_requests_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nef-configuration/*/*nef/*"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.3.36 A-CNCC Core NEF Responses

Table 7-84 A-CNCC Core NEF Responses

Metric Details	Total number of responses sent by A-CNCC Core for NEF
Metric Filter	<code>oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status="200 OK",Method="GET",Route_path=~".*/nef-configuration/.*/nef/*"}</code> For OCI: <code>oc_ingressgateway_http_responses_total[10m]{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nef-configuration/*/*nef/*",k8Namespace="cncc-ns"}.sum()</code>
Dimensions	• Host • Method • Route_Path • InstanceIdentifier • InstanceId • ResourcePath • ResourceType • UserId • Username
Metric Type	Counter

7.4 CNC Console Metric Dashboards on OCI

CNC Console provides Dashboard Files for all the NFs, bundled in the CNC Console package. These files can be imported in OCI Console to view the Metrics and related Plots.

Note

You must ensure the user has the required Roles or permissions to view/modify the dashboards. For more information, see the Creating OCI User Management section in *Oracle Communications Cloud Native Core OCI Adaptor, NF Deployment on OCI Guide*

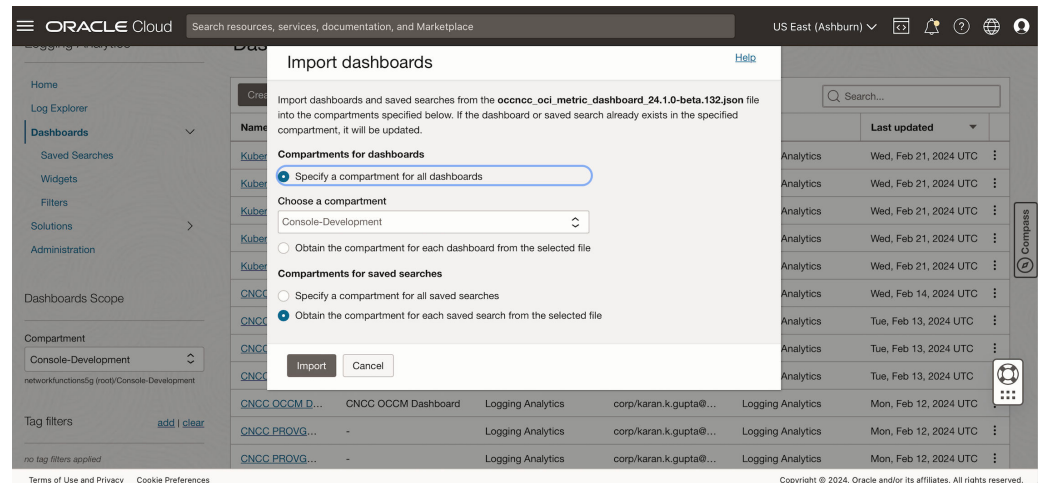
Viewing Dashboards on OCI Console

1. CNC Console CSAR package *occncc_csar_<version>.zip* includes dashboard files specific to OCI deployment. These files are zipped as *occncc_oci_metric_dashboard_<version>.zip* and placed in the Scripts directory of CSAR package.
2. Unzip the *occncc_oci_metric_dashboard_<version>.zip* file to get / *occncc_oci_metric_dashboard* folder containing a list of Dashboard files
3. The zip file contains one CNC Console dashboard file (*occncc_oci_metric_dashboard_<version>.json*) along with NF-wise dashboard files.

```
occncc_oci_bsf_metric_dashboard_<version>.json
occncc_oci_dd_metric_dashboard_<version>.json
occncc_oci_metric_dashboard_<version>.json
occncc_oci_nef_metric_dashboard_<version>.json
occncc_oci_nrf_metric_dashboard_<version>.json
occncc_oci_nssf_metric_dashboard_<version>.json
occncc_oci_nwdaf_metric_dashboard_<version>.json
occncc_oci_occm_metric_dashboard_<version>.json
occncc_oci_policy_metric_dashboard_<version>.json
occncc_oci_provgw_metric_dashboard_<version>.json
occncc_oci_scp_metric_dashboard_<version>.json
occncc_oci_sepp_metric_dashboard_<version>.json
occncc_oci_udr_metric_dashboard_<version>.json
```

4. You must ensure to update the **k8Namespace** field in the provided dashboard files, with the actual namespace which is used for CNC Console deployment
5. Please follow the below steps after logging in to OCI Console -
 - a. Open the navigation menu and click **Observability and Management**.
 - b. Scroll down to find **Dashboards** under **Logging Analytics**

c. Figure 7-1 Import Dashboards



Under Dashboards section, click on **Import Dashboard** and upload the Dashboard files (as mentioned in below screenshot) provided in Console package

- d. The user needs to upload the CNC Console dashboard file (ocncc_oci_metric_dashboard_<version>.json) to view the CNC Console deployment metric dashboard
- e. For viewing CNC Console NF Dashboards, respective CNC Console NF dashboards files can be uploaded in a similar way

8

CNC Console Alerts

This section provides information about CNC Console Alerts.

Note

For OCI:

The only section applicable for OCI is [CNC Console Alerts on OCI](#).

Note

Alert file is present in the Scripts directory. `occncc_csar_<version>.zip` can be downloaded from MOS. Unzip the file to get `occncc_alertrules_<version>.yaml` file.

- Review the `occncc_alerting_rules_promha_<version>.yaml` file and edit the value of the parameters in the `occncc_alerting_rules_promha_<version>.yaml` file (if needed to be changed from default values) before configuring the alerts.
- `kubernetes_namespace` is configured as `kubernetes` namespace in which CNCC is deployed. Default value is `cncc`. Update the `occncc_alertrules_<version>.yaml` file to reflect the correct CNCC kubernetes namespace.

Two sample Alert files are provided, one for supporting CNE 1.8 or lower and second one supporting CNE Prometheus HA.

- CNC Console Alert Rules file: `occncc_alertrules_<version>.yaml` file.
- CNC Console Alert Rules file supporting CNE Prometheus HA: `occncc_alerting_rules_promha_<version>.yaml` file.

8.1 CNC Console IAM Alerts

This section provides information about CNC Console IAM Alerts.

8.1.1 CncclamTotalIngressTrafficRateAboveMinorThreshold

Table 8-1 CncclamTotalIngressTrafficRateAboveMinorThreshold

Trigger Condition	The total CNCC IAM Ingress Message rate has crossed the configured minor threshold of 700 TPS. Default value of this alert trigger point in <code>occncc_alertrules_<version>.yaml</code> is when CNCC IAM Ingress Rate crosses 70 % of 1000 (Maximum ingress request rate)
Severity	Minor

Table 8-1 (Cont.) CncclamTotalIngressTrafficRateAboveMinorThreshold

Alert details provided	Description: CNCC IAM Ingress traffic Rate is above the configured minor threshold i.e. 700 requests per second (current value is: {{ \$value }}) For CNE 1.9.0 or later versions: summary: 'namespace: {{\$labels.namespace}}, podname: {{\$labels.pod}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 70 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{\$labels.kubernetes_namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 70 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7001
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared either when the total Ingress Traffic rate falls below the Minor threshold or when the total traffic rate crosses the Major threshold, in which case the <i>CncclamTotalIngressTrafficRateAboveMajorThreshold</i> alert is raised. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Steps: 1. Reassess why the CNCC IAM is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.

8.1.2 CncclamTotalIngressTrafficRateAboveMajorThreshold

Table 8-2 CncclamTotalIngressTrafficRateAboveMajorThreshold

Trigger Condition	The total CNCC IAM Ingress Message rate has crossed the configured major threshold of 800 TPS. Default value of this alert trigger point in <i>occncc_alertrules_<version>.yaml</i> is when CNCC IAM Ingress Rate crosses 80 % of 1000 (Maximum ingress request rate)
Severity	Major
Alert details provided	Description: 'CNCC IAM Ingress traffic Rate is above the configured major threshold i.e. 800 requests per second (current value is: {{ \$value }})' For CNE 1.9.0 or later versions: summary: 'namespace: {{\$labels.namespace}}, podname: {{\$labels.pod}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 80 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{\$labels.kubernetes_namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 80 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7001

Table 8-2 (Cont.) CncclamTotalIngressTrafficRateAboveMajorThreshold

Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared when the total Ingress Traffic rate falls below the Major threshold or when the total traffic rate crosses the Critical threshold, in which case the <i>CncclamTotalIngressTrafficRateAboveCriticalThreshold</i> alert is raised. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Steps: 1. Reassess why the CNCC IAM is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.

8.1.3 CncclamTotalIngressTrafficRateAboveCriticalThreshold

Table 8-3 CncclamTotalIngressTrafficRateAboveCriticalThreshold

Trigger Condition	The total CNCC IAM Ingress Message rate has crossed the configured critical threshold of 900TPS. Default value of this alert trigger point in <i>occncc_alertrules_<version>.yaml</i> is when CNCC IAM Ingress Rate crosses 90 % of 1000 (Maximum ingress request rate)
Severity	Critical
Alert details provided	Description: CNCC IAM Ingress traffic Rate is above the configured critical threshold, that is, 900 requests per second (current value is: {{ \$value }}) For CNE 1.9.0 or later versions: summary: 'namespace: {{\$labels.namespace}}, podname: {{\$labels.pod}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 90 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{\$labels.kubernetes_namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{ end }}: Traffic Rate is above 90 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7001
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared when the Ingress Traffic rate falls below the Critical threshold. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Steps: 1. Reassess why the CNCC IAM is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.

8.1.4 CncclamMemoryUsageCrossedMinorThreshold

Table 8-4 CncclamMemoryUsageCrossedMinorThreshold

Trigger Condition	A pod has reached the configured minor threshold(70%) of its memory resource limits.
Severity	Minor
Alert details provided	Description: 'CNCC IAM Memory Usage for pod {{ \$labels.pod }} has crossed the configured minor threshold (70%) (value={{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace}}, podname: {{ \$labels.pod}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 70% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7002
Metric Used	container_memory_usage_bytes, kube_pod_container_resource_limits Note:This is a Kubernetes metric used for instance availability monitoring. If the metric is not available, use a similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Minor Threshold or crosses the major threshold, in which case <i>CncclamMemoryUsageCrossedMajorThreshold</i> alert is raised. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.1.5 CncclamMemoryUsageCrossedMajorThreshold

Table 8-5 CncclamMemoryUsageCrossedMajorThreshold

Trigger Condition	A pod has reached the configured major threshold(80%) of its memory resource limits.
Severity	Major
Alert details provided	Description: 'CNCC IAM Memory Usage for pod {{ \$labels.pod }} has crossed the configured major threshold (80%) (value = {{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace}}, podname: {{ \$labels.pod}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 80% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7002
Metric Used	container_memory_usage_bytes, kube_pod_container_resource_limits Note: This is a Kubernetes metric used for instance availability monitoring.If the metric is not available, use a similar metric as exposed by the monitoring system.

Table 8-5 (Cont.) CncclamMemoryUsageCrossedMajorThreshold

Resolution	The alert gets cleared when the memory utilization falls below the Major Threshold or crosses the critical threshold, in which case <i>CncclamMemoryUsageCrossedCriticalThreshold</i> alert shall be raised. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.
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8.1.6 CncclamMemoryUsageCrossedCriticalThreshold

Table 8-6 CncclamMemoryUsageCrossedCriticalThreshold

Trigger Condition	A pod has reached the configured critical threshold (90%) of its memory resource limits
Severity	Critical
Alert details provided	Description: 'CNCC IAM Memory Usage for pod {{ \$labels.pod }} has crossed the configured critical threshold (90%) (value = {{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 90% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7002
Metric Used	container_memory_usage_bytes, kube_pod_container_resource_limits Note: This is a Kubernetes metric used for instance availability monitoring. If the metric is not available, use a similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Critical Threshold. Note : The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.1.7 CncclamTransactionErrorRateAbove0.1Percent

Table 8-7 CncclamTransactionErrorRateAbove0.1Percent

Trigger Condition	The number of failed transactions is above 0.1 percent of the total transactions.
Severity	Warning
Alert details provided	Description: 'CNCC IAM transaction Error rate is above 0.1 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC IAM transaction Error Rate detected above 0.1 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7003
Metric Used	oc_ingressgateway_http_responses_total

Table 8-7 (Cont.) CncclamTransactionErrorRateAbove0.1Percent

Resolution	The alert is cleared when the number of failed transactions is below 0.1% of the total transactions or when the number of failed transactions crosses the 1% threshold in which case the <i>CncclamTransactionErrorRateAbove1Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.
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8.1.8 CncclamTransactionErrorRateAbove1Percent

Table 8-8 CncclamTransactionErrorRateAbove1Percent

Trigger Condition	The number of failed transactions is above 1 percent of the total transactions.
Severity	Warning
Alert details provided	Description: 'CNCC IAM transaction Error rate is above 1 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC IAM transaction Error Rate detected above 1 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions is below 1% of the total transactions or when the number of failed transactions crosses the 10% threshold in which case the <i>CncclamTransactionErrorRateAbove10Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.1.9 CncclamTransactionErrorRateAbove10Percent

Table 8-9 CncclamTransactionErrorRateAbove10Percent

Trigger Condition	The number of failed transactions is above 10 percent of the total transactions.
Severity	Minor
Alert details provided	Description: CNCC IAM transaction Error rate is above 10 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC IAM transaction Error rate is above 10 Percent of Total Transactions (current value is {{ \$value }})'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7003
Metric Used	oc_ingressgateway_http_responses_total

Table 8-9 (Cont.) CncclamTransactionErrorRateAbove10Percent

Resolution	The alert is cleared when the number of failed transactions is below 10% of the total transactions or when the number of failed transactions crosses the 25% threshold in which case the <i>CncclamTransactionErrorRateAbove25Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.
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8.1.10 CncclamTransactionErrorRateAbove25Percent

Table 8-10 CncclamTransactionErrorRateAbove25Percent

Trigger Condition	The number of failed transactions is above 25 percent of the total transactions.
Severity	Major
Alert details provided	Description: 'CNCC IAM transaction Error Rate detected above 25 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC IAM transaction Error Rate detected above 25 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 25% of the total transactions or when the number of failed transactions cross the 50% threshold in which case the <i>CncclamTransactionErrorRateAbove50Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.1.11 CncclamTransactionErrorRateAbove50Percent

Table 8-11 CncclamTransactionErrorRateAbove50Percent

Trigger Condition	The number of failed transactions is above 50 percent of the total transactions.
Severity	Critical
Alert details provided	Description: The number of failed transactions is above 50 percent of the total transactions. Summary: 'CNCC IAM transaction Error Rate detected above 50 Percent of Total Transactions'.
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7003
Metric Used	oc_ingressgateway_http_responses_total

Table 8-11 (Cont.) CncclamTransactionErrorRateAbove50Percent

Resolution	The alert is cleared when the number of failed transactions is below 50 percent of the total transactions. The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.
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8.1.12 CncclamIngressGatewayServiceDown

Table 8-12 CncclamIngressGatewayServiceDown

Trigger Condition	The pods of the CNCC IAM Ingress Gateway microservice is available.
Severity	Critical
Alert details provided	Description: 'CNCC IAM Ingress-Gateway service InstanceIdentifier=~".*cncc-iam_ingressgateway" is down' For CNE 1.9.0 or later versions: summary: 'namespace: {{\$labels.namespace}}, podname: {{\$labels.pod}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Ingress-gateway service down' For CNE 1.8.x or previous versions: summary: 'namespace: {{\$labels.kubernetes_namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Ingress-gateway service down'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7004
Metric Used	'up' Note: This is a Prometheus metric used for instance availability monitoring. If this metric is not available, use a similar metric as exposed by the monitoring system.
Resolution	The alert is cleared when the cncc-iam_ingressgateway service is available. Steps: 1. Check the orchestration logs of cncc-iam_ingressgateway service and check for liveness or readiness probe failures. 2. Refer to the application logs on Kibana and filter based on cncc-iam_ingressgateway service names. Check for ERROR WARNING logs related to thread exceptions. 3. Depending on the failure reason, take the resolution steps. 4. In case the issue persists, contact My Oracle Support.

8.1.13 CncclamFailedLogin

Table 8-13 CncclamFailedLogin

Trigger Condition	The count of failed login attempts in CNCC-IAM by a user goes above '3'
Severity	Warning
Alert details provided	Description: '{{ \$value }}' failed Login attempts have been detected in CNCC IAM for user {{ \$labels.UserName }}, the configured threshold value is 3 failed login attempts for every 5 min' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{{ end }}: failed login attempts are more than the configured threshold value' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{{ end }}: failed login attempts are more than the configured threshold value'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7005
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total failed login attempts for a particular user goes below the threshold value (default value is '3') in the last 5 min (default value is 5 m). Note: The threshold and time is configurable in the <i>alerts.yaml</i> file. If guidance is required, contact My Oracle Support.

8.1.14 AdminUserCreation

Table 8-14 AdminUserCreation

Trigger Condition	If a new admin account is created in the last 5 min
Severity	Warning
Alert details provided	For CNE 1.9.0 or later versions: Description: '{{ \$value }}' admin users have been created by {{ \$labels.UserName }} ' summary: 'namespace: {{ \$labels.namespace }} summary: {{ \$labels.pod }}, user: {{ \$labels.UserName }}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{{ end }}: Admin users have been created ' For CNE 1.8.x or previous versions: Description: '{{ \$value }}' admin users have been created by {{ \$labels.UserName }} ' summary: 'namespace: {{ \$labels.kubernetes_namespace }} summary: {{ \$labels.kubernetes_pod_name }}, user: {{ \$labels.UserName }}, timestamp: {{ with query "time()" }}{ . first value humanizeTimestamp }}{{ end }}: Admin users have been created '
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7006
Metric Used	oc_ingressgateway_http_requests_total

Table 8-14 (Cont.) AdminUserCreation

Resolution	The alert gets cleared when the total failed login attempts for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note: The threshold and time is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Login to admin GUI and review the user created. If guidance is required, contact My Oracle Support.
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8.1.15 CncclamAccessTokenFailure

Table 8-15 CncclamAccessTokenFailure

Trigger Condition	If the count of failed token for CNCC-IAM goes above configured value of '3'
Severity	Warning
Alert details provided	Description: 'CNCC iam Access Token Failure count is above the configured value i.e. 3 for every 5 min. Failed access token request count per second is (current value is: {{ \$value }})' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Access Token Failure count is above the configured threshold value' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Access Token Failure count is above the configured threshold value'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.7007
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total failed tokens for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note: The threshold and time is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.2 CNC Console Core Alerts

This section provides the information about CNC Console Core Alerts.

