Oracle® Communications

Networks Data Analytics Function Network Impact Report

Release 23.3.0

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Oracle Communications Networks Data Analytics Function Network Impact Report, Release 23.3.0

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Contents

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Acronyms

The following table provides information about the acronyms and the terminology used in the document.

Table Acronyms

Acronym	Description
3GPP	3rd Generation Partnership Project
5GC	5G Core Network
5GS	5G System
AF	Application Function
API	Application Programming Interface
AMF	Access and Mobility Management Function
CNC	Cloud Native Core
CNE	Oracle Communications Cloud Native Core, Cloud Native Environment
FQDN	Fully Qualified Domain Name
GUI	Graphical User Interface
HTTPS	Hypertext Transfer Protocol Secure
KPI	Key Performance Indicator
HA	High Availability
IMSI	International Mobile Subscriber Identity
K8s	Kubernetes
ME	Monitoring Events
Network Slice	A logical network that provides specific network capabilities and network characteristics.
NEF	Oracle Communications Cloud Native Core, Network Exposure Function
NF	Network Function
NRF	Oracle Communications Cloud Native Core, Network Repository Function
NSI	Network Slice Instance. A set of Network Function instances and the required resources (such as compute, storage and networking resources) which form a deployed Network Slice.
NSSF	Oracle Communications Cloud Native Core, Network Slice Selection Function
NWDAF	Network Data Analytics Function
OAM	Operations, Administration, and Maintenance
PLMN	Public Land Mobile Network
REST	Representational State Transfer
SBA	Service Based Architecture
SBI	Service Based Interface
SMF	Session Management Function
SNMP	Simple Network Management Protocol
SUPI	Subscription Permanent Identifier
UDM	Unified Data Management

Table (Cont.) Acronyms

Acronym	Description
UE	User Equipment
URI	Uniform Resource Identifier

What's New in This Guide

This section introduces the documentation updates for Release 23.3.x in *Oracle Communications Networks Data Analytics Function Network Impact Report*.

Release 23.3.0.0.1 - F84698-02, November 2023

- Updated compatibility matrix details in the Compatibility Matrix section.
- Updated software requirements in the Software Requirements section.

Release 23.3.0 - F84698-01, September 2023

- Added compatibility matrix details in the Compatibility Matrix section.
- Added Common Services load lineup details in the Common Services Load Lineup section.
- Added resource requirement details in the Resource Requirements section.
- Added orchestration details in the Orchestration section.
- Added new feature information in the OCNWDAF Features section.
- Added Helm parameter details in the Helm section.
- Added Rest API details in the REST API section.

1 Introduction

The purpose of this document is to highlight the changes made in OCNWDAF from Release 23.2.x to Release 23.3.x. These changes may have impact on the customer network operations and must be considered while planning the deployment.

> **Note**
>
> The performance and capacity of the OCNWDAF system may vary based on the call model, Feature/Interface configuration, and underlying CNE and hardware environment.

1.1 Compatibility Matrix

This section lists the versions of added or updated components in Release 23.3.x. To know the list of all the supported versions, see *Oracle Communications Network Analytics Suite Release Notes*.

OCNWDAF Release 23.3.0.0.1

The following table lists the versions of added or updated components in Release 23.3.0.0.1:

Table 1-1 Compatibility Matrix

Component	Compatibility Version
CNE	• 23.3.x • 23.2.x • 23.1.x
cnDBTier	• 23.3.x • 23.2.x • 23.1.x
OSO	NA
CDCS	NA
CNC Console	• 23.3.x • 23.2.x • 23.1.x
ATS	23.2.0

OCNWDAF Release 23.3.0

The following table lists the versions of added or updated components in Release 23.3.0:

Table 1-2 Compatibility Matrix

Component	Compatibility Version
CNE	• 23.2.x • 23.1.x
cnDBTier	• 23.2.x • 23.1.x
OSO	NA
CDCS	NA
CNC Console	• 23.3.x • 23.2.x • 23.1.x
ATS	23.2.0

1.2 Common Services Load Lineup

This section lists the versions of added or updated common services in Release 23.3.x. To know the list of all the supported versions, see *Oracle Communications Network Analytics Suite Release Notes*.

