



Ultra Cloud Core 5G Access and Mobility Management Function, Release 2024.04 - Metrics Reference

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About this Guide



Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

This preface describes the *Ultra Cloud Core 5G Access and Mobility Management Function - Metrics Reference*, the document conventions, and the customer support details.

- [Conventions Used, on page vii](#)
- [Contacting Customer Support, on page viii](#)

Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a screen display	This typeface represents displays that appear on your terminal screen, for example: Login:

Typeface Conventions	Description
Text represented as commands	This typeface represents commands that you enter, for example: show ip access-list This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.
Text represented as a command variable	This typeface represents a variable that is part of a command, for example: show card slot_number <i>slot_number</i> is a variable representing the applicable chassis slot number.
Text represented as menu or sub-menu names	This typeface represents menus and sub-menus that you access within a software application, for example: Click the File menu, then click New

Contacting Customer Support

Use the information in this section to contact customer support.

Refer to the support area of <http://www.cisco.com> for up-to-date product documentation or to submit a service request. A valid username and password are required to access this site. Please contact your Cisco sales or service representative for additional information.



CHAPTER 1

AMF Metrics Reference

- [amf Metrics Reference](#), on page 1

amf Metrics Reference

AMF AUSF Service Stats Category

n12_service_stats

Description: AMF Ausf service stats

Sample Query:

```
n12_service_stats(message_type='NausfUeAuthReq',status='success',reason='AUTHENTICATION_SUCCESS',roaming_status='HOME',slice_data='2-33333')
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an ausf service

Example: NausfUeAuthReq, NausfUeAuthRsp, NausfUe5gAkaCnfReq, NausfUe5gAkaCnfRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an ausf service

Example: Suspend, Suspend for Async, Unable to retrieve msg from rsp, Supi mismatch, Internal Error, Sync FailedMac Failure, Auth Challenge Failed, Auth Cfm Failed, Sync Failed Exceeded, Timeout, Others, No Security Context from Peer, Peer Provided Sec Context Failed, NgKsi Already In Use, Scheduled ipc action in background, Unable to retrieve identity rsp, Unable to get Supi, AUTHENTICATION_SUCCESS, AUTHENTICATION_REJECTED, AV_GENERATION_PROBLEM, CONTEXT_NOT_FOUND, INVALID_HN_PUBLIC_KEY_IDENTIFIER, INVALID_SCHEME_OUTPUT, NETWORK_FAILURE, SERVING_NETWORK_NOT_AUTHORIZED, UNSUPPORTED_PROTECTION_SCHEME, UPSTREAM_SERVER_ERROR, USER_NOT_FOUND, Unable to get rsp

- Label: `slice_data`
Label Description: slice data
Example: 2-333333
- Label: `roaming_status`
Label Description: Roaming Info
Example: HOMER, ROAMER, UNKNOWN

AMF Amf service stats Category

n14_service_stats

Description: AMF AMF service stats

Sample Query:

```
n14_service_stats(message_type=\"N14TxUeContextTransferUpdate\", status=\"failures\", reason=\"Unable to get rsp\", roaming_status=\"HOMER\", slice_data=\"2-333333\")
```

Labels:

- Label: `message_type`
Label Description: The message type associated with an amf service
Example: N14TxUeContextCreateReq, N14RxUeContextCreateRsp, N14RxUeContextCreateReq, N14TxUeContextCreateRsp, N14TxUeContextTransferUpdate, N14RxUeContextTransferUpdateRsp, N14RxUeContextTransferUpdate, N14TxUeContextTransferUpdateRsp, N14RxUeContextTransferReq, N14TxUeContextTransferRsp, N14TxUeContextTransferReq, N14RxUeContextTransferRsp, N14RxN2InfoNotifyRequest, N14TxN2InfoNotifyResponse, N14TxN2InfoNotifyRequest, N14RxN2InfoNotifyResponse, N14N1MessageNotifyClientRequest, N14N1MessageNotifyClientResponse, N14N1MessageNotifyRequest, N14N1MessageNotifyResponse
- Label: `status`
Label Description: Overall status
Example: success, failures
- Label: `reason`
Label Description: The reason associated with an amf service
Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Invalid Input, Invalid PduSession, Not Found, Forbidden, Internal Server Error, Gateway Timeout
- Label: `slice_data`
Label Description: slice data
Example: 2-333333
- Label: `roaming_status`
Label Description: Roaming Info
Example: HOMER, ROAMER, UNKNOWN

AMF Attach rate throttle Category

attach_rate_trottle

Description: Message level stats for rejection or drop due to throttle

Sample Query: `attach_rate_trottle{message_type=\"N1RegistrationRequest\",action=\"drop\"}`

Labels:

- Label: `message_type`

Label Description: incoming message throttled

Example: N1RegistrationRequest, GTPCFwdRelocReq, N14UeContextCreateReq

- Label: `action`

Label Description: throttled message dropped or rejected

Example: drop, reject

AMF CBCF service_stats Category

n50_service_stats

Description: AMF CBCF service stats

Sample Query:

`n50_service_stats{message_type=\"NonueN2InfoTxfrReqData\",status=\"success\",reason=\"\"}`

Labels:

- Label: `message_type`

Label Description: The message type associated with an CBCF service

Example: NonueN2InfoTxfrReqData, NonueN2InfoTxfrRspData, NonueN2InfoSubsCreatedDataReq, NonueN2InfoSubsCreatedDataRsp, NonueN2InfoUnSubscribeReq, NonueN2InfoUnSubscribeRsp, NonueN2InfoNotifyReq, NonueN2InfoNotifyRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an CBCF service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Internal Error, INVALID_MSG_FORMAT, INSUFFICIENT_RESOURCES, SYSTEM_FAILURE

AMF DEBUG PROTO MAP STATS Category

amf_debug_proto_map_stats

Description: Debug stats

Sample Query:

```
amf_debug_proto_map_stats(msg_type="N2UeRadioCapabilityCheckRsp",action="dropped",reason="connection_not_found")
```

Labels:

- Label: `msg_type`

Label Description: Message Type

Example: N2UeRadioCapabilityCheckRsp,N2InitialContextSetupRsp

- Label: `action`

Label Description: Action

Example: dropped

- Label: `reason`

Label Description: Reason

Example: connection_not_found

AMF Disconnect stats Category

amf_disconnect_stats

Description: AMF Disconnect stats counters

Sample Query: `amf_disconnect_stats{reason="disc_ue_init_dereg"}`

Labels:

- Label: `reason`

Label Description: The reason associated with an call disconnect

Example: disc_ue_init_dereg, disc_nw_init_dereg, Ausf_AuthReject, Ausf_DropPeerMsg

AMF EIR service_stats Category

n17_service_stats

Description: AMF EIR service stats

Sample Query:

```
n17_service_stats(message_type="N17EquipmentStatusCheckReq",status="success",reason="",roaming_status="HOMER",slice_data="2-33333")
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an EIR service

Example: N17EquipmentStatusCheckReq, N17EquipmentStatusCheckRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an EIR service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Invalid Input, WHITELISTED, BLACKLISTED, GREYLISTED, ERROR_EQUIPMENT_UNKNOWN

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF GMLC service_stats Category

nl2_service_stats

Description: AMF GMLC service stats

Sample Query:

```
nl2_service_stats(message_type="NgmlcRequestPositioningInfo",status="success",reason="",roaming_status="HOMER",slice_data="2-333333")
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an GMLC service

Example: NgmlcRequestPositioningInfo, NgmlcProvidePositioningInfoRsp, NgmlcEventNotificationReq, NgmlcEventNotificationRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an GMLC service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Invalid Input, Invalid LCS Correlation ID

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF LMF service_stats Category

`nl1_service_stats`

Description: AMF LMF service stats

Sample Query:

```
nl1_service_stats(message_type="NlmfDetermineLocReq",status="success",reason="",roaming_status="HOMER",slice_data="2-333333")
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an LMF service

Example: NlmfN1N2MessageTransferReq, NlmfN1N2MessageTransferRsp, NlmfN1N2MessageTransferfailurenotifyReq, NlmfN1N2MessageTransferfailurenotifyRsp, NlmfN1MessageNotifyRequest, NlmfN1MessageNotifyResponse, NlmfDetermineLocReq, NlmfDetermineLocRsp, NlmfN2InfoNotifyRequest, NlmfN2InfoNotifyResponse, NlmfNonUEN2InfoNotifyRequest, NlmfNonUEN2InfoNotifyResponse, NlmfNonUEN2MessageTransferRequest, NlmfNonUEN2MessageTransferResponse

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an LMF service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Invalid Input, Invalid LCS Correlation ID, INVALID_MSG_FORMAT, INSUFFICIENT_RESOURCES, SYSTEM_FAILURE

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF METRICS NGAP MESSAGE TOTAL Category

amf_ngap_message_total

Description: Total number of NGAP msgs

Sample Query:

```
amf_ngap_message_total{message_direction=\"inbound\",message_type=\"N2NGSetupRsp\"}
```

Labels:

- Label: message_direction

Label Description: Message Direction

Example: outbound,inbound

- Label: message_type

Label Description: Message-Type_Cause

Example:

```
amf_ngap_message_total{message_direction=\"inbound\",message_type=\"N2NGSetupRsp\"}
```

AMF NAS ASN DECODE ERR STATS Category

nas_asn_decode_error_stats

Description: Nas ASN Decoding errors

Sample Query:

```
nas_asn_decode_error_stats{message_type=\"N1RegistrationRequest\",asn_failures=\"CauseProtocolTransferSyntaxError\"}
```

Labels:

- Label: message_type

Label Description: Message Type

Example:

```
nas_asn_decode_error_stats{message_type=\"N1RegistrationRequest\",asn_failures=\"CauseProtocolTransferSyntaxError\"}
```

- Label: asn_failures

Label Description: Failure reason

Example: CauseProtocolTransferSyntaxError

AMF NAS ASN ENCODE ERR STATS Category

nas_asn_encode_error_stats

Description: Nas ASN Encoding errors

Sample Query:

```
nas_asn_encode_error_stats{message_type=\"N1AuthenticationRequest\",asn_failures=\"\"}
```

Labels:

- Label: `message_type`

Label Description: Message Type

Example:

`N1IdentityResponse`

- Label: `asn_failures`

Label Description: Failure reason

Example:

AMF NAS INTEGRITY FAILURE Category

IntegrityCheckFailure

Description: Integrity failures

Sample Query: `IntegrityCheckFailure{message_type=\"N1IdentityResponse\"}`

Labels:

- Label: `message_type`

Label Description: Message Type

Example:

`Unsupported_N1_Msg,N1DeRegistrationAcceptUeTermDereg,N1DeRegistrationRequestUeOrigDereg,N1IdentityResponse`

AMF NGAP ASN DECODE ERR STATS Category

ngap_asn_decode_error_stats

Description: Ngap ASN Decoding errors

Sample Query:

`ngap_asn_decode_error_stats{message_type=\"N2NGSetupReq\",asn_failures=\"CauseProtocolTransferSyntaxError\"}`

Labels:

- Label: `message_type`

Label Description: NGAP Message Type

Example:

`N2NGSetupReq`

- Label: `asn_failures`

Label Description: Failure reason

Example: `CauseProtocolTransferSyntaxError`

AMF NGAP ASN ENCODE ERR STATS Category

ngap_asn_encode_error_stats

Description: Ngap ASN Encoding errors

Sample Query: `ngap_asn_encode_error_stats{message_type="NgSetupResponse",asn_failures=""}`

Labels:

- Label: `message_type`

Label Description: NGAP Message Type

Example:

`N2PduSessResourceSetupRsp, N2PduSessResourceReleaseRsp, N2PduSessResourceModifyRsp, N2UeContextReleaseRequest, N2UeContextReleaseComplete, N2UplinkRanStatusTransfer, N2UeRadioCapabilityInfoInd, N2UeRadioCapabilityCheckReq, N2UeRadioCapabilityCheckRsp, N2InitialContextSetupRsp, N2InitialContextSetupFail, N2UEContextModificationRsp, N2UEContextModificationFail, NonUeN2WriteReplaceWarningReq, NonUeN2WriteReplaceWarningRsp, NonUeN2PWSCancelWarningReq, NonUeN2PWSCancelWarningRsp, NonUeN2PWSFailureIndication, NonUeN2PWSRestartIndication, N2NGReset, N2UeContextReleaseCommand, N2InitialContextSetupReq, N2UEContextModificationReq, N2PduSessResourceModifyReq, N2PathSwitchReqAckMsg, N2PathSwitchReqFailureMsg, N2HandoverRequired, N2HandoverRequestAck, N2HandoverFailure, N2HandoverRequest, N2HandoverCommand, N2HandoverPreparationFailure, N2HandoverNotify, N2HandoverCancel, N2HandoverCancelAck, N2DLRanStatusTransfer, N2PathSwitchReqMsg, N2PduSessResourceReleaseCmd, Paging, N2PduSessResourceSetupReq, N2LocationReportingControl, N2LocationReport, N2LocationReportingFailureIndication, N2ReRouteNasRequest, UplinkAssociatedNRPPaTransport, DownlinkAssociatedNRPPaTransport, UplinkNonAssociatedNRPPaTransport, DownlinkNonAssociatedNRPPaTransport`