8.2.1 CnccCoreTotalIngressTrafficRateAboveMinorThreshold

Table 8-16 CnccCoreTotalIngressTrafficRateAboveMinorThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured minor threshold of 700 TPS. Default value of this alert trigger point in <code>cncc_alert_rules.yaml</code> is when CNCC Core Ingress Rate crosses 70 % of 1000 (Maximum ingress request rate)
Severity	Minor
Alert details provided	Description: 'CNCC Core Ingress traffic Rate is above the configured minor threshold i.e. 700 requests per second (current value is: {{ \$value }})' For CNE 1.9.0 or later versions: summary: 'namespace: {{\$labels.namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 70 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{\$labels.kubernetes_namespace}}, podname: {{\$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 70 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8001
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared either when the total Ingress traffic rate falls below the minor threshold or when the total traffic rate crosses the major threshold, in which case the <i>CnccCoreTotalIngressTrafficRateAboveMajorThreshold</i> alert is raised. Note: The threshold is configurable in the <code>occncc_alertrules_<version>.yaml</code> file. Steps: 1. Reassess why the CNCC Core is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.

8.2.2 CnccCoreTotalIngressTrafficRateAboveMajorThreshold

Table 8-17 CnccCoreTotalIngressTrafficRateAboveMajorThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured major threshold of 800 TPS. Default value of this alert trigger point in <code>cncc_alert_rules.yaml</code> is when CNCC Core Ingress Rate crosses 80 % of 1000 (Maximum ingress request rate)
Severity	Major

Table 8-17 (Cont.) CnccCoreTotalIngressTrafficRateAboveMajorThreshold

Alert details provided	Description: 'CNCC Core Ingress traffic Rate is above the configured major threshold i.e. 800 requests per second (current value is: {{ \$value }})' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace}}, podname: {{ \$labels.pod}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 80 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace}}, podname: {{ \$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 80 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8001
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared when the total Ingress Traffic rate falls below the Major threshold or when the total traffic rate crosses the Critical threshold, in which case the CnccCoreTotalIngressTrafficRate Above CriticalThreshold. Note: The threshold is configurable in the <i>alerts.yaml</i> file. Steps: 1. Reassess why the CNCC Core is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.

8.2.3 CnccCoreTotalIngressTrafficRateAboveCriticalThreshold

Table 8-18 CnccCoreTotalIngressTrafficRateAboveCriticalThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured critical threshold of 900TPS. Default value of this alert trigger point in <i>cncc_alert_rules.yaml</i> is when CNCC Core Ingress Rate crosses 90 % of 1000 (Maximum ingress request rate)
Severity	Critical
Alert details provided	Description: 'CNCC Core Ingress traffic Rate is above the configured critical threshold i.e. 900 requests per second (current value is: {{ \$value }})' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace}}, podname: {{ \$labels.pod}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 90 Percent of Max requests per second(1000)' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace}}, podname: {{ \$labels.kubernetes_pod_name}}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Traffic Rate is above 90 Percent of Max requests per second(1000)'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8001
Metric Used	oc_ingressgateway_http_requests_total

Table 8-18 (Cont.) CnccCoreTotalIngressTrafficRateAboveCriticalThreshold

Resolution	The alert is cleared when the Ingress Traffic rate falls below the Critical threshold. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. Steps: 1. Reassess why the CNCC IAM is receiving additional traffic. 2. If this is unexpected, contact My Oracle Support.
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8.2.4 CnccCoreMemoryUsageCrossedMinorThreshold

Table 8-19 CnccCoreMemoryUsageCrossedMinorThreshold

Trigger Condition	A pod has reached the configured minor threshold(70%) of its memory resource limits.
Severity	Minor
Alert details provided	Description: 'CNCC Core Memory Usage for pod {{ \$labels.pod }} has crossed the configured minor threshold (70%) (value={{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 70% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8002
Metric Used	container_memory_usage_bytes kube_pod_container_resource_limits Note : This is a kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Minor Threshold or crosses the major threshold, in which case CnccCoreMemoryUsageCrossedMajorThreshold alert is raised. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.2.5 CnccCoreMemoryUsageCrossedMajorThreshold

Table 8-20 CnccCoreMemoryUsageCrossedMajorThreshold

Trigger Condition	A pod has reached the configured major threshold(80%) of its memory resource limits.
Severity	Major

Table 8-20 (Cont.) CnccCoreMemoryUsageCrossedMajorThreshold

Alert details provided	Description: 'CNCC Core Memory Usage for pod {{ \$labels.pod }} has crossed the configured major threshold (80%) (value = {{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 80% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8002
Metric Used	container_memory_usage_bytes kube_pod_container_resource_limits Note : This is a kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Major Threshold or crosses the critical threshold, in which case CnccCoreMemoryUsageCrossedCriticalThreshold alert is raised Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.2.6 CnccCoreMemoryUsageCrossedCriticalThreshold

Table 8-21 CnccCoreMemoryUsageCrossedCriticalThreshold

Trigger Condition	A pod has reached the configured critical threshold (90%) of its memory resource limits
Severity	Critical
Alert details provided	Description: 'CNCC Core Memory Usage for pod {{ \$labels.pod }} has crossed the configured critical threshold (90%) (value = {{ \$value }}) of its limit.' Summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Memory Usage of pod exceeded 90% of its limit.'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8002
Metric Used	container_memory_usage_bytes kube_pod_container_resource_limits Note : This is a Kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Critical Threshold. Note: The threshold is configurable in the <i>occncc_alertrules_<version>.yaml</i> file. If guidance is required, contact My Oracle Support.

8.2.7 CnccCoreTransactionErrorRateAbove0.1Percent

Table 8-22 CnccCoreTransactionErrorRateAbove0.1Percent

Trigger Condition	The number of failed transactions is above 0.1 percent of the total transactions..
Severity	Warning
Alert details provided	Description: 'CNCC Core transaction Error rate is above 0.1 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC Core transaction Error rate is above 0.1 Percent of Total Transactions (current value is {{ \$value }})'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 0.1% of the total transactions or when the number of failed transactions cross the 1% threshold in which case the <i>CnccCoreTransactionErrorRateAbove1Percent</i> is raised. The threshold is configurable in the <i>alerts.yaml</i> file. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.2.8 CnccCoreTransactionErrorRateAbove1Percent

Table 8-23 CnccCoreTransactionErrorRateAbove1Percent

Trigger Condition	The number of failed transactions is above 1 percent of the total transactions.
Severity	Warning
Alert details provided	Description: 'CNCC Core transaction Error rate is above 1 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC Core transaction Error Rate detected above 1 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 1% of the total transactions or when the number of failed transactions crosses the 10% threshold in which case the <i>CnccCoreTransactionErrorRateAbove10Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required,contact My Oracle Support.

8.2.9 CnccCoreTransactionErrorRateAbove10Percent

Table 8-24 CnccCoreTransactionErrorRateAbove10Percent

Trigger Condition	The number of failed transactions is above 10 percent of the total transactions.
Severity	Minor
Alert details provided	Description: 'CNCC Core transaction Error rate is above 10 Percent of Total Transactions (current value is {{ \$value }})' summary: 'CNCC Core transaction Error Rate detected above 10 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 10% of the total transactions or when the number of failed transactions crosses the 25% threshold in which case the <i>CnccCoreTransactionErrorRateAbove25Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.2.10 CnccCoreTransactionErrorRateAbove25Percent

Table 8-25 CnccCoreTransactionErrorRateAbove25Percent

Trigger Condition	The number of failed transactions is above 25 percent of the total transactions.
Severity	Major
Alert details provided	Description: 'CNCC Core transaction Error Rate detected above 25 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC Core transaction Error Rate detected above 25 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 25% of the total transactions or when the number of failed transactions crosses the 50% threshold in which case the <i>CnccCoreTransactionErrorRateAbove50Percent</i> is raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.2.11 CnccCoreTransactionErrorRateAbove50Percent

Table 8-26 CnccCoreTransactionErrorRateAbove50Percent

Trigger Condition	The number of failed transactions is above 50 percent of the total transactions.
Severity	Critical
Alert details provided	Description: 'CNCC Core transaction Error Rate detected above 50 Percent of Total Transactions (current value is {{ \$value }})' Summary: 'CNCC Core transaction Error Rate detected above 50 Percent of Total Transactions'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8003
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failed transactions are below 50 percent of the total transactions Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance is required, contact My Oracle Support.

8.2.12 CnccCoreIngressGatewayServiceDown

Table 8-27 CnccCoreIngressGatewayServiceDown

Trigger Condition	Cncc Core Ingress Gateway service is down
Severity	Critical
Alert details provided	Description: 'CNCC Core Ingress-Gateway service InstanceIdentifier=~".*core_ingressgateway" is down' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Ingress-gateway service down' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }} : Ingress-gateway service down'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8004
Metric Used	'up' Note: This is a Prometheus metric used for instance availability monitoring. If this metric is not available, use a similar metric as exposed by the monitoring system.

Table 8-27 (Cont.) CnccCoreIngressGatewayServiceDown

Resolution	The alert is cleared when the cncc-core_ingressgateway service is available. Steps: 1. Check the orchestration logs of cncc-core_ingressgateway service and check for liveness or readiness probe failures. 2. Refer the application logs on Kibana and filter based on cncc-core_ingressgateway service names. Check for ERROR WARNING logs related to thread exceptions. 3. Depending on the failure reason, take the resolution steps. 4. In case the issue persists, contact My Oracle Support.
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8.2.13 CnccCoreFailedLogin

Table 8-28 CnccCoreFailedLogin

Trigger Condition	The count of failed login attempts in CNCC-Core by a user goes above '3'
Severity	Warning
Alert details provided	Description: '{{ \$value }}' failed Login attempts have been detected in CNCC Core for user {{ \$labels.UserName }}, the configured threshold value is 3 failed login attempts for every 5 min' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: failed login attempts are more than the configured threshold value' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: failed login attempts are more than the configured threshold value'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8005
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total failed login attempts for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note: The threshold and time is configurable in the <i>alerts.yaml</i> file. If guidance is required, contact My Oracle Support.

8.2.14 CnccCoreUnauthorizedAccess

Table 8-29 CnccCoreUnauthorizedAccess

Trigger Condition	The count of failed login attempts in CNCC-Core by a user goes above '3'
Severity	Warning

Table 8-29 (Cont.) CnccCoreUnauthorizedAccess

Alert details provided	Description: '{{ \$value }} Unauthorized Accesses have been detected in CNCC-Core for {{ \$labels.ResourceType }} for {{ \$labels.Method }} request. The configured threshold value is 3 for every 5 min' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.pod }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Unauthorized Access for CNCC-Core are more than threshold value' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Unauthorized Access for CNCC-Core are more than threshold value'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8006
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total failed login attempts for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note: The threshold and time is configurable in the alerts.yaml If guidance is required, contact My Oracle Support.

8.2.15 CnccCoreAccessTokenFailure

Table 8-30 CnccCoreAccessTokenFailure

Trigger Condition	If the count of failed token for CNCC-Core goes above configured value of '3'
Severity	Warning
Alert details provided	Description: 'CNCC Core Access Token Failure count is above the configured value i.e. 3 for every 5 min. Failed access token request count per second is (current value is: {{ \$value }})' For CNE 1.8.x or previous versions: summary: 'namespace: {{ \$labels.kubernetes_namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Access Token Failure count is above the configured threshold value' For CNE 1.9.0 or later versions: summary: 'namespace: {{ \$labels.namespace }}, podname: {{ \$labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ . first value humanizeTimestamp }}{{ end }}: Access Token Failure count is above the configured threshold value'
OID used for SNMP Traps	1.3.6.1.4.1.323.5.3.51.1.2.8007
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total failed tokens for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note: The threshold and time is configurable in the alerts.yaml If guidance is required, Contact My Oracle Support.

8.3 CNCC Alert configuration in Prometheus

CNE 1.8 or previous versions:

This section describes the measurement based Alert rules configuration for CNCC in Prometheus. Use the `occncc_alertrules_<version>.yaml` file updated in CNCC Alert configuration section.

NAME :- Helm Release of Prometheus

Namespace :- Kubernetes NameSpace in which Prometheus is installed

Configuration

1. Run the following command to take Backup of current config map of prometheus server:

```
kubectl get configmaps _NAME_-server -o yaml -n _Namespace_ > /tmp/
tempConfig.yaml
```

where, <Namespace> is the prometheus server namespace used in helm install command. For Example, assuming chart name is "prometheus-alert", so "_NAME_-server" becomes "prometheus-alert-server", run the following command to find the config map:

```
kubectl get configmaps prometheus-alert-server -o yaml -n prometheus-
alert2 > /tmp/tempConfig.yaml
```

2. Run the following command to check and Add CNCC Alert File name inside Prometheus config map:

- a. If alertscncc is present, delete the alertscncc entry from the t_mapConfig.yaml file, by executing the following command:

```
sed -i '/etc\/config\/alertscncc/d' /tmp/mapConfig.yaml
```

- b. If alertscncc is not present, add the alertscncc entry in the t_mapConfig.yaml file by executing the following command:

```
sed -i '/rule_files:/a\ \- /etc/config/alertscncc' /tmp/mapConfig.yaml
```

3. Run the following command to update Config map with updated file name of CNCC:

```
kubectl replace configmap _NAME_-server -f /tmp/tempConfig.yaml
```

4. Run the following command to add cnccAlertRules.yaml file into prometheus config map under filename of CNCC alert file:

```
kubectl patch configmap _NAME_-server -n _Namespace_ --type merge --patch
"$(cat ~/occncc_alertrules_<version>.yaml)"
```

5. Restart prometheus-server pod.
6. Verify the alerts in prometheus GUI.

Note

Prometheus server takes updated configmap reloaded after sometime automatically (~20 sec)

Example:

```
$ kubectl get configmaps occne-prometheus-server -o yaml -n occne-infra
> /tmp/tempConfig.yaml
$ sed -i '/etc\config\alertscncc\d' /tmp/tempConfig.yaml
$ sed -i '/rule_files:/a\ \- /etc/config/alertscncc' /tmp/tempConfig.yaml
$ kubectl replace configmap occne-prometheus-server -f /tmp/tempConfig.yaml
$ kubectl patch configmap occne-prometheus-server -n occne-infra --type merge
--patch "$(cat ~/occncc_alertrules_<version>.yaml)"
```

Note

The Prometheus server takes an updated configuration map that is automatically reloaded after approximately 60 seconds. Refresh the Prometheus GUI to confirm that the CNCC Alerts have been reloaded.

CNE supporting Prometheus HA (CNE 1.9)

This section describes the measurement based Alert rules configuration for CNCC in Prometheus. Use an updated *occncc_alerting_rules_promha_<version>.yaml* file.

The PrometheusRule resource specified in the alert YAML file can be created or updated by using following command:

```
$ kubectl apply -f ocncnc_alerting_rules_promha_<version>.yaml
```

8.4 Validating Alerts

Configure and Validate Alerts in Prometheus Server. Refer to CNCC Alert Configuration section for procedure to configure the alerts.

After configuring the alerts in Prometheus server, a user can verify that by following steps:

1. Open the Prometheus server from your browser using the <IP>:<Port>
2. Navigate to Status and to Rules.
3. Search CNCC. CNCC Alerts list is displayed.

Note

If you are unable to see the alerts, it means the alert file is not loaded in a proper format which the Prometheus server accepts. Modify the file and try again

8.5 Disabling Alerts

This section explains how to disable the alerts in CNCC.

1. Edit `occncc_alerting_rules_promha_<version>.yaml` file to remove specific alert.
2. Remove complete content of the specific alert from the `occncc_alerting_rules_promha_<version>.yaml` file.

`cncc_alert_rules_<version>.yaml`

For example: If you want to remove `CnccIamTotalIngressTrafficRateAboveMinorThreshold` alert, remove the complete content:

```
## ALERT SAMPLE START##
- alert: CnccIamTotalIngressTrafficRateAboveMinorThreshold
  annotations:
    description: 'CNCC IAM Ingress traffic Rate is above the configured minor
threshold i.e. 700 requests per second (current value is: {{ $value }})'
    summary: 'namespace: {{ $labels.kubernetes_namespace }}, podname:
{{ $labels.kubernetes_pod_name }}, timestamp: {{ with query "time()" }}{{ .
| first | value | humanizeTimestamp }}{{ end }}: Traffic Rate is above 70
Percent of Max requests per second(1000)'
    expr:
sum(rate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*cncc-
iam_ingressgateway",kubernetes_namespace="cncc"}[2m])) > 0
  labels:
    severity: minor
    oid: "1.3.6.1.4.1.323.5.3.51.1.2.7001"
    namespace: ' {{ $labels.kubernetes_namespace }} '
    podname: ' {{ $labels.kubernetes_pod_name }} '
## ALERT SAMPLE END##
```

3. Perform Alert configuration. See [CNCC Alert Configuration](#) section for details.

8.6 Configuring SNMP-Notifier

Configure the IP and port of the SNMP trap receiver in the SNMP Notifier using following procedure:

1. Run the following command to edit the deployment:

```
kubectl edit deploy <snmp_notifier_deployment_name> -n <namespace>
```

Example:

```
$ kubectl edit deploy occne-snmp-notifier -n occne-infra
```

2. Edit the destination as follows:

```
--snmp.destination=<destination_ip>:<destination_port>
```

Example:

```
--snmp.destination=10.75.203.94:162
```

8.7 CNC Console MIB Files

There are two MIB files which are used to generate the traps. The user need to update these files along with the Alert file in order to fetch the traps in their environment.

occncc_mib_tc_<version>.mib

This file is considered as CNCC top level mib file, where the Objects and their data types are defined.

occncc_mib_<version>.mib

This file fetches the Objects from the top level mib file and based on the Alert notification, these objects can be selected for display.