OCNWDAF Release 23.3.0

The following table lists the versions of added or updated common services in Release 23.3.x:

Table 1-3 Common Services Load Lineup

Service Name	Version
nrf client app-Info	22.4.0
nrf client configuration server	22.4.0
nrf client perf info	22.4.0
Egress Gateway	23.1.3
Ingress Gateway	23.1.3
NRF client	22.4.0
Helm Test	22.2.0
ATS Framework	23.2.0

1.3 Software Requirements

This section lists the added or updated software required to install Release 23.3.x. For more information about software requirements, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.

OCNWDAF Release 23.3.0.0.1

The following table lists the versions of added or updated software required to install Release 23.3.0.0.1:

Table 1-4 Software Requirements

Software	Version
Kubernetes	• 1.26.x • 1.25.x • 1.24.x
Helm	• 3.6.3 • 3.8.0
Podman	• 2.2.1 • 3.2.3 • 3.3.1

Table 1-5 Additional Software

Software	Version	Used For
MetalLb	NA	External IP
Prometheus	NA	Metrics
Jaeger	NA	Tracing

OCNWDAF Release 23.3.0

The following table lists the versions of added or updated software required to install Release 23.3.0:

Table 1-6 Software Requirements

Software	Version
Kubernetes	• 1.24.x • 1.23.x
Helm	• 3.6.3 • 3.8.0
Podman	• 2.2.1 • 3.2.3 • 3.3.1

Table 1-7 Additional Software

Software	Version	Used For
MetalLb	NA	External IP
Prometheus	NA	Metrics
Jaeger	NA	Tracing

1.4 Orchestration

This section provides information about orchestration changes in Release 23.3.x.

OCNWDAF Release 23.3.0

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

Table 1-8 Orchestration

Orchestration Changes	Status	Notes
Support for in-service upgrade and roll back	No	OCNWDAF does not support upgrade or rollback.
Changes in the `values.yaml` file	No	For information on Helm parameters, see Helm section.
Changes in the resource information for `values.yaml` file	NA	For information about changes in the resource requirements, see Resource Requirements section.
Changes in the CSAR package	No	For more information on the CSAR package, contact My Oracle Support
Changes in Role-Based Access Control (RBAC) policy	No	No new RBAC policies are added.
Changes in Life Cycle Management (LCM) Operations	No	No new LCM operations are added.
Helm Test Support	No	For information about Helm test, see Performing Helm Test section in *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide.*

1.5 Resource Requirements

This section lists the added or updated resource requirements in Release 23.3.x. For more information about resource requirements, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.

> **Note**
>
> Changes in the resource requirements are highlighted in **bold**.

OCNWDAF Release 23.3.0

The following table lists the added or updated resource requirements in this release:

Table 1-9 NWDAF Services Resource Requirements

Service Name	Pod replica #		CPU/Pod		Memory/Pod (in G)		Ephemeral Storage	
	Min	Max	Min	Max	Min	Max	Min (Mi)	Max (G)
ocn-nwdaf-data-collection-controller	**2**	**1**	**2**	**2**	**1**	**1**	**78.1**	**1**
cap4c-configuration-manager-service	**1**	**2**	**1**	**2**	**1**	**2**	**78.1**	**1**
cap4c-stream-transformer	**1**	**2**	**1**	**2**	**1**	**2**	**78.1**	**1**

Table 1-9 (Cont.) NWDAF Services Resource Requirements

Service Name	Pod replica #		CPU/Pod		Memory/Pod (in G)		Ephemeral Storage	
	Min	Max	Min	Max	Min	Max	Min (Mi)	Max (G)
cap4c-api-gateway	1	2	1	2	1	2	78.1	1
Total	5	7	5	8	4	7	312.4	4

> **Note**
>
> The **ocn-nwdaf-configuration-service** microservice is deprecated.

2
OCNWDAF Features

This chapter lists the added or updated features in Release 23.3.x. For more information about the features, see *Oracle Communications Networks Data Analytics Function User Guide*.

