

AMF Metrics Reference

- amf Metrics Reference, on page 1

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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, N14TxN1N2MessageTransferRequest, N14RxN1N2MessageTransferResponse, N14TxUeContextReleaseReq, N14RxUeContextReleaseRsp, N14TxUeContextReleaseRsp, N14RxN1N2MessageTransferRequest, N14TxN1N2MessageTransferResponse, N14RxUeContextReleaseReq, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp

- 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_throttle

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

Sample Query: `attach_rate_throttle{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 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=\"HOMER\",slice_data=\"2-333333\"}`

Labels:

- Label: `message_type`

  Label Description: The message type associated with an ausf service

  Example: NausfUeAuthReq, NausfUeAuthRsp, NausfUe5gAkaCnfReq, NausfUe5gAkaCnfRsp, NausfUeEapAkaCnfReq, NausfUeEapAkaRsp

- 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, AUTHENTICATION_FAILURE

- Label: `slice_data`

  Label Description: slice data

  Example: 2-333333

- Label: `roaming_status`

  Label Description: Roaming Info

  Example: HOMER, ROAMER, UNKNOWN

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, NonueN2InfoUnSubcribeReq, NonueN2InfoUnSubcribeRsp, NonueN2InfoNotifyReq, NonueN2InfoNotifyRsp, NlmfNonUEN2InfoSubscribeReq,NlmfNonUEN2InfoSubscribeRsp, NlmfNonUEN2InfoUnSubscribeReq, NlmfNonUEN2InfoUnSubscribeRsp

- 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 collision stats Category

amf_collision_stats

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

Sample Query:

```
amf_collision_stats{proc1=\"PduCreate\",proc2=\"UEOrNwDeRegistration\",action_type=\"abort_proc1\"}
```

Labels:

- Label: `proc1`

  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, N2HandoverSrcWithoutAmfChange, N2HandoverSrcWithAmfChange, HandovertoEPC, UeRadioCapInfoInd, NGReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, LocationPosition_MTLR, LocationPosition_NILR, UdmDataChangeNotify, EventExposure

- 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, N2HandoverSrcWithoutAmfChange, N2HandoverSrcWithAmfChange, HandovertoEPC, UeRadioCapInfoInd, NGReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, LocationPosition_MTLR, LocationPosition_NILR, UdmDataChangeNotify, EventExposure

- Label: `action_type`

  Label Description: action taken by collision resolver

  Example: abort_proc1, cleanup_proc1

AMF Disconnect stats Category

amf_disconnect_stats

Description: Total number of session disconnect

Sample Query: `amf_disconnect_stats{reason=\"Dereg_UeRequested\"}`

Labels:

- Label: `reason`

  Label Description: The reason associated with a call disconnect

  Example: Dereg_AdminClear, Dereg_Implicit, Dereg_UeRequested, Dereg_RESTRICTED, Dereg_UDM_RESTRICTED, Dereg_Udm_SUBSCRIPTION_WITHDRAWN

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=\"2-333333\"}`

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=\"NgmlcRequestPositiongInfo\",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: NgmlcRequestPositiongInfo, NgmlcProvidePositiongInfoRsp, NgmlcEventNotificationReq, NgmlcEventNotificationRsp, NgmlcNotifiedPosInfoReq, NgmlcNotifiedPosInfoRsp

- 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

- 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, NlmfN1N2MessageSubscribeReq,
NlmfN1N2MessageSubscribeRsp, NlmfN1N2MessageUnSubscribeReq,
NlmfN1N2MessageUnSubscribeRsp

- 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, 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. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

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

Labels:

- Label: `message_direction`

  Label Description: Indicates whether the message is inbound or outbound.

  Example: outbound,inbound

- Label: `message_type`

  Label Description: Message type

  Example:
  N2AmfStatusIndication

AMF METRICS SBC MESSAGE TOTAL Category

amf_sbc_message_total

Description: Total number of SBC messages

Sample Query:

```
amf_sbc_message_total{message_direction=\"inbound\",message_type=\"WriteReplaceWarningRequest\",reason=\"\",status=\"success\"}
```

Labels:

- Label: `message_direction`

  Label Description: Indicates whether the message is inbound or outbound.

  Example: outbound, inbound

- Label: `message_type`

  Label Description: Message type

  Example: SbcClientConnected, SbcClientTerminated, sbc_ul_msg, sbc_dl_msg, WriteReplaceWarningRequest, WriteReplaceWarningResponse, WriteReplaceWarningIndication, StopWarningRequest, StopWarningResponse, StopWarningIndication, PWSFailureIndication, PWSRestartIndication, ErrorIndication

- Label: `reason`

  Label Description: The reason associated with an sbc messages

  Example: Unable to retrieve msg from rsp

- Label: `status`

  Label Description: Status of Sbc messages

  Example: success, failures

AMF NAS ASN DECODE ERR STATS Category

nas_asn_decode_error_stats

Description: Nas ASN Decoding errors. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:

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

Labels:

- Label: `message_type`

  Label Description: Message Type

  Example: N1RegistrationRequest, N1RegistrationComplete, N1UlNasTransport, N1DeRegistrationRequestUeOrigDereg, N1DeRegistrationAcceptUeTermDereg, N1ServiceRequest, N1AuthenticationResponse, N1SecurityModeComplete, N1SecurityModeReject, N1AuthenticationFailure, N1IdentityResponse, N1ConfigurationUpdateComplete

- 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. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:

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

Labels:

- Label: `message_type`

  Label Description: Message Type

  Example: N1AuthenticationRequest, N1AuthenticationResult, N1AuthenticationReject, N1RegistrationAccept, N1RegistrationReject, N1DlNasTransport, N1DeRegistrationAcceptUeOrigDereg, N1DeRegistrationRequestUeTermDereg, N1ServiceAccept, N1ServiceReject, N1ConfigurationUpdateCommand, N1IdentityRequest, N1Notification, N1SecurityModeCommand

- Label: `asn_failures`

  Label Description: Failure reason

  Example:

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=\"N1RegRequest\",slice_data=\"2-333333\"}
```

Labels:

- Label: `message_direction`

  Label Description: Indicates whether the message is inbound or outbound.

  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: N1RegRequest, N1RegRequest_RegType_[TYPE], N1RegRequest_IdentityType_[TYPE], N1RegAccept, N1RegAccept_[REG_TYPE], N1RegComplete, N1RegComplete_Timeout, N1RegReject, N1[REG_TYPE]RegReject,N1DeRegAccept_UeOriginatingDereg, N1DeRegAccept_UeTerminatedDereg, N1DeRegReq_UeOriginatingDereg, N1DeRegReq_UeOriginatingDereg_NormalDereg, N1DeRegReq_UeOriginatingDereg_SwitchOff, N1DeRegReq_UeTerminatedDereg, N1DeRegReq_UeTerminatedDereg_[CAUSE],N1AuthenticationReq,N1AuthenticationReject, N1AuthenticationRsp, N1AuthenticationFailure, N1AuthenticationReject_[CAUSE],N1UeCfgUpdateComplete, N1UeCfgUpdateCommand,N1SecurityModeCommand, N1SecurityModeComplete, N1SecurityModeReject,N1PduEstablistmentRequest, N1PduEstablistmentRequest_Dnn_Truncated, N1PduModifyRequest_NwInitiated, N1PduModifyRequest_UeInitiated, N1PduReleaseRequest_NwInitiated, N1PduReleaseRequest_UeInitiated, N1PduReject, N1PduReject_[CAUSE],N1DlNasTransport, N1DlNasTransport_LPP, N1DlNasTransport_SMS, N1DlNasTransport_SOR, N1UlNasTransport, N1UlNasTransport_LPP, N1UlNasTransport_PduN1Rsp, N1UlNasTransport_SMS, N1UlNasTransport_SOR,N1ServiceRequest, N1ServiceRequest_Connected, N1ServiceRequest_Deregistration_Init, N1ServiceRequest_Idle, N1ServiceRequest_pdu, N1ServiceRequest_[SERVICE_TYPE], N1ServiceAccept, N1ServiceReject, N1ServiceReject_[CAUSE],N1IdentityRequest, N1IdentityRequest_[IDENTITY_TYPE], N1IdentityResponse

AMF NGAP ASN DECODE ERR STATS Category

ngap_asn_decode_error_stats

Description: Ngap ASN Decoding errors. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:

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

Labels:

- Label: `message_type`

  Label Description: NGAP Message Type

  Example:

- 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. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

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

Labels:

- Label: `message_type`

  Label Description: NGAP Message Type

  Example:
  NgAmfStatusIndication, ReRouteNas Request,
  UeContextModificationRequest,LocationReportingControl,DownlinkUEAssociatedNRPPaTransport,NgAmfOverloadStop,NgAmfOverloadStart

- 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=\"HOMER\",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, N2PduSessResouceModifyReq, N2PathSwitchReqAckMsg, N2PathSwitchReqFailureMsg, N2HandoverRequired, N2HandoverRequestAck, N2HandoverFailure, N2HandoverRequest, N2HandoverCommand, N2HandoverPreparationFailure, N2HandoverNotify, N2HandoverCancel, N2HandoverCancelAck, N2DLRanStatuTransfer, N2PathSwitchReqMsg, N2PduSessResouceReleaseCmd, Paging, Paging_Stage_[X], Paging_Stage_[X]Reattempt, Paging_TriggerType_[TYPE], Paging_Trigger_[TRIGGER], N2PduSessResouceSetupReq, N2LocationReportingControl, N2LocationReport, N2LocationReportingFailureIndication, N2ReRouteNasRequest, UlUeAssociatedNRPPaTransport, DlUeAssociatedNRPPaTransport, UlNonUeAssociatedNRPPaTransport, DlNonUeAssociatedNRPPaTransport, NonueN2InfoTxfrRspData, N2ErrorIndication

- Label: `status`

  Label Description: Overall status

  Example: success, failures

- Label: `reason`

  Label Description: The reason associated with Ngap message failure

  Example: NgResetDropped, No GNB Matched, Unable to get rsp, Unable to retrieve msg from rsp, Internal Error, Msg Timeout, Invalid Input, Mandatory IE Missing, Invalid PduSession, No connection with GNB

- Label: `slice_data`

  Label Description: slice data

  Example: 2-333333

- Label: `roaming_status`

  Label Description: Roaming Info

  Example: HOMER, ROAMER, UNKNOWN

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, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp

- Label: `status`

  Label Description: Overall status

  Example: success, failures

- Label: `reason`

  Label Description: The reason associated with an pcf service

  Example: Unable to get rsp, Unable to retrieve msg from rsp, Failure in PCF Response, 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=\"UERegistration\",status=\"success\",proc_status=\"ProcStatusComplete\",slice_data=\"2-333333\"}
```

Labels:

- Label: `proc_type`

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

  Example: Unknown, UERegistration, UEOrNwDeRegistration, PduCreate, PduN1N2, PduN2Rsp, PduN1Rsp, PduMod, UEContextRelease, PduNotify, EBI, Paging, ServiceRequest, ContextTransfer, ContextTransferUpdate, XnHandover, N2HandoverSrc, HandovertoEPC, UeRadioCapInfoInd, NGReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, LocationPosition, UdmDataChangeNotify, EventExposure

- 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, Aborted

- 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=\"UERegistration\",status=\"success\",proc_status=\"ProcStatusComplete\",slice_data=\"2-333333\"}
```

Labels:

- Label: `proc_type`

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

Example: Unknown, UERegistration, UEOrNwDeRegistration, PduCreate, PduN1N2, PduN2Rsp, PduN1Rsp, PduMod, UEContextRelease, PduNotify, EBI, Paging, ServiceRequest, ContextTransfer, ContextTransferUpdate, XnHandover, N2HandoverSrc, HandovertoEPC, UeRadioCapInfoInd, NGReset, N2HandoverTgt, HandoverFromEPC, UeCfgUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, LocationPosition, UdmDataChangeNotify, EventExposure

- 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, Aborted

- 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:
  GTPCFwdRelocCmpNotf, GTPCRelocCancelReq, GTPCIdentificationReq, GTPCContextReq

- Label: `status`

  Label Description: overall Status

  Example: success,failures,max_retry_exceeded

AMF SBC ASN DECODE ERR STATS Category

sbc_asn_decode_error_stats

Description: SBC ASN Decoding errors

Sample Query:
`sbc_asn_decode_error_stats{message_type=\"WriteReplaceWarningRequest\",asn_failures=\"CauseProtocolTransferSyntaxError\"}`

Labels:

- Label: `message_type`

  Label Description: Message Type

  Example: WriteReplaceWarningRequest, StopWarningRequest, ErrorIndication

- Label: `asn_failures`

  Label Description: Failure reason

  Example: CauseProtocolTransferSyntaxError

AMF SBC ASN ENCODE ERR STATS Category

sbc_asn_encode_error_stats

Description: SBC ASN Encoding errors

Sample Query:

```
sbc_asn_encode_error_stats{message_type=\"WriteReplaceWarningResponse\",asn_failures=\"CauseProtocolTransferSyntaxError\"}
```

Labels:

- Label: `message_type`

  Label Description: Message Type

  Example: WriteReplaceWarningResponse, WriteReplaceWarningIndication, StopWarningResponse, StopWarningIndication, PWSFailureIndication, PWSRestartIndication, ErrorIndication

- Label: `asn_failures`

  Label Description: Failure reason

  Example: CauseProtocolTransferSyntaxError

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=\"2-333333\"}
```

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, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp, N11AMFCreateSubscriptionReq, N11AMFCreateSubscriptionRsp, N11AMFEventNotificationReq, N11AMFEventNotificationRsp

- 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 Avaliable, 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=\"2-333333\"}
```

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, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp

- 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: Indicates the current system overload state. The possible overload state values are - 0 : None, 1 : Minor, 2 : Major, 3 : Critical. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

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_GUAMI\",roaming_status=\"HOMER\",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, NudmSdmDataChgNotfReq, NudmSdmDataChgNotfRsp, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp

- 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 , N1PduEstablistmentRequest , N1PduModifyRequest , N1PduReleaseRequest , N1DlNasTransport , N1UlNasTransport , N1PduReject , N1ServiceRequest , N1ServiceReq_Connected , N1ServiceReq_Idle , N1ServiceAccept , N1ServiceReq_SIGNALLING, N1ServiceReject , N1IdentityRequest_Suci , N1IdentityRequest , N1IdentityResponse , N1IdentityRequest_Imei

- 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: X1RequestMessage, 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, X2KeepAliveAck

- Label: `status`

  Label Description: The overall status of the message

  Example: msg_sent, msg_drop, msg_received

ASN FAILURE MANDATORY IE MISSING Category

asn_failures_mandatory_ie_missing

Description: mandatory missing Ies. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:
`asn_failures_mandatory_ie_missing{message_type=\"WriteReplaceWarningRequest\",missing_ie=\"MessageId\"}`

Labels:

- Label: `missing_ie`

  Label Description: Missing IE

Example: MessageId, SerialNumber, GlobalRANNodeID, RANNodeName, SupportedTAList, RanUeNgapId, NasPdu, UserLocationInformation, Cause, ResetType

- Label: `message_type`

  Label Description: Message Type

  Example: WriteReplaceWarningRequest, NgSetupRequest, RanConfigUpdate, InitialUeMessage, UlNasTransport, NgapReset

Discover Messages statistics Category

nf_discover_messages_total

Description: Discover Messages statistics

Sample Query: `nf_discover_messages_total{nf_type=\"AMF\", host=\"10.105.227.109:8082\", result=\"success\", version=\"v1\", svc_name=\"nnrf-disc\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR

- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082

- Label: `result`

  Label Description: result of discover message

  Example: 404, success, timeout_rpc_error, response_parse_failure

- Label: `version`

  Label Description: API version being used

  Example: v1

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nnrf-disc

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

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=\"10.105.227.109:8082\", result=\"success\", version=\"v1\", svc_name=\"nnrf-disc\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR

- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082

- Label: `result`

  Label Description: result of discover message

  Example: 404, success, timeout_rpc_error, response_parse_failure

- Label: `version`

  Label Description: API version being used

  Example: v1

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nnrf-disc

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

DNS related statistics Category

dns_request_total

Description: Number of requests sent to CoreDNS for DNS resolution

Sample Query: `dns_request_total{method_name=\"get\", attempt=\"first\", type=\"ipv4\", fqdn=\"example.com\"}`

Labels:

- Label: `method_name`

  Label Description: The method name for DNS resolution

Example: get

- Label: `attempt`

  Label Description: The attempt to resolve the fully qualified domain name (FQDN)

  Example: first, second

- Label: `type`

  Label Description: The type of DNS request

  Example: ipv4, ipv6

- Label: `fqdn`

  Label Description: The fully qualified domain name being queried

  Example: fqdn1.com, fqdn2.com

dns_response_total

Description: Number of response received from CoreDNS for DNS resolution

Sample Query: `dns_response_total{method_name=\"get\", attempt=\"first\", type=\"ipv4\", fqdn=\"example.com\", status=\"success\", status_code=\"ipv4NotFound\"}`

Labels:

- Label: `attempt`

  Label Description: The attempt to resolve the fully qualified domain name (FQDN)

  Example: first, second

- Label: `type`

  Label Description: The type of DNS response

  Example: ipv4, ipv6

- Label: `fqdn`

  Label Description: The fully qualified domain name for which the response was received

  Example: fqdn1.com, fqdn2.com

- Label: `status`

  Label Description: The status of the DNS response

  Example: success, error

- Label: `status_code`

  Label Description: The status code in case of an error

  Example: ipv4NotFound, ipv6NotFound

fqdn_dns_msg_total

Description: Number of FQDN resolution Attempted/Success/Failure for targetNfType and service name

Sample Query: `fqdn_dns_msg_total{fqdn=\"example.com\", nf_type=\"SCP\", svc_name=\"nudm-sdm\", req=\"resolution\", status=\"attempted\", error=\"entry_not_found\"}`

Labels:

- Label: `fqdn`

  Label Description: The fully qualified domain name involved in the message

  Labels:

- Label: `nf_type`

  Label Description: The network function type

  Example: SCP,UDM,PCF

- Label: `svc_name`

  Label Description: Service name for which DNS query was sent

  Example: nudm-sdm, nausf-auth

- Label: `req`

  Label Description: FQDN resolution done using cache or DNS server

  Example: resolution, cache

- Label: `status`

  Label Description: DNS resolution status such as attempted, success, or failure

  Example: attempted, success, failure

- Label: `error`

  Label Description: The error code in case of a failure

  Example: ipv4NotFound, ipv6NotFound

Event subscription stats Category

amf_event_subscription_stats

Description: AMF Event Subscription stats

Sample Query:
`amf_event_subscription_stats{message_type=\"AMFCreateEventSubscriptionReq\",status=\"success\",reason=\"\",roaming_status=\"HOMER\",slice_data=\"2-333333\"}`

Labels:

- Label: `message_type`

  Label Description: The message type associated with an Event subscription service

  Example: AMFCreateEventSubscriptionReq, AMFCreateEventSubscriptionRsp, AMFEventNotificationReq, AMFEventNotificationRsp

- Label: `status`

  Label Description: Overall status

Example: success, failures

- Label: `reason`

  Label Description: The reason associated with Event subscription service

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

- Label: `slice_data`

  Label Description: slice data

  Example: 2-333333

- Label: `roaming_status`

  Label Description: Roaming Info

  Example: HOMER, ROAMER, UNKNOWN

Marshal Failures Category

marshal_failures

Description: total number of Marshal error statss

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, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp

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 DNS related statistics Category

n26_dns_stats

Description: Number of DNS requests and responses for N26 interface

Sample Query: `n26_dns_stats{message_type=\"N26DnsRequest\",status=\"success\",reason=\"\"}`

Labels:

- Label: `message_type`

  Label Description: The type of N26 DNS message

  Example: N26DnsRequest, N26DnsResponse

- Label: `status`

  Label Description: Overall status of the DNS message

  Example: success, failures

- Label: `reason`

  Label Description: The reason associated with the DNS message in case of failure

  Example: Peer Info Mismatch

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=\"2-333333\"}`

Labels:

- Label: `message_type`

  Label Description: The message type associated with an N26 service

  Example: GTPCRxIdentificationRequest, GTPCTxIdentificationRequest, GTPCRxContextRequest, GTPCTxContextRequest, GTPCRxContextResponse, GTPCTxContextResponse, GTPCRxContextAck, GTPCTxContextAck, GTPCRxFwdRelocRequest, GTPCTxFwdRelocRequest,

GTPCRxFwdRelocResponse, GTPCTxFwdRelocResponse, GTPCRxFwdRelocCmpNotf, GTPCTxFwdRelocCmpNotf, GTPCRxFwdRelocCmpAck, GTPCTxFwdRelocCmpAck, GTPCRxRelocCancelReq, GTPCTxRelocCancelReq, GTPCRxRelocCancelRsp, GTPCTxRelocCancelRsp, GTPCTxIdentificationResponse, GTPCRxIdentificationResponse

- 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 Avaliable, Req Not Accepted, Sub IMSI Not Received, Mandatory IE Missing, No Linked EBI, N1 mode Not Supported, Integrity Check Failed

- 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=\"SMF\", host=\"10.105.227.109:8082\", svc_name=\"nsmf-pdusession\", version=\"v1\", req=\"initial\", result=\"result_200\", response_type=\"internal\", retransmit=\"false\", gr_instance_id=\"1\"}`

Labels:

- Label: `message_type`

  Label Description: The message type associated with the endpoint selection

  Example: SmfSmContextCreate, SmfSmContextUpdate, SmfSmContextRetrieve, SmfSmContextDelete, SmfN1N2MsgTxfrFailureNotification, NrfHpcfIdQuery, NssfNSSelectionReq, UdmRegistrationReq, UdmSdmGetUeAmSubscriptionData, UdmSubscriptionReq, UdmSorAckInfoReq, UdmSubscribedSnssaisAckReq, AusfAuthenticationReq, AusfAuthenticationCfm, SmsfActivationReq, SmsfDeactivationReq, SmsfSendSms, EirCheckEquipmentIdentity, AmfEventNotification, AmfCommN1N2MessageTransfer, AmfCommCreateUeContext, AmfCommReleaseUeContext, AmfCommUeContextTransfer, AmfCommUeContextTransferUpdate, AmfN1MessageNotifyClient, AmfN2InfoNotifyClient, LmfN1MessageNotify, LmfN2InfoNotify, LmfDetermineLocation, NotifiedPosInfo, AmfStatusChangeNotify, CbcfN2InfoNotify

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR, CBCF
- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082
- Label: `req`

  Label Description: req type

  Example: initial, fallback,
- Label: `result`

  Label Description: The outcome of the selected endpoint

  Example: result_200, result_404, rpc_host_not_found, peer_down_failure
- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nsmf-pdusession, nudm-sdm, namf-comm, etc.
- Label: `response_type`

  Label Description: How the response was obtained

  Example: internal, external
- Label: `version`

  Label Description: API version being used

  Example: v1, v2
- Label: `retransmit`

  Label Description: Retransmission information

  Example: \"\", retransmit_0, retransmit_1, retransmit_2
- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

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=\"10.105.227.109:8082\", svc_name=\"nsmf-pdusession\", version=\"v1\",`

```
req=\"initial\", response=\"503\", status=\"final\", response_type=\"internal\",
gr_instance_id=\"1\"}
```

Labels:

- Label: `message_type`

  Label Description: The message type associated with the failure stats

  Example: SmfSmContextCreate, SmfSmContextUpdate, SmfSmContextRetrieve, SmfSmContextDelete, SmfN1N2MsgTxfrFailureNotification, NrfHpcfIdQuery, NssfNSSelectionReq, UdmRegistrationReq, UdmSdmGetUeAmSubscriptionData, UdmSubscriptionReq, UdmSorAckInfoReq, UdmSubscribedSnssaisAckReq, AusfAuthenticationReq, AusfAuthenticationCfm, SmsfActivationReq, SmsfDeactivationReq, SmsfSendSms, EirCheckEquipmentIdentity, AmfEventNotification, AmfCommN1N2MessageTransfer, AmfCommCreateUeContext, AmfCommReleaseUeContext, AmfCommUeContextTransfer, AmfCommUeContextTransferUpdate, AmfN1MessageNotifyClient, AmfN2InfoNotifyClient, LmfN1MessageNotify, LmfN2InfoNotify, LmfDetermineLocation, NotifiedPosInfo, AmfStatusChangeNotify, CbcfN2InfoNotify

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR, CBCF

- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082

- Label: `req`

  Label Description: Request type

  Example: initial, fallback,

- Label: `response`

  Label Description: Response from the server

  Example: 503, 500, 404, timeout_rpc_error

- Label: `status`

  Label Description: Status from the server

  Example: retry, final

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nsmf-pdusession, nudm-sdm, namf-comm, etc.

- Label: `version`

  Label Description: API version being used

  Example: v1, v2

- Label: `response_type`

  Label Description: How the response was obtained

Example: \"\",internal

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NF management messages statistics Category

nf_management_stats_total

Description: NF management messages statistics

Sample Query: `nf_management_stats_total{host=\"10.105.227.109:8082\", svc_name=\"nnrf-nfm\", version=\"v1\", direction=\"outbound\", message_type=\"registration\", notification_event_type=\"\", condition_event_type=\"\", result=\"success\", gr_instance_id=\"1\"}`

Labels:

- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082

- 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, deregistration, heartbeat, nfUpdate, nfUpdatePatch, subscription, notification, updateSubscription, unsubscription

- Label: `result`

  Label Description: Result of the management message

  Example: 404, success, timeout_rpc_error, response_parse_failure, request_parse_failure, invalid_notify_event, invalid_nf_instance_uri, internal_error

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nnrf-nfm

- Label: `version`

  Label Description: API version being used

  Example: v1

- Label: `notification_event_type`

  Label Description: Type of notification event (for notification messages)

Example: \"\", NF_REGISTERED, NF_DEREGISTERED, NF_PROFILE_CHANGED

- Label: `condition_event_type`

  Label Description: Type of condition event (for notification messages)

  Example: \"\", NF_ADDED, NF_REMOVED

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NF management message time statistics Category

nf_management_total_time

Description: NF management messages total time taken

Sample Query: `nf_management_total_time{host=\"10.105.227.109:8082\", svc_name=\"nnrf-nfm\", version=\"v1\", direction=\"outbound\", message_type=\"registration\", result=\"success\", gr_instance_id=\"1\"}`

Labels:

- Label: `host`

  Label Description: End Point address

  Example: 10.105.227.109:8082

- Label: `direction`

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

  Example: inbound, outbound

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nnrf-nfm

- Label: `version`

  Label Description: API version being used

  Example: v1

- Label: `message_type`

  Label Description: Type of Message

  Example: registration, deregistration, heartbeat, nfUpdate, nfUpdatePatch, subscription, updateSubscription, unsubscription

- Label: `result`

  Label Description: Result of the management message

Example: 404, success, timeout_rpc_error, response_parse_failure, request_parse_failure, invalid_notify_event, invalid_nf_instance_uri, internal_error

NF Message Processing Time Category

nf_send_message_total_time

Description: NF Send Message Total Time

Sample Query: `nf_send_message_total_time{nf_type=\"AMF\", svc_name=\"namf-comm\", message_type=\"AmfCommCreateUeContext\", result=\"SendSuccess\", status_code=\"200\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type that processed the message

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR, CBCF, ANY

- Label: `svc_name`

  Label Description: The service name that processed the message

  Example: namf-comm, nsmf-pdusession, nudm-sdm, nausf-auth, npcf-am-policy-control, etc.

- Label: `message_type`

  Label Description: The type of message that was processed

  Example: SmfSmContextCreate, SmfSmContextUpdate, SmfSmContextRetrieve, SmfSmContextDelete, SmfN1N2MsgTxfrFailureNotification, NrfHpcfIdQuery, NssfNSSelectionReq, UdmRegistrationReq, UdmSdmGetUeAmSubscriptionData, UdmSubscriptionReq, UdmSorAckInfoReq, UdmSubscribedSnssaisAckReq, AusfAuthenticationReq, AusfAuthenticationCfm, SmsfActivationReq, SmsfDeactivationReq, SmsfSendSms, EirCheckEquipmentIdentity, AmfEventNotification, AmfCommN1N2MessageTransfer, AmfCommCreateUeContext, AmfCommReleaseUeContext, AmfCommUeContextTransfer, AmfCommUeContextTransferUpdate, AmfN1MessageNotifyClient, AmfN2InfoNotifyClient, LmfN1MessageNotify, LmfN2InfoNotify, LmfDetermineLocation, NotifiedPosInfo, AmfStatusChangeNotify, CbcfN2InfoNotify

- Label: `result`

  Label Description: Overall result of the message processing

  Example: SendSuccess, SendFailure, LibPeerDownFailure

- Label: `status_code`

  Label Description: HTTP status code or error type of the response

  Example: 0,200, 201, 404, 403, 504, dns_failure

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NF Request Messages Category

nf_req_recieved_messages_total

Description: NF Send Messages request received Total

Sample Query: `nf_req_recieved_messages_total{nf_type=\"AMF\", svc_name=\"namf-comm\", message_type=\"AmfCommCreateUeContext\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type that received the request

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR, CBCF, ANY

- Label: `svc_name`

  Label Description: The service name that received the request

  Example: namf-comm, nsmf-pdusession, nudm-sdm, nausf-auth, npcf-am-policy-control, etc.

- Label: `message_type`

  Label Description: The type of message received

  Example: SmfSmContextCreate, SmfSmContextUpdate, SmfSmContextRetrieve, SmfSmContextDelete, SmfN1N2MsgTxfrFailureNotification, NrfHpcfIdQuery, NssfNSSelectionReq, UdmRegistrationReq, UdmSdmGetUeAmSubscriptionData, UdmSubscriptionReq, UdmSorAckInfoReq, UdmSubscribedSnssaisAckReq, AusfAuthenticationReq, AusfAuthenticationCfm, SmsfActivationReq, SmsfDeactivationReq, SmsfSendSms, EirCheckEquipmentIdentity, AmfEventNotification, AmfCommN1N2MessageTransfer, AmfCommCreateUeContext, AmfCommReleaseUeContext, AmfCommUeContextTransfer, AmfCommUeContextTransferUpdate, AmfN1MessageNotifyClient, AmfN2InfoNotifyClient, LmfN1MessageNotify, LmfN2InfoNotify, LmfDetermineLocation, NotifiedPosInfo, AmfStatusChangeNotify, CbcfN2InfoNotify

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NF Response Messages Category

nf_resp_sent_messages_total

Description: NF Send Messages response sent Total

Sample Query: `nf_resp_sent_messages_total{nf_type=\"AMF\", svc_name=\"namf-comm\", message_type=\"AmfCommCreateUeContext\", result=\"SendSuccess\", status_code=\"200\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type that sent the response

Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR, CBCF, ANY

- Label: `svc_name`

  Label Description: The service name that sent the response

  Example: namf-comm, nsmf-pdusession, nudm-sdm, nausf-auth, npcf-am-policy-control, etc.

- Label: `message_type`

  Label Description: The type of message for which response was sent

  Example: SmfSmContextCreate, SmfSmContextUpdate, SmfSmContextRetrieve, SmfSmContextDelete, SmfN1N2MsgTxfrFailureNotification, NrfHpcfIdQuery, NssfNSSelectionReq, UdmRegistrationReq, UdmSdmGetUeAmSubscriptionData, UdmSubscriptionReq, UdmSorAckInfoReq, UdmSubscribedSnssaisAckReq, AusfAuthenticationReq, AusfAuthenticationCfm, SmsfActivationReq, SmsfDeactivationReq, SmsfSendSms, EirCheckEquipmentIdentity, AmfEventNotification, AmfCommN1N2MessageTransfer, AmfCommCreateUeContext, AmfCommReleaseUeContext, AmfCommUeContextTransfer, AmfCommUeContextTransferUpdate, AmfN1MessageNotifyClient, AmfN2InfoNotifyClient, LmfN1MessageNotify, LmfN2InfoNotify, LmfDetermineLocation, NotifiedPosInfo, AmfStatusChangeNotify, CbcfN2InfoNotify

- Label: `result`

  Label Description: Overall result of the message processing

  Example: SendSuccess, SendFailure, LibPeerDownFailure

- Label: `status_code`

  Label Description: HTTP status code or error type of the response

  Example: 0,200, 201, 404, 403, 504, dns_failure

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

Ngap Error Indication stats Category

amf_ngap_err_ind_message_total

Description: AMF Ngap Error Indication stats

Sample Query:
`amf_ngap_err_ind_message_total{message_direction=\"inbound\",message_type=\"N2ErrorIndication\",procedure_type=\"PDUNGSetup\",reason=\"CauseRadioNetworkUnspecified\"}`

Labels:

- Label: `message_direction`

  Label Description: Indicates whether the message is inbound or outbound.

  Example: inbound

- Label: `message_type`

  Label Description: The message type of the Ngap message

Example: N2ErrorIndication

- Label: `procedure_type`

  Label Description: The procedure type for which the error indication message is received

  Example: PBIdNGSetup

- Label: `reason`

  Label Description: The reason received in the error indication message

  Example: CauseRadioNetworkUnspecified

NRF Access Token Category

nf_oauth_messages_total

Description: Total AccessToken Message count

Sample Query: `nf_oauth_messages_total{nf_type=\"PCF\", host=\"10.105.227.109:8082\", svc_name=\"nnrf-oauth2\", version=\"v1\", result=\"success\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SMF, SMSF, UDM, 5G_EIR

- Label: `result`

  Label Description: Overall status of the OAuth message

  Example: success, error, result_401, result_403

- Label: `host`

  Label Description: End Point address (hostname/IP of the target endpoint)

  Example: 10.105.227.109:8082

- Label: `svc_name`

  Label Description: The service name being accessed

  Example: nnrf-oauth2

- Label: `version`

  Label Description: API version being used

  Example: v1

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NRF Discovery Category

nf_discover_events_total

Description: NF Discover Stats

Sample Query: `nf_discover_events_total{nf_type=\"PCF\", response_type=\"local\", gr_instance_id=\"1\"}`

Labels:

- Label: `nf_type`

  Label Description: Network Function type

  Example: AMF, AUSF, GMLC, LMF, NSSF, PCF, SCP, SMF, SMSF, UDM, 5G_EIR

- Label: `response_type`

  Label Description: Discovery response choosen from

  Example: local, cache, expired-cache

- Label: `gr_instance_id`

  Label Description: Geographic redundancy instance ID

  Example: 1

NRF Subscription Messages Category

nrf_subscription_send_messages_total

Description: NRF Subscription send messages total

Sample Query: `nrf_subscription_send_messages_total{host=\"10.105.227.109:8082\", message_type=\"subscription\", req=\"initial\", subscrCond=\"NFInstanceId\", gr_instance_id=\"1\"}`

Labels:

- Label: `host`

  Label Description: End Point address (hostname/IP of the target NRF)

  Example: 10.105.227.109:8082

- Label: `message_type`

  Label Description: Type of subscription message

  Example: subscription, updateSubscription, unsubscription

- Label: `req`

  Label Description: Request type/attempt for subscription operations

  Example: resourceUri, initial, retry_1, retry_2

- Label: `gr_instance_id`

Label Description: Geographic redundancy instance ID

Example: 1

- Label: `subscrCond`

  Label Description: Subscription condition type

  Example: \"\", NFInstanceId

Security Algorithm Category

amf_nas_security_algos_seconds_total

Description: Statistic for capturing duration taken for security algorithm. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:

```
amf_nas_security_algos_seconds_total{algos_type=\"128-5G-IA1\",status=\"success\",reason=\"\",algos_lang=\"3Lang\",message_type=\"N1IdentityResponse\",message_direction=\"inbound\"}
```

Labels:

- Label: `message_type`

  Label Description: The name of the message type

  Example: N1IdentityResponse, N1RegistrationRequest, N1RegistrationAccept, N1RegistrationComplete, N1RegistrationReject, N1AuthenticationRequest, N1AuthenticationResponse, N1AuthenticationResult, N1AuthenticationFailure, N1SecurityModeCommand, N1IdentityRequest, N1ServiceAccept, N1ServiceReject, N1ConfigurationUpdateCommand, N1ConfigurationUpdateComplete, N1DeRegistrationAcceptUeOrigDereg, N1DeRegistrationRequestUeTermDereg, N1DlNasTransport, N1UeCfgUpdateFailure, N1SecurityModeComplete, N1SecurityModeReject, N1DeRegistrationAcceptUeTermDereg, N1UlNasTransport, N1DeRegistrationRequestUeOrigDereg, N1ServiceRequest

- 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, 5G-EA0, 128-5G-EA2, 5G-IA0, 128-5G-IA1, 128-5G-IA2

- Label: `message_direction`

  Label Description: The direction of the message flow

  Example: inbound, outbound

- Label: `algos_lang`

Label Description: The implemtnation of security algorithm

Example: GoLang

amf_nas_security_algos_total

Description: Statistic for capturing counter of security algorithm. This statistic is controlled through the CLI. Refer to the CLI Command Reference Guide for details.

Sample Query:

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

Labels:

- Label: `message_type`

  Label Description: The name of the message type

  Example: N1IdentityResponse, N1RegistrationRequest, N1RegistrationAccept, N1RegistrationComplete, N1RegistrationReject, N1AuthenticationRequest, N1AuthenticationResponse, N1AuthenticationResult, N1AuthenticationFailure, N1SecurityModeCommand, N1IdentityRequest, N1ServiceAccept, N1ServiceReject, N1ConfigurationUpdateCommand, N1ConfigurationUpdateComplete, N1DeRegistrationAcceptUeOrigDereg, N1DeRegistrationRequestUeTermDereg, N1DlNasTransport, N1UeCfgUpdateFailure, N1SecurityModeComplete, N1SecurityModeReject, N1DeRegistrationAcceptUeTermDereg, N1UlNasTransport, N1DeRegistrationRequestUeOrigDereg, N1ServiceRequest

- 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, 5G-EA0, 128-5G-EA2, 5G-IA0, 128-5G-IA1, 128-5G-IA2

- Label: `message_direction`

  Label Description: The direction of the message flow

  Example: inbound, outbound

- Label: `algos_lang`

  Label Description: The implemtnation of security algorithm

  Example: GoLang

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, AMFStatusChangeSubscribeReq, AMFStatusChangeSubscribeRsp, AMFStatusChangeUnSubscribeReq, AMFStatusChangeUnSubscribeRsp, AMFStatusChangeNotifyReq, AMFStatusChangeSubscribeModifyReq, AMFStatusChangeSubscribeModifyRsp