8.8 CNC Console Alerts on OCI

This section provides information about CNC Console Alerts on OCI:

8.8.1 Configure CNC Console Alerts on OCI

Note

You must ensure that the user has the required roles and permissions to view or modify the alerts. For more information, see the Creating OCI User Management section in the *Oracle Communications Cloud Native Core OCI Adaptor, NF Deployment on OCI Guide*.

To configure CNC Console Alerts on OCI:

1. CNC Console CSAR package *occncc_csar_<version>.zip* includes alarm files specific to OCI deployment. These files are zipped as *occncc_oci_alertrules_<version>.zip* and placed in the Scripts directory of CSAR package.
2. Unzip the file to get */occncc_oci_alertrules_<version>/occncc_oci* and */occncc_oci_alertrules_<version>/occncc_oci_resources* these are the terraform folders to be applied in OCI console to create CNC Console related alarms.
3. Review the *occncc_oci_alertrules_<version>/occncc_oci/alarms.tf* and */occncc_oci_alertrules_<version>/occncc_oci_resources/alarms.tf* file, edit the value of the parameters in the file (if needed to be changed from default values) before configuring the alerts.
4. In */occncc_oci_alertrules_<version>/occncc_oci/alarms.tf* *k8Namespace* is configured as *kubernetes* namespace in which CNC Console is deployed. Default value is *cncc*. Update the */occncc_oci/alarms.tf* file to reflect the correct CNC Console *kubernetes* namespace.
5. In */occncc_oci_alertrules_<version>/occncc_oci_resources/alarms.tf* namespace is configured as *kubernetes* namespace in which CNC Console is deployed. Default value

is cncc. Update the /occncc_oci/alarms.tf file to reflect the correct CNC Console kubernetes namespace.

6. In /occncc_oci_alertrules_<version>/occncc_oci/notifications.tf and /occncc_oci_alertrules_<version>/occncc_oci_resources/notifications.tf update the subscription email, where resource "email_subscription_1" endpoint parameter should be updated with user email to which alarm trigger notification will be sent. Example:

```
resource "oci_ons_notification_topic" "notification_topic" {
  compartment_id = var.compartment_id
  name = var.topic_name
  description = "Send an email to the subscribed stakeholders"
}

resource "oci_ons_subscription" "email_subscription_1" {
  compartment_id = var.compartment_id
  endpoint = "xxx.oracle.com"
  protocol = "EMAIL"
  topic_id = oci_ons_notification_topic.notification_topic.id
}
```

To configure two or more email subscriptions, add new entries. For example:

```
resource "oci_ons_notification_topic" "notification_topic" {
  compartment_id = var.compartment_id
  name = var.topic_name
  description = "Send an email to the subscribed stakeholders"
}

resource "oci_ons_subscription" "email_subscription_1" {
  compartment_id = var.compartment_id
  endpoint = "xxx.oracle.com"
  protocol = "EMAIL"
  topic_id = oci_ons_notification_topic.notification_topic.id
}

resource "oci_ons_subscription" "email_subscription_2" {
  compartment_id = var.compartment_id
  endpoint = "yyy.oracle.com"
  protocol = "EMAIL"
  topic_id = oci_ons_notification_topic.notification_topic.id
}
```

7. Once alarms.tf and notifications.tf files are updated, these /occncc_oci and /occncc_oci_resources terraform folders can be applied in OCI console to create alarms.
8. Login to OCI Console GUI and search for "Stacks" or click on Hamburger menu, click on Developer Services, then click Stacks in the Resource Manager section → A page will open containing table with existing stacks if any along with Create stack button.
9. To apply these updated terraform folders /occncc_oci and /occncc_oci_resources, click on Create Stack button → This will open Create stack configuration page which includes three steps:
 - a. Stack information: Choose the origin of the Terraform configuration to "My configuration" if not checked. Select "Folder" terraform configuration source in Stack

Configuration to Browse and upload the updated terraform folders(one at a time: / occncc_oci or /occncc_oci_resources) Provide Name and Description (optional) and select the Create in compartment parameter in which terraform needs to be applied, alarms should be created and click Next.

b. Configure variables:

- i. Compartment Name: Choose the compartment in which metric namespace is present (namespace created for metrics as part of adapters installation).
- ii. Metric namespace: Input Namespace in which your Metrics will be populated.
Note1: In case of /occncc_oci_alertrules_<version>/occncc_oci user should input the metric namespace created for metrics as part of adapters installation.

Note2: In case of /occncc_oci_alertrules_<version>/occncc_oci_resources metric namespace is prepopulated.

- iii. Topic Name: Input name of the topic to be created.

Note

- Topic name must contain fewer than 256 characters. Only alphanumeric characters plus hyphens (-) and underscores (_) are allowed.
- Topic name should be different for both the terraforms / occncc_oci_alertrules_<version>/occncc_oci and / occncc_oci_alertrules_<version>/occncc_oci_resources when applied on OCI console.

- iv. Message Format: Select the message format as required, Format in which the notification will be sent.

- v. Click Next.

c. Review: Verify your configuration variables and then Click Create.

10. A Stack will be created upon clicking on create button, Click on Plan button and wait for Plan job to succeed.
11. Once the Plan job succeeded, Click on Apply button on which right pane will pop up in which select previously ran "Apply job plan resolution" and then click on Apply.
12. Wait for the Apply job to get succeeded. Once Apply job is succeeded Alerts are created successfully.
13. Once Plan and Apply job is successfully completed, check the email Notification triggered to confirm on the topic subscription. Click on "Confirm subscription" link to confirm.
14. To Check the created alarms Click on Hamburger menu, click "Observability and Management", then click "Alarm Definitions" in Monitoring section to view all the alarms.

For more details, see Managing alarms in [Oracle Cloud Infrastructure Documentation](#)

Delete Created Alarms and Stack (terraform applied for Alarms creation)

To delete created alarms:

1. Login to OCI Console GUI, click on Hamburger menu, click "Observability and Management", then click "Alarm Definitions" under Monitoring section and make sure right compartment is selected in left pane under "List scope". Check the alarms to be deleted, Click on "Actions" and then "Delete alarms".

2. Once all the alarms deleted, search for "Stacks" on OCI console search bar or click on Hamburger menu, click on Developer Services, then click on Stacks in Resource Manager section → A page will open containing table with existing stacks.
3. Click the stack names which was applied to create alarms and then click "Destroy".
4. Wait for "Destroy" job to complete and come back to Resources Manager → Stacks, click more options(three dots) for which destroy job was executed and perform "Delete" to delete the stack.

8.8.2 CnccCoreTotalIngressTrafficRateAboveMinorThreshold

Table 8-31 CnccCoreTotalIngressTrafficRateAboveMinorThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured minor threshold of 700 TPS. Default value of this alert trigger point in cncc_alert_rules.yaml is when CNCC Core Ingress Rate crosses 70 % of 1000 (Maximum ingress request rate)
Severity	minor
Alert details provided	CNCC Core Ingress traffic Rate is above the configured minor threshold i.e. 700 requests per second
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared either when the total Ingress Traffic rate falls below the Minor threshold or when the total traffic rate cross the Major threshold, in which case the CnccCoreTotalIngressTrafficRateAboveMajorThreshold alert shall be raised. Note: The threshold is configurable in the alerts.yaml Steps: Reassess why the CNCC Core is receiving additional traffic. If this is unexpected, contact My Oracle Support.

8.8.3 CnccCoreTotalIngressTrafficRateAboveMajorThreshold

Table 8-32 CnccCoreTotalIngressTrafficRateAboveMajorThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured major threshold of 800 TPS. Default value of this alert trigger point in cncc_alert_rules.yaml is when CNCC Core Ingress Rate crosses 80 % of 1000 (Maximum ingress request rate)
Severity	major
Alert details provided	CNCC Core Ingress traffic Rate is above the configured major threshold i.e. 800 requests per second
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared when the total Ingress Traffic rate falls below the Major threshold or when the total traffic rate cross the Critical threshold, in which case the CnccCoreTotalIngressTrafficRateAboveCriticalThreshold alert shall be raised. Steps: Reassess why the CNCC Core is receiving additional traffic. If this is unexpected, contact My Oracle Support.

8.8.4 CnccCoreTotalIngressTrafficRateAboveCriticalThreshold

Table 8-33 CnccCoreTotalIngressTrafficRateAboveCriticalThreshold

Trigger Condition	The total CNCC Core Ingress Message rate has crossed the configured critical threshold of 900TPS. Default value of this alert trigger point in cncc_alert_rules.yaml is when CNCC Core Ingress Rate crosses 90 % of 1000 (Maximum ingress request rate)
Severity	critical
Alert details provided	CNCC Core Ingress traffic Rate is above the configured critical threshold i.e. 900 requests per second
Metric Used	oc_ingressgateway_http_requests_total
Resolution	The alert is cleared when the Ingress Traffic rate falls below the Critical threshold. Note: The threshold is configurable in the alerts.yaml Steps: Reassess why the CNCC Core is receiving additional traffic. If this is unexpected, contact My Oracle Support.

8.8.5 CnccCoreMemoryUsageCrossedMinorThreshold

Table 8-34 CnccCoreMemoryUsageCrossedMinorThreshold

Trigger Condition	A pod has reached the configured minor threshold(70%) of its memory resource limits.
Severity	minor
Alert details provided	CNCC Core Memory Usage for pod has crossed the configured minor threshold (70%) of its limit.
Metric Used	container_memory_usage_bytes Note : This is a kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Minor Threshold or crosses the major threshold, in which case CnccCoreMemoryUsageCrossedMajorThreshold alert shall be raised Note : The threshold is configurable in the alerts.yaml If guidance required, Contact My Oracle Support.

8.8.6 CnccCoreMemoryUsageCrossedMajorThreshold

Table 8-35 CnccCoreMemoryUsageCrossedMajorThreshold

Trigger Condition	A pod has reached the configured major threshold(80%) of its memory resource limits.
Severity	major
Alert details provided	CNCC Core Memory Usage for pod has crossed the configured major threshold (80%) of its limit.

Table 8-35 (Cont.) CnccCoreMemoryUsageCrossedMajorThreshold

Metric Used	container_memory_usage_bytes Note : This is a kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Major Threshold or crosses the critical threshold, in which case CnccCoreMemoryUsageCrossedCriticalThreshold alert shall be raised Note : The threshold is configurable in the alerts.yaml If guidance required, Contact My Oracle Support.

8.8.7 CnccCoreMemoryUsageCrossedCriticalThreshold

Table 8-36 CnccCoreMemoryUsageCrossedCriticalThreshold

Trigger Condition	A pod has reached the configured critical threshold (90%) of its memory resource limits
Severity	critical
Alert details provided	CNCC Core Memory Usage for pod has crossed the configured critical threshold (90%) of its limit.
Metric Used	container_memory_usage_bytes Note : This is a kubernetes metric used for instance availability monitoring. If the metric is not available, use the similar metric as exposed by the monitoring system.
Resolution	The alert gets cleared when the memory utilization falls below the Critical Threshold. Note : The threshold is configurable in the alerts.yaml If guidance required, Contact My Oracle Support.

8.8.8 CnccCoreTransactionErrorRateAbovePointOnePercent

Table 8-37 CnccCoreTransactionErrorRateAbovePointOnePercent

Trigger Condition	The number of failed transactions is above 0.1 percent of the total transactions.
Severity	warning
Alert details provided	CNCC Core transaction Error rate is above 0.1 Percent of Total Transactions
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failure transactions are below 0.1% of the total transactions or when the number of failure transactions cross the 1% threshold in which case the CnccCoreTransactionErrorRateAbove1Percent shall be raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance required, contact My Oracle Support.

8.8.9 CnccCoreTransactionErrorRateAboveOnePercent

Table 8-38 CnccCoreTransactionErrorRateAboveOnePercent

Trigger Condition	The number of failed transactions is above 1 percent of the total transactions.
Severity	warning
Alert details provided	CNCC Core transaction Error rate is above 1 Percent of Total Transactions
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failure transactions are below 1% of the total transactions or when the number of failure transactions cross the 10% threshold in which case the CnccCoreTransactionErrorRateAbove10Percent shall be raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance required, contact My Oracle Support.

8.8.10 CnccCoreTransactionErrorRateAboveTenPercent

Table 8-39 CnccCoreTransactionErrorRateAboveTenPercent

Trigger Condition	The number of failed transactions is above 10 percent of the total transactions.
Severity	minor
Alert details provided	CNCC Core transaction Error rate is above 10 Percent of Total Transactions
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failure transactions are below 10% of the total transactions or when the number of failure transactions cross the 25% threshold in which case the CnccCoreTransactionErrorRateAbove25Percent shall be raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance required, contact My Oracle Support.

8.8.11 CnccCoreTransactionErrorRateAboveTwentyFivePercent

Table 8-40 CnccCoreTransactionErrorRateAboveTwentyFivePercent

Trigger Condition	The number of failed transactions is above 25 percent of the total transactions.
Severity	major
Alert details provided	CNCC Core transaction Error Rate detected above 25 Percent of Total Transactions
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failure transactions are below 25% of the total transactions or when the number of failure transactions cross the 50% threshold in which case the CnccCoreTransactionErrorRateAbove50Percent shall be raised. Steps: 1. Check the Service specific metrics to understand the specific service request errors. 2. If guidance required, contact My Oracle Support.

8.8.12 CnccCoreTransactionErrorRateAboveFiftyPercent

Table 8-41 CnccCoreTransactionErrorRateAboveFiftyPercent

Trigger Condition	The number of failed transactions is above 50 percent of the total transactions.
Severity	critical
Alert details provided	CNCC Core transaction Error Rate detected above 50 Percent of Total Transactions
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert is cleared when the number of failure transactions are below 50 percent of the total transactions.Steps:1. Check the Service specific metrics to understand the specific service request errors.2. If guidance required, contact My Oracle Support.

8.8.13 CnccCoreUnauthorizedAccess

Table 8-42 CnccCoreUnauthorizedAccess

Trigger Condition	If the count of unauthorized access goes above the configured value of '3'
Severity	warning
Alert details provided	Unauthorized Accesses have been detected in CNCC-Core for request. The configured threshold value is 3 for every 5 min
Metric Used	oc_ingressgateway_http_responses_total
Resolution	The alert gets cleared when the total unauthorized accesses for a particular user go below the threshold value (default value is '3') in the last 5 min (default value is 5 m) Note : The threshold and time is configurable in the alerts.yaml If guidance required, Contact My Oracle Support.

9

CNC Console KPIs

This section provides the information about CNC Console KPIs:

9.1 CNC Console IAM KPIs

 Note

Not applicable for OCI deployment.

This section provides the information about CNC Console IAM KPIs:

9.1.1 M-CNCC IAM Requests

Table 9-1 M-CNCC IAM Requests

Description	CNCC IAM Requests
Expression	1. For CNE 1.8 or older: all: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",kubernetes_namespace="\$namespace"}[2m])) For OCCNE 1.9.x and higher versions: all:sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*iam_ingressgateway",namespace="\$namespace"}[2m])) For OCI: Not Applicable

9.1.2 M-CNCC IAM Responses

Table 9-2 M-CNCC IAM Responses

Description	M-CNCC IAM Responses
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Table 9-2 (Cont.) M-CNCC IAM Responses

Expression	For CNE 1.8 or older: - all: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"2.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"5.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) For OCCNE 1.9.x and higher versions: - all: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"2.*",Route_path=~".*",namespace="\$namespace"}[5m])) - all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",namespace="\$namespace"}[5m])) - all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"4.*",Route_path=~".*",namespace="\$namespace"}[5m])) - all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*iam_ingressgateway",Status=~"5.*",Route_path=~".*",namespace="\$namespace"}[5m])) For OCI: Not Applicable
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9.1.3 M-CNCC IAM Success Rate

Table 9-3 M-CNCC IAM Success Rate

Description	M-CNCC IAM Success Rate (2xx responses divided by total responses)
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Table 9-3 (Cont.) M-CNCC IAM Success Rate

Expression	For CNE 1.8 or older: - all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Status}=\sim\text{"2.*", Route_path}=\sim\text{".*", kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Route_path}=\sim\text{".*", kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ For OCCNE 1.9.x and higher versions: - all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Status}=\sim\text{"2.*", Route_path}=\sim\text{".*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Route_path}=\sim\text{".*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ For OCI: Not Applicable
------------	--

9.1.4 M-CNCC IAM Error Rate

Table 9-4 M-CNCC IAM Error Rate

Description	M-CNCC IAM Error Rate (4xx or 5xx responses divided by total responses) for all as well as specific NFs
Expression	For CNE 1.8 or older: - all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Status}=\sim\text{"4.* 5.*", Route_path}=\sim\text{".*", kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Route_path}=\sim\text{".*", kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ For OCCNE 1.9.x and higher versions: - all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*iam_ingressgateway", Status}=\sim\text{"4.* 5.*", Route_path}=\sim\text{".*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{Route_path}=\sim\text{".*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ For OCI: Not Applicable

9.2 M-CNCC Core KPIs

This section provides the information about M-CNCC Core KPIs:

9.2.1 M-CNCC Core Requests

Table 9-5 M-CNCC Core Requests

Description	M-CNCC Core Requests for NFs and specific NFs
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Table 9-5 (Cont.) M-CNCC Core Requests

