

Oracle® Communications

Networks Data Analytics Function Network Impact Report



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ORACLE®

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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 24.1.x in *Oracle Communications Networks Data Analytics Function Network Impact Report*.

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- 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 information about new features in the [OCNWDAF Features](#) section.
- Added Helm parameter details in the [Helm](#) section.

1

Introduction

The purpose of this document is to highlight the changes made in OCNWDAF from Release 23.4.x to Release 24.1.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 24.1.x. To know the list of all the supported versions, see *Oracle Communications Network Analytics Suite 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

Component	Compatibility Version
CNE	23.4.x 23.3.x 23.2.x 23.1.x
cnDBTier	24.1.x
OSO	NA
CDCS	NA
CNC Console	24.1.x 23.4.x 23.3.x
OCNADD	24.1.x
ATS	24.1.0

1.2 Common Services Load Lineup

This section lists the versions of added or updated common services in Release 24.1.x. To know the list of all the supported versions, see *Oracle Communications Network Analytics Suite Release Notes*.

Release 24.1.0

The following table lists the versions of added or updated common services in Release 24.1.x:

Table 1-2 Common Services Load Lineup

Service Name	Version
nrf client app info	23.4.0
nrf client configuration server	23.4.0
nrf client perf info	23.4.0
nwdaf-egress-gateway	23.4.3
nwdaf-ingress-gateway	23.4.3
nrf client	23.4.2
Helm Test	22.4.0
ATS Framework	24.1.0

1.3 Software Requirements

This section lists the added or updated software required to install Release 24.1.x. For more information about software requirements, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.

Release 24.1.0

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

Table 1-3 Software Requirements

Software	Version
Kubernetes	• 1.27.x • 1.26.x • 1.25.x • 1.24.x • 1.22.x • 1.21.x • 1.20.x
Helm	• 3.12.3 • 3.12.0 • 3.10.3 • 3.9.4 • 3.8.0 • 3.6.3 • 3.5.0 • 3.1.2

Table 1-3 (Cont.) Software Requirements

Software	Version
Podman	• 4.6.1 • 4.4.1 • 4.2.0 • 3.3.1 • 3.2.3 • 2.2.1

Table 1-4 Additional Software

Software	Version	Used For
MetalLb	0.12.1	External IP
Prometheus	2.39.1	Metrics
tracer	1.21.0	Tracing

1.4 Orchestration

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

Release 24.1.0

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

Table 1-5 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	Yes	For information on Helm parameters, see Helm section.
Changes in the resource information for values.yaml file	Yes	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 <i>Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide</i> .

1.5 Resource Requirements

This section lists the added or updated resource requirements in Release 24.1.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**.

Release 24.1.0

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

Table 1-6 Core Microservices Resource Requirements

Microservice Name	Instances	POD Replica		CPU/POD		Memory/POD (in GB)		Ephemeral Storage	
		Min	Max	Min	Max	Min	Max	Min (Mi)	Max (GB)
ocn-nwdaf-analytics-info-service	1	1	2	2	2	2	2	78.1	1
nwdaf-ingress-gateway	2	1	2	2	2	2	2	78.1	1
nwdaf-egress-gateway	2	1	2	1	2	2	2	78.1	1
nwdaf-cap4c-spring-cloud-config-server	1	1	2	2	2	1	1	78.1	1
ocn-nwdaf-data-collection-service	1	1	2	4	6	4	6	78.1	1
ocn-nwdaf-data-collection-controller	1	1	2	4	6	4	6	78.1	1
ocn-nwdaf-subscription-service	1	1	2	4	6	2	4	200	1
cap4c-configuration-manager-service	1	2	2	2	2	2	3	78.1	1
ocn-nwdaf-cap4c-model-controller	1	2	2	4	4	2	3	78.1	1
ocn-nwdaf-cap4c-model-executor	1	2	2	4	4	1	2	78.1	1
ocn-nwdaf-cap4c-stream-analytics	1	2	2	4	4	1	2	78.1	2
ocn-nwdaf-cap4c-kafka-ingestor	1	2	2	1	2	1	2	78.1	1
mirrormaker2 DD replicator	1	1	1	1	1	1	1	78.1	1
cap4c-capex-optimization-service	1	1	1	1	2	1	2	78.1	1
Total		19	26	36	44	27	39	1215.3	

2

OCNWDAF Features

This chapter lists the added or updated features in Release 24.1.x. For more information about the features, see *Oracle Communications Networks Data Analytics Function User Guide*.

