Oracle® Communications
Cloud Native Core, Converged Policy (Policy) Network Impact Report

Release 24.1.0
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ORACLE®

Oracle Communications Cloud Native Core, Converged Policy (Policy) Network Impact Report, Release 24.1.0

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Contents

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Acronyms

The following table lists the acronyms and the terminologies used in the document:

Table   Acronyms and Terminologies

Acronym	Definition
3GPP	3rd Generation Partnership Project
AAA	Authorization Authentication Answer
AAR	Authorization Authentication Request
AF	Application Function
AMF	Access and Mobility Management Function
API	Application Programming Interface
ARS	Alternate Route Selection
ASM	Aspen Service Mesh
ASR	Abort-Session-Request
ATS	The core service sends the subscriber state variables to PDS only when there is an update to the variables.
AVP	Attribute Value Pair
BSF	Oracle Communications Cloud Native Core, Binding Support Function
CA	Certificate Authority
CDCS	Oracle Communications CD Control Server
CHF	Charging Function
CM	Configuration Management
CNC	Cloud Native Core
CNC Console	Oracle Communications Cloud Native Configuration Console
CNE	Oracle Communication Cloud Native Core, Cloud Native Environment
CNPCRF	Oracle Communications Cloud Native Core, Policy and Charging Rules Function
CUSTOMER_REPO	Docker registry address including the port number, if the docker registry has an associated port.
cnDBTier	Oracle Communications Cloud Native Core, cnDBTier
DNS	Domain Name System
DRA	Diameter Routing Agent
FQDN	Fully Qualified Domain Name
GUAMI	Globally Unique AMF Identifier
IMAGE_TAG	Image tag from release tar file. You can use any tag number. However, make sure that you use that specific tag number while pushing docker image to the docker registry.
IMS	IP Multimedia Subsystem
HTTPS	Hypertext Transfer Protocol Secure
MCC	Mobile Country Code
MCPTT	Mission-critical push-to-talk
METALLB_ADDRESS_POOL	Address pool configured on metallb to provide external IPs
MNC	Mobile Network Code
NEF	Oracle Communications Cloud Native Core, Network Exposure Function

Table   (Cont.) Acronyms and Terminologies

Acronym	Definition
NF	Network Function
NPLI	Network Provided Location Information
NRF	Oracle Communications Cloud Native Core, Network Repository Function
OSO	Oracle Communications Operations Services Overlay
P-CSCF	Proxy Call Session Control Function
PA Service	Policy Authorization Service
PCC	Policy and Charging Control
PDB	Pod Disruption Budget
PLMN	Public Land Mobile Network
PCF	Oracle Communications Cloud Native Core, Policy Control Function
PCRF	Oracle Communications Cloud Native Core, Policy and Charging Rules Function
PCEF	Policy and Charging Enforcement Function
PCSCF	Proxy Call Session Control Function
PDS	Policy Data Service
PRA	Presence Reporting Area
PRE	Policy Runtime Engine
PDU	Protocol Data Unit
Policy	Oracle Communications Cloud Native Core, Converged Policy
QoS	Quality of Service
RAA	Re-Auth-Answer
RAN	Radio Access Network
RAR	Re-Auth-Request
SBI	Service Based Interface
SAN	Subject Alternate Name
SCP	Oracle Communications Cloud Native Core, Service Communication Proxy
SMF	Session Management Function
S-NSSAI	Single Network Slice Selection Assistance Information
UDR	Oracle Communications Cloud Native Core, Unified Data Repository
SRA	Successful Resource Allocation
STR	Session Termination Request
TTL	Time To Live
UE	User Equipment
UPF	User Plane Function
UPSI	UE Policy Section Identifier
URSP	UE Route Selection Policies
UPSC	UE Policy Section Code
URI	Uniform Resource Identifier
VSA	Vendor Specific Attributes

What's New in This Guide

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

Release 24.1.0 - F93978-02, July 2024

- Updated CNE, cnDBTier, OSO, and CNC Console versions in the [Compatibility Matrix](#) section to list the versions that are compatible with Policy 24.1.0.

- Updated Kubernetes versions in the [Software Requirements](#) section to list the Kubernetes versions that are compatible with Policy 24.1.0.