Expression	
	For CNE 1.8 or older: all: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",kubernetes_namespace="\$namespace"}[2m]))</code> For OCCNE 1.9.x and higher versions: all: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",namespace="\$namespace"}[2m]))</code> scp: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocscp/.*/"} [2m]))</code> nrf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nrf-configuration/v1.**/nrf-state-data.**/ocnrf-swagger.**/nrf-status-data.**/nrf/nf-common-component/.*/"} [2m]))</code> udr: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nudr-dr-prov.**/nudr-dr-mgm.**/nudr-group-id-map-prov.**/slf-group-prov.**/nudr-config.**/udr/nf-common-component.**/n5g-eir-prov.*"} [2m]))</code> policy: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/policyapi.**/oc-cnpolicy-configuration.**/pcf.*"} [2m]))</code> bsf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/bsfapi.**/oc-bsf-configuration.**/bsf.*"} [2m]))</code> sepp: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp-configuration.**/sepp.*"} [2m]))</code> nssf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nssf-configuration.**/nssf.*"} [2m]))</code> dd: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnadd.**/ocnaddapi.*"} [2m]))</code> provgw: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/provgw-config.**/provgw.*"} [2m]))</code> nwdaf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnwdaf.**/ocnwdafapi.*"} [2m]))</code>

Table 9-5 (Cont.) M-CNCC Core Requests

	12. cndbtier: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocdbtier.*"} [2m])) 13. occm: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*occm-config.*"} [2m])) 14. nef: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nef-configuration/.*/nef/.*/"} [2m])) For OCI: 1. scp: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocscp*"} .sum() 2. nrf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*nrf-configuration/v1*.*nrf-state-data*.*ocnrf-swagger*.*nrf-status-data*.*nrf/nf-common-component*"} .sum() 3. udr: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*nudr-dr-prov*.*nudr-dr-mgm*.*nudr-group-id-map-prov*.*slf-group-prov*.*n5g-eir-prov*.*nudr-config*.*udr/nf-common-component*"} .sum() 4. policy: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*policyapi*.*oc-cnpolicy-configuration*.*pcf*"} .sum() 5. bsf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*bsfapi*.*oc-bsf-configuration*.*bsf*"} .sum() 6. sepp: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*sepp-configuration*.*sepp*"} .sum() 7. nssf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*nssf-configuration*.*nssf*"} .sum() 8. dd: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*ocnadd*.*ocnaddapi*"} .sum() 9. provgw: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*provgw-config*.*provgw*"} .sum() 10. nwdaf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*ocnwdaf*.*ocnwdafapi*"} .sum() 11. occm: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Route_path=~".*occm-config*"} .sum()
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Table 9-5 (Cont.) M-CNCC Core Requests

	12. nef: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath=~"/nef-configuration/* */nef/*"}.sum()
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9.2.2 M-CNCC Core Responses

Table 9-6 M-CNCC Core Responses

Description	M-CNCC Core Responses for all as well as specific NFs
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Table 9-6 (Cont.) M-CNCC Core Responses

Expression	For CNE 1.8 or older
	- all_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.*",ResourcePath=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"5.*",ResourcePath=~".*",kubernetes_namespace="\$namespace"}[5m])) - scp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocscp/*",kubernetes_namespace="\$namespace"}[5m])) - nrf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nrf-configuration/v1.**/nrf-state-data/*.**/ocnrf-swagger/*.**/nrf-status-data/*.**/nrf/nf-common-component/*",kubernetes_namespace="\$namespace"}[5m])) - udr_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nudr-dr-prov/*.**/nudr-dr-mgm/*.**/nudr-group-id-map-prov/*.**/slf-group-prov/*.**/nudr-config/*.**/udr/nf-common-component/*.**/n5g-eir-prov/*",kubernetes_namespace="\$namespace"}[5m])) - policy_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/policyapi/*.**/oc-cnpolicy-configuration/*.**/pcf/*",kubernetes_namespace="\$namespace"}[5m])) - bsf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/bsfapi/*.**/oc-bsf-configuration/*.**/bsf/*",kubernetes_namespace="\$namespace"}[5m])) - sepp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/seppapi/*.**/oc-sepp-configuration/*.**/sepp/*",kubernetes_namespace="\$namespace"}[5m]))

Table 9-6 (Cont.) M-CNCC Core Responses

	Path=~".*/sepp-configuration/.*/sepp/.*/",kubernetes_namespace="\$namespace"}[5m]))
10.	nssf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nssf-configuration/.*/nssf/.*/",kubernetes_namespace="\$namespace"}[5m]))
11.	dd_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocnadd/.*/ocnaddapi/.*/",kubernetes_namespace="\$namespace"}[5m]))
12.	provgw_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*provgw-config.*",kubernetes_namespace="\$namespace"}[5m]))
13.	nwdaf_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*ocnwdaf.*",kubernetes_namespace="\$namespace"}[5m]))
14.	cndbtier_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*ocdbtier.*",kubernetes_namespace="\$namespace"}[5m]))
15.	occm_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*occm-config.*",kubernetes_namespace="\$namespace"}[5m]))
16.	nef_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nef-configuration/.*/nef/.*/",kubernetes_namespace="\$namespace"}[5m]))
	For OCCNE 1.9.x and higher versions:
1.	all_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*",namespace="\$namespace"}[5m]))
1.	all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*",namespace="\$namespace"}[5m]))
2.	all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.*",ResourcePath=~".*",namespace="\$namespace"}[5m]))
3.	all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"5.*",ResourcePath=~".*",namespace="\$namespace"}[5m]))

Table 9-6 (Cont.) M-CNCC Core Responses

	dentifier=~".*mcore_ingressgateway",Status=~"5.*",Resource Path=~".*","namespace="\$namespace"){5m])) 4. scp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/ocscpl.*",namespace="\$namespace">{5m})) 5. nrf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/nrf-configuration/v1.**/nrf-state-data/*.**/ocnrf-swagger/*.**/nrf-status-data/*.**/nrf/nf-common-component/*.*",namespace="\$namespace">{5m})) 6. udr_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/nudr-dr-prov/*.**/nudr-dr-mgm/*.**/nudr-group-id-map-prov/*.**/slf-group-prov/*.**/nudr-config/*.**/udr/nf-common-component/*.**/n5g-eir-prov/*.*",namespace="\$namespace">{5m})) 7. policy_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/policyapi/*.**/oc-cnpolicy-configuration/*.**/pcf/*.*",namespace="\$namespace">{5m})) 8. bsf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/bsfapi/*.**/oc-bsf-configuration/*.**/bsf/*.*",namespace="\$namespace">{5m})) 9. sepp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/sepp-configuration/*.**/sepp/*.*",namespace="\$namespace">{5m})) 10. nssf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/nssf-configuration/*.**/nssf/*.*",namespace="\$namespace">{5m})) 11. dd_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/ocnadd/*.**/ocnaddapi/*.*",namespace="\$namespace">{5m})) 12. provgw_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/provgw-config/*.**/provgw/*.*",namespace="\$namespace">{5m})) 13. nwdaf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/nwdaf-configuration/*.**/nwdaf/*.*",namespace="\$namespace">{5m}))
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Table 9-6 (Cont.) M-CNCC Core Responses

	dentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*ocnwdaf.* . *ocnwdafapi.*",namespace="\$namespace")][5m])) 14. cndbtier_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*ocdbtier.*",namespace="\$namespace"}[5m])) 15. occm_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*occm-config.*",namespace="\$namespace"}[5m])) 16. nef_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",Resource Path=~".*/nef-configuration/. * .*/nef/. *",namespace="\$namespace"}[5m])) For OCI: 1. all success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum() 2. all error: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum() 3. all 4xx: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum() 4. all 5xx: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"5*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum() 5. scp_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*ocscp*",k8Namespace="cncc-ns"}.sum() 6. nrf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",RoutePath=~".*nrf-configuration/v1* *nrf-state-data* *ocnrf-swagger* *nrf-status-data* *nrf/nf-common-component*",k8Namespace="cncc-ns"}.sum() 7. udr_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",RoutePath=~".*nudr-dr-prov* *nudr-dr-mgm* *nudr-group-id-map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*",k8Namespace="cncc-ns"}.sum() 8. policy_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2*",ResourcePath=~".*policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"}.sum()
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Table 9-6 (Cont.) M-CNCC Core Responses

	9. bsf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"*bsfapi"*oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns"}.sum() 10. sepp_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns"}.sum() 11. nssf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns"}.sum() 12. dd_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.sum() 13. provgw_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns"}.sum() 14. nwdaf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns"}.sum() 15. occm_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.sum() 16. nef_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"/nef-configuration/*/*nef/*",k8Namespace="cncc-ns"}.sum()
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9.2.3 M-CNCC Core Success Rate

Table 9-7 M-CNCC Core Success Rate

Description	M-CNCC Core Success Rate (2xx responses divided by total responses) for all as well as specific NFs
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Table 9-7 (Cont.) M-CNCC Core Success Rate

Expression	For CNE 1.8 or older:
	- all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{".*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - scp: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{"/ocscp/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{"/ocscp/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - nrf: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{"/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{"/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - udr: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{"/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{"/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - policy: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{"/policyapi/.*/oc-cnppolicy-configuration/.*/pcf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{"/policyapi/.*/oc-cnppolicy-configuration/.*/pcf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - bsf: $\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"2.*", ResourcePath}=\sim\text{"/bsf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))$

Table 9-7 (Cont.) M-CNCC Core Success Rate

	entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/bsfapi/.*/.*oc-bsf-configuration/.*/.*bsf/.*",kubernetes_namespace="\$namespace"){5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/bsfapi/.*/.*oc-bsf-configuration/.*/.*bsf/.*",kubernetes_namespace="\$namespace"){5m}))*100 7. sepp: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/sepp-configuration/.*/.*sepp/.*",kubernetes_namespace="\$namespace"){5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp-configuration/.*/.*sepp/.*",kubernetes_namespace="\$namespace"){5m}))*100 8. nssf: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nssf-configuration/.*/.*nssf/.*",kubernetes_namespace="\$namespace"){5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nssf-configuration/.*/.*nssf/.*",kubernetes_namespace="\$namespace"){5m}))*100 9. dd: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocnadd/.*/.*ocnaddapi/.*",kubernetes_namespace="\$namespace"){5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnadd/.*/.*ocnaddapi/.*",kubernetes_namespace="\$namespace"){5m}))*100 10. provgw: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/provgw-config/.*/.*provgw.*",kubernetes_namespace="\$namespace">{5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/provgw-config/.*/.*provgw.*",kubernetes_namespace="\$namespace">{5m}))*100 11. nwdaf: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocnwdaf/.*/.*ocnwdafapi.*",kubernetes_namespace="\$namespace">{5m}))/sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocnwdaf/.*/.*ocnwdafapi.*",kubernetes_namespace="\$namespace">{5m}))*100
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Table 9-7 (Cont.) M-CNCC Core Success Rate

	entifier=~".*mcore_ingressgateway",ResourcePath=~".*ocnwdaf.* .ocnwdafapi.*",kubernetes_namespace="\$namespace"}[5m]))*100 12. cndbtier: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*ocdbtier.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocdbtier.*",kubernetes_namespace="\$namespace"}[5m])))*100 13. occm: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*occm-config.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*occm-config.*",kubernetes_namespace="\$namespace"}[5m])))*100 14. nef: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nef-configuration/* .*/nef/*",kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nef-configuration/* .*/nef/*",kubernetes_namespace="\$namespace"}[5m])))*100 For OCCNE 1.9.x and higher versions: 1. all: sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*",namespace="\$namespace"}[5m])))*100 2. scp: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocscp/*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocscp/*",namespace="\$namespace"}[5m])))*100 3. nrf: sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nrf-configuration/v1/* .*/nrf-state-data/* .*/ocnrf-swagger/* .*/nrf-status-data/* .*/nrf/nf-common-component/*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nrf-configuration/v1/* .*/nrf-state-data/* .*/ocnrf-swagger/* .*/nrf-
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Table 9-7 (Cont.) M-CNCC Core Success Rate

	<pre>status-data/.*/nrf/nf-common- component/.*/namespace="\$namespace"}[5m]))*100</pre>
4.	<pre>udr: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePa th=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map- prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common- component/.*/n5g-eir-prov/.*/namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",ResourcePath=~".*/nudr- dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf- group-prov/.*/nudr-config/.*/udr/nf-common- component/.*/n5g-eir-prov/.*/namespace="\$namespace"} [5m]))*100</pre>
5.	<pre>policy: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePa th=~".*/policyapi/.*/oc-cnpolicy- configuration/.*/pcf/.*/namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",ResourcePath=~".*/ policyapi/.*/oc-cnpolicy- configuration/.*/pcf/.*/namespace="\$namespace"} [5m]))*100</pre>
6.	<pre>bsf: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePa th=~".*/bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",ResourcePath=~".*/ bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/namespace="\$namespace"} [5m]))*100</pre>
7.	<pre>sepp: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePa th=~".*/sepp-configuration/.*/ sepp/.*/namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp- configuration/.*/sepp/.*/namespace="\$namespace"} [5m]))*100</pre>
8.	<pre>nssf: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePa th=~".*/nssf-configuration/.*/ nssf/.*/namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*mcore_ingressgateway",ResourcePath=~".*/nssf- configuration/.*/nssf/.*/namespace="\$namespace"} [5m]))*100</pre>

Table 9-7 (Cont.) M-CNCC Core Success Rate

	9. dd: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/ocnadd/*.*/*ocnaddapi/*.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnadd/*.*/*ocnaddapi/*.*",namespace="\$namespace"}[5m]))*100</pre> 10. provgw: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*provgw-config.*.*provgw.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*provgw-config.*.*provgw.*",namespace="\$namespace"}[5m]))*100</pre> 11. nwdaf: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"}[5m]))*100</pre> 12. cndbtier: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*ocdbtier.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*ocdbtier.*",namespace="\$namespace"}[5m]))*100</pre> 13. occm: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*occm-config.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*occm-config.*",namespace="\$namespace"}[5m]))*100</pre> 14. nef: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*/nef-configuration/*.*nef/*.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nef-configuration/*.*nef/*.*",namespace="\$namespace"}[5m]))*100</pre> For OCI: 1. all: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",Status=~"2.*",ResourcePath=~".*",k8Namespace="cncc-ns"}.increment().grouping().sum()/
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Table 9-7 (Cont.) M-CNCC Core Success Rate

	<code>oc_ingressgateway_http_responses_total[10m]</code> <code>{ResourcePath=~"*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code>
2.	<code>scp: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"*ocscp*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath=~"*ocscp*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code>
3.	<code>nrf: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",Route_path=~"*nrf-configuration/v1*"*nrf-state-data*"*ocnrf-swagger*"*nrf-status-data*"*nrf/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*nrf-configuration/v1*"*nrf-state-data*"*ocnrf-swagger*"*nrf-status-data*"*nrf/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code>
4.	<code>udr: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*more_ingressgateway",Status=~"2*",Route_path=~"*nudr-dr-prov*"*nudr-dr-mgm*"*nudr-group-id-map-prov*"*slf-group-prov*"*n5g-eir-prov*"*nudr-config*"*udr/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*nudr-dr-prov*"*nudr-dr-mgm*"*nudr-group-id-map-prov*"*slf-group-prov*"*n5g-eir-prov*"*nudr-config*"*udr/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code>
5.	<code>policy: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"*policyapi*"*oc-cnpolicy-configuration*"*pcf*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",ResourcePath=~"*policyapi*"*oc-cnpolicy-configuration*"*pcf*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code>
6.	<code>bsf: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",ResourcePath=~"*bsfapi*"*oc-bsf-configuration*"*bsf*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath=~"*bsfapi*"*oc-bsf-configuration*"*bsf*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code>
7.	<code>sepp: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R</code>

Table 9-7 (Cont.) M-CNCC Core Success Rate

	<pre> oute_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *sepp-configuration* *sepp*",k8Namespace="cncc-ns").rate().grouping().sum() * 100 </pre>
8.	<pre> nssf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R oute_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *nssf-configuration* *nssf*",k8Namespace="cncc- ns").rate().grouping().sum() * 100 </pre>
9.	<pre> dd: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R oute_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc- ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *ocnadd* *ocnaddapi*",k8Namespace="cncc- ns").rate().grouping().sum() * 100 </pre>
10.	<pre> provgw: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R oute_path=~"*provgw-config* *provgw*",k8Namespace="cncc- ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *provgw-config* *provgw*",k8Namespace="cncc- ns").rate().grouping().sum() * 100 </pre>
11.	<pre> nwdaf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R oute_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc- ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *ocnwdaf* *ocnwdafapi*",k8Namespace="cncc- ns").rate().grouping().sum() * 100 </pre>
12.	<pre> occm: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R oute_path=~"*occm-config*",k8Namespace="cncc- ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~" *occm-config*",k8Namespace="cncc- ns").rate().grouping().sum() * 100 </pre>
13.	<pre> nef: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"2*",R esourcePath=~"*nef-configuration/* nef/ *",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath= </pre>

Table 9-7 (Cont.) M-CNCC Core Success Rate

	<code>~"/nef-configuration/* */nef/*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</code>
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9.2.4 M-CNCC Core Error Rate

Table 9-8 M-CNCC Core Error Rate

Description	M-CNCC Core Error Rate (4xx or 5xx responses divided by total responses) for all as well as specific NFs
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Table 9-8 (Cont.) M-CNCC Core Error Rate

Expression	For CNE 1.8 or older:
	- all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{".*"}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*"}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - scp: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{".*/ocscp/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*/ocscp/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - nrf: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - udr: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$ - policy: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*mcore_ingressgateway", ResourcePath}=\sim\text{".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/."}\}, \text{kubernetes_namespace}=\text{"\$namespace"}\}[5m]))} * 100$

Table 9-8 (Cont.) M-CNCC Core Error Rate

	6. bsf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 7. sepp: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/sepp-configuration/.*/sepp/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/sepp-configuration/.*/sepp/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 8. nssf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nssf-configuration/.*/nssf/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/nssf-configuration/.*/nssf/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 9. dd: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/ocnadd/.*/ocnaddapi/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ocnadd/.*/ocnaddapi/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 10. provgw: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*provgw-config.*.*provgw.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*provgw-config.*.*provgw.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 11. nwdaf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*ocnwdaf.*.*ocnwdafapi.*",kubernetes_</code>
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Table 9-8 (Cont.) M-CNCC Core Error Rate