OCNWDAF Release 23.3.0

Oracle Communications Networks Data Analytics Function (OCNWDAF) 23.3.0 is updated with the following enhancements:

- **User data congestion analytics:** The OCNWDAF provides User Data Congestion Analytics to consumers (statistical and threshold). It includes information about the congestion experienced during user data transfer over the user plane. The congestion information reported is specific to an Area of Interest (AoI) or a User Equipment (UE). The OCNWDAF provides congestion analytics for a slice based on the Single-Network Slice Selection Assistance Information (S-NSSAI). For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.
- **Machine Learning (ML) model selection:** Machine Learning (ML) Models are programs trained to find patterns within data sets and make predictions on input data. The ML Models are trained over a data set that consists of historical data. The OCNWDAF provides a GUI dashboard to select, train, and optimize one or more ML Models for a given analytics category. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.
- **Data collection controller service:** The OCNWDAF retrieves data from various sources (for example, NFs such as AMF and SMF) and computes analytics using this data. The Data Collection Controller microservice is introduced in this release. The Data Collection Controller and Data Collection microservices together perform data collection for the OCNWDAF. The Data Collection Controller Service subscribes to all NFs, manages the subscriptions and updates the Analytics Subscription service. The Data Collection Service collects data from the producer NFs and streams it to the CAP4C Analytics Engine for further processing. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.
- **Network performance visualization on the OCNWDAF dashboard:** The OCNWDAF provides network performance analytics to the consumer. The analytics information primarily includes resource consumption by gNodeB (gNB) and mobility performance indicators in the Area of Interest (AoI).The OCNWDAF GUI is enhanced to display all the available cells in a selected Tracking Area, Session Success Ratio, HO Success Ratio, GNB Computing, Memory, and Disk Usage. User can set a threshold value, select a tracking area, and specify a time interval. The GUI displays all the available cells according to the specified parameters. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.
- **OCNWDAF dashboard enhancement**: The OCNWDAF GUI has been enhanced with rich visual features for ML Model Selection, NF Load Monitoring, Network Performance, and User Data Congestion Analytics. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.

3
Supported Upgrade and Rollback Paths

This chapter lists the supported upgrade and rollback paths in Release 23.3.x.

OCNWDAF Release 23.3.0

Supported Upgrade Path

OCNWDAF does not support upgrade.

Supported Rollback Path

OCNWDAF does not support rollback.

4 Configuration

This chapter lists the added or updated configuration changes in Release 23.3.x.

4.1 Helm

This section lists the Helm parameter changes in Release 23.3.x. For more information about software requirements, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide.*

OCNWDAF Release 23.3.0

No new Helm parameters are added in this release.

4.2 REST API

This section lists the REST API changes in release 23.3.x. For more information about the REST APIs, see *Oracle Communications Networks Data Analytics Function User Guide*.

OCNWDAF Release 23.3.0

Added the User Data Congestion Analytics Rest APIs for the newly introduced User Data Congestion Analytics category.

- apiroot
- serverport
- subscriptionId
- analyticsId
- supported-features
- tgt-ue
- event-filter
- ana-req
- eventSubscriptions
- evtReq notificationURI
- eventNotifications
- failEventReports
- consNfInfo
- notifCorrId
- supportedFeatures
- anySlice
- event
- extraReportReq

- matchingDir
- networkArea
- notificationMethod
- repetitionPeriod
- snssais
- tgtUe
- eventNotifications
- subscriptionId
- event
- start
- expiry

5 Observability

This chapter lists the observability changes in release 23.3.x.

5.1 Metrics

This section lists the added or updated metrics in Release 23.3.x. For more information on the metrics, see *Oracle Communications Networks Data Analytics Function User Guide*.

OCNWDAF Release 23.3.0

New metrics are not introduced in release 23.3.0.

5.2 Alerts

This section lists the added or updated alerts in Release 23.3.x. For more information on the alerts, see *Oracle Communications Networks Data Analytics Function User Guide*.

OCNWDAF Release 23.3.0

New alerts are not introduced in release 23.3.0.