Release 24.1.0 - F93978-01, April 2024

- Updated the [Compatibility Matrix](#) section to list the components that are compatible with Policy 24.1.0.

- Updated the [Common Services Load Lineup](#) section to list the components that are compatible with Policy 24.1.0.

- Updated the [Software Requirements](#) sections to list the software compatible with Policy 24.1.0.

- Updated the [Orchestration](#) sections with orchestration changes for Policy 24.1.0.

- Updated the [Resource Requirements](#) sections to list the services for which the resource requirement has changed in Policy 24.1.0.

- Added the list of features for Policy 24.1.0 in [Policy Features](#) section.

- Added details of the supported upgrade and rollback paths for Policy 24.1.0 under [Supported Upgrade and Rollback Paths](#) section.

- Updated the [Helm](#) section to list the new parameters added to Helm for Policy 24.1.0.

- Updated the [REST API](#) section to include the details of the REST APIs added or modified for Policy 24.1.0 release.

- Updated the [CNC Console](#) section to list the new parameters added to CNC Console for Policy 24.1.0.

- Updated the [Metrics](#) section with new or updated metrics for Policy 24.1.0.

- Updated the [Alerts](#) section with new alerts for Policy 24.1.0.

- Updated the [Alerts](#) section with details of MIB changes.

1
Introduction

1.1 Purpose and Scope

The purpose of this document is to highlight the changes made in Oracle Communications Cloud Native Core, Converged Policy (Policy) from Release 23.4.x to Release 24.1.0. These changes may have impact on the customer network operations and must be considered by the customer while planning the deployment.

1.2 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

Component	Compatibility Version
CNE	24.1.x, 23.4.x
cnDBTier	24.1.x, 23.4.x
OSO	23.4.x, 23.2.x
CDCS	NA
CNC Console	24.1.x, 23.4.x
ASM	1.14.6
ATS	24.1.0
OCCM	24.1.0

1.3 Common Services Load Lineup

This section lists the versions of added or updated common services in release 24.1.x. To know the list of all the supported versions, see *Oracle Communications Cloud Native Core Release Notes*.

Release 24.1.0

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

Table 1-2   Common Services Load Lineup

Component	Version
Alternate Route Service	24.1.1
App-Info	24.1.1
ATS Framework	24.1.0
Config Server	24.1.1
Debug Tool	24.1.1
Egress Gateway	24.1.1
Ingress Gateway	24.1.1
NRF Client	24.1.2
Perf-Info	24.1.1
Helm Test	24.1.0

1.4 Software Requirements

This section lists the added or updated software required to install Policy release 24.1.x. For more information about software requirements, see *Software Requirements* section in *Oracle Communications Cloud Native Core, Converged Policy Installation, Upgrade 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	1.28.x, 1.27.x
HELM	3.13.2
Podman	4.4.1

Table 1-4   Additional Software

Software	App Version	Required for
AlertManager	0.25.0	Logging
Grafana	9.5.3	Logging
Prometheus	2.51.1	Metrics
Calico	3.26.4	Security Solution
cert-manager	1.12.4	Secrets Manager
Containerd	1.7.1	Container Runtime
Fluentd - OpenSearch	1.16.2	Logging
HAProxy	2.6.7	Load balancing
Istio	1.18.2	Service Mesh
Jaeger	1.52.0	Tracing
Kyverno	1.9.0	Logging

Table 1-4   (Cont.) Additional Software

Software	App Version	Required for
MetalLB	0.13.11	External IP
Oracle OpenSearch	2.3.0	Logging
Oracle OpenSearch Dashboard	2.3.0	Logging
Prometheus Operator	0.70.0	

1.5 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 release 24.1.0.

Table 1-5   Orchestration

Orchestration Changes	Status	Notes
Support for in-service upgrade and roll back	Yes	For information about upgrade and roll back, see Supported Upgrade and Rollback Paths.

Changes in the `custom_values.yaml` file	Yes	• Renamed the following custom value file names to:
		  – `occnp_custom_values_occnp_24.1.0.yaml`
		  – `occnp_custom_values_pcf_24.1.0.yaml`
		  – `occnp_custom_values_servicemesh_config_24.1.0.yaml`
		• Updated for new version of microservices.
		• Updated the feature specific parameters.
		For information about changes in the `custom values.yaml` file, see Helm.