	<pre>namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o cnwdaf.*".*ocnwdafapi.*",kubernetes_namespace="\$namespa ce"){5m}))*100</pre>
12.	cndbtier: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*ocdbtier.*",kubernetes_namespace="\$ namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o cdbtier.*",kubernetes_namespace="\$namespace"){5m}))*100</pre>
13.	occm: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*occm- config.*",kubernetes_namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o ccm-config.*",kubernetes_namespace="\$namespace"} [5m]))*100</pre>
14.	nef: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nef- configuration/*.*/*nef/*.*",kubernetes_namespace="\$namespac e"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ nef- configuration/*.*/*nef/*.*",kubernetes_namespace="\$namespac e"){5m}))*100</pre>
For OCCNE 1.9.x and higher versions:	
1.	all: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*",namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*", namespace="\$namespace"){5m}))*100</pre>
2.	scp: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/soothsayer/v1/*.*/* ocscp/*.*",namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ ocscp/*.*",namespace="\$namespace"){5m}))*100</pre>
3.	nrf: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nrf-configuration/v1/*.*/*nrf-state-</pre>

Table 9-8 (Cont.) M-CNCC Core Error Rate

	<pre>data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common- component/.*/namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf- status-data/.*/nrf/nf-common- component/.*/namespace="\$namespace"}[5m]))*100</pre>
4.	<pre>udr: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/n- nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr- config/.*/udr/nf-common-component/.*/n5g-eir- prov/.*/namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map- prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common- component/.*/n5g-eir-prov/.*/namespace="\$namespace"} [5m]))*100</pre>
5.	<pre>policy: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/policyapi/.*/oc-cnpolicy- configuration/.*/pcf/.*/namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ policyapi/.*/oc-cnpolicy- configuration/.*/pcf/.*/namespace="\$namespace"} [5m]))*100</pre>
6.	<pre>bsf: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/namespace="\$namespace"} [5m]))*100</pre>
7.	<pre>sepp: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/sepp-configuration/.*/sepp/.*/ sepp/.*/namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ sepp-configuration/.*/sepp/.*/namespace="\$namespace"} [5m]))*100</pre>
8.	<pre>nssf: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nssf-configuration/.*/nssf/.*/ nssf/.*/namespace="\$namespace"}[5m]))/</pre>

Table 9-8 (Cont.) M-CNCC Core Error Rate

	<pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ nssf-configuration/.*/.*nssf/.*",namespace="\$namespace"} [5m]))*100</pre>
9.	<pre>dd: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/ocnadd/.*/.* ocnaddapi/.*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ ocnadd/.*/.* ocnaddapi/.*",namespace="\$namespace"} [5m]))*100</pre>
10.	<pre>provgw: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*provgw- config.*.*provgw.*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Route_path=~".*pro vgw-config.*.*provgw.*",namespace="\$namespace"} [5m]))*100</pre>
11.	<pre>nwdaf: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*ocnwdaf.*.* ocnwdafapi.*",namespace= "\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o cnwdaf.*.* ocnwdafapi.*",namespace="\$namespace"} [5m]))*100</pre>
12.	<pre>cndbtier: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*ocdbtier.*",namespace="\$namespace"} [5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o cdbtier.*",namespace="\$namespace"}[5m]))*100</pre>
13.	<pre>occm: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*occm- config.*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*o ccm-config.*",namespace="\$namespace"}[5m]))*100</pre>
14.	<pre>nef: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*mcore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/nef- configuration/.*/.*nef/.*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Insta</pre>

Table 9-8 (Cont.) M-CNCC Core Error Rate

	<pre>ncIdentifier=~".*mcore_ingressgateway",ResourcePath=~".*/ nef-configuration/.*/nef/.*",namespace="\$namespace"} [5m]))*100</pre>
	For OCI: - all: <code>oc_ingressgateway_http_responses_total[10m]</code> <pre>{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*",k8Namespace="cncc- ns"},increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*core_ingressgateway",ResourcePath=~". *",k8Namespace="cncc-ns"},increment().grouping().sum() * 100</pre> - scp: <code>oc_ingressgateway_http_responses_total[10m]</code> <pre>{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*ocscp*",k8Namespace="cncc- ns"},increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*mcore_ingressgateway",ResourcePath=~". *ocscp*",k8Namespace="cncc- ns"},increment().grouping().sum() * 100</pre> - nrf: <code>oc_ingressgateway_http_responses_total[10m]</code> <pre>{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",Route_path=~".*nrf-configuration/v1* *nrf-state-data* *ocnrf-swagger* *nrf-status-data* *nrf/nf-common- component*",k8Namespace="cncc- ns"},increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*n rf-configuration/v1* *nrf-state-data* *ocnrf-swagger* *nrf- status-data* *nrf/nf-common- component*",k8Namespace="cncc- ns"},increment().grouping().sum() * 100</pre> - udr: <code>oc_ingressgateway_http_responses_total[10m]</code> <pre>{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",Route_path=~".*nudr-dr-prov* *nudr-dr-mgm* *nudr-group- id-map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*",k8Namespace="cncc- ns"},increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*n udr-dr-prov* *nudr-dr-mgm* *nudr-group-id-map-prov* *slf- group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common- component*",k8Namespace="cncc- ns"},increment().grouping().sum() * 100</pre> - policy: <code>oc_ingressgateway_http_responses_total[10m]</code> <pre>{InstanceIdentifier=~".*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"},increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*core_ingressgateway",ResourcePath=~". *policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"},increment().grouping().sum() * 100</pre>

Table 9-8 (Cont.) M-CNCC Core Error Rate

	6. bsf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*bsfapi"*oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath=~"*bsfapi"*oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns").increment().grouping().sum() * 100 7. sepp: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns").increment().grouping().sum() * 100 8. nssf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns").increment().grouping().sum() * 100 9. dd: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns").increment().grouping().sum() * 100 10. provgw: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns").increment().grouping().sum() * 100 11. nwdaf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns").increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns").increment().grouping().sum() * 100
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Table 9-8 (Cont.) M-CNCC Core Error Rate

	12. <code>occm: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.increment().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code> 13. <code>nef: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",Status=~"4* 5*",ResourcePath=~"/nef-configuration/*/*nef/*",k8Namespace="cncc-ns"}.increment().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*mcore_ingressgateway",ResourcePath=~"/nef-configuration/*/*nef/*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code>
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9.3 A-CNCC Core KPIs

This section provides the information about A-CNCC Core KPIs:

9.3.1 A-CNCC Core Requests

Table 9-9 A-CNCC Core Requests

Description	A-CNCC Core Requests for all as well as specific NFs
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Table 9-9 (Cont.) A-CNCC Core Requests

Expression	
	For CNE 1.8 or older: all: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",kubernetes_namespace="\$namespace"}[2m]))</code> For OCCNE 1.9.x and higher versions: all: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",namespace="\$namespace"}[2m]))</code> scp: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/ocscp/*"}[2m]))</code> nrf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nrf-configuration/v1.**/nrf-state-data/**/ocnrf-swagger/**/nrf-status-data/**/nrf/nf-common-component/*"}[2m]))</code> udr: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nudr-dr-prov/**/nudr-dr-mgm/**/nudr-group-id-map-prov/**/slf-group-prov/**/nudr-config/**/udr/nf-common-component/**/n5g-eir-prov/*"}[2m]))</code> policy: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/policyapi/**/oc-cnpolicy-configuration/**/pcf/*"}[2m]))</code> bsf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*/bsfapi/**/oc-bsf-configuration/**/bsf/*"}[2m]))</code> sepp: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/sepp-configuration/**/sepp/*"}[2m]))</code> nssf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nssf-configuration/**/nssf/*"}[2m]))</code> dd: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/ocnadd/**/ocnaddapi/*"}[2m]))</code> provgw: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*provgw-config/**/provgw/*"}[2m]))</code> nwdaf: <code>sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*ocnwdaf/**/ocnwdafapi/*"}[2m]))</code>

Table 9-9 (Cont.) A-CNCC Core Requests

	12. cndbtier: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*ocdbtier.*"} [2m])) 13. occm: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*occm-config.*"} [2m])) 14. nef: sum(irate(oc_ingressgateway_http_requests_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nef-configuration/.*/nef/.*/"} [2m])) For OCI: 1. scp: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*ocscp*"} .sum() 2. nrf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*nrf-configuration/v1/*nrf-state-data/*ocnrf-swagger/*nrf-status-data/*nrf/nf-common-component*"} .sum() 3. udr: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*nudr-dr-prov/*nudr-dr-mgm/*nudr-group-id-map-prov/*slf-group-prov/*n5g-eir-prov/*nudr-config/*udr/nf-common-component*"} .sum() 4. policy: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*policyapi/*oc-cnpolicy-configuration/*pcf*"} .sum() 5. bsf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",ResourcePath=~".*bsfapi/*oc-bsf-configuration/*bsf*"} .sum() 6. sepp: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*sepp-configuration/*sepp*"} .sum() 7. nssf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*nssf-configuration/*nssf*"} .sum() 8. dd: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*ocnadd/*ocnaddapi*"} .sum() 9. provgw: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*provgw-config/*provgw*"} .sum() 10. nwdaf: oc_ingressgateway_http_requests_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*ocnwdaf/*ocnwdafapi*"} .sum()
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Table 9-9 (Cont.) A-CNCC Core Requests

	11. <code>occm: oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*occm-config*"}.sum()</code> 12. <code>nef: oc_ingressgateway_http_requests_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"/nef-configuration/*/*nef/*"}.sum()</code>
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9.3.2 A-CNCC Core Responses

Table 9-10 A-CNCC Core Responses

Description	A-CNCC Core Responses for all as well as specific NFs
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Table 9-10 (Cont.) A-CNCC Core Responses

Expression	For CNE 1.8 or older
	- all_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"5.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m])) - scp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/ocscp/*",kubernetes_namespace="\$namespace"}[5m])) - nrf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nrf-configuration/v1.* */nrf-state-data/* */ocnrf-swagger/* */nrf-status-data/* */nrf/nf-common-component/*",kubernetes_namespace="\$namespace"}[5m])) - udr_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nudr-dr-prov/* */nudr-dr-mgm/* */nudr-group-id-map-prov/* */slf-group-prov/* */nudr-config/* */udr/nf-common-component/* */n5g-eir-prov/*",kubernetes_namespace="\$namespace"}[5m])) - policy_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",ResourcePath=~".*/policyapi/* */oc-cnpolicy-configuration/* */pcf/*",kubernetes_namespace="\$namespace"}[5m])) - bsf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",ResourcePath=~".*/bsfapi/* */oc-bsf-configuration/* */bsf/*",kubernetes_namespace="\$namespace"}[5m])) - sepp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path

Table 9-10 (Cont.) A-CNCC Core Responses

	<pre>=~".*/sepp-configuration/.*/.*/* sepp/.*/.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
10.	<pre>nssf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nssf-configuration/.*/.*/* nssf/.*/.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
11.	<pre>dd_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/ocnadd/.*/.*/* ocnaddapi/.*/.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
12.	<pre>provgw_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*provgw-configuration.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
13.	<pre>nwdaf_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*ocnwdaf.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
14.	<pre>cndbtier_success:sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*ocdbtier.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
15.	<pre>occm_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*occm-config.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
16.	<pre>nef_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nef-configuration/.*/.*/* nef/.*/.*",kubernetes_namespace="\$namespace"}[5m]))</pre>
	For OCCNE 1.9.x and higher versions:
1.	<pre>all_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*",namespace="\$namespace"}[5m]))</pre>
1.	<pre>all_error: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",namespace="\$namespace"}[5m]))</pre>
2.	<pre>all_4xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.*",Route_path=~".*",namespace="\$namespace"}[5m]))</pre>
3.	<pre>all_5xx: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"5.*",Route_path=~".*",namespace="\$namespace"}[5m]))</pre>

Table 9-10 (Cont.) A-CNCC Core Responses

	dentifier=~".*acore_ingressgateway",Status=~"5.*",Route_path=~".*",namespace="\$namespace"){5m})) 4. scp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/ocscp/*",namespace="\$namespace">{5m})) 5. nrf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nrf-configuration/v1.**/nrf-state-data.**/ocnrf-swagger/**/nrf-status-data.**/nrf/nf-common-component/*",namespace="\$namespace">{5m})) 6. udr_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nudr-dr-prov/**/nudr-dr-mgm/**/nudr-group-id-map-prov/**/slf-group-prov/**/nudr-config/**/udr/nf-common-component/**/n5g-eir-prov/*",namespace="\$namespace">{5m})) 7. policy_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",ResourcePath=~".*/policyapi/**/oc-cnpolicy-configuration/**/pcf/*",namespace="\$namespace">{5m})) 8. bsf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",ResourcePath=~".*/bsfapi/**/oc-bsf-configuration/**/bsf/*",namespace="\$namespace">{5m})) 9. sepp_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/sepp-configuration/**/sepp/*",namespace="\$namespace">{5m})) 10. nssf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nssf-configuration/**/nssf/*",namespace="\$namespace">{5m})) 11. dd_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/ocnadd/**/ocnaddapi/*",namespace="\$namespace">{5m})) 12. provgw_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/provgw-config/**/provgw/*",namespace="\$namespace">{5m})) 13. nwdaf_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path=~".*/nwdaf/*",namespace="\$namespace">{5m}))
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Table 9-10 (Cont.) A-CNCC Core Responses

	<pre> dentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*ocnwdaf.* .ocnwdafapi.*",namespace="\$namespace"} [5m])) </pre>
14.	<pre> cndbtier_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceI dentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*ocdbtier.*",namespace="\$namespace"}[5m])) </pre>
15.	<pre> occm_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceI dentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*occm-config.*",namespace="\$namespace"}[5m])) </pre>
16.	<pre> nef_success: sum(irate(oc_ingressgateway_http_responses_total{InstanceI dentifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*/nef-configuration/.*/nef/.*",namespace="\$namespace"} [5m])) </pre>
	For OCI:
1.	<pre> all success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Re sourcePath=~".*",k8Namespace="cncc-ns"}.sum() </pre>
2.	<pre> all error: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~".*",k8Namespace="cncc-ns"}.sum() </pre>
3.	<pre> all 4xx: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"4*",Re sourcePath=~".*",k8Namespace="cncc-ns"}.sum() </pre>
4.	<pre> all 5xx: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"5*",Re sourcePath=~".*",k8Namespace="cncc-ns"}.sum() </pre>
5.	<pre> scp_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Re sourcePath=~".*ocscp*",k8Namespace="cncc-ns"}.sum() </pre>
6.	<pre> nrf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Ro ute_path=~".*nrf-configuration/v1* *nrf-state-data* *ocnrf- swagger* *nrf-status-data* *nrf/nf-common- component*",k8Namespace="cncc-ns"}.sum() </pre>
7.	<pre> udr_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Ro ute_path=~".*nudr-dr-prov* *nudr-dr-mgm* *nudr-group-id- map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*",k8Namespace="cncc- ns"}.sum() </pre>
8.	<pre> policy_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*acore_ingressgateway",Status=~"2*",Re sourcePath=~".*policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"}.sum() </pre>

Table 9-10 (Cont.) A-CNCC Core Responses

	9. bsf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",ResourcePath=~"*bsfapi"*oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns"}.sum() 10. sepp_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns"}.sum() 11. nssf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns"}.sum() 12. dd_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.sum() 13. provgw_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns"}.sum() 14. nwdaf_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns"}.sum() 15. occm_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.sum() 16. nef_success: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nef-configuration*/*/nef/*",k8Namespace="cncc-ns"}.sum()
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9.3.3 A-CNCC Core Success Rate

Table 9-11 A-CNCC Core Success Rate

Description	A-CNCC Core Success Rate (2xx responses divided by total responses) for all as well as specific NFs
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Table 9-11 (Cont.) A-CNCC Core Success Rate

Expression	For CNE 1.8 or older:
	- all: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{Route_path}=\sim\text{".*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Route_path}=\sim\text{".*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])} * 100$ - scp: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{Route_path}=\sim\text{".*/ocscp/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Route_path}=\sim\text{".*/ocscp/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])} * 100$ - nrf: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{Route_path}=\sim\text{".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Route_path}=\sim\text{".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])} * 100$ - udr: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{Route_path}=\sim\text{".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Route_path}=\sim\text{".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])} * 100$ - policy: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{ResourcePath}=\sim\text{".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{ResourcePath}=\sim\text{".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])} * 100$ - bsf: $\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway"}\}, \text{Status}=\sim\text{"2.*"}, \text{ResourcePath}=\sim\text{".*/bsf/.*"}, \text{kubernetes_namespace}=\text{"\$namespace"}\})[5m])$

Table 9-11 (Cont.) A-CNCC Core Success Rate

	<pre> h=~".*/bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/kubernetes_namespace="\$namespac e")[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",ResourcePath=~".*/ bsfapi/.*/oc-bsf- configuration/.*/bsf/.*/kubernetes_namespace="\$namespac e")[5m]))*100 </pre>
7.	<pre> sepp: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*/sepp-configuration/.*/ sepp/.*/kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*/sepp- configuration/.*/ sepp/.*/kubernetes_namespace="\$namespace"}[5m]))*100 </pre>
8.	<pre> nssf: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*/nssf-configuration/.*/ nssf/.*/kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*/nssf- configuration/.*/ nssf/.*/kubernetes_namespace="\$namespace"}[5m]))*100 </pre>
9.	<pre> dd: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*/ocnadd/.*/ ocnaddapi/.*/kubernetes_namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*/ ocnadd/.*/ ocnaddapi/.*/kubernetes_namespace="\$namespace"} [5m]))*100 </pre>
10.	<pre> provgw: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*provgw- config.*provgw.*",kubernetes_namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*provgw- config.*provgw.*",kubernetes_namespace="\$namespace"} [5m]))*100 </pre>
11.	<pre> nwdaf: sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*ocnwdaf.*ocnwdafapi.*",kubernetes_namespace="\$na mespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*ocnwdaf.* </pre>