Release 24.1.0

Oracle Communications Networks Data Analytics Function (OCNWDAF) 24.1.0 is updated with the following enhancements:

- **Slice Load Monitoring Enhanced:** The Slice Load Monitoring screen in the GUI is enhanced with tabs to display different visualization styles of slice data. Three different tabs present the slice load data. The tabs display Active Slices, Line Charts, and the Tracking Areas. The Active Slices tab displays the Registered Slices, information about the Registered Slices, and a map view of the slices. The Line Chart tab displays the Slice Load data in Line Chart format and information about the Registered Slices. The Tracking Areas tab displays the tracking areas in the Registered Slices and a map view of the tracking areas. All tabs display information about the Slice Load Threshold Events. The multilayer feature introduced enhances user view by allowing the choice of the order in which the slices and areas are drawn in the map view. On changing the order of the listed slices and tracking areas, the map view gets updated accordingly. Viewing overlapping slices and tracking areas is more precise in the map view. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*. The internal procedure used to calculate metrics is upgraded to derive accurate Slice Load metrics. Configure the Data Director as specified in the section "Configuring Data Director" in the *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide* to view the accurate Slice Load Metrics.
- **Capex Optimization:** The Capex Optimization feature aids in identifying network areas that require additional resources due to the high density of preferred subscribers and network activity. A new microservice has been introduced to interface between the Portal service and the Analytics DB service to create Capex groups and view Capex analytics information. Users can create Capex groups on the GUI and view detailed graphical representations of Capex metrics on the GUI. In this release, this feature is intended only for use case demonstration. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*.
- **IPv6 Support:** OCNWDAF supports Internet Protocol version 6 (IPv6) standard protocol. This activity is a part of the architectural enhancement for OCNWDAF. The default format is IPv4. Users can choose to configure either IPv4 or IPv6 during deployment through the HELM configuration. IPv6 is supported on all ingress (and egress) interfaces, including SBA, Kafka, and HTTPS. For more information, see *Oracle Communications Networks Data Analytics Function User Guide*. To configure IPv6 support, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.
- **Upgraded Versions of Ingress, Egress Gateway, and NRF Client Service:** OCNWDAF now supports upgraded versions of Ingress, Egress gateways, and the NRF Client Service. This activity is a part of the architectural enhancement for OCNWDAF. For information on the latest versions supported, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.
- **Machine Learning (ML) Model Replication in Georedundant Deployments:** Georedundancy is used to mitigate such network failures and ensure service continuity in a

network. To implement georedundancy, information from one site is replicated across multiple sites to efficiently handle failure scenarios and ensure High Availability (HA). The OCNWDAF now supports ML Model replication along with data replication. The ML models created by the Model Executor service are replicated across all georedundant sites. For more information on ML Model Replication, see *Oracle Communications Networks Data Analytics Function User Guide*. To configure this feature, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.

- **Performance Metrics for Deployment:** Scaling an OCNWDAF deployment and utilizing it to its maximum potential requires a detailed understanding of the resources needed for data collection, processing, storage, model training, subscriptions, and analytics information requests. Extensive Benchmark testing provided insights on storage and sizing recommendations, limitations, Database Benchmarking, and deployment suggestions to overcome the identified constraints. For more information see, *Oracle Communications Networks Data Analytics Function Benchmarking Guide*.

3

Supported Upgrade and Rollback Paths

This chapter lists the supported upgrade and rollback paths in Release 24.1.x.

OCNWDAF Release 24.1.0

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 24.1.x.

4.1 Helm

This section lists the Helm parameter changes in Release 24.1.x. For more information about Helm parameters, see *Oracle Communications Networks Data Analytics Function Installation and Fault Recovery Guide*.

Release 24.1.0

The following are the Helm parameters changes in release 24.1.0:

IPv6 Support Parameters

- INNODB
 - innodbDeploy
- CLUSTER-INFO
 - dbInUse
- IP CONFIGURATION
 - ipFamilyPolicy
 - ipFamilies
 - ipV6Mode

ML Model Replication Parameters

- deploy.storage.size
- deploy.storage.mountPath
- svc.port
- svc.targetPort
- svc.port.protocol

4.2 REST API

This section lists the REST API changes in release 24.1.x. For more information about the REST APIs, see *Oracle Communications Networks Data Analytics Function User Guide*.

Release 24.1.0

New REST APIs are not introduced in release 24.1.0.

5

Observability

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

5.1 Metrics

This section lists the added or updated metrics in Release 24.1.x. For more information on the metrics, see *Oracle Communications Networks Data Analytics Function User Guide*.

Release 24.1.0

New metrics are not introduced in release 24.1.0.

5.2 Alerts

This section lists the added or updated alerts in Release 24.1.x. For more information on the alerts, see *Oracle Communications Networks Data Analytics Function User Guide*.

Release 24.1.0

New alerts are not introduced in release 24.1.0.