- Label: `asn_failures`

Label Description: Failure reason

Example:

AMF NGAP service_stats Category

n2_service_stats

Description: AMF NGAP service stats

Sample Query:

`n2_service_stats{message_type="N2HandoverCommand",status="success",reason="",roaming_status="HOME",slice_data="2-333333"}`

Labels:

- Label: `message_type`

Label Description: The message type associated with an NGAP service

Example: `N2PduSessResourceSetupRsp, N2PduSessResourceReleaseRsp, N2PduSessResourceModifyRsp, N2UeContextReleaseRequest, N2UeContextReleaseComplete, N2UplinkRanStatusTransfer, N2UeRadioCapabilityInfoInd, N2UeRadioCapabilityCheckReq, N2UeRadioCapabilityCheckRsp, N2InitialContextSetupRsp, N2InitialContextSetupFail, N2UEContextModificationRsp, N2UEContextModificationFail, NonUeN2WriteReplaceWarningReq, NonUeN2WriteReplaceWarningRsp, NonUeN2PWSCancelWarningReq, NonUeN2PWSCancelWarningRsp, NonUeN2PWSFailureIndication, NonUeN2PWSRestartIndication, N2NGReset, N2UeContextReleaseCommand, N2InitialContextSetupReq, N2UEContextModificationReq, N2PduSessResourceModifyReq, N2PathSwitchReqAckMsg, N2PathSwitchReqFailureMsg, N2HandoverRequired, N2HandoverRequestAck, N2HandoverFailure, N2HandoverRequest, N2HandoverCommand, N2HandoverPreparationFailure, N2HandoverNotify, N2HandoverCancel, N2HandoverCancelAck, N2DLRanStatusTransfer, N2PathSwitchReqMsg, N2PduSessResourceReleaseCmd, Paging, N2PduSessResourceSetupReq, N2LocationReportingControl, N2LocationReport, N2LocationReportingFailureIndication, N2ReRouteNasRequest, UplinkAssociatedNRPPaTransport, DownlinkAssociatedNRPPaTransport, UplinkNonAssociatedNRPPaTransport, DownlinkNonAssociatedNRPPaTransport`

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an NGAP service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Invalid Input, Invalid PduSession, Peer Info Not Available, N1 mode Not Supported, Invalid Input, Mandatory IE Missing, No connection with GNB, Suspend, Suspend for Async

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF Nas Message Total Category

`amf_nas_message_total`

Description: The number of nas message received or sent

Sample Query:

```
amf_nas_message_total{message_direction!="inbound",message_type!="Paging_Trigger_N1N2_Msg_Xfer",slice_data!="2-333333"}
```

Labels:

- Label: `message_direction`

Label Description: The event type associated with nas message

Example: inbound, outbound

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `message_type`

Label Description: The message type associated with the nas message

Example: Paging_Trigger_N1N2_Msg_Xfer, N1RegRequest, N1RegRequest_IdentityType_SUCI, N1RegRequest_RegType_INITIAL_REGISTRATION, N1RegAccept, N1RegComplete, N1RegReject, N1UnknownTypeRegReject, N1InitialRegReject, N1MobilityRegReject, N1PeriodicRegReject, N1EmergencyRegReject, N1ReservedRegReject, N1SecurityModeCommand, N1AuthenticationRsp, N1AuthenticationReq, N1AuthenticationFailure, N1AuthFail_SyncFailure, N1AuthFail_NgKsiInUseFailure, N1AuthFail_MacFailure, N1AuthenticationReject, N1UeCfgUpdateComplete, N1UeCfgUpdateCommand, N1SecurityModeComplete, N1SecurityModeReject, N1DeRegAccept_UeOriginatingDereg, N1DeRegReq_UeOriginatingDereg, N1DeRegAccept_UeTerminatedDereg, N1DeRegReq_UeTerminatedDereg, N1PduEstablishmentRequest, N1PduModifyRequest, N1PduReleaseRequest, N1DINasTransport, N1UINasTransport, N1PduReject

, N1ServiceRequest , N1ServiceReq_Connected , N1ServiceReq_Idle , N1ServiceAccept ,
 N1ServiceReq_SIGNALLING, N1ServiceReject , N1IdentityRequest_Suci , N1IdentityRequest ,
 N1IdentityResponse , N1IdentityRequest_Imei ,Paging, Paging_Stage_1, Paging_TriggerType_5qi