Table 9-11 (Cont.) A-CNCC Core Success Rate

	<pre> .*ocnwdafapi.*",kubernetes_namespace="\$namespace"} [5m]))*100</pre>
12.	cndbtier: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*ocdbtier.*",kubernetes_namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*ocdbtier.*" ,kubernetes_namespace="\$namespace"}[5m]))*100</pre>
13.	occm: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*occm-config.*",kubernetes_namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*occm- config.*",kubernetes_namespace="\$namespace"}[5m]))*100</pre>
14.	nef: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Status=~"2.*",Route_path =~".*/nef- configuration/.*/nef/.*",kubernetes_namespace="\$namespac e"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*acore_ingressgateway",Route_path=~".*/nef- configuration/.*/nef/.*",kubernetes_namespace="\$namespac e"}[5m]))*100</pre> For OCCNE 1.9.x and higher versions: 1. all: <pre>sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_p ath=~".*",namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{Route _path=~".*",namespace="\$namespace"}[5m]))*100</pre> 2. scp: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*core_ingressgateway",Status=~"2.*",Route_path= ~".*/ocscp/.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*core_ingressgateway",Route_path=~".*/ ocscp/.*",namespace="\$namespace"}[5m]))*100</pre> 3. nrf: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*core_ingressgateway",Status=~"2.*",Route_path= ~".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf- swagger/.*/nrf-status-data/.*/nrf/nf-common- component/.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceId entifier=~".*core_ingressgateway",Route_path=~".*/nrf- configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf- status-data/.*/nrf/nf-common- component/.*",namespace="\$namespace"}[5m]))*100</pre>

Table 9-11 (Cont.) A-CNCC Core Success Rate

	4. udr: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{Route_path}=\sim".*/nudir-dr-prov/.*/nudir-dr-mgm/.*/nudir-group-id-map-prov/.*/slf-group-prov/.*/nudir-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*", \text{namespace}="\\$namespace"\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Route_path}=\sim".*/nudir-dr-prov/.*/nudir-dr-mgm/.*/nudir-group-id-map-prov/.*/slf-group-prov/.*/nudir-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*", \text{namespace}="\\$namespace"\})[5m])} * 100$ 5. policy: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{ResourcePath}=\sim".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*", \text{namespace}="\\$namespace"\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{ResourcePath}=\sim".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*", \text{namespace}="\\$namespace"\})[5m])} * 100$ 6. bsf: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{ResourcePath}=\sim".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*", \text{namespace}="\\$namespace"\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{ResourcePath}=\sim".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*", \text{namespace}="\\$namespace"\})[5m])} * 100$ 7. sepp: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{Route_path}=\sim".*/sepp-configuration/.*/sepp/.*", \text{namespace}="\\$namespace"\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Route_path}=\sim".*/sepp-configuration/.*/sepp/.*", \text{namespace}="\\$namespace"\})[5m])} * 100$ 8. nssf: $\frac{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{Route_path}=\sim".*/nssf-configuration/.*/nssf/.*", \text{namespace}="\\$namespace"\})[5m])}{\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Route_path}=\sim".*/nssf-configuration/.*/nssf/.*", \text{namespace}="\\$namespace"\})[5m])} * 100$ 9. dd: $\text{sum}(\text{rate}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceId}=\sim".*core_ingressgateway", \text{Status}=\sim"2.*", \text{Route_path}=\sim".*/dd-configuration/.*/dd/.*", \text{namespace}="\\$namespace"\})[5m])$
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Table 9-11 (Cont.) A-CNCC Core Success Rate

	<pre>~".*/ocnadd/.*/ocnaddapi/.*/",namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/ocnadd/.*/ocnaddapi/.*/",namespace="\$namespace"} [5m]))*100</pre>
10.	provgw: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_path=~".*provgw-config.*.*provgw.*",namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*provgw-config.*.*provgw.*",namespace="\$namespace"}[5m]))*100</pre>
11.	nwdaf: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_path=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"}[5m]))*100</pre>
12.	cndbtier: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_path=~".*ocdbtier.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*ocdbtier.*",namespace="\$namespace"}[5m]))*100</pre>
13.	occm: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_path=~".*occm-config.*",namespace="\$namespace"}[5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*occm-config.*",namespace="\$namespace"}[5m]))*100</pre>
14.	nef: <pre>sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",Route_path=~".*/nef-configuration/.*/nef/.*/",namespace="\$namespace"} [5m]))/ sum(rate(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/nef-configuration/.*/nef/.*/",namespace="\$namespace"} [5m]))*100</pre>
	For OCI:
1.	<pre>all: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~".*core_ingressgateway",Status=~"2.*",ResourcePath=~".*",k8Namespace="cncc-ns"}.increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {ResourcePath=~".*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</pre>

Table 9-11 (Cont.) A-CNCC Core Success Rate

	2. <code>scp: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",ResourcePath=~"*ocscp*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",ResourcePath=~"*ocscp*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code> 3. <code>nrf: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nrf-configuration/v1*"nrf-state-data*"ocnrf-swagger*"nrf-status-data*"nrf/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*nrf-configuration/v1*"nrf-state-data*"ocnrf-swagger*"nrf-status-data*"nrf/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code> 4. <code>udr: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nudr-dr-prov*"nudr-dr-mgm*"nudr-group-id-map-prov*"slf-group-prov*"n5g-eir-prov*"nudr-config*"udr/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*nudr-dr-prov*"nudr-dr-mgm*"nudr-group-id-map-prov*"slf-group-prov*"n5g-eir-prov*"nudr-config*"udr/nf-common-component*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code> 5. <code>policy: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",ResourcePath=~"*policyapi*"oc-cnpolicy-configuration*"pcf*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*core_ingressgateway",ResourcePath=~"*policyapi*"oc-cnpolicy-configuration*"pcf*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code> 6. <code>bsf: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",ResourcePath=~"*bsfapi*"oc-bsf-configuration*"bsf*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",ResourcePath=~"*bsfapi*"oc-bsf-configuration*"bsf*",k8Namespace="cncc-ns"}.rate().grouping().sum() * 100</code> 7. <code>sepp: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*sepp-configuration*"sepp*",k8Namespace="cncc-ns"}.rate().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*</code>
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Table 9-11 (Cont.) A-CNCC Core Success Rate

	<pre>sepp-configuration* *sepp*",k8Namespace="cncc").rate().grouping().sum() * 100</pre>
8.	<pre>nssf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>
9.	<pre>dd: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>
10.	<pre>provgw: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>
11.	<pre>nwdaf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>
12.	<pre>occm: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*occm-config*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*occm-config*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>
13.	<pre>nef: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"2*",Route_path=~"*nef-configuration* *nef*",k8Namespace="cncc-ns").rate().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nef-configuration* *nef*",k8Namespace="cncc-ns").rate().grouping().sum() * 100</pre>

9.3.4 A-CNCC Core Error Rate

Table 9-12 A-CNCC Core Error Rate

Description	A-CNCC Core Error Rate (4xx or 5xx responses divided by total responses) for all as well as specific NFs
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Table 9-12 (Cont.) A-CNCC Core Error Rate

Expression	For CNE 1.8 or older:
	- all: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*",kubernetes_namespace="\$namespace"}[5m]))*100</code> - scp: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/ocscp/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/ocscp/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> - nrf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nrf-configuration/v1/.*/nrf-state-data/.*/ocnrf-swagger/.*/nrf-status-data/.*/nrf/nf-common-component/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> - udr: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Route_path=~".*/nudr-dr-prov/.*/nudr-dr-mgm/.*/nudr-group-id-map-prov/.*/slf-group-prov/.*/nudr-config/.*/udr/nf-common-component/.*/n5g-eir-prov/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> - policy: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",ResourcePath=~".*/policyapi/.*/oc-cnpolicy-configuration/.*/pcf/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code>

Table 9-12 (Cont.) A-CNCC Core Error Rate

	6. bsf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",ResourcePath=~".*/bsfapi/.*/oc-bsf-configuration/.*/bsf/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 7. sepp: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/sepp-configuration/.*/sepp/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/sepp-configuration/.*/sepp/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 8. nssf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nssf-configuration/.*/nssf/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/nssf-configuration/.*/nssf/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 9. dd: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/ocnadd/.*/ocnaddapi/.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/ocnadd/.*/ocnaddapi/.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 10. provgw: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*provgw-config.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*provgw-config.*",kubernetes_namespace="\$namespace"}[5m]))*100</code> 11. nwdaf: <code>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*nwdaf-config.*",kubernetes_namespace="\$namespace"}[5m]))/ sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*nwdaf-config.*",kubernetes_namespace="\$namespace"}[5m]))*100</code>
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Table 9-12 (Cont.) A-CNCC Core Error Rate

	<pre> ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*ocnwdaf.* . *ocnwdafapi.*",kubernetes_na mespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~". *core_ingressgateway",Route_path=~".*ocnwdaf.* . *ocnwdafa pi.*",kubernetes_namespace="\$namespace"){5m}))*100 </pre>
12.	cndbtier: <pre> sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*ocdbtier.*",kubernetes_namespace="\$na mespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~". *core_ingressgateway",Route_path=~".*ocdbtier.*",kubernetes _namespace="\$namespace"){5m}))*100 </pre>
13.	occm: <pre> sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*occm- config.*",kubernetes_namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~". *core_ingressgateway",Route_path=~".*occm- config.*",kubernetes_namespace="\$namespace"){5m}))*100 </pre>
14.	nef: <pre> sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nef- configuration/* .*/nef/*",kubernetes_namespace="\$namespac e"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~". *core_ingressgateway",Route_path=~".*/nef- configuration/* .*/nef/*",kubernetes_namespace="\$namespac e"){5m}))*100 </pre>
For OCCNE 1.9.x and higher versions:	
1.	all: <pre> sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*",namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Route_path=~".*",na mespace="\$namespace"){5m}))*100 </pre>
2.	scp: <pre> sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/soothsayer/v1/*.* ocscp/*",namespace="\$namespace"){5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Route_path=~".*/ ocscp/*",namespace="\$namespace"){5m}))*100 </pre>

Table 9-12 (Cont.) A-CNCC Core Error Rate

	3. nrf: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Status}=\sim\text{"4.* 5.*", Route_path}=\sim\text{"/nrf-configuration/v1/* /nrf-state-data/* /ocnrf-swagger/* /nrf-status-data/* /nrf/nf-common-component/*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Route_path}=\sim\text{"/nrf-configuration/v1/* /nrf-state-data/* /ocnrf-swagger/* /nrf-status-data/* /nrf/nf-common-component/*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ 4. udr: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Status}=\sim\text{"4.* 5.*", Route_path}=\sim\text{"/nudr-dr-prov/* /nudr-dr-mgm/* /nudr-group-id-map-prov/* /slf-group-prov/* /nudr-config/* /udr/nf-common-component/* /n5g-eir-prov/*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Route_path}=\sim\text{"/nudr-dr-prov/* /nudr-dr-mgm/* /nudr-group-id-map-prov/* /slf-group-prov/* /nudr-config/* /udr/nf-common-component/* /n5g-eir-prov/*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ 5. policy: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{"/policyapi/* /oc-cnppolicy-configuration/* /pcf/*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", InstanceIdentifier}=\sim\text{".*core_ingressgateway", ResourcePath}=\sim\text{"/policyapi/* /oc-cnppolicy-configuration/* /pcf/*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ 6. bsf: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Status}=\sim\text{"4.* 5.*", ResourcePath}=\sim\text{"/bsfapi/* /oc-bsf-configuration/* /bsf/*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", InstanceIdentifier}=\sim\text{".*core_ingressgateway", ResourcePath}=\sim\text{"/bsfapi/* /oc-bsf-configuration/* /bsf/*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$ 7. sepp: $\frac{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", Status}=\sim\text{"4.* 5.*", Route_path}=\sim\text{"/sepp-configuration/* /sepp/*", namespace}=\text{"\$namespace"}\}[5m]))}{\text{sum}(\text{increase}(\text{oc_ingressgateway_http_responses_total}\{\text{InstanceIdentifier}=\sim\text{".*acore_ingressgateway", InstanceIdentifier}=\sim\text{".*core_ingressgateway", Route_path}=\sim\text{"/sepp-configuration/* /sepp/*", namespace}=\text{"\$namespace"}\}[5m]))} * 100$
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Table 9-12 (Cont.) A-CNCC Core Error Rate

	8. nssf: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nssf-configuration/.*/nssf/.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/nssf-configuration/.*/nssf/.*",namespace="\$namespace"}[5m]))*100</pre> 9. dd: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/ocnadd/.*/ocnaddapi/.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*/ocnadd/.*/ocnaddapi/.*",namespace="\$namespace"}[5m]))*100</pre> 10. provgw: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*provgw-config.*.*provgw.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*provgw-config.*.*provgw.*",namespace="\$namespace"}[5m]))*100</pre> 11. nwdaf: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*ocnwdaf.*.*ocnwdafapi.*",namespace="\$namespace"}[5m]))*100</pre> 12. cndbtier: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*ocdbtier.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*ocdbtier.*",namespace="\$namespace"}[5m]))*100</pre> 13. occm: <pre>sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*occm-config.*",namespace="\$namespace"}[5m]))/sum(increase(oc_ingressgateway_http_responses_total{InstanceIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~".*core_ingressgateway",Route_path=~".*occm-config.*",namespace="\$namespace"}[5m]))*100</pre>
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Table 9-12 (Cont.) A-CNCC Core Error Rate

	<pre>*core_ingressgateway",Route_path=~".*occm- config.*",namespace="\$namespace"){5m}))*100</pre>
14.	<pre>nef: sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",Status=~"4.* 5.*",Route_path=~".*/nef- configuration/*.*/*nef/*.*",namespace="\$namespace"}{5m}))/ sum(increase(oc_ingressgateway_http_responses_total{Insta ncelIdentifier=~".*acore_ingressgateway",InstanceIdentifier=~". *core_ingressgateway",Route_path=~".*/nef- configuration/*.*/*nef/*.*",namespace="\$namespace"} [5m]))*100</pre>
	For OCI:
1.	<pre>all: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*",k8Namespace="cncc- ns"}.increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*core_ingressgateway",ResourcePath=~" *",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</pre>
2.	<pre>scp: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*ocscp*",k8Namespace="cncc- ns"}.increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",ResourcePath= ~"*ocscp*",k8Namespace="cncc- ns"}.increment().grouping().sum() * 100</pre>
3.	<pre>nrf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*nrf-configuration/v1/*nrf-state-data* *ocnrf-swagger* *nrf-status-data* *nrf/nf-common- component*",k8Namespace="cncc- ns"}.increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*n rf-configuration/v1/*nrf-state-data* *ocnrf-swagger* *nrf- status-data* *nrf/nf-common- component*",k8Namespace="cncc- ns"}.increment().grouping().sum() * 100</pre>
4.	<pre>udr: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*nudr-dr-prov* *nudr-dr-mgm* *nudr-group- id-map-prov* *slf-group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common-component*",k8Namespace="cncc- ns"}.increment().grouping().sum()/ oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*core_ingressgateway",Route_path=~"*n udr-dr-prov* *nudr-dr-mgm* *nudr-group-id-map-prov* *slf- group-prov* *n5g-eir-prov* *nudr-config* *udr/nf-common- component*",k8Namespace="cncc- ns"}.increment().grouping().sum() * 100</pre>

Table 9-12 (Cont.) A-CNCC Core Error Rate

	5. policy: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*core_ingressgateway",ResourcePath=~"*policyapi* *oc-cnpolicy-configuration* *pcf*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100 6. bsf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",ResourcePath=~"*bsfapi* *oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",ResourcePath=~"*bsfapi* *oc-bsf-configuration* *bsf*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100 7. sepp: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*sepp-configuration* *sepp*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100 8. nssf: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nssf-configuration* *nssf*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100 9. dd: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*ocnadd* *ocnaddapi*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100 10. provgw: oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns"}.increment().grouping().sum()/oc_ingressgateway_http_responses_total[10m] {InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*provgw-config* *provgw*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100
--	--

Table 9-12 (Cont.) A-CNCC Core Error Rate

	11. <code>nwdaf: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns"}.increment().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*ocnwdaf* *ocnwdafapi*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code> 12. <code>occm: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.increment().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*occm-config*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code> 13. <code>nef: oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Status=~"4* 5*",Route_path=~"*nef-configuration/* */nef/*",k8Namespace="cncc-ns"}.increment().grouping().sum()/</code> <code>oc_ingressgateway_http_responses_total[10m]</code> <code>{InstanceIdentifier=~"*acore_ingressgateway",Route_path=~"*nef-configuration/* */nef/*",k8Namespace="cncc-ns"}.increment().grouping().sum() * 100</code>
--	--

9.4 CNC Console Common KPIs

This section provides the information about CNC Console common KPIs:

9.4.1 CPU Usage

Table 9-13 CPU Usage

Description	CPU usage by all as well as individual microservices in CNCC
-------------	--

Table 9-13 (Cont.) CPU Usage

Expression	1. all: sum(rate(container_cpu_usage_seconds_total{pod=~".*",namespace="\$namespace"}[2m])) 2. cncc-core-cmservice: sum(rate(container_cpu_usage_seconds_total{pod=~".*core-cmservice.*",namespace="\$namespace"}[2m])) 3. cncc-mcore-ingress: sum(rate(container_cpu_usage_seconds_total{pod=~".*mcore-ingress.*",namespace="\$namespace"}[2m])) 4. cncc-acore-ingress: sum(rate(container_cpu_usage_seconds_total{pod=~".*acore-ingress.*",namespace="\$namespace"}[2m])) 5. cncc-iam-ingress: sum(rate(container_cpu_usage_seconds_total{pod=~".*iam-ingress.*",namespace="\$namespace"}[2m])) 6. cncc-iam-kc: sum(rate(container_cpu_usage_seconds_total{pod=~".*iam-kc.*",namespace="\$namespace"}[2m])) For OCI: 1. all: container_cpu_usage_seconds_total[10m] {pod=~\"*\",namespace=\"console\"}.rate().groupBy(pod,namespace).sum()
------------	--

9.4.2 Memory Usage

Table 9-14 Memory Usage

Description	Memory usage by all as well as individual microservices in CNCC
-------------	---

Table 9-14 (Cont.) Memory Usage

Expression	1. all: sum (container_memory_usage_bytes{container!="", pod=~".*",namespace="\$namespace"}) 2. cncc-core-cmservice: sum (container_memory_usage_bytes{container!="", pod=~".*core-cmservice.*",namespace="\$namespace"}) 3. cncc-mcore-ingress: sum (container_memory_usage_bytes{container!="", pod=~".*mcore-ingress.*",namespace="\$namespace"}) 4. cncc-acore-ingress: sum (container_memory_usage_bytes{container!="", pod=~".*acore-ingress.*",namespace="\$namespace"}) 5. cncc-iam-ingress: sum (container_memory_usage_bytes{container!="", pod=~".*iam-ingress.*",namespace="\$namespace"}) 6. cncc-iam-kc: sum (container_memory_usage_bytes{container!="", {pod=~".*iam-kc.*",namespace="\$namespace"}) For OCI: 1. all: container_memory_usage_bytes[10m]{container!="", {pod=~".*POD\\",namespace="console\\", pod=~".*\\".max()
------------	--

10

CNC Console Logs

This section describes about the cncc logs. It contains the following topics:

[Log Formats and Details](#)

[Types of Logs](#)

[Examples of Logs](#)

[Accessing the Logs](#)

10.1 Log Formats

This section provides information about the log formats.

