



SMF Metrics

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chf-service Metrics Reference

CCF Data Consistency Check Category

ccf_datacheck_stats

Description: Total number of sessions checked for consistency

Sample Query: 'ccf_datacheck_stats{rat_type="NR", status="failed"}'

Labels:

- Label: procedure_type

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending

Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `rat_type`

Label Description: Type of the radio access associated

Example: EUTRA, NR, WLAN, VIRTUAL, `rat_type_unknown`

- Label: `pdu_type`

Label Description: Type of PDU session

Example: ipv4, ipv6, ipv4v6, unknown

- Label: `status`

Label Description: Procedure status after data consistency check

Example: success, failed

- Label: `reason`

Label Description: Failure reason of data inconsistency

Example: String format for failed reason

CCF Procedure Category

ccf_service_stats

Description: CCF call flow procedure counters

Sample Query: `'ccf_service_stats{procedure_type="pdu_sess_create"}'`

Labels:

- Label: `procedure_type`

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

Example: `pdu_sess_create`, `smf_req_pdu_sess_mod`, `smf_req_pdu_sess_rel`, `pdu_sess_notify_abort`, `pdu_sess_notify_reauth`, `spending_limit_notify_terminate`, `spending_limit_notify_status`, `spending_limit_create`, `spending_limit_update`, `spending_limit_delete`

- Label: `status`

Label Description: call flow procedure counter

Example: attempted, success, failures

- Label: `dnn`

Label Description: Dnn configured in dnn-policy, also can have `virtual_dnn` if configured, separated by #

Example: intershat, intershat#cisco.com

- Label: `reason`

Label Description: Reason for failure status. For success and attempted it will be Empty

Example: proc_pdu_not_established, proc_pdu_ctx_not_found, internal_error, reason_unknown, pdn_create_over_created_pdn, auth_grpc_failed, maintenance_mode, quota_grpc_failed, auth_failed, cc_relay_failed

- Label: `rat_type`

Label Description: RAT Type of the Session

Example: EUTRA, NR, WLAN, rat_type_unknown

- Label: `roaming_status`

Label Description: Roaming status of the subscriber session

Example: IN_BOUND, OUT_BOUND, none

- Label: `ccf_current_procedure`

Label Description: Current Procedure Name for Message Level Stats

Example:

CCF Procedure Collision Category

ccf_procedure_collision

Description: Total number of procedures collided

Sample Query: `sum(ccf_procedure_collision) by (ccf_current_procedure, ccf_current_state, ccf_new_procedure, ccf_current_procedure_action)`

Labels:

- Label: `ccf_current_procedure`

Label Description: Current Procedure Name

Example: PDU Session Release - SMF initiated, PDU 5G to 4G Handover, PDU Session Modify - PCF initiated, PDU UE Sync Procedure, PDU Idle Mode Entry - RAN initiated

- Label: `ccf_current_state`

Label Description: Current Procedure State

Example: String format for procedure stat

- Label: `ccf_new_procedure`

Label Description: New Procedure Name

Example: String format for new procedure

- Label: `ccf_current_procedure_action`

Label Description: Current Procedure Action on Collision

Example: Ignore, Suspend, Resume, Abort, Cleanup, Continue, Ready, INVALID ACTION

CCF Procedure Total Time Statistics Category

ccf_procedure_seconds

Description: Total number of seconds taken to complete the procedure

Sample Query: 'ccf_procedure_seconds{ccf_proc_status="Aborted"}'

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `ccf_proc_status`

Label Description: Procedure Status

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanedup, RequireSuspend, RequireCleanup, RequireAbort, ProcStatusComplete, Unknown

CCF Start Procedure Statistics Category

ccf_procedure_start

Description: Total number of procedures started

Sample Query: 'ccf_procedure_start{ccf_proc_type="PDN Connect"}'

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: String format for procedure stat

CCF Stop Procedure Statistics Category

ccf_procedure_stop

Description: Total number of procedures stopped

Sample Query: 'ccf_procedure_stop{ccf_proc_type="PDU Session Establishment"}'

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: String format for procedure stat

- Label: `ccf_proc_status`

Label Description: Procedure Status

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanup, RequireSuspend, RequireCleanup, RequireAbort, ProcStatusComplete

CCF Total Procedure Count Category

ccf_procedure_total

Description: Total number of procedures executed

Sample Query: `'ccf_procedure_total{ccf_proc_status="Running"}'`

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `ccf_proc_status`

Label Description: Procedure Status

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanup, RequireSuspend, RequireCleanup, RequireAbort, ProcStatusComplete, Unknown

CCF Total Timedout Procedure Count Category

ccf_procedure_timeout

Description: Total number of procedures executed more than 10sec

Sample Query: `'ccf_procedure_timeout{ccf_proc_status="Running"}'`

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `ccf_proc_status`

Label Description: Procedure Status

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanedup, RequireSuspend, RequireCleanup, RequireAbort, ProcStatusComplete, Unknown

CCF Total Timedout Procedure Time Category

ccf_procedure_timeout_seconds

Description: Total number of seconds taken by procedures executed more than 10sec

Sample Query: 'ccf_procedure_timeout_seconds{ccf_proc_status="Running"}'

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `ccf_proc_status`

Label Description: Procedure Status

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanedup, RequireSuspend, RequireCleanup, RequireAbort, ProcStatusComplete, Unknown

CCF Total Unhandled Event Statistics Category

ccf_procedure_unhndl_event

Description: Total number of unhandled events per procedure type

Sample Query: 'ccf_procedure_unhndl_event{ccf_proc_type="PDU Session Release - SMF initiated"}'

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: String format for procedure stat

- Label: `message_type`

Label Description: Type of Request/Response Message associated with Unhandled Event

Example: String format for event details

- Label: `ccf_current_state`

Label Description: Current Procedure State

Example: String format for procedure state

- Label: `guard_timer`

Label Description: This is a check for Guard Timeout. TRUE if Guard Timer has expired, else FALSE

Example: TRUE, FALSE

CCF Total Unhandled Transaction Statistics Category

ccf_procedure_unhndl_trans

Description: Total number of unhandled transactions per procedure type

Sample Query: `'xxf_procedure_unhndl_trans{message_type="RadiusCoaDisconnectReq"}'`

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: PDU Session Release - SMF initiated, PDU 5G to 4G Handover, PDU Session Modify - PCF initiated, PDU UE Sync Procedure, PDU Idle Mode Entry - RAN initiated

- Label: `message_type`

Label Description: Type of Request/Response Message associated with Unhandled Transaction

Example: String format for event details

- Label: `ccf_current_state`

Label Description: Current Procedure State

Example: String format for procedure state

- Label: `guard_timer`

Label Description: This is a check for Guard Timeout. TRUE if Guard Timer has expired, else FALSE

Example: TRUE, FALSE

CCF Usage Report Stats Category

ccf_usage_trigger_stats

Description: The current count for Used unit Container Recieved from SMF

Sample Query: `'ccf_usage_trigger_stats{ccf_proc_type="N40 Session Modify SMF Initiated"}'`

Labels:

- Label: `rating_group`

Label Description: Rating Group for which usage is being reported

Example: Any string

- Label: `service_identifier`

Label Description: Service Identifier for which usage is being reported

Example: Any string

- Label: `ccf_proc_type`

Label Description: Which kind of procedure usage is reported to CCF

Example: Some String

- Label: `trigger`

Label Description: Trigger associated with UUC

Example: Triggers defined as per Specs 32.291

SLA Transaction Category

`ccf_sla_transaction_stats`

Description: Transaction SLA stats

Sample Query: `sum(ccf_sla_transaction_stats) by (ccf_sla_transaction_stats, ccf_proc_type, status, message_type)`

Labels:

- Label: `ccf_proc_type`

Label Description: Procedure Name

Example: N40 Charging Data Request Create, N40 Charging Data Request Release SMF Initiated, N40 Session Modify SMF Initiated, N40 Session Notify - Abort, N40 Session Notify - Reauth, N28 Spending Limit Subscribe, N28 Spending Limit Subscribe Update, N28 Spending Limit UnSubscribe, N28 Spending Limit Notify Status, N28 Spending Limit Terminate Status, N28 Next Reval Notify, N40 Next Reval Notify

- Label: `status`

Label Description: gives status of the procedure

Example: Queued, Running, Aborted, Suspended, Invalid, Cleanedup, RequireSuspend, RequireCleanup, RequireAbort, Unknown

- Label: `message_type`

Label Description: gives the message type received during sla transaction

Example: IntSelfTxnSla

diameter-ep statistics Category

diam_base_msg_seconds_total

Description: Cumulative response time in seconds of diameter base message requests processed by diameter endpoint

Sample Query: 'diam_base_msg_seconds_total{message_name="DPR"}'

Labels:

- Label: message_name

Label Description: name of interface message

Example: DPR

- Label: origin_host

Label Description: name of the origin host

Example: 192.168.169.107

- Label: origin_realm

Label Description: name of the origin realm

Example: xyz.com

- Label: disconnect_cause

Label Description: reason for the disconnection

Example: REBOOTING, BUSY, DO_NOT_WANT_TO_TALK_TO_YOU

- Label: result_code

Label Description: result_code describes the error that the diameter node encountered in its processing

Example: 2001, 5012

- Label: gr_instance

Label Description: GR Instance ID

Example: 1 or 2

diam_base_msg_total

Description: Count of diameter base message requests processed by diameter endpoint

Sample Query: 'diam_base_msg_total{message_name="DPR"}'

Labels:

- Label: message_name

Label Description: name of interface message

Example: DPR

- Label: `origin_host`
Label Description: name of the origin host
Example: 192.168.169.107
- Label: `origin_realm`
Label Description: name of the origin realm
Example: xyz.com
- Label: `disconnect_cause`
Label Description: reason for the disconnection
Example: REBOOTING, BUSY, DO_NOT_WANT_TO_TALK_TO_YOU
- Label: `result_code`
Label Description: result_code describes the error that the diameter node encountered in its processing
Example: 2001, 5012
- Label: `gr_instance`
Label Description: GR Instance ID
Example: 1 or 2

diameter_decode_message_total

Description: Count of decoding done by diameter endpoint

Sample Query: 'diameter_decode_message_total{interface="gx"}'

Labels:

- Label: `interface`
Label Description: name of the interface
Example: gx, gy

Labels:

- Label: `message_name`
Label Description: name of interface message
Example: ccai, ccua, ccat, rar, asr
- Label: `endpoint_name`
Label Description: name of endpoint profile used during processing
Example: gxProf1
- Label: `dict_name`
Label Description: name of the dictionary used
Example: gx_cust
- Label: `status`

Label Description: status of the request

Example: success, failure, partial

- Label: `unknown_avp`

Label Description: `unknown_avp` indicates if any unknown AVPs were found during encoding where 0 indicates not found and 1 indicates found

Example: 0,1

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

diameter_encode_message_total

Description: Count of encoding done by diameter endpoint

Sample Query: `'diameter_encode_message_total{interface="gx"}'`

Labels:

- Label: `interface`

Label Description: name of the interface

Example: gx, gy

Labels:

- Label: `message_name`

Label Description: name of interface message

Example: ccni, ccru, ccrt, raa, asa

Labels:

- Label: `endpoint_name`

Label Description: name of endpoint profile used during processing

Example: gxProfl

- Label: `dict_name`

Label Description: name of the dictionary used

Example: gx_cust

- Label: `status`

Label Description: status of the request

Example: success, failure, partial

- Label: `unknown_avp`

Label Description: `unknown_avp` indicates if any unknown AVPs were found during encoding where 0 indicates not found and 1 indicates found

Example: 0,1

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

diameter_pod_status

Description: Pod status as active/standby

Sample Query: `'diameter_pod_status{vip="10.0.0.1"}'`

Labels:

- Label: `vip`

Label Description: any ip

Example: 10.0.0.1

diameter_request_message_total

Description: Count of diameter requests processed by diameter endpoint

Sample Query: `'diameter_request_message_total{interface="gx"}'`

Labels:

- Label: `interface`

Label Description: name of the interface

Example: gx, gy

Labels:

- Label: `message_name`

Label Description: name of interface message

Example: ccni, ccru, ccrt, rar, asr

Labels:

- Label: `peer_address`

Label Description: `peer_address` will be empty for inbound requests, could be empty for outbound requests depending on point of failure

Example: 10.1.2.110:3868

Labels:

- Label: `status`

Label Description: status of the request

Example: attempted, peer_down, err_cfg, err_maxout, timeout_ipc, err_ipc, err_unmarshal

Labels:

- Label: `retry`
Label Description: retry count
Example: 0
- Label: `gr_instance`
Label Description: GR Instance ID
Example: 1 or 2
- Label: `transaction_type`
Label Description: transaction type
Example: origin
- Label: `endpoint_name`
Label Description: name of endpoint profile used during processing
Example: `gxProfl`
- Label: `message_direction`
Label Description: direction of message from Diameter perspective
Example: inbound, outbound

diameter_response_message_seconds_total

Description: Cumulative response time in seconds of diameter requests processed by diameter endpoint

Sample Query: `'diameter_response_message_seconds_total{interface="gx"}'`

Labels:

- Label: `interface`
Label Description: name of the interface
Example: `gx`, `gy`

Labels:

- Label: `message_name`
Label Description: name of interface message
Example: `ccai`, `ccau`, `ccat`, `raa`, `asa`

Labels:

- Label: `peer_address`
Label Description: `peer_address` will be empty for inbound requests, could be empty for outbound requests depending on point of failure
Example: `10.1.2.110:3868`

Labels:

- Label: `status`

Label Description: status of the request

Example: success, err_cfg, err_maxout, err_send, timeout_res, timeout_ipc, err_ipc, err_unmarshal, err_rc, err_exp_rc

Labels:

- Label: `result_code`

Label Description: `result_code` describes the result-code or experimental-result-code that the diameter node encountered during response processing

Example: 1001, 2001, 3001, 4001, 5001

Labels:

- Label: `action`

Label Description: action

Example: continue, terminate

Labels:

- Label: `sub_action`

Label Description: sub action

Example: discard-traffic, local-fallback, retry-server-on-event, send-ccrt-on-call-termination, with-term-req, without-term-req

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

- Label: `endpoint_name`

Label Description: name of endpoint profile used during processing

Example: gxProfl

- Label: `message_direction`

Label Description: direction of message from Diameter perspective

Example: inbound, outbound

diameter_response_message_total

Description: Count of diameter responses processed by diameter endpoint

Sample Query: `'diameter_response_message_total{interface="gx"}'`

Labels:

- Label: `interface`

Label Description: name of the interface

Example: gx, gy

Labels:

- Label: `message_name`

Label Description: name of interface message

Example: ccai, ccaw, ccat, raa, asa

Labels:

- Label: `peer_address`

Label Description: `peer_address` will be empty for inbound requests, could be empty for outbound requests depending on point of failure

Example: 10.1.2.110:3868

Labels:

- Label: `status`

Label Description: status of the request

Example: success, err_cfg, err_maxout, err_send, timeout_res, timeout_ipc, err_ipc, err_unmarshal, err_rc, err_exp_rc

Labels:

- Label: `result_code`

Label Description: `result_code` describes the result-code or experimental-result-code that the diameter node encountered during response processing

Example: 1001, 2001, 3001, 4001, 5001

Labels:

- Label: `action`

Label Description: action

Example: continue, terminate

Labels:

- Label: `sub_action`

Label Description: sub action

Example: discard-traffic, local-fallback, retry-server-on-event, send-ccrt-on-call-termination, with-term-req, without-term-req

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

Labels:

- Label: `endpoint_name`

Label Description: name of endpoint profile used during processing

Example: `gxProf1`

Labels:

- Label: `message_direction`

Label Description: direction of message from Diameter perspective

Example: `inbound`, `outbound`

diameter_route_expires_total

Description: Count of all dynamic routes expired

Sample Query: `'diameter_route_expires_total{gr_instance="1"}'`

Labels:

- Label: `route`

Label Description: route identified by host, realm and peer

Example: `OCS1:OCS.COM:DRA1`

Labels:

- Label: `peer_name`

Label Description: peer name used by the route

Example: `DRA1`

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: `1` or `2`

diameter_route_hits_total

Description: Count of all route hits for messages processed by diameter endpoint

Sample Query: `'diameter_route_hits_total{route_type="S"}'`

Labels:

- Label: `route`

Label Description: route identified by host, realm and peer

Example: `OCS1:OCS.COM:DRA1`

Labels:

- Label: `route_type`

Label Description: type of the route

Example: S or D

Labels:

- Label: `peer_name`

Label Description: peer name used by the route

Example: DRA1

Labels:

- Label: `wild_carded_route`

Label Description: route with wild carded host or realm

Example: *:OCS.COM:DRA1

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

diameter_route_misses_total

Description: Count of all route misses for messages processed by diameter endpoint

Sample Query: 'diameter_route_misses_total{route="OCS1:OCS.COM:DRA1"}'

Labels:

- Label: `route`

Label Description: route identified by host, realm and peer

Example: OCS1:OCS.COM:DRA1

Labels:

- Label: `route_type`

Label Description: type of the route

Example: S or D

Labels:

- Label: `peer_name`

Label Description: peer name used by the route

Example: DRA1

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

diameter_route_status

Description: Status of a route

Sample Query: 'diameter_route_status{route="OCS1:OCS.COM:DRA1"}'

Labels:

- Label: `route`

Label Description: route identified by host, realm and peer

Example: OCS1:OCS.COM:DRA1

Labels:

- Label: `route_type`

Label Description: type of the route

Example: S or D

Labels:

- Label: `peer_name`

Label Description: peer name used by the route

Example: DRA1

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

Labels:

- Label: `route_status`

Label Description: status of the route

Example: Pending or Active or Inactive or Failed or Deleted or Expired or Cloned

{{- end}}

diameter_routes_total

Description: Count of all diameter routes added by diameter endpoint

Sample Query: 'diameter_routes_total{gr_instance="1"}'

Labels:

- Label: `route_type`

Label Description: type of the route

Example: S or D

Labels:

- Label: `peer_name`

Label Description: peer name used by the route

Example: DRA1

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

dispatch_error_seconds_total

Description: Cumulative time in seconds spent during dispatching of inbound requests to service that had error or timeout

Sample Query: `'dispatch_error_seconds_total{gr_instance="1"}'`

Labels:

- Label: `application`

Label Description: name of the application

Example: diameter

Labels:

- Label: `command_code`

Label Description: command code

Example: RAR

Labels:

- Label: `error_code`

Label Description: error code

Example: 3002

Labels:

- Label: `gr_instance`

Label Description: GR Instance ID

Example: 1 or 2

dispatch_error_total

Description: Count of inbound requests that had error or timeout during dispatch to service

Sample Query: 'dispatch_error_total{gr_instance="1"}'

Labels:

- Label: `application`
Label Description: name of the application
Example: diameter

Labels:

- Label: `command_code`
Label Description: command code
Example: RAR

Labels:

- Label: `error_code`
Label Description: error code
Example: 3002

Labels:

- Label: `gr_instance`
Label Description: GR Instance ID
Example: 1 or 2

policy_engine_message_seconds_total

Description: Cumulative time in seconds spent during processing of message sent to service

Sample Query: 'policy_engine_message_seconds_total{gr_instance="1"}'

Labels:

- Label: `application`
Label Description: name of the application
Example: diameter

Labels:

- Label: `command_code`
Label Description: command code
Example: RAR

Labels:

- Label: `gr_instance`
Label Description: GR Instance ID
Example: 1 or 2

policy_engine_message_total

Description: Count of messages sent to service for which response is received

Sample Query: 'policy_engine_message_total{gr_instance="1"}'

Labels:

- Label: application
Label Description: name of the application
Example: diameter

Labels:

- Label: command_code
Label Description: command code
Example: RAR

Labels:

- Label: gr_instance
Label Description: GR Instance ID
Example: 1 or 2

dns-proxy Metrics Reference

DNS Lookup Request Statistics Category

DNS_Lookup_Requests_Statistics

Description: Total dns packets processed

Sample Query:

'DNS_Lookup_Requests_Statistics(dnsPacketDir="Rx",dnsProtocol="udp",dnsQueryType="ip4",dnsResult="Success",dnsSrcIP="172.17.0.2",dnsSrcPort="53",grInstId="1")'

Labels:

- Label: dnsPacketDir
Label Description: Direction
Example: Tx, Rx
- Label: dnsProtocol
Label Description: Protocol
Example: udp, tcp
- Label: dnsQueryType
Label Description: DNS Lookup Query type

Example: ipv4, ipv6, ipv4v6

- Label: `dnsResult`

Label Description: Result

Example: Success, Failure, Timeout, Failure_No_Response

- Label: `dnsSvrIP`

Label Description: DNS Server IP Address

Example: Any string

- Label: `dnsSvrPort`

Label Description: DNS Server Port

Example: Any string

- Label: `grInstId`

Label Description: GR Instance Id

Example: 1 or 2

GTPC BGP Routed Count Stats Category

`gtpc_app_bgp_routes_count`

Description: BGP routes add counter

Sample Query: `'gtpc_app_bgp_routes_count{status="success"}'`

Labels:

- Label: `status`

Label Description: status

Example: success, failed

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

GTPC Roaming Peer Path Mgmt Stats Category

`gtpc_roaming_peer_path_mgmt`

Description: GTPC Roaming Peer Path Mgmt Stats

Sample Query: `'gtpc_roaming_peer_path_mgmt{service_name="gtpc-ep",status="suppressed"}'`

Labels:

- Label: `gtpc_peer_type`
Label Description: Gtpc Peer type
Example: ROAMER, HOMER, VISITOR
- Label: `interface_type`
Label Description: Gtpc Interface type
Example: S5, S11, S5E, S2B, S8
- Label: `gtpc_msg_type`
Label Description: Gtpc Message type
Example: NumEchoMsg, NumControlMsg
- Label: `status`
Label Description: Status
Example: suppressed
- Label: `gr_instance_id`
Label Description: GR instance ID
Example: 1, 2

gtp-ep Metrics Reference

ASN1 Encoding stats Category

`gtp_asn1field_encoding_failures_total`

Description: A counter for total number of fields failed to be ASN1 encoded

Sample Query: `'gtp_asn1field_encoding_failures_total{gtp_profile="pf1"}'`

Labels:

- Label: `gtp_profile`
Label Description: Gtp Profile Name
Example: pf1, pf2
- Label: `dictionary`
Label Description: Gtp Dictionary Used
Example: custom6, custom24
- Label: `asn1_field`
Label Description: ASN1 Field
Example: ServedIMSI, ChargingID, ServingNodeAddress, ChargingCharacteristics

- Label: `reason`

Label Description: Reason for failure

Example: Constraint Violation

CDR Batch flush duration stats Category

gtpb_batch_flush_duration_histogram_total

Description: Histogram time bins of batch flush time

Sample Query: `'gtpb_batch_flush_duration_histogram_total{gtpb_profile="pf1"}'`

Labels:

- Label: `gtpb_profile`

Label Description: Gtpb Profile Name

Example: pf1, pf2

- Label: `dictionary`

Label Description: Gtpb Dictionary Used

Example: custom6, custom24

- Label: `status`

Label Description: Status of the operation

Example: batch_success, batch_error

CDR Batch flush stats Category

gtpb_batch_flush_millis_total

Description: A Histogram for the time CDRs remain in batch before flushed

Sample Query: `'gtpb_batch_flush_millis_total{gtpb_profile="pf1"}'`

Labels:

- Label: `gtpb_profile`

Label Description: Gtpb Profile Name

Example: pf1, pf2

- Label: `dictionary`

Label Description: Gtpb Dictionary Used

Example: custom6, custom24

- Label: `status`

Label Description: Status of the operation

Example: batch_success, batch_error

CDR Batching Stats Category

gtpb_batched_cdrs_total

Description: No. of CDRs in a batch for a given profile

Sample Query: 'gtpb_batched_cdrs_total{gtpb_profile="pf1"}'

Labels:

- Label: gtpb_profile
Label Description: Gtpb Profile Name
Example: pf1, pf2
- Label: dictionary
Label Description: Gtpb Dictionary Used
Example: custom6, custom24
- Label: status
Label Description: Status of the operation
Example: batch_success, batch_error

DupReqList buffer gauge Category

gtpb_dup_reqlist_counter

Description: GTPB Dup Req List

Sample Query: 'gtpb_dup_reqlist_counter{gtpb_profile="pf1"}'

Labels:

- Label: gtpb_profile
Label Description: Gtpb Profile Name
Example: pf1, pf2
- Label: cgf_addr
Label Description: Cgf Server Address
Example: 1.2.3.4
- Label: state
Label Description: Request Process State
Example: empty_cdr_rsp_wait, dup_cdr_rel_rsp_wait, dup_cdr_can_rsp_wait, to_send_empty_rsp_wait

File based CDR Read Category

gtp_file_record_read

Description: GTPP CDR file based reads

Sample Query: 'gtp_file_record_read(gtp_profile="pf1")'

Labels:

- Label: `gtp_profile`
Label Description: Gtp Profile Name
Example: pf1, pf2
- Label: `status`
Label Description: CDR read operation status
Example: success, failure
- Label: `pod_status`
Label Description: Active/StandBy
Example: active, standby

File based CDR Write Category

gtp_file_record_write

Description: GTPP CDR file based writes

Sample Query: 'gtp_file_record_write(gtp_profile="pf1")'

Labels:

- Label: `gtp_profile`
Label Description: Gtp Profile Name
Example: pf1, pf2
- Label: `status`
Label Description: CDR write operation status
Example: success, failure
- Label: `pod_status`
Label Description: Active/StandBy
Example: active, standby

GTPP Archive List gauge Category

gtpplib_archive_list_counter

Description: GTPP Archive List

Sample Query: 'gtpplib_archive_list_counter{gtpplib_profile="pf1"}'

Labels:

- Label: gtpplib_profile
Label Description: Gtpplib Profile Name
Example: pf1, pf2
- Label: pod_status
Label Description: Active/StandBy
Example: active,standby

GTPP Messages Stats Category

gtpplib_msg_stats

Description: GTPP MSG Stats

Sample Query: 'gtpplib_msg_stats{gtpplib_profile="pf1"}'

Labels:

- Label: gtpplib_profile
Label Description: Gtpplib Profile Name
Example: pf1, pf2
- Label: msg_type
Label Description: GTPP Msg Name
Example: DataRecTransReq, DataRecTransReqPossibleDup, DataRecTransReqCancel, DataRecTransReqRelease, DataRecTransReqEmpty, DataRecTransReqRetried, DataRecTransReqPossibleDuplRetried, DataRecTransReqCancelRetried, DataRecTransReqReleaseRetried, DataRecTransReqEmptyRetried, DataRecTransRsp, DataRecTransPossibleDuplRsp, DataRecTransCancelRsp, DataRecTransReleaseRsp, DataRecTransEmptyRsp, EchoReqSent, EchoReqRcvd, EchoRspSent, EchoRspRcvd, NodeAliveReqSent, NodeAliveReqRcvd, NodeAliveRspSent, NodeAliveRspRcvd, TestEchoReqSent, TestEchoRspRcvd
- Label: status
Label Description: Request/Response Message Handling Status
Example: success,failure
- Label: cause
Label Description: GTPP Messages Response Cause

Example: accepted, mandatory_ie_incorrect, mandatory_ie_missing, invalid_message_format, optional_ie_incorrect, no_resources_available, system_failure, service_not_supported, version_not_supported, not_fulfilled, already_fulfilled, cdr_decode_error, sequence_numbers_incorrect, buffer_full, internal_failure, ipc_err

- Label: `cgf_addr`

Label Description: Cgf Server Address

Example: 1.2.3.4

- Label: `trigger_type`

Label Description: Trigger for this Message

Example: normal cdr, pod_switchover, peer_restart, cgf_down

GTPP Replication Msg Stats Category

gtpplib_replication_stats

Description: GTPP Replication Data Msg

Sample Query: 'gtpplib_replication_stats(gtpplib_profile="pf1")'

Labels:

- Label: `gtpplib_profile`

Label Description: Gtpplib Profile Name

Example: pf1, pf2

- Label: `cgf_addr`

Label Description: Cgf Server Address

Example: 1.2.3.4

- Label: `item`

Label Description: Peer Struct Replicated Item

Example:

SndReqListTx, DupReqListTx, SeqPoolTx, SndReqListRx, DupReqListRx, SeqPoolRx, ArchiveListTx, ArchiveListRx, FileCdrTx, FileCdrRx

- Label: `op_type`

Label Description: Operation Type

Example: Add, Update, Delete

- Label: `status`

Label Description: Peer Replication Msg Handling Status

Example: success, failure

Inbound CDR Requests Category

gtp_p_received_cdrs_total

Description: A counter for total number of CDRs received in request

Sample Query: 'gtp_p_received_cdrs_total{gtp_p_profile="pf1"}'

Labels:

- Label: gtp_p_profile
Label Description: Gtp Profile Name
Example: pf1, pf2
- Label: dictionary
Label Description: Gtp Dictionary Used
Example: custom6, custom24

Processed CDR Requests Category

gtp_p_processed_cdrs_total

Description: A counter for total number of CDRs processed in transaction

Sample Query: 'gtp_p_processed_cdrs_total{gtp_p_profile="pf1"}'

Labels:

- Label: gtp_p_profile
Label Description: Gtp Profile Name
Example: pf1, pf2
- Label: dictionary
Label Description: Gtp Dictionary Used
Example: custom6, custom24
- Label: status
Label Description: Status of processed CDR request
Example: Success, profile_error, not_leader_pod_error

Read from GTPP Archive List Stats Category

gtp_p_archive_list_read

Description: GTPP Archive List Read

Sample Query: 'gtp_p_archive_list_read{gtp_p_profile="pf1"}'

Labels:

- Label: `gtpg_profile`
Label Description: Gtpg Profile Name
Example: pf1, pf2
- Label: `status`
Label Description: Status of CDR read from Archive
Example: success, failure
- Label: `sub_status`
Label Description: Sub Status of CDR read from Archive
Example: lookup, send_to_cgf, send_to_hdd, purge
- Label: `pod_status`
Label Description: Active/StandBy
Example: active,standby

SendReqList buffer gauge Category

`gtpg_send_reqlist_counter`

Description: GTPG Send Req List

Sample Query: `'gtpg_send_reqlist_counter{gtpg_profile="pf1"}'`

Labels:

- Label: `gtpg_profile`
Label Description: Gtpg Profile Name
Example: pf1, pf2
- Label: `cgf_addr`
Label Description: Cgf Server Address
Example: 1.2.3.4
- Label: `state`
Label Description: Request Process State
Example: Normal_CDR_Rsp_Wait,Duplicate_CDR_Rsp_Wait

Write to GTPG Archive List Stats Category

`gtpg_archive_list_write`

Description: GTPG Archive List Write

Sample Query: 'gtpc_archive_list_write(gtpc_profile="pf1")'

Labels:

- Label: `gtpc_profile`
Label Description: Gtpc Profile Name
Example: pf1, pf2
- Label: `status`
Label Description: Status of CDR write to Archive
Example: success, failure
- Label: `sub_status`
Label Description: Sub Status of CDR write to Archive
Example: purge_oldest_cdr
- Label: `pod_status`
Label Description: Active/StandBy
Example: active,standby

nodemgr Metrics Reference

Nodemgr diagnostics address validation counter Category

nodemgr_diag_ip_verify

Description: Node manager diagnostics address validation counter

Sample Query: 'nodemgr_diag_ip_verify(status="success")'

Labels:

- Label: `status`
Label Description: diagnostics address validation status
Example: success, unknown, cdl_ipc_failure, ipv4_alloc_failed, ipv6_alloc_failed, ip_mismatch_ignored, duplicate_record_found

Nodemgr gtpc message statistics Category

nodemgr_gtpc_msg_stats

Description: Node manager gtpc message statistics for updating node status to gtpc peers like SGW, PGW or ePDG

Sample Query: 'nodemgr_gtpc_msg_stats(gtpc_peer_ip="192.168.10.2", gtpc_msg_type="gtpc_echo_res_rx", interface_type="S11")'

- Label: gtpc_peer_ip

Example: 192.168.10.2

- Label: `gtpc_msg_type`

Example: gtpc_echo_res_rx, gtpc_echo_res_tx, gtpc_echo_req_rx,
gtpc_echo_req_tx, gtpc_echo_err_rx, gtpc_echo_err_tx, gtpc_echo_err_rx, gtpc_echo_err_tx, gtpc_echo_err_rx, gtpc_echo_err_tx, gtpc_echo_err_rx, gtpc_echo_err_tx

- Label: `interface_type`

Label Description: Interfaces on which the gtpc message is recieved or sent PGW, SGW-Egress, SGW-Ingress etc

Example: S11, S5E, S5, S8, S2B

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: gtpc_msg_ver

Label Description: GTP Message Version

Example: v1, v2

Nodemgr gtpc peer status statistics Category

Description: Node manager gtpc peer status statistics for keeping track of gtpc peers like SGW, PGW or ePDG via keep alive or restart counter tracking

Sample Query: 'nodemgr_gtpc_peer_status{gtpc_peer_ip="192.168.10.2", gtpc msg type="gtpc echo res rx", interface type="S11"}'

Labels:

- Label: gtpc peer ip

Label Description: IP address of a gtpc peer like SGW, PGW or ePDG

Example: 192.168.10.2

- Label: gtpc peer status

Label Description: GTPC peer current status as a result of keep alive success/failure or restart counter tracking

Example: gtpc peer path down, gtpc peer path up, gtpc peer restarted

- Label: interface type

Label Description: Interfaces on which the gtpc message is recieved or sent PGW, SGW-Egress, SGW-Ingress etc

Example: S11, S5E, S5, S8, S2B

- Label: `restart_time`

Label Description: Gtpc peer restart time

Example: 2022-09-30 14:32:52 +0000 UTC

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `gtpc_msg_ver`

Label Description: GTP Message Version

Example: v1, v2

Nodemgr GTPP link status Category

nodemgr_gtp_stats

Description: Nodemgr gauge counter to keep track of GTPP peer (CGF) link status between CGF and SMF/SGW

Sample Query: 'nodemgr_gtp_stats{gtpc_cgf_key="192.168.10.2:9001", gtpc_ca_key="192.168.10.3:9001"}'

Labels:

- Label: `gtpc_cgf_key`

Label Description: unique key to identify CGF `YYY.YYY.YYY.YYY:XXX` where `YYY.YYY.YYY.YYY` is the Ip address of the CGF and `XXX` is the port number

Example: 192.168.10.2:9001

- Label: `gtpc_ca_key`

Label Description: unique key to identify Charging Agent (CA) `YYY.YYY.YYY.YYY:XXX` where `YYY.YYY.YYY.YYY` is the Ip address of Charging agent configured on the NF service like SGW / SMF and `XXX` is the port number

Example: 192.168.20.3:9001

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr gtpm message statistics Category

nodemgr_gtpm_msg_stats

Description: Node manager gtpm message statistics to update stats for msg triggered by NodeMgr

Sample Query:

```
'nodemgr_gtpm_msg_stats(ca_ip="10.65.45.181",ca_port="2222",cgf_ip="10.78.41.152",cgf_port="3386",gtpm_msg_type="gtpm_echo_req")'
```

Labels:

- Label: `ca_ip`
Label Description: Charging agent ip address
Example: 10.65.45.181
- Label: `ca_port`
Label Description: Charging agent port number
Example: 2222
- Label: `cgf_ip`
Label Description: Cgf ip address
Example: 10.78.41.152
- Label: `cgf_port`
Label Description: Cgf port number
Example: 3386
- Label: `gtpm_msg_type`
Label Description: Msg triggered towards gtpm-ep like echo req/path up/path down/peer restart
Example: gtpm_echo_req, gtpm_peer_path_up, gtpm_peer_path_down, gtpm_peer_restarted

Nodemgr gtpm peer status statistics Category

nodemgr_gtpm_peer_status

Description: Node manager gtpm peer status statistics for keeping track of cgf nodes via node alive/echo/gtpm control message success/failure or restart counter tracking

Sample Query:

```
'nodemgr_gtpm_peer_status(ca_ip="10.65.45.181",ca_port="2222",cgf_ip="10.78.41.152",cgf_port="3386",gtpm_peer_reason="RESTART",gtpm_peer_status="gtpm_peer_path_up",restart_time="2023-03-29 15:46:27 +0530 IST")'
```

Labels:

- Label: `ca_ip`
Label Description: Charging agent ip address
Example: 10.65.45.181
- Label: `ca_port`

Label Description: Charging agent port number

Example: 2222

- Label: `cgf_ip`

Label Description: Cgf ip address

Example: 10.78.41.152

- Label: `cgf_port`

Label Description: Cgf port number

Example: 3386

- Label: `gtppeer_reason`

Label Description: Cgf update reason (add/update/delete) as a result of node alive/echo/gtppeer control message success/failure or restart counter tracking

Example: PEER_ADD, PEER_UP, PEER_DELETE, NO_ECHO_RESPONSE, NO_CTRL_MSG_RESPONSE

- Label: `gtppeer_status`

Label Description: Cgf status (up/down/restart) as a result of node alive/echo/gtppeer control message success/failure or restart counter tracking

Example: `gtppeer_path_down`, `gtppeer_path_up`, `gtppeer_restarted`

- Label: `restart_time`

Label Description: Cgf restart time

Example: 2023-03-29 15:46:27 +0530 IST

Nodemgr messages Category

`nodemgr_msg_stats`

Description: Node Manager Resource management message counters

Sample Query: `'nodemgr_msg_stats{nodemgr_id="0", id_req_type="ID_REQ_ALLOC", ip_req_type="IP_REQ_ALLOC", ip_version="IP_TYPE_V4", sent_to_owner="0", service_user="SERVICE_USER_SMF"}'`

Labels:

- Label: `nodemgr_id`

Label Description: Node Manager instance for which statistics are to be checked

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: `id_req_type`

Label Description: Type of request received at node manager message

Example: ID_REQ_NONE, ID_REQ_ALLOC, ID_REQ_REL, ID_REQ_REALLOC

- Label: `ip_req_type`

Label Description: Type of request recieved at node manager for IP address

Example: IP_REQ_NONE, IP_REQ_ALLOC, IP_REQ_REL, IP_REQ_REALLOC, IP_REQ_STATIC

- Label: `ip_version`

Label Description: IP address type for which request was recieved

Example: IP_TYPE_NONE, IP_TYPE_V4, IP_TYPE_V6, IP_TYPE_V4V6

- Label: `sent_to_owner`

Label Description: Current Node Manager instance for which statistics are to be checked

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: `service_user`

Label Description: Node Type which has requested the Node Manager services

Example: SERVICE_USER_NONE, SERVICE_USER_SMF, SERVICE_USER_SGW

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr node report message handling from UPF to current node stats Category

nodemgr_node