



AMF Metrics Reference

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amf Metrics Reference

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=\"2-33333\"}
```

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 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
- 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 Failed, Mac 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 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 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_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, UEOwnDeRegistration, PduCreate, PduN1N2, PduN2Rsp, PduN1Rsp, PduMod, UEContextRelease, PduNotify, EBI, Paging, ServiceRequest, ContextTransfer, ContextTransferUpdate, XnHandover, N2HandoverSrc, HandoverToEPC, UeRadioCapInfoInd, GReset, N2HandoverTgt, HandoverFromEPC, UeCfUpdate, DomainSelectionInfo, AmfRedirection, UpLinkDownlink, LawfulIntercept, RegistrationComplete, ContextTransferEPC, LocationPosition_MTLR, LocationPosition_NILR

- Label: `proc2`

Label Description: Name of the colliding procedure

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

- Label: `action_type`

Label Description: action taken by collision resolver

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

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=\"Dereg_UeRequested\"}`

Labels:

- Label: `reason`

Label Description: The reason associated with an 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=\"2-33333\"}`

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, 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, 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=\"2-33333\")
```

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:

NasAsnDecodeErrorStats{message_type="N1RegistrationRequest",asn_failures="CauseProtocolTransferSyntaxError"}

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:

NasAsnDecodeErrorStats{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:

NasAsnEncodeErrorStats{message_type="N1AuthenticationRequest",asn_failures=""}

- 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 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, N1DlNasTransport, N1UlNasTransport, N1PduReject`

AMF NGAP ASN DECODE ERR STATS Category

AMF NGAP ASN ENCODE ERR STATS Category

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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, N2PduSessResouceSetupReq, N2LocationReportingControl, N2LocationReport, N2LocationReportingFailureIndication, N2ReRouteNasRequest, UeAssociatedNRPPaTransport,DUeAssociatedNRPPaTransport,ULNonUeAssociatedNRPPaTransport,DNonUeAssociatedNRPPaTransport

- 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 Avaliable,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 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, NGReset, 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, NGReset, 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 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\"}`

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

Labels:

- Label: `message_type`

Label Description: The message type associated with an smf service

Example: N11SMContextUpdateReq, N11SMContextUpdateRsp, N11SMContextRetrieveReq, N11SMContextRetrieveRsp, 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=\"2-333333\"}
```

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

- 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_QAMI",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, NudmPscfRestorationReq, NudmPscfRestorationRsp, 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

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, GlobalRANNodeB, RANNodeName, SupportedTAList, RanUeNgapId, NasPdu, UserLocationInformation, Cause, ResetType

- Label: `message_type`

Label Description: Message Type

Example:

WriteReplaceWarningRequest,NgSetupRequest,RanConfigUpdate,InitialUeMessage,UINasTransport,NgapReset

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`

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

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\"}`

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

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 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

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`

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

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/nnrf-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, scp

- Label: `host`

Label Description: End Point address

Example: `http://10.105.227.109:8082/nnrf-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/nnrf-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, scp

- Label: `host`

Label Description: End Point address

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

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

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 choosen 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 implemtnation 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