[Log4j JSON Format](#)

[CNCC Message Format](#)

Log4j JSON Format

Following is the log format in JSON:

```
{
  "thread": <threadName>,
  "level": <log_level>,
  "loggerName": <name_of_the_logging_class>,
  "message": <message>,
  "instant": <timestamp_in_miliseconds>,
  "messageTimestamp": <timestamp_in_readable_format>,
  "threadId": <threadId>,
  "threadPriority": <threadPriority>,
  "pod": <name_of_the_pod>,
  "processId": <processId>,
  "contextMap": <context_map>,
  "ocLogId": <unique_trace_id_for_every_request>,
  "instanceType": <instanceType>,
  "ingressTxId": <IngressTransactionId>
}
```

Table 10-1 Log Details

Name	Description	Example
thread	Name of the thread.	"thread": "reactor-http-epoll-1"
level	Level of the log. It can be: Log level (INFO, WARN, DEBUG, TRACE)	"level": "INFO"
loggerName	Name of the class that generated the log.	"loggerName": "ocpm.cne.gateway.cncc.GatewayApplication"

Table 10-1 (Cont.) Log Details

Name	Description	Example
messageTimestamp	Time represented in human readable format and in UTC. Format is <i>date:yyyy-MM-dd'T'HH:mm:ss.SSSZ</i> EFK friendly and also follows Oracle Standards.	"messageTimestamp": 2020-07-04'T'12:00:40.702Z
message	Information about the event.	"message": "Started Application....." By default, all messages are in simple string except Audit Log , Security Log which are represented in CNC Console Message Format..
instant	The Date and Time the event occurred in epoch second and nano seconds.	"instant": { "epochSecond": 1590045388, "nanoOfSecond": 339789000}
processId	Linux process Identifier (for a multi-process host).	Linux process Identifier (for a multi-process host).
threadId	Id of the thread.	"threadId": "43"
threadPriority	Priority assigned to the thread	"threadPriority": 5
pod	Name of the pods where the log is generated	"cncc-mcore-ingress-gateway-77df795fb5-wv2sb"
contextMap	It holds information added to threadContext.	"contextMap": { "hostname": "cncc-mcore-ingress-gateway-77df795fb5-wv2sb", "ingressTxId": "ingress-tx-1460885598"}
ocLogId	It contains the trace id that is uniquely generated for every request of the format "<timestamp(in milliseconds)>_<thread Id>_<POD name>"	It contains the trace id that is uniquely generated for every request of the format "<timestamp (in milliseconds)>_<thread Id>_<POD name>"
instanceType	Static tag which implies that instance type is production	"instanceType": "prod"
ingressTxId	It contains id of the format "ingress-tx-<Random no>" to track every transaction	"ingressTxId": ingress-tx-1904660570

CNC Console Message Format

Table 10-2 CNC Console Message Format

Name	Description	Example	Possible Values
logType	Indicates whether it is Security Log or Audit Log .	logType=AUDIT	AUDIT SECURITY

Table 10-2 (Cont.) CNC Console Message Format

Name	Description	Example	Possible Values
type	Indicates nature or action of the log.	type=REQUEST	For Security Log: REQUEST, RESPONSE For Audit Log: LOGIN, ACCESS_RESOURCE, ACCESS_RESOURCE_ERROR, LOGOUT
resourceType	Indicates what is the resource being requested for.	resourceType=SCP	CM_SERVICE (For default route) CNC Console (For User Login Activity) SCP UDR NRF PCF (all CNC Console supported NFs)
userId	Id of the user who triggered request or action.	userId=3314f54f-08bf-489d-b395-27bf56da1262	NA
username	Name of the user	username= "user1"	NA
status	HTTP status of the response.	status=200 OK	NA
operationType	HTTP method of the request.	operationType=GET	NA
scheme	Indicates the scheme of the request.	scheme=http	NA
remoteAddress	The remote address that is associated with the request. It also means the remote address to where this request is connected when available.	remoteAddress=/192.168.219.64:53587	NA
localAddress	The local address that is associated with the request. It also means the local address to where this request is connected when available.	localAddress=cncc-mcore-ingress-gateway.cncc.svc.cluster.local/<unresolved>:30075	NA
resourcePath	Request URI	resourcePath=/soothsayer/v1/canaryrelease/	NA

Table 10-2 (Cont.) CNC Console Message Format

Name	Description	Example	Possible Values
queryParams	Query parameters associated with request.	queryParams={form_id=9, page=1, view_id=78}	NA
headers	Headers associated with request or response.	headers={Accept=/*, X-Requested-With=XMLHttpRequest, User-Agent=Mozilla/5.0 (Windows NT 10.0; WOW64; rv:68.0) Gecko/20100101 Firefox/68.0, Connection=keep-alive, Host=cncc-core-ingress-gateway.cncc.svc.cluster.local:30075, Accept-Language=en-US,en;q=0.5, Accept-Encoding=gzip, deflate, DNT=1, Content-Type=application/json; charset=utf-8}	NA
payload	Payload or Data associated with request or response.	payload=[{"serviceName":"n5g-eir-eic","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5}]	NA
authenticationType	This indicates whether user is requesting resource logged in using CNC Console or directly accessing through postman or curl.	authenticationType=OAUTH	OAUTH -> User is logged in through CNC Console application and accessing resource. JWT -> User is accessing resource directly through postman or curl.

10.2 Types of Logs

The CNC Console logs can be categorized into following types:

- [Regular logs](#)
- [Audit logs](#)
- [Security logs](#)

Regular logs

These logs contain error messages, warnings, or other events written within the application that provide logical, high level information about the application and ongoing events.

Example:

```
{
  "level": "INFO",
  "message": "Started GatewayApplication in 10.748 seconds (JVM running for 12.825)"
}
{
  "level": "INFO",
  "message": "Creating plain httpClient"
}
{
  "level": "INFO",
  "message": "Creating plain restTemplate"
}
```

```
{"level": "ERROR", "message": "Can't get cfgs of topic  
public.dynamic.datamodel, exception is:\n  
javax.ws.rs.ProcessingException: java.net.ConnectException: Connection  
refused (Connection  
refused)"}}
```

Audit Logs

Note

CNC Console IAM Audit logs are not applicable for OCI Deployment.

These logs contain user related information and the activity within the system.

The following events are logged in CNC Console Core:

- Log in: A user has logged in.
- Access Resource: A user is accessing a particular NF resource.
- Access Resource Error: A user is denied from accessing a particular NF resource.
- Logout: A user has logged out.

Note

The user can find the CNC Console Core User Activity logs as part of *cncc-core-ingress-gateway* and are represented in CNC Console message format.

The following events are logged in CNC Console IAM:

- Login events
- Log in: An admin user has logged in.
- Register: An admin user has registered.
- Logout: An admin user has logged out.
- Code to Token: An application or a client has exchanged a code for a token.
- Refresh Token: An application or a client has refreshed a token.

Account events

- Update Email: The email address for an account has changed.
- Update Profile: The profile for an account has changed.
- Send Password Reset: A password reset email has been sent.
- Update Password: The password for an account has changed.

Note

The user can find the CNC Console IAM User Activity logs as part of *cncc-iam-0*, represented in Keycloak format. These events are provided by keycloak and documented under [Keycloak Auditing End Events](#).

Logging Error Logs are recorded by keycloak container as :

```
^[[0m^[33m10:12:57,388 WARN  [org.keycloak.events] (default
task-3) type=LOGIN_ERROR, realmId=master, clientId=security-admin-
console,
      userId=ef58d62e-a0a8-4f4e-bcc6-abccf917641c,
ipAddress=192.168.203.108, error=invalid_user_credentials,
auth_method=openid-connect, auth_type=code,
      redirect_uri=http://10.75.240.33:30085/cncc/auth/admin/master/
console/,
      code_id=3e6d822a-9e82-4660-bb01-a814f7ae8f97, username=admin,
      authSessionParentId=3e6d822a-9e82-4660-bb01-a814f7ae8f97,
      authSessionTabId=2ak6Xwal-28
```

Security Logs**Note**

M-CNCC IAM Security logs are not applicable for OCI Deployment.

The security logs contain the header, payload, method, scheme, URI information for all the requests and corresponding responses.

Disabling Security Logs

By default Security Log will be enabled for *M-CCNC IAM*, *M-CNCC Core*, and *A-CNCC Core*. You can disable this by setting *securityLogEnabled* flag to false in *custom values.yaml* file.

```
# CNC Console configuration
cncc:
  # Enable security logs for CNC Console
  securityLogEnabled: false
```

Header Information

At all the log levels, sensitive information like Cookies are masked.

Note

The user can find the Security logs:

- For M-CNCC Core and A-CNCC Core, these are logged as part of *cncc-mcore-ingress-gateway* or *cncc-acore-ingress-gateway* and are represented in CNC Console message format.
- For M-CNCC IAM, these are logged as part of *cncc-iam-ingress-gateway* and are represented in CNCC message format.

Log Levels**Note**

M-CNCC IAM ingress-gateway default log levels are not applicable for OCI deployment.

Default log levels set for M-CNCC Core and A-CNCC Core:

```
ingress-gateway:
  log:
    level:
      cncc:
        root: WARN
        audit: INFO
        security: INFO
```

Default log levels set for M-CNCC IAM:

```
ingress-gateway:
  log:
    level:
      cncc:
        root: WARN
        security: INFO
```

Updating M-CNCC IAM Kubernetes Cluster (KC) log level**Note**

M-CNCC IAM KC logs levels are not applicable for OCI Deployment.

- 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.keycloak.events package is set to **DEBUG**

- In the **level** label, set the log level. Following are the different options available to set the log level:
 - **Log level**
 - * TRACE
 - * DEBUG
 - * INFO
 - * WARN
 - * ERROR
 - * FATAL
 - **level: OFF**
No logs will appear
- Sample M-CNCC IAM KC log configuration:

```
kc:
  preferIpv6Stack:
    enabled: false
  log:
    level: WARN,org.keycloak.events:DEBUG
```

Supported Headers for Logging

Header	Header values (regex)
Content-Type	^application/x-www-form-urlencoded.*
	^application/json.*
	^application/problem+json.*
Accept	^application/json.*
	^application/ld+json.*
	^application/xml.*
	^multipart/form-data.*

Role of supporting headers in CNC Console Audit and Security logs

- At INFO level, only those request and response that match the supporting headers and values are logged.
- At DEBUG level, no supporting headers used and all request and response are logged.
- At ERROR / WARN, no supporting headers used and only error or warnings are logged.

Note

Any failure in authorizing a request will always be logged irrespective of the supported header configuration.

10.3 Examples of Logs

This section lists the examples of audit and security logs.

[Examples of Audit Logs](#)

[Examples of Security Logs](#)**Examples of Audit Logs****CNC Console Core**

Only message part of the JSON log is shown in the example.

- User successfully logging into CNC Console Core

```
logType=AUDIT, type=LOGIN, resourceType=CNCC,
userId=186f6f2a-ba6a-4812-8a18-b906a5f9e3f6, username=user,
operationType=GET, remoteAddress=/192.168.219.64:53587,
localAddress=cncc-core-ingress-gateway.cncc.svc.cluster.local/
<unresolved>:30075,
resourcePath=/login/oauth2/code/cncc-iam,
authenticationType=0AUTH
```

- User accessing SCP resource having SCP_READ role

```
logType=AUDIT, type=ACCESS_RESOURCE, resourceType=SCP,
userId=186f6f2a-ba6a-4812-8a18-b906a5f9e3f6, username=user,
operationType=GET, remoteAddress=/192.168.219.64:53587,
localAddress=cncc-core-ingress-gateway.cncc.svc.cluster.local/
<unresolved>:30075,
resourcePath=/soothsayer/v1/canaryrelease/,
authenticationType=0AUTH
```

- User updating(PATCH) SCP resource having SCP_WRITE role

```
logType=AUDIT, type=ACCESS_RESOURCE, resourceType=SCP,
userId=186f6f2a-ba6a-4812-8a18-b906a5f9e3f6, username=user,
operationType=PATCH, remoteAddress=/192.168.219.64:53587,
localAddress=cncc-core-ingress-gateway.cncc.svc.cluster.local/
<unresolved>:30075,
resourcePath=/soothsayer/v1/canaryrelease/n5g-eir-eic,
authenticationType=0AUTH
```

- User accessing NRF resource without having NRF_READ role

```
logType=AUDIT, type=ACCESS_RESOURCE_ERROR, resourceType=NRF,
userId=186f6f2a-ba6a-4812-8a18-b906a5f9e3f6, username=user,
status=403 FORBIDDEN, operationType=GET,
remoteAddress=/192.168.219.64:53587,
localAddress=cncc-core-ingress-gateway.cncc.svc.cluster.local/
<unresolved>:30075,
resourcePath=/nrf-configuration/v1/system-options,
authenticationType=0AUTH
```

- User successful logout

```
logType=AUDIT, type=LOGOUT, resourceType=CNCC,
userId=186f6f2a-ba6a-4812-8a18-b906a5f9e3f6, username=user,
operationType=POST, remoteAddress=/192.168.219.64:53587,
localAddress=cncc-core-ingress-gateway.cncc.svc.cluster.local/
<unresolved>:30075,
resourcePath=/logout, authenticationType=0AUTH
```

CNC Console IAM:

Note

- The defined CNC Console IAM Audit log examples are not applicable for OCI Deployment.
- The CNC Console IAM Security log examples are not applicable for OCI Deployment.
- To see M CNCC-IAM KC Audit event logs, set the *org.keycloak.events* package log to DEBUG in the *custom_values.yaml*. Refer [Updating M-CNCC IAM KC loglevel](#) for log level configuration.

- Login Error when password entered was wrong

```
04:56:35,890 WARN [org.keycloak.events] (default task-22)
                                type=LOGIN_ERROR, realmId=master,
clientId=security-admin-console,
                                userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
                                error=invalid_user_credentials,
auth_method=openid-connect,
                                auth_type=code, redirect_uri=http://
10.75.225.28:31373/cncc/auth/admin/master/console/, code_id=5aca4960-
eecf-406b-a7eb-92e249c2beeb,
                                username=admin,
                                authSessionParentId=5aca4960-eecf-406b-
a7eb-92e249c2beeb,
                                authSessionTabId=8sruELA1Wws
```

- Login with correct credential

```
04:57:24,581 DEBUG [org.keycloak.events] (default task-22)
                                type=LOGIN, realmId=master,
clientId=security-admin-console,
                                userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
                                auth_method=openid-connect, auth_type=code,
redirect_uri=http://10.75.225.28:31373/cncc/auth/admin/master/console/,
consent=no_consent_required,
                                code_id=5aca4960-eecf-406b-
a7eb-92e249c2beeb, username=admin,
                                authSessionParentId=5aca4960-eecf-406b-
```

- a7eb-92e249c2beeb,
authSessionTabId=8sruELA1Wws
- User created
04:58:41,804 DEBUG [org.keycloak.events] (default task-22)
operationType=CREATE, realmId=master,
clientId=819ce4a5-ddbd-4717-908f-
a204bdabc808,
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
resourceType=USER,
resourcePath=users/070911f5-c397-42c1-b5a4-
cd92fa435a33
 - Deleted user
05:00:08,226 DEBUG [org.keycloak.events] (default task-22)
operationType=DELETE, realmId=master,
clientId=819ce4a5-ddbd-4717-908f-
a204bdabc808,
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
resourceType=USER,
resourcePath=users/2b931bbb-7f97-4f04-9f75-
e0d0974ab73d
 - Admin Role removed for a user
05:01:07,781 DEBUG [org.keycloak.events] (default task-22)
operationType=DELETE, realmId=master,
clientId=819ce4a5-ddbd-4717-908f-
a204bdabc808,
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
resourceType=REALM_ROLE_MAPPING,
resourcePath=users/
08fc0058-133b-4288-9165-14c96c5dcd7a/role-mappings/realm
 - Admin Role added for a user
05:01:33,664 DEBUG [org.keycloak.events] (default task-27)
operationType=CREATE, realmId=master,
clientId=819ce4a5-ddbd-4717-908f-
a204bdabc808,
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
ipAddress=192.168.219.64,
resourceType=REALM_ROLE_MAPPING,
resourcePath=users/
08fc0058-133b-4288-9165-14c96c5dcd7a/role-mappings/realm
 - Realm setting update
05:02:29,222 DEBUG [org.keycloak.events] (default task-26)
operationType=UPDATE, realmId=master,

- ```

a204bdabc808,
ipAddress=192.168.219.64,
clientId=819ce4a5-ddbd-4717-908f-
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
resourceType=REALM, resourcePath=null

```
- Logout all session on keycloak
- ```

05:05:02,383 DEBUG [org.keycloak.events] (default task-29)
operationType=ACTION, realmId=master,
clientId=819ce4a5-ddbd-4717-908f-
a204bdabc808,
ipAddress=192.168.219.64,
userId=d7cde46f-15e1-4ff8-a2cb-c5825e481438,
resourceType=REALM, resourcePath=logout-all

```

Examples of Security Logs

Representation for IAM and Core are same as these logs are part of ingress-gateway. Only message part of the JSON log is shown in the example.

CNC Console Core

- SCP request

```

logType=SECURITY, type=REQUEST, resourceType=SCP,
b395-27bf56da1262, username=user,
userId=3314f54f-08bf-489d-
operationType=GET, scheme=http,
remoteAddress=/192.168.219.64:53587,
localAddress=cnc-core-ingress-
gateway.cncc.svc.cluster.local/<unresolved>:30075,
resourcePath=/soothsayer/v1/
canaryrelease/, queryParams={},
headers={Accept=*/, X-Requested-
With=XMLHttpRequest,
User-Agent=Mozilla/5.0 (Windows NT
10.0; WOW64; rv:68.0)
Gecko/20100101 Firefox/68.0,
Connection=keep-alive,
Host=cnc-core-ingress-
gateway.cncc.svc.cluster.local:30075,
Accept-Language=en-US,en;q=0.5, Accept-
Encoding=gzip, deflate,
DNT=1, Content-Type=application/json;
charset=utf-8},
payload={}, authenticationType=0AUTH

```

- SCP response

```

logType=SECURITY, type=RESPONSE, resourceType=SCP,
b395-27bf56da1262, username=user,
userId=3314f54f-08bf-489d-
status=200 OK, operationType=GET,
scheme=http,
resourcePath=/soothsayer/v1/

```

```

canaryrelease/,
                                headers={transfer-encoding=chunked,
Connection=keep-alive,
                                Transfer-Encoding=chunked, Content-
Type=application/json,
                                Date=Sat, 04 Jul 2020 11:58:20 GMT},
                                payload=[{"serviceName":"n5g-eir-
eic","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"namf-
comm","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"namf-
evts","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"namf-
loc","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"namf-
mt","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"nausf-
auth","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTraffic":5},
{"serviceName":"nausf-
sorprotection","canaryReleaseFlag":true,"apiFullVersion":"2.0.0","canaryTra
ffic":5}}],
                                authenticationType=OAUTH

```

CNC Console IAM

The logs for IAM Ingress Gateway contain the username and user ID for all actions performed by CNCC-IAM admin users post-login, alongside other relevant information.

- Request

```

logType=SECURITY, type=REQUEST, userId=2811c05e-
bc84-4597-8014-3a88ef7535c2, username=admin, operationType=GET,
scheme=http, remoteAddress=/10.233.118.0:52597, localAddress=/
10.233.80.179:8081, resourcePath=/cncc/auth/admin/realms/master/users/
0931c7a1-34a6-45f1-9db5-5cd8a043fefb,
queryParams={userProfileMetadata=true}, headers={Connection=keep-alive,
User-Agent=Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/
537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36,
uidToken=07338817-d0ac-4b18-948d-e3d5c0c91879, Host=10.121.42.53, Accept-
Encoding=gzip, deflate, svcName=cncc-iam-kc-http.amanp-ns.svc.thrust2a,
ocLogId=1733063953903_110_cncc-iam-ingress-gateway-5f7d9b9d87-dt6vj,
accept=application/json, text/plain, */*, sbi-timer-publish-headers=false,
content-type=application/json, Accept-Language=en-GB,
en; q=0.9,
sbi-timer-feature=false}, payload={}, authenticationType=UNKNOWN",
"endOfBatch": false, "loggerFqn": "org-apache.logging.
10g4j.internal.DefaultLogBuilder", "threadId":112, "threadPriority":5,
"messageTimestamp":"2024-12-01T14:39:13.910+0000",
"processId": "1", "ingressTxId":"ingress-tx-1093411995", "pod": "cncc-iam-
ingress-gateway-5f7d9b9d87-dt6vj" ,
"ocLogId":"1733063953903_110_cncc-iam-ingress-gateway-5f7d9b9d87-dt6vi"
"instanceType":"prod" "RequestId": ''}

```

- Response

```
"message": " logType=SECURITY, type=RESPONSE, status=200 OK,
userId=2811c05e-bc84-4597-8014-3a88ef7535c2, username=admin,
operationType=GET, schemeshttp, resourcePath=/cncc/auth/admin/ realms/
master/clients/a6f486d4-0d0f-468d-a609-f655e9f1c492, headers={transfer-
encoding=chunked, content-length=772, Cache-Control=no-cache, Content-
Type=application/json;charset=UTF-8, Referrer-Policy=no-referrer, Strict-
Transport-Security=max-age=31536000; includeSubDomains, X-Content-Type-
Options=nosniff, X-Frame-Options=SAMEORIGIN, X-XSS-Protection=1;
mode=block, NettyLatency=1733064487125, RequestMethod=GET}, payload=
{"id\":\"a6f486d4-0d0f-468d-a609-f655e9f1c492\", \"clientId\" :\"cncc-
realm\", \"name\" : \"cncc Realm\" ,
\"surrogateAuthRequired\": false, \"enabled\": true,
\"alwaysDisplayInConsole\": false, \"clientAuthenticatorType\" :\"client-
secret\", \"redirectUri\": [1, \"webOrigins\": [1, \"notBefore\":0,
\"beareronly\": true, \"consentRequired\": false, \"standardFlowEnabled\": true, \"implicitFlowEnabled\": false,
\"directAccessGrantsEnabled\": false, \"serviceAccountsEnabled\": false,
\"publicClient\": false, \"frontchannelLogout\": false, \"attributes\":
{}, \"authenticationFlowBindingOverrides\": {},\"fullScopeAllowed\": true,
\"nodeReRegistrationTimeout\":0, \"defaultClientScopes\": [\"web-
origins\", \"roles\", \"profile\", \"email\"], \"optionalClientScopes\":
[\"address\", \"phone\", \"offline_access\", \"microprofile-jwt\"],
\"access\":{\"view\": true, \"configure\": true, \"manage\": true}},
authenticationType=UNKNOWN\", \"endofBatch\": false, \"loggerFqn\": \"org-
apache. logging. log4j. internal.DefaultLogBuilder\", \"threadId\":122,
\"threadPriority\":5, \"messageTimestamp\": \"2024-12-01T14:48:07.152+0000\",
\"processId\": \"1\" ,
\"ingressTxId\" :\"ingress-tx-577080018\", \"pod\":\"cncc-iam-ingress-
gateway-5f7d9b9d87-dt6vj\", \"ocLogId\" :\"\", \"instanceType\": \"prod\" ,
\"RequestId\" : \"\"}
```

10.4 Accessing logs

This section gives information about how to access the logs.

10.4.1 Accessing Logs in Non OCI Deployment

The CNC Console application logs can be accessed in following ways:

1. Run the following command to view logs of a CNC Console application pod:

```
kubectl logs -f -n <cncc_namespace> <pod_name> -c <container_name>
```

Example:

CNC Console Core:

```
$ kubectl logs -f -n cncc cncc-mcore-ingress-gateway-77df795fb5-wv2sb -c
ingress-gateway (Security & Audit Log)
```

CNC Console IAM:

```
$ kubectl logs -f -n cncc cncc-iam-ingress-gateway-77df795fb5-wv2sb -c ingress-gateway (Security Log)
```

```
$ kubectl logs -f -n cncc cncc-iam-0 (Audit Log)
```

2. CNC Console uses cloud native supported logging framework to view the logs.

Example : Elasticsearch, Fluentd, and Kibana (EFK) can be used here with CNC Console to view the logs as follows:

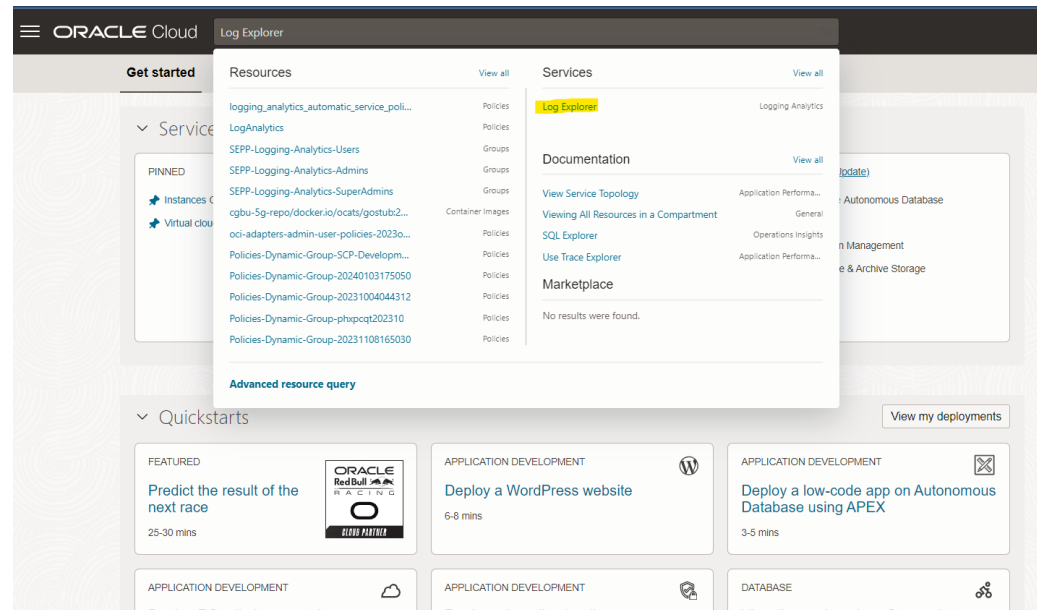
Figure 10-1 Log View



10.4.2 Accessing logs in OCI Deployment

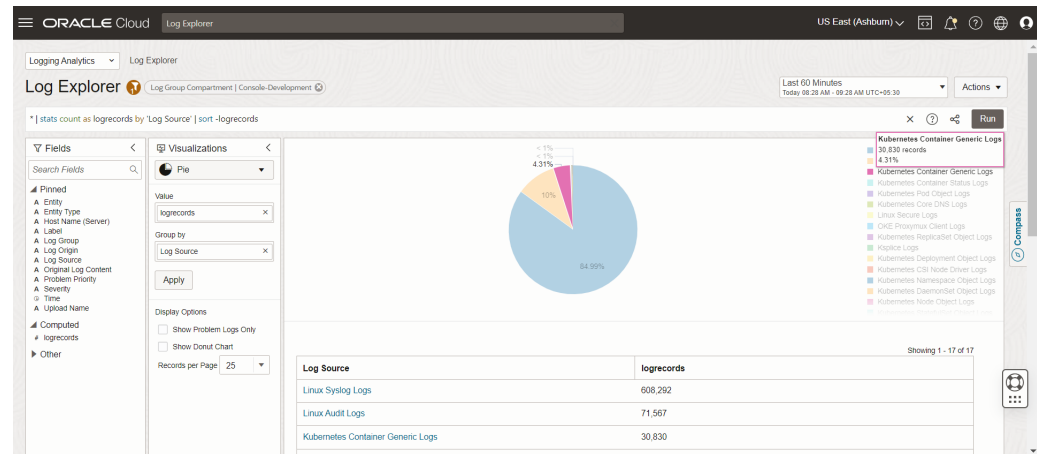
1. Viewing logs for OCI IAM in OCI Console GUI:
See the [Generate Identity and Access Management Reports from Oracle Cloud Infrastructure Audit](#) document to view OCI IAM logs.
2. Viewing logs for M-CNCC Core and A-CNCC Core in OCI Console GUI:
 - a. Log in to OCI Console GUI and search for **Log Explorer** or Click the Hamburger menu, click **Observability and Management**, then click **Log Explorer** in **Logging Analytics** section. This will open the Log Explorer page.

Figure 10-2 Log Explorer



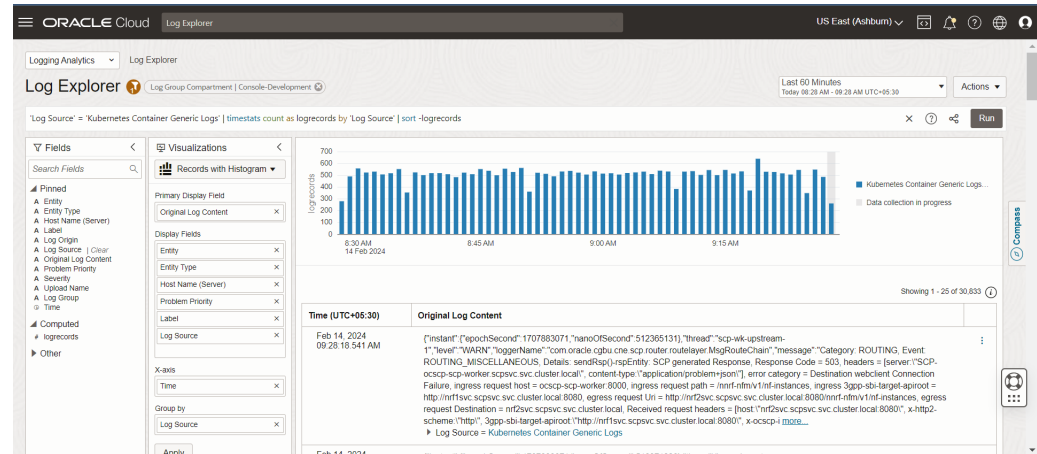
- b. On the Log Explorer page, click **Kubernetes Container Generic logs**.

Figure 10-3 Kubernetes Container Generic logs



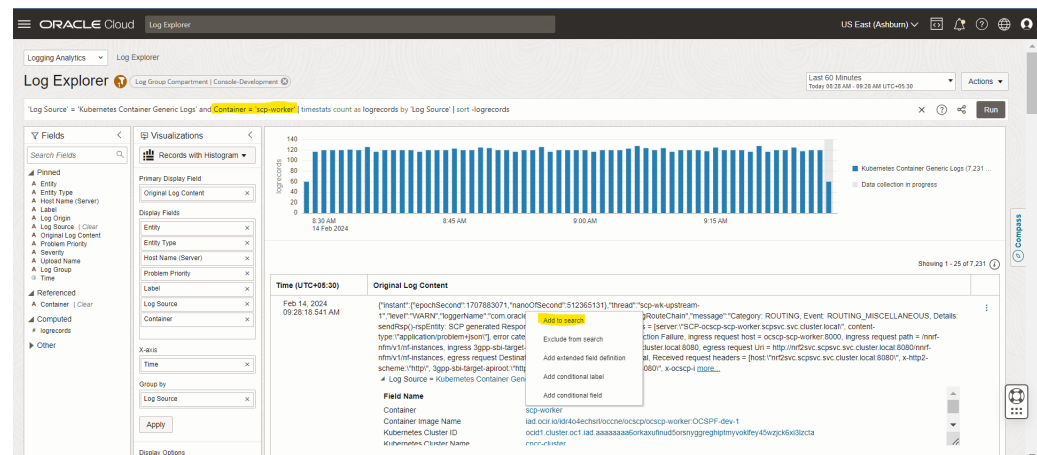
- c. After clicking the **Kubernetes Container Generic Logs** link, logs will be visible.

Figure 10-4 View Logs



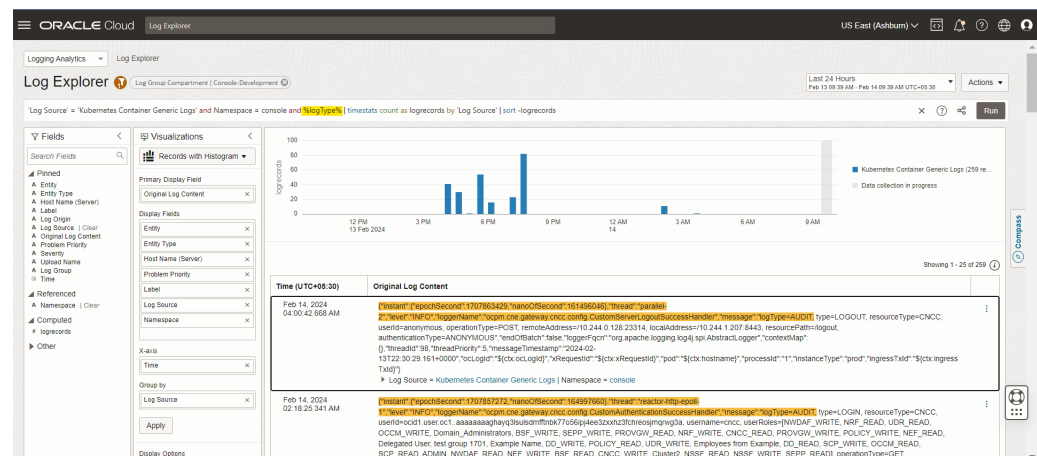
- d. You can filter the logs by the container by clicking **Add to search**. Similarly other log source fields can also be added to filter logs.

Figure 10-5 Filter the logs by the container



- e. Filter logs based on the logType regex pattern for security and audit logs. Similarly required regex patterns can be used to filter the logs.

Figure 10-6 Regex Patterns for Filtering Logs



Note

For more details, see the Explore Logs section in the [Oracle Cloud Infrastructure Logging Analytics Quick Start Guide](#).