AMF PCF Service Stats Category

n15_service_stats

Description: AMF PCF service stats

Sample Query:

```
n15_service_stats{message_type=\"NpcfAmPolicyControlCreateReq\",status=\"failures\",reason=\"Unable to get rsp\",roaming_status=\"HOMER\",slice_data=\"2-333333\"}
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an pcf service

Example: NpcfAmPolicyControlCreateReq, NpcfAmPolicyControlCreateRsp, NpcfAmPolicyControlDeleteReq, NpcfAmPolicyControlDeleteRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an pcf service

Example: Suspend, Suspend for Async, Unable to get rsp, Unable to retrieve msg from rsp, Failure in PCF Response,Others, Internal Error

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF Procedure Seconds Category

amf_procedure_seconds

Description: Total number of seconds took for complete procedure

Sample Query: amf_procedure_seconds{proc_type=\"UE Registration\",status=\"success\",proc_status=\"\",slice_data=\"2-333333\"}

Labels:

- Label: `proc_type`

Label Description: The procedure type associated with an call flow procedure

Example: UE Registration, UE DeRegistration, Pdu Create, Pdu N1N2, Pdu N2Rs, Pdu N1Rsp, Pdu Mod, UE Context Release, Pdu Notify, EBI, Paging, Service Request, Context Transfer, Context Transfer Upd, Xn Handover, N2 Handover Src, Handover to EPC, UeRadioCapInfoInd, NGRreset, N2 Handover Tgt, Handover From EPC, UeCfgUpdate, Domain Selection Info, Amf Redirection, UL DL NAS transport (SOR/SMS), LocationPosition

- Label: `status`

Label Description: The overall status of procedure

Example: success, failures, attempted

- Label: `proc_status`

Label Description: The current status of procedure

Example: ProcStatusComplete

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

AMF Procedure total Category

amf_procedure_total

Description: Total number of procedure executed counter

Sample Query: `amf_procedure_total{proc_type="UE Registration",status="success",proc_status="",slice_data="2-333333"}`

Labels:

- Label: `proc_type`

Label Description: The procedure type associated with an call flow procedure

Example: UE Registration, UE DeRegistration, Pdu Create, Pdu N1N2, Pdu N2Rsp, Pdu N1Rsp, Pdu Mod, UE Context Release, Pdu Notify, EBI, Paging, Service Request, Context Transfer, Context Transfer Upd, Xn Handover, N2 Handover Src, Handover to EPC, UeRadioCapInfoInd, NGRreset, N2 Handover Tgt, Handover From EPC, UeCfgUpdate, Domain Selection Info, Amf Redirection, UL DL NAS transport (SOR/SMS)

- Label: `status`

Label Description: The overall status of procedure

Example: success, failures, attempted

- Label: `proc_status`

Label Description: The current status of procedure

Example: ProcStatusComplete

- Label: `slice_data`
Label Description: slice data
Example: 2-333333

AMF RETRANSMISSION STATS Category

retransmission_stats

Description: number of Retransmissions

Sample Query: `retransmission_stats{msg_type="Paging",status="success"}`

Labels:

- Label: `msg_type`
Label Description: Message Type
Example:
`retransmission_stats{msg_type="Paging",status="success",slice_data="2-333333"}`
- Label: `status`
Label Description: overall Status
Example: success, failures, max_retry_exceeded

AMF Session stats Category

amf_session_stats

Description: AMF Session stats counters

Sample Query: `amf_session_stats{status="attempted"}`

Labels:

- Label: `ueType`
Label Description: Type of the UE associated with the request
Example: homer, roamer, unknown
- Label: `status`
Label Description: UE session status indicated at AMF
Example: attempted, success, setup

AMF Smf service stats Category

n11_service_stats

Description: AMF Smf service stats

Sample Query:

```
n11_service_stats{message_type=\"N11SMContextUpdateReq\",status=\"failures\",reason=\"Unable to get rsp\",roaming_status=\"HOMER\",slice_data=\"2-33333\"}
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an smf service

Example: N11SMContextUpdateReq, N11SMContextUpdateRsp, N11SMContextRetrieveRsp, N11SMContextRetrieveReq, N11SMContextCreateReq, N11SMContextCreateRsp, N11SMContextReleaseReq, N11SMContextReleaseRsp, PostAssignEbiReq, PostAssignEbiRsp, N11N1N2MessageTransferReq, N11N1N2MessageTransferRsp, N11N1N2MessageTransferfailurenotifyReq, N11N1N2MessageTransferfailurenotifyRsp, N11SMContextStatusNotifyReq, N11SMContextStatusNotifyRsp

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an smf service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Msg Timeout, Peer Info Not Available, Req Not Accepted, Sub IMSI Not Received, PGW FQDN Not Received, Mandatory IE Missing, Invalid Input, No Bearer Context, No Linked EBI, SM Context Failed for PDU, S1 mode Not Supported, SM Context PDU failed without N2smInfo, SM Context data received from SMF is NIL, N1 mode Not Supported

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF Smsf service stats Category

n20_service_stats

Description: AMF Smsf service stats

Sample Query:

```
n20_service_stats{message_type=\"sms_activate_response\",status=\"success\",reason=\"Created\",slice_data=\"2-33333\"}
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an smsf service

Example: sms_activate_request, sms_activate_response, sms_deactivate_request, sms_deactivate_response, sms_send_msg_request, sms_send_msg_rsp, sms_n1n2_message_transfer_req, sms_n1n2_message_transfer_rsp, sms_enable_ue_reachability

- Label: status

Label Description: Overall status

Example: success, failures

- Label: reason

Label Description: The reason associated with an smsf service

Example: Created, No Content, Gateway Timeout, Unknown Subscriber

- Label: slice_data

Label Description: slice data

Example: 2-333333

AMF System Overload Status Category

amf_overload_status

Description: Current system overload status

Sample Query: amf_overload_status{}

AMF UDM Service Stats Category

n8_service_stats

Description: AMF UDM service stats

Sample Query:

```
n8_service_stats{message_type="NudmSdmDataReq",status="failures",reason="INVALID_GUMFI",roaming_status="HOME",slice_data="2-333333"}
```

Labels:

- Label: message_type

Label Description: The message type associated with an udm service

Example: NudmSdmDataReq, NUdmUecmDeregisterNotificationRequest, NUdmUecmDeregisterNotificationResponse, NudmSdmUnSubscriptionReq, NudmSdmUnSubscriptionRsp, NudmPcscfRestorationReq, NudmPcscfRestorationRsp, NudmUecmRegistrationReq, NudmUecmRegistrationRsp, NudmSdmDataReq, NudmSdmDataRsp, NudmSdmSubscriptionReq, NudmSdmSubscriptionRsp, NudmSdmSorAckInfoReq, NudmSdmSorAckInfoRsp, NudmTadsReq, NudmTadsRsp, NudmAMFCreateSubscriptionReq, NudmAMFCreateSubscriptionRsp

- Label: status

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an udm service

Example: Suspend, Suspend for Async, Unable to get rsp, Unable to retrieve msg from rsp, Others, Internal Error, Missing Supi, Failure from Udm, SUBSCRIPTION_WITHDRAWN, UE_INITIAL_REGISTRATION, CONTEXT_NOT_FOUND, DATA_NOT_FOUND, UNSUPPORTED_RESOURCE_URI, USER_NOT_FOUND, ACCESS_NOT_ALLOWED, INVALID_GUAMI, NO_PS_SUBSCRIPTION, RAT_NOT_ALLOWED, ROAMING_NOT_ALLOWED, UNKNOWN_5GS_SUBSCRIPTION, UNPROCESSABLE_REQUEST, Invalid Input, Unknown Subscriber

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF Ue Service Stats Category

n1_service_stats

Description: AMF Ue service stats

Sample Query:

```
n1_service_stats{message_type=\"IdentityResponse\", status=\"failures\", reason=\"key Mismatch\", roaming_status=\"HOMER\", slice_data=\"2-333333\"}
```

Labels:

- Label: `message_type`

Label Description: The message type associated with an UE service

Example: N1RegRequest, N1RegAccept, N1RegComplete, N1RegReject, N1UnknownTypeRegReject, N1InitialRegReject, N1MobilityRegReject, N1PeriodicRegReject, N1EmergencyRegReject, N1ReservedRegReject, N1SecurityModeCommand, N1AuthenticationRsp, N1AuthenticationReq, N1AuthenticationFailure, N1AuthFail_SyncFailure, N1AuthFail_NgKsiInUseFailure, N1AuthFail_MacFailure, N1AuthenticationReject, N1UeCfgUpdateComplete, N1UeCfgUpdateCommand, N1SecurityModeComplete, N1SecurityModeReject, N1DeRegAccept_UeOriginatingDereg, N1DeRegReq_UeOriginatingDereg, N1DeRegAccept_UeTerminatedDereg, N1DeRegReq_UeTerminatedDereg, N1PduEstablishmentRequest, N1PduModifyRequest, N1PduReleaseRequest, N1DINasTransport, N1UINasTransport, N1PduReject, N1ServiceRequest, N1ServiceReq_Connected, N1ServiceReq_Idle, N1ServiceAccept, N1ServiceReq_SIGNALLING, N1ServiceReject, N1IdentityRequest_Suci, N1IdentityRequest, N1IdentityResponse, N1IdentityRequest_Imei, Paging

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an UE service

Example: Suspend, Suspend for Async, Unable to get rsp, Unable to retrieve msg from rsp, Supi mismatch, Internal Error, Sync Failed, Timeout, Others, No Security Context from Peer, Peer Provided Sec Context Failed, NgKsi Already In Use, Scheduled ipc action in background, Unable to retrieve identity rsp, Unable to get Supi, key Mismatch

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

AMF X1 Message total Category

amf_x1_message_total

Description: Total number of X1 messages

Sample Query:

```
amf_x1_message_total{message_direction=\"outbound\",message_type=\"ActivateTaskResponse\",
reason=\"\", req_msg_name=\"ActivateTask\", status=\"success\",x1_error_code=\"0\"}
```

Labels:

- Label: `message_type`

Label Description: Message type for which counter is incremented

Example: X1RequestMessageTypeInvalid, X1ActivateTask, X1ModifyTask, X1DeactivateTask, X1DeactivateAllTasks, X1GetTaskDetails, X1CreateDestination, X1ModifyDestination, X1RemoveDestination, X1RemoveAllDestinations, X1GetDestinationDetails, X1GetNEStatus, X1GetAllDetails, X1ListAllDetails, X1Ping, X1Keepalive

- Label: `message_direction`

Label Description: Direction of the message flow

Example: inbound, outbound

- Label: `status`

Label Description: The overall status of the message

Example: success, failure

- Label: `req_msg_name`

Label Description: Corresponding request message type for responses

Example: X1ActivateTask, X1ModifyTask, X1DeactivateTask, X1DeactivateAllTasks, X1GetTaskDetails, X1CreateDestination, X1ModifyDestination, X1RemoveDestination, X1RemoveAllDestinations, X1GetDestinationDetails, X1GetNEStatus, X1GetAllDetails, X1ListAllDetails, X1Ping, X1Keepalive

- Label: `x1_error_code`

Label Description: Error code in case of status failure

Example: 1010, 1000, 1020, 2010, 3010, 5000

- Label: `reason`

Label Description: Error string in case of failures

Example: Unsupported version, XID already exists on NE, Unsupported TargetIdentifier type, Generic error, Generic CreateDestination failure

AMF X2 Message Total Category

`li_ep_x2_msg_total`

Description: Total number of X2 messages sent

Sample Query: `li_ep_x2_msg_total{message_name=\"AMFRegistration\", status=\"msg_sent\"}`

Labels:

- Label: `message_name`

Label Description: Name of the message

Example: AMFRegistration, AMFDeregistration, AMFLocationUpdate, AMFStartOfInterceptionWithRegisteredUE, AMFUnsuccessfulProcedure, AMFIdentifierAssociation, X2KeepAlive

- Label: `status`

Label Description: The overall status of the message

Example: `msg_sent`, `msg_drop`

AMF collision stats Category

`amf_collision_stats`

Description: Statistics for tracking and debugging the collisions encountered in AMF

Sample Query: `amf_collision_stats{action_type=\"abort_procl\"}`

Labels:

- Label: `procl`

Label Description: Name of the colliding procedure

Example: UERegistration_INITIAL_REGISTRATION, UERegistration_MOBILITY_REGISTRATION_UPDATING, UERegistration_PERIODIC_REGISTRATION_UPDATING,

UERegistration_EMERGENCY_REGISTRATION, UEOrNwDeRegistration, PduCreate, PduN1N2, PduN2Rsp, PduN1Rsp, PduMod, UEContextRelease, PduNotify, EBI, Paging, ServiceRequest, ContextTransfer, ContextTransferUpdate, XnHandover, N2HandoverSrc, HandoverToEPC, UeRadioCapInfoInd, GReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, RANLocation

- Label: `proc2`

Label Description: Name of the colliding procedure

Example: UERegistration_INITIAL_REGISTRATION, UERegistration_MOBILITY_REGISTRATION_UPDATING, UERegistration_PERIODIC_REGISTRATION_UPDATING, UERegistration_EMERGENCY_REGISTRATION, UEOrNwDeRegistration, PduCreate, PduN1N2, PduN2Rsp, PduN1Rsp, PduMod, UEContextRelease, PduNotify, EBI, Paging, ServiceRequest, ContextTransfer, ContextTransferUpdate, XnHandover, N2HandoverSrc, HandoverToEPC, UeRadioCapInfoInd, GReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, RANLocation

- Label: `action_type`

Label Description: action taken by collision resolver

Example: `abort_proc1`, `continue_proc1`, `suspend_proc1`

ASN FAILURE MANDATORY IE MISSING Category

`asn_failures_mandatory_ie_missing`

Description: mandatory missing Ies

Sample Query:

```
asn_failures_mandatory_ie_missing{missing_ie="MessageId",message_type="WriteReplaceWarningRequest"}
```

Labels:

- Label: `missing_ie`

Label Description: Missing IE

Example:

`MessageId,SerialNumber,GlobalRANNodeBDRANNodeName,SupportedTAList,RanUeNgapId,NasPdu,UserLocationInformation,Cause,ResetType`

- Label: `message_type`

Label Description: Message Type

Example:

`WriteReplaceWarningRequest,NgSetupRequest,RanConfigUpdate,InitialUeMessage,UINasTransport,NgapReset`

Discover Messages Time statistics Category

nf_discover_total_time

Description: Discover Messages Total time statistics

Sample Query: `nf_discover_total_time{nf_type=\"amf\", host=\"http://10.105.227.109:8082/nnrf-nfm/v1\", result=\"timeouOrRPCError\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, ausf, smf
- Label: `host`
Label Description: End Point address
Example: `http://10.105.227.109:8082/nnrf-nfm/v1`
- Label: `result`
Label Description: result of discover message
Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure

Discover Messages statistics Category

nf_discover_messages_total

Description: Discover Messages statistics

Sample Query: `nf_discover_messages_total{nf_type=\"amf\", host=\"http://10.105.227.109:8082/nnrf-nfm/v1\", result=\"timeouOrRPCError\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, ausf, smf
- Label: `host`
Label Description: End Point address
Example: `http://10.105.227.109:8082/nnrf-nfm/v1`
- Label: `result`
Label Description: result of discover message
Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure

Marshal Failures Category

marshal_failures

Description: total number of Marshal error stats

Sample Query: `marshal_failures{message_type="\SmfSmContextDelete\}"`

Labels:

- Label: `message_type`

Label Description: The message type associated with Marshal failure stats

Example: `AusfAuthenticationCfm, AusfAuthenticationReq, UdmDeRegistrationReq, UdmRegistrationReq, UdmSubscriptionReq, UdmUnSubscriptionReq, PcfAmfPolicyControlCreate, PcfAmfPolicyControlDelete, SmfSmContextCreate, SmfSmContextDelete, SmfSmContextUpdate, AmfCommCreateUeContext, AmfCommN1N2MessageTransfer`

N22 Service Stats Category

n22_service_stats

Description: AMF N22 stats

Sample Query: `n22_service_stats{message_type="\NssfGetNetworkSliceInformationResp\ ", status="\failures\ ", reason="\Unable to get rsp\ "}`

Labels:

- Label: `message_type`

Label Description: The message type associated with an N22 interface

example: `NssfGetNetworkSliceInformationReq, NssfGetNetworkSliceInformationResp`

- Label: `status`

Label Description: Overall status

Example: `success, failures`

- Label: `reason`

Label Description: The reason associated with an N22 service

Example: `Unable to get rsp, Unable to retrieve msg from rsp, Msg Timeout`

N26 Service Stats Category

n26_service_stats

Description: AMF N26 stats

Sample Query:

`n26_service_stats{message_type="\GTPCrxIdentificationRequest\ ", status="\failures\ ", reason="\N1 mode Not Supported\ ", roaming_status="\HOMER\ ", slice_data="\2-33333\ "}`

Labels:

- Label: `message_type`

Label Description: The message type associated with an N26 service

Example: GTPCRxIdentificationRequest, GTPCTxIdentificationRequest, GTPCRxContextRequest, GTPCRxContextResponse, GTPCRxContextAck, GTPCTxContextAck, GTPCRxFwdRelocCmpNotf, GTPCTxFwdRelocCmpNotf, GTPCRxRelocCancelReq, GTPCTxRelocCancelRsp, GTPCTxFwdRelocResponse, GTPCTxIdentificationResponse

- Label: `status`

Label Description: Overall status

Example: success, failures

- Label: `reason`

Label Description: The reason associated with an N26 service

Example: Unable to get rsp, Unable to retrieve msg from rsp, Unknown Subscriber, Internal Error, Msg Timeout, Peer Info Not Available, Req Not Accepted, Sub IMSI Not Received, PGW FQDN Not Received, Mandatory IE Missing, Invalid Input, No Bearer Context, No Linked EBI, SM Context Failed for PDU, S1 mode Not Supported, SM Context PDU failed without N2smInfo, SM Context data received from SMF is NIL, N1 mode Not Supported

- Label: `slice_data`

Label Description: slice data

Example: 2-333333

- Label: `roaming_status`

Label Description: Roaming Info

Example: HOMER, ROAMER, UNKNOWN

NF End point selections Category

nf_endpoint_selections_total

Description: NF End Point Selection Statistics

Sample Query: `nf_endpoint_selections_total{message_type="\SmfSmContextDelete", nf_type="\ausf", host="\http://10.105.227.109:8082/nrf-nfm/v1", req="initial"}`

Labels:

- Label: `message_type`

Label Description: The message type associated with the failure stats

Example: AusfAuthenticationCfm, AusfAuthenticationReq, UdmDeRegistrationReq, UdmRegistrationReq, UdmSubscriptionReq, UdmUnSubscriptionReq, PcfAmfPolicyControlCreate, PcfAmfPolicyControlDelete, SmfSmContextCreate, SmfSmContextDelete, SmfSmContextUpdate, AmfCommCreateUeContext, AmfCommN1N2MessageTransfer

- Label: `nf_type`

Label Description: Network Function type

Example: nrf, udm, amf, pcf, ausf, smf

- Label: `host`

Label Description: End Point address

Example: `http://10.105.227.109:8082/nrf-nfm/v1`

- Label: `req`

Label Description: req type

Example: initial, fallback,

NF failure handling stats Category

`nf_failure_handling_stats_total`

Description: NF Failure handling stats

Sample Query:

```
nf_failure_handling_stats_total{message_type="\SmfSmContextDelete",nf_type="\SMF",
host="\http://10.105.227.109:8082/nrf-nfm/v1", req="\initial", response="\202",
status="\final"}
```

Labels:

- Label: `message_type`

Label Description: The message type associated with the failure stats

Example: `AusfAuthenticationCfm, AusfAuthenticationReq, UdmDeRegistrationReq, UdmRegistrationReq, UdmSubscriptionReq, UdmUnSubscriptionReq, PcfAmfPolicyControlCreate, PcfAmfPolicyControlDelete, SmfSmContextCreate, SmfSmContextDelete, SmfSmContextUpdate, AmfCommCreateUeContext, AmfCommN1N2MessageTransfer`

- Label: `nf_type`

Label Description: Network Function type

Example: nrf, udm, amf, pcf, ausf, smf

- Label: `host`

Label Description: End Point address

Example: `http://10.105.227.109:8082/nrf-nfm/v1`

- Label: `req`

Label Description: Request type

Example: initial, fallback,

- Label: `response`

Label Description: Response from the server

Example: 200, 201, 204, `timeout_rpc_error`,

- Label: `status`

Label Description: Status from the server

Example: `retry`, `final`

NF management message time statistics Category

`nf_management_total_time`

Description: NF management messages total time taken

Sample Query: `nf_management_total_time{host=\"http://10.105.227.109:8082/nnrf-nfm/v1\", direction=\"outbound\", message_type=\"registration\", result=\"timeouOrRPCError\" }`

Labels:

- Label: `host`

Label Description: End Point address

Example: `http://10.105.227.109:8082/nnrf-nfm/v1`

- Label: `direction`

Label Description: Direction indicates about the message going out or coming in

Example: `inbound`, `outbound`

- Label: `message_type`

Label Description: Type of Message

Example: `registration`, `heartbeat`, `subscription`, `notification`

- Label: `result`

Label Description: result of discover message

Example: `200`, `201`, `204`, `success`, `timeout_rpc_error`, `response_parse_failure`, `request_parse_failure`, `invalid_notify_event`, `invalid_nf_instance_uri`, `internal_error`

NF management messages statistics Category

`nf_management_stats_total`

Description: NF management messages statistics

Sample Query: `nf_management_stats_total{host=\"http://10.105.227.109:8082/nnrf-nfm/v1\", direction=\"outbound\", message_type=\"registration\", result=\"timeouOrRPCError\" }`

Labels:

- Label: `host`

Label Description: End Point address

Example: `http://10.105.227.109:8082/nnrf-nfm/v1`

- Label: `direction`
Label Description: Direction indicates about the message going out or coming in
Example: inbound, outbound
- Label: `message_type`
Label Description: Type of Message
Example: registration, heartbeat, subscription, notification
- Label: `result`
Label Description: result of discover message
Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure

NRF Access Token Category

`nf_oauth_messages_total`

Description: Total AccessToken Message count

Sample Query: `nf_oauth_messages_total{nf_type=\"pcf\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: udm, amf, pcf, ausf, smf, smsf
- Label: `result`
Label Description: overall status
Example: success

NRF Discovery Category

`nf_discover_events_total`

Description: NF Discover Stats

Sample Query: `nf_discover_events_total{nf_type=\"pcf\", response_type=\"local\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, ausf, smf
- Label: `response_type`
Label Description: Discovery response chosen from

Example: local, cache, expired-cache

Security Algorithm Category

amf_nas_security_algos_seconds_total

Description: Statistic for capturing duration taken for security algorithm

Sample Query:

```
amf_nas_security_algos_seconds_total{algos_type="128-5G-IA1",status="success",reason="",algos_lang="go",message_type="N1IdentityResponse",message_direction!="inbound"}
```

Labels:

- Label: `message_type`

Label Description: The name of the message type

Example: N1IdentityResponse

- Label: `status`

Label Description: Status of the application of security algorithm

Example: success, failures

- Label: `reason`

Label Description: The reason for failure

Example: integrity check failed,Security Context Not Found

- Label: `algos_type`

Label Description: The type of algorithm

Example: 128-5G-IA1

- Label: `message_direction`

Label Description: The direction of the message flow

Example: inbound, outbound

- Label: `algos_lang`

Label Description: The implementation of security algorithm

Example: go, c

amf_nas_security_algos_total

Description: Statistic for capturing counter of security algorithm

Sample Query:

```
amf_nas_security_algos_total{algos_type="128-5G-IA1",status="success",reason="",algos_lang="go",message_type="N1IdentityResponse",message_direction!="inbound"}
```

Labels:

- Label: `message_type`

Label Description: The name of the message type

Example: N1IdentityResponse

- Label: `status`

Label Description: Status of the application of security algorithm

Example: success, failures

- Label: `reason`

Label Description: The reason for failure

Example: integrity check failed, Security Context Not Found

- Label: `algos_type`

Label Description: The type of algorithm

Example: 128-5G-IA1

- Label: `message_direction`

Label Description: The direction of the message flow

Example: inbound, outbound

- Label: `algos_lang`

Label Description: The implementation of security algorithm

Example: go, c

Unmarshal Failures Category

unmarshal_failures

Description: total number of Unmarshal error stats

Sample Query: `unmarshal_failures{message_type="\SmfSmContextDelete\"}`

Labels:

- Label: `message_type`

Label Description: The message type associated with Unmarshal failure stats

Example: `AusfAuthenticationCfm, AusfAuthenticationReq, UdmDeRegistrationReq, UdmRegistrationReq, UdmSubscriptionReq, UdmUnSubscriptionReq, PcfAmfPolicyControlCreate, PcfAmfPolicyControlDelete, SmfSmContextCreate, SmfSmContextDelete, SmfSmContextUpdate, AmfCommCreateUeContext, AmfCommN1N2MessageTransfer`



CHAPTER 2

KPI Support for Multiple Replicas

- [Feature Summary and Revision History, on page 29](#)
- [Feature Description, on page 29](#)
- [OAM Support, on page 30](#)

Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	AMF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled - Always-on
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.04.0

Feature Description

This feature supports the following statistics:

- Procedural
- Service-based Interface (SBI)

- Session
 - gNB ID
 - Tracking Area (TA)

OAM Support

This section describes operations, administration, and maintenance information for this feature.

Procedural Statistics

The following procedural statistics are supported.

Metrics	Description	Labels
procedure_execution_seconds_total	Total time in seconds for executing the procedure.	<ul style="list-style-type: none"> • execution_stage • msg_type • proc_name • sub_proc_name
procedure_service_total	Total number of procedures executed in service.	proc_name
procedure_service_duration_seconds_total	Total time in seconds for executing the procedure in service pod.	proc_name
procedure_service_duration_histogram_total	Histogram time bins for executing the procedure in service pod.	<ul style="list-style-type: none"> • proc_name • bin
sub_procedure_service_total	Total number of sub procedures executed in service.	<ul style="list-style-type: none"> • msg_type • proc_name • sub_proc_name
sub_procedure_service_duration_seconds_total	Total time in seconds for executing the sub procedure in service pod.	<ul style="list-style-type: none"> • msg_type • proc_name • sub_proc_name
sub_procedure_service_duration_histogram_total	Histogram time bins for executing the sub procedure in service pod.	<ul style="list-style-type: none"> • msg_type • proc_name • sub_proc_name • bin

SBI Statistics

The following SBI statistics are supported.

Metrics	Description	Labels
rpc_response_total	Total number of Remote Process Call (RPC) responses received.	<ul style="list-style-type: none"> • background • dest_host • dest_set • interface • method_name • msg_type • namespace • proc_name • retry • rpc_name • service_name • stage • status • status_code • sub_proc_name • txn_type

Session Statistics

The following session statistics are supported.

Metrics	Description	Labels
db_records_total	Total number of records present in database.	<ul style="list-style-type: none"> • CipheringAlgo • IntegrityAlgo

Bulk Statistics

The following are examples of KPI Support for Multiple Replicas.

Procedural Statistics Example

```
procedure_execution_seconds_total{app_name="amf",cluster="clu1",data_center="dc1",execution_stage="AppInfra",
instance_id="0",msg_type="N1RegistrationRequest",proc_name="UE
Registration",service_name="amf-service",
sub_proc_name="N1RegistrationRequest"} 0.004000576
```

```
procedure_service_duration_histogram_total{app_name="amf",bin="50to500ms",cluster="clu1",data_center="dc1",instance_id="0",
proc_name="UE Registration",service_name="amf-service"} 1
```

```
procedure_service_duration_seconds_total{app_name="amf",cluster="clu1",data_center="dc1",instance_id="0",
proc_name="UE Registration",service_name="amf-service"} 0.201723819
```

```
procedure_service_total{app_name="amf",cluster="clu1",data_center="dc1",instance_id="0",
proc_name="UE Registration",service_name="amf-service"} 1
```

```
sub_procedure_service_duration_histogram_total{app_name="amf",bin="50to500ms",cluster="clu1",data_center="dc1",instance_id="0",
msg_type="N1RegistrationRequest",proc_name="UE
Registration",service_name="amf-service",sub_proc_name="N1RegistrationRequest"}
1
```

```
sub_procedure_service_duration_seconds_total{app_name="amf",cluster="clu1",data_center="dc1",instance_id="0",
msg_type="N1RegistrationRequest",proc_name="UE
Registration",service_name="amf-service",sub_proc_name="N1RegistrationRequest"}
0.201668683
```

```
sub_procedure_service_total{app_name="amf",cluster="clu1",data_center="dc1",instance_id="0",msg_type="N1RegistrationRequest",
proc_name="UE
Registration",service_name="amf-service",sub_proc_name="N1RegistrationRequest"}
1
```

Procedure Service Duration Histogram Statistics Example

```
procedure_service_duration_histogram_total{app_name="AMF",bin="<=50ms",cluster="clu1",data_center="dc1",instance_id="2",
proc_name="Pdu N1N2",service_name="amf-service"} 2
```

Sub-procedure Service Duration Histogram Statistics Example

```
sub_procedure_service_duration_histogram_total{app_name="AMF",bin="<=50ms",cluster="clu1",
data_center="dc1",instance_id="0",msg_type="N1N2MessageTransfer",proc_name="Pdu
N1N2",service_name="amf-service",
sub_proc_name="N1N2MessageTransfer"} 1
```

```
sub_procedure_service_total{app_name="AMF",cluster="clu1",data_center="dc1",instance_id="0",
msg_type="N1N2MessageTransfer",proc_name="Pdu
N1N2",service_name="amf-service",sub_proc_name="N1N2MessageTransfer"} 1
```

Procedure Service Statistics Example


```
procedure_service_total{app_name="AMF",cluster="clul",data_center="dc1",instance_id="2",proc_name="UE
Registration",
service_name="amf-service"} 4
```

SBI Statistics Example

```
rpc_response_total{app_name="amf",background="false",cluster="clul",data_center="dc1",
dest_host="http://1.0.0.1:1000/nausf-auth/v1",dest_set="",instance_id="1",interface="Rest",
method_name="Authenticate",msg_type="AusfauthRequest",namespace="0",proc_name="Authentication",
retry="0",rpc_name="AUSF",service_name="amf-rest-ep",stage="init_done",status="success",status_code="201",
sub_proc_name="N1RegistrationRequest",txn_type="NausfUeAuthentication"} 1
```

```
rpc_response_total{app_name="amf",background="false",cluster="clul",data_center="dc1",
dest_host="http://1.0.0.1:1001/nudm-uecm/v1",dest_set="",instance_id="1",interface="Rest",
method_name="Register",msg_type="UdmRegRequest",namespace="0",proc_name="UDM
Registration",
retry="0",rpc_name="UDM",service_name="amf-rest-ep",stage="init_done",status="error",
status_code="RestClientUnableToSend",sub_proc_name="N1RegistrationRequest",
txn_type="NudmUecmRegistration"} 1
```

DB Records Statistics Example

```
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="EmergencyRegistered:false",
sliceName="slice1",systemId=""} 1
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="PLMNType:HOMER",
sliceName="slice1",systemId=""} 2
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="UeUsageSetting:NA",
sliceName="slice1",systemId=""} 0
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="gnb_id:4194304123456",
sliceName="slice1",systemId=""} 0
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="tac:30",
sliceName="slice1",systemId=""} 0
db_records_total{appInstanceId="0",app_name="datastore-ep",cluster="session",data_center="test",db="session",
instance_id="3232278441",service_name="datastore-ep",session_type="total",
sliceName="slice1",systemId="1"} 3
```




CHAPTER 3

MIB Reference

- [CISCO-CNEE-MIB, on page 35](#)
- [CISCO-SMI, on page 35](#)

CISCO-CNEE-MIB

This is the MIB module for the Cisco Cloud Native Execution Environment (CNEE) platform. This MIB only handles notifications from the CNEE.



Note The Cisco Cloud Native Execution Environment (CNEE) MIB (CISCO-CNEE-MIB.my) uses definitions that are defined in the Cisco Enterprise Structure of Management Information (SMI) MIB (CISCO-SMI.my).

For more information, see the "*UCC Subscriber Microservice Infrastructure - Operations Guide*" > "SMI MIB Reference" chapter.

CISCO-SMI

This is the Structure of Management Information for the Cisco Enterprise.



Note The Cisco Cloud Native Execution Environment (CNEE) MIB (CISCO-CNEE-MIB.my) uses definitions that are defined in the Cisco Enterprise Structure of Management Information (SMI) MIB (CISCO-SMI.my).

For more information, see the "*UCC Subscriber Microservice Infrastructure - Operations Guide*" > "SMI MIB Reference" chapter.