Changes in the resource information for `custom_values.yaml` file	Yes	For information about changes in the resource requirements, see Resource Requirements.
Changes in the CSAR package	No	No Generic CSAR available. The uniform package naming convention has been followed across the packages. Note: For more information on specific CSAR changes, 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	Yes	Policy supports Helm Test. For more information, see *Performing Helm Test* section in *Oracle Communications Cloud Native Core, Policy Installation, Upgrade and Fault Recovery Guide*.

Table 1-5   (Cont.) Orchestration

Orchestration Changes	Status	Notes
Changes in the `CNC_Policy_Custom_Templates` folder	Yes	Added the following Grafana Observability and Debug Dashboard JSON files to the Policy custom templates folder: • `Policy_Observability_Dashboard.json` has dashboard metadata for Policy observability. This dashboard has the panels that monitors the overall health status of the setup & contains details like resource utilization, kmps, latency, etc. • `Policy_Debug_Dashboard.json file` has dashboard metadata for Policy debug. This dashboard has the panels that monitor the operational status of the setup and is used for debugging & troubleshooting purposes. **Note:** `PCF_KPI_Dashboard.json` and `PCRF_KPI_Dashboard.json` files have been replaced by `Policy_Observability_Dashboard.json` and `Policy_Debug_Dashboard.json` files. For more information, see *CNC Policy Metrics* section in *Oracle Communications Cloud Native Core, Policy User Guide*.

1.6 Resource Requirements

This section lists the added or updated resource requirements in release 24.1.x. For more information about resource requirements, see *Resource Requirements* section in *Oracle Communications Cloud Native Core, Converged Policy Installation, Upgrade and Fault Recovery Guide*.

Release 24.1.0

There are no changes to resource requirements in this release.

For more information, see *Oracle Communications Cloud Native Core Policy Installation, Upgrade, and Fault Recovery Guide*.

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Policy Features

This chapter lists the added or updated features in release 24.1.x. For more information about the features, see *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

Release 24.1.0

Oracle Communications Cloud Native Core, Converged Policy 24.1.0 has been updated with the following enhancements:

- **Support for cnDBTier Functionalities in CNC Console:** With this enhancement, cnDBTier functionalities are integrated into the CNC Console, and users can view specific cnDBTier statuses on the CNC Console. For more information, see "Support for cnDBTier Functionalities in CNC Console" in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Enhancement to PRE Metrics:** With this enhancement, Policy blocks have been added to PRE to evaluate policy processing time, policy block execution counter, and policy blocks execution time. For more information, see "Enhancement to PRE Metrics" in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Support for Handling Reduced Capability Devices**: Policy supports the handling of requests from reduced capability devices (RedCap) to support IoT ecosystem. Policy identifies the incoming request from the RedCap devices and interacts with PRE to make appropriate decisions for the reduced capability devices. Currently, this feature is implemented only for create, update, update notify, and delete call flows for SM service. For more information, see "Support for Handling Reduced Capability Devices" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Support for Automated PKI Integration**: Policy supports automation of certificate lifecycle management in integration with Oracle Communications Certificate Manager (OCCM). This allows to automatically create, renew, and delete certificates for a given CA, with the possibility to track previously created certificates and renew/delete them when required. For more information, see "Support for Automated Certificate Lifecycle Management" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide.*

- **Support for End-to-End Log Identifier across Policy Services**: This feature allows to use a unique identifier to every log message, which can be used to identify the set of logs belonging to a given session across all Policy services. Currently, this feature is implemented only for SM service call flows. For more information, see "Support for Unique Log Identifier Across Policy Services" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide.*

- **Trigger TerminateNotify to SMF During Stale Session Cleanup**: SM Service sends TerminateNotify to SMF when it detects and cleans up duplicate requests of SM PDU Session Create (Collision Detection) and stale SMPolicyAssociation (Max TTL reached for session). For more information, see "Sending Terminate Notify to SMF" under "Stale Session Handling" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Audit Support for Usage Monitoring Service**: Policy supports stale session detection and cleanup in Usage Monitoring service with the support of Audit service. It identifies the stale sessions based on lastAccessTime. For more information, see "Stale Session

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- **Support for cnDBTier Functionalities in CNC Console:** With this enhancement, cnDBTier functionalities are integrated into the CNC Console, and users can view specific cnDBTier statuses on the CNC Console. For more information, see "Support for cnDBTier Functionalities in CNC Console" in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

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- **Audit Support for Usage Monitoring Service**: Policy supports stale session detection and cleanup in Usage Monitoring service with the support of Audit service. It identifies the stale sessions based on lastAccessTime. For more information, see "Stale Session

Detection and Handling in Usage Monitoring Service" under "Stale Session Handling" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **PCF Support for ME-XX String in Server Header from CHF**: PCF ignores the server header if a differently formatted value is inserted in the header alongside the 3GPP supported ones. This impacts the session retry strategy. This feature enables PCF core (SM/AM/UE) services to ignore the custom server header values and continue considering the 3GPP standard and valid SCP, SEPP or other NF type server headers format inserted in the header. For more information, see "PCF Support for ME-XX String in Server Header from CHF" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Sy SLR Enhancements for Signaling Updates and UDR Notification**: This feature enables cnPCRF and cnPolicy to fetch OCS counter status over Sy reference point in a synchronous mode on receiving a signaling update or a UDR notification. For more information, see "Sy SLR Enhancements for Signaling Updates and UDR Notification" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Binding Service Pod Congestion Control**: Binding service supports Congestion Control mechanism that helps to handle heavy traffic of incoming requests. It considers every incoming request and decides to either reject or accept it based on a defined request priority and the status of service congestion level. For more information, see "Binding Service Pod Congestion Control" section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

- **Enhancement to PCF Resiliency:** PCF is enhanced to provide the mechanism in consumer service pods to cache the last successful producer pod information and use it when the subsequent producer pod discovery results in failure. Hence, the inter service communication continues to run even when the communication between the Kubernetes services and pods is down.

Policy Automated Testing Suite (ATS)

Policy ATS 24.1.0 has been updated with the following enhancements:

- **MultiSelection Capability for Features and Scenarios**: ATS allows users to select and run single or multiple features and scenarios by selecting a check box for the corresponding features or scenarios. For more information, see the "Multiselection Capability for Features and Scenarios" section in *Oracle Communications Cloud Native Core, Automated Testing Suite Guide*.

- **Individual Stage Group Selection**: This feature allows users to select and execute a single or multiple stages or groups by selecting a check box for the corresponding stage or group. For more information, see "*Individual Stage Group Selection*" section in *Oracle Communications Cloud Native Core, Automated Test Suite Guide*.

3

Supported Upgrade and Rollback Paths

This chapter lists the supported upgrade and rollback paths in release 24.1.x. For more information about upgrade and rollback, see *Upgrading Policy* section in *Oracle Communications Cloud Native Core, Converged Policy Installation, Upgrade and Fault Recovery Guide*.

Release 24.1.0

The following table lists the supported upgrade paths in release 24.1.0:

Table 3-1   Supported Upgrade Paths

Source Release	Target Release
23.4.x	24.1.0

The following table lists the supported rollback path in Release 24.1.0:

Table 3-2   Supported Rollback Paths

Source Release	Target Release
24.1.0	23.4.x

4

Configuration

This chapter lists the 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 the Helm parameters, see *Oracle Communications Cloud Native Core, Converged Policy Installation, Upgrade, and Fault Recovery Guide*.

Release 24.1.0

The following are the Helm parameters, (occnp_custom_values_occnp_24.1.0.yaml) changes in release 24.1.0:

- Following parameters are added to cofingure the Automated Certificate Lifecycle Management feature at Ingress Gateway:
    - ingress-gateway.enableIncomingHttps
    - ingress-gateway.service.ssl.privateKey.k8SecretName
    - ingress-gateway.service.ssl.privateKey.k8NameSpace
    - ingress-gateway.service.ssl.privateKey.rsa.fileName
    - ingress-gateway.service.ssl.certificate.k8SecretName
    - ingress-gateway.service.ssl.certificate.k8NameSpace
    - ingress-gateway.service.ssl.certificate.rsa.fileName
    - ingress-gateway.service.ssl.caBundle.k8SecretName
    - ingress-gateway.service.ssl.caBundle.k8NameSpace
    - ingress-gateway.service.ssl.caBundle.fileName
    - ingress-gateway.service.ssl.keyStorePassword.k8SecretName
    - ingress-gateway.service.ssl.keyStorePassword.k8NameSpace
    - ingress-gateway.service.ssl.keyStorePassword.fileName
    - ingress-gateway.service.ssl.trustStorePassword.k8SecretName
    - ingress-gateway.service.ssl.trustStorePassword.k8NameSpace
    - ingress-gateway.service.ssl.trustStorePassword.fileName
- Following parameters are added to cofingure the Automated Certificate Lifecycle Management feature at Egress Gateway:
    - egress-gateway.sniHeader.enabled
    - egress-gateway.enableOutgoingHttps
    - egress-gateway.egressGwCertReloadEnabled
    - egress-gateway.egressGwCertReloadPath
    - egress-gateway.service.ssl.privateKey.k8SecretName

- egress-gateway.service.ssl.privateKey.k8NameSpace
- egress-gateway.service.ssl.privateKey.rsa.fileName
- egress-gateway.service.ssl.privateKey.ecdsa.fileName
- egress-gateway.service.ssl.certificate.k8SecretName
- egress-gateway.service.ssl.certificate.k8NameSpace
- egress-gateway.service.ssl.certificate.rsa.fileName
- egress-gateway.service.ssl.certificate.ecdsa.fileName
- egress-gateway.service.ssl.caBundle.k8SecretName
- egress-gateway.service.ssl.caBundle.k8NameSpace
- egress-gateway.service.ssl.caBundle.fileName
- egress-gateway.service.ssl.keyStorePassword.k8SecretName
- egress-gateway.service.ssl.keyStorePassword.k8NameSpace
- egress-gateway.service.ssl.keyStorePassword.fileName
- egress-gateway.service.ssl.trustStorePassword.k8SecretName
- egress-gateway.service.ssl.trustStorePassword.k8NameSpace
- egress-gateway.service.ssl.trustStorePassword.fileName

- Following parameters are added to configure the SSL TLS version and allowed Cipher list at Ingress Gateway:
  - ingress-gateway.service.ssl.tlsVersion
  - ingress-gateway.allowedCipherSuites
  - ingress-gateway.cipherSuites

- Following parameters are added to configure the SSL TLS version and allowed Cipher list at Egress Gateway:
  - egress-gateway.service.ssl.tlsVersion
  - egress-gateway.allowedCipherSuites
  - egress-gateway.cipherSuites

- Following parameters are added to configure the readiness and liveness probes at Nrf Client:
  - global.nrfClientCommonServicePort
  - nrf-client.nrf-client-nfdiscovery.readinessProbe.httpGet.port
  - nrf-client.nrf-client-nfdiscovery.livenessProbe.httpGet.port
  - nrf-client.nrf-client-nfmanagement.readinessProbe.httpGet.port
  - nrf-client.nrf-client-nfmanagement.livenessProbe.httpGet.port

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 Cloud Native Core, Converged Policy REST Specification Guide*.

Release 24.1.0

The following are the REST API changes in release 24.1.0:

- Updated the following Congestion Control APIs to support Binding Service Congestion Control:
  - Added the "enable" parameter in Congestion Control Configurations.
  - Updated the "value.state" parameter to support CONGESTION_L1 and CONGESTION_L2 values in Congestion Threshold Profile Configurations.
  - Added the following parameter to Import/Export Congestion Control Settings APIs:
    * topic
    * sourceVersion
    * date
    * exportData
  - Added the following parameter to Import/Export Congestion Control Threshold Profiles APIs:
    * topic
    * sourceVersion
    * date
    * exportData
  - Added the following parameter to Import/Export Congestion Control Load Shedding Rules APIs:
    * topic
    * sourceVersion
    * date
    * exportData
- Updated the following APIs to support Sy Spending Limit Request (SLR) for fetching OCS counters:
  - Added the "ocsSpendingLimit.forceLookup" parameter in PCRF Core Settings Configurations.
  - Added the "ignoreCustomserver headervalue" parameter in Retry Profiles Configurations.
- Added the following parameters to Usage Monitoring Service API to support auditing on Usage Monitoring service:
  - audit.enable
  - audit.notificationRate
  - audit.ttl
  - audit.maxTtl
  - audit.minAuditAttempts
  - audit.frequency

4.3 CNC Console

This section lists the CNC Console changes in release 24.1.x. For more information, see *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

Release 24.1.0

The following are the CNC Console changes in release 24.1.0:

Added the below mentioned parameters in CNC Console for Support for cnDBTier Functionalities in CNC Console feature:

- Added **CnDBTier** page to view the list of cnDBTier APIs using CNC Console.
    - **Backup List**
        * **Site Name**
        * **Backup Details**
            * **Backup Id**
            * **Backup Size (bytes)**
            * **Creation TimeStamp**
    - **Version**
        * **cnDBTier Version**
        * **NDB Version**
    - **Database Statistics Report**
        * **Database Count**
        * **Database Tables Count**
            * **Database Name**
            * **Table Count**
        * **Database Table Rows Count**
            * **Database Name**
            * **Tables**
                * **Table Name**
                * **Row Count**
    - **Georeplication Status**
        * **Local Site Name**
        * **Remote Site Name**
        * **Replication Status**
        * **Seconds Behind Remote Site**
        * **Replication Group Delay**
            * **Replication Channel Group Id**
            * **Seconds Behind Remote Site**
            * **Channel Details**

-       * **Remote Replication IP**
-       * **Role**
  - **HeartBeat Status**
    - * **Site Name**
    - * **Heartbeat Details**
      - * **Remote Site Name**
      - * **Heartbeat Status**
      - * **Heartbeat Lag**
      - * **Replication channel Group Id**
  - **Local Cluster Status**
    - * **Site Name**
    - * **Cluster Status**
  - **On Demand Backup**
    - * **Site Name**
    - * **DR Status**
    - * **Backup Id**
    - * **Backup Status**
    - * **Remote Transfer Status**
    - * **Initiate Backup**

- Added `ENABLE_SM_POLICY_ASSOCIATION_TABLE_SLICING` advanced settings key under **PCF Session Management** page to support database slicing for SM service.

- Added `PREVIOUS_UM_CONTEXT_TABLE_SLICING_COUNT` advanced settings key under **Configuring Usage Monitoring** page to support database slicing for SM service:

- Added the following fields under **Audit** section in **Configuring Usage Monitoring** page:
  - Enable
  - Notification Rate (per second)
  - Policy Association Age (in minutes)
  - Policy Association Maximum Age (in minutes):
  - Minimum Audit Attempts
  - Minimum Audit Passes Interval (in minutes)

- Added the following advanced settings keys under **PCF Session Management** page to support sending TerminateNotify message from SM service to SMF:
  - AUDIT_SMPOLICY_ASSOCIATION.MAX_TTL.TERMINATE_NOTIFY.ENABLED
  - SYSTEM.COLLISION_DETECTION.TERMINATE_NOTIFY.ENABLED

- Added following new fileds and advanced keys to support Binding Service pod congestion control feature:
  - Added the **Enable** field under Congestion Control **Settings** page.
  - Added the following advanced settings keys under **Binding Service** page:
    - * CONGESTION_RESPONSE_CODE

* AUDIT_MESSAGE_PRIORITY

* BSF_AUDIT_MESSAGE_PRIORITY

* DEPENDENT_CONTEXT_BINDING_REGISTER_MESSAGE_PRIORITY

* DEPENDENT_CONTEXT_BINDING_DEREGISTER_MESSAGE_PRIORITY

* DEPENDENT_CONTEXT_BINDING_FIND_CONTEXT_OWNER_MESSAGE_PRIORITY

* SESSION_BINDING_REGISTER_MESSAGE_PRIORITY

* SESSION_BINDING_UPDATE_MESSAGE_PRIORITY

* SESSION_BINDING_DEREGISTER_MESSAGE_PRIORITY

* SESSION_BINDING_SEARCH_MESSAGE_PRIORITY

* SESSION_BINDING_FIND_CONTEXT_OWNER_MESSAGE_PRIORITY

* SESSION_BINDING_CLEANUP_MESSAGE_PRIORITY

* BSF_SESSION_UPDATE_MESSAGE_PRIORITY

* STALE_SESSION_TRACKER_REFRESH_MESSAGE_PRIORITY

- Added following new fileds and advanced keys to support Sy Spending Limit Request (SLR) for fetching OCS counters feature:

  – Added the attribute **Enable force lookup on Update** to the **OCS Spending Limit** field in the PCRF Core Service Configuration **Settings** page.

  – Added the **USER.ocsSpendingLimit.createContextOnFailure** advance settings key under PCRF Core Service Configurations **Settings** page.

  – Added the **USER.CREATE_CONTEXT_ON_FAILURE_OCS_DATA** advanced settings keys under **PCF Session Management** page.

  – Added the **DEFAULT_WORKFLOW_FALLBACK** advanced settings keys under **PDS Settings** page.

  – Updated the PDS workflow list with new **Charging Profile selection based on Notification** workflow type in the **PDS Workflow** page.

- Added the **Ignore Custom server header value** field in **Retry Profiles** page to support ME-XX string in Server Header from CHF feature.

Blockly Changes in Release 24.1.0

The following are the blockly changes in release 24.1.0:

- Updated the Public Category Policy blockly with:

  – Added *Increment Counter Label* block for evaluating policy block execution counter.

  – Updated *Time* block to for evaluating policy blocks execution time.

- A new attribute `NR_REDCAP` is added to the existing **RatType** block for PCF UE Policy under Policy Projects in CNC Console.

For more information, see *Oracle Communications Cloud Native Core, Converged Policy Design Guide*.

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 about metrics, see *Metrics* section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

Release 24.1.0

The following metrics are added in release 24.1.0:

- Added the following SM service metrics to monitor sending the TerminateNotify message to SMF:
  - collision_detection_local_delete
  - collision_detection_terminate_notify
  - audit_max_ttl_terminate_notify
- Added the following Usage Monitoring metrics to support Audit service:
  - occnp_um_audit_deleted_maxttl
  - occnp_um_audit_query_sent
  - occnp_um_audit_session_found
  - occnp_um_audit_session_not_found
  - occnp_um_audit_query_error_response
  - occnp_um_audit_query_exception
- Added usage_mon_context_found metric to Usage Monitoring Metrics to support slicing the Usage Monitoring service database.
- Added the following metrics for Enhancement to PRE Metrics feature:
  - occnp_block_counter_label
  - occnp_block_exec_time_ns
- Added the create_context_on_failure_response metric to Diameter Connector Service metrics to support Sy Spending Limit Request (SLR) for fetching OCS counters feature.
- Added the following metrics to AM service to support 75K TPS per instance:
  - occnp_db_overall_processing_time_seconds_sum
  - occnp_db_overall_processing_time_seconds_sum
  - occnp_amservice_overall_processing_time_seconds_max
  - occnp_amservice_overall_processing_time_seconds_sum
  - occnp_amervice_overall_processing_time_seconds_count

- Added the following metrics to UE Policy service to support 75K TPS per instance:
  - occnp_db_overall_processing_time_seconds_sum
  - occnp_db_overall_processing_time_seconds_sum
  - occnp_ueservice_overall_processing_time_seconds_max
  - occnp_ueservice_overall_processing_time_seconds_sum
  - occnp_ueservice_overall_processing_time_seconds_count
  - ue_n1_unsubscribe_request_total
  - ue_n1_unsubscribe_response_total
  - ue_n1_unsubscribe_exception_total

For more details, see *Metrics* section in *Oracle Communications Cloud Native Core, Converged Policy User Guide.*

5.2 Alerts

This section lists the added or updated alerts in release 24.1.x. For more information about alerts, see *Alerts* section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

Release 24.1.0

There are no updates to alerts in this release.

MIB files when upgrading from 24.1.0 or higher

The following MIB files have been changed:

- *policy_alarm_mib.mib* file has been replaced with *POLICY-ALARM-MIB.mib* file.
- *cnpcrf_alarm_min.mib* file has been replaced with *CNPCRF-ALARM-MIB.mib* file.

5.3 KPIs

This section lists the added or updated KPIs in release 24.1.x. For more information about KPIs, see *KPIs* section in *Oracle Communications Cloud Native Core, Converged Policy User Guide*.

Release 24.1.0

There are no updates to KPIs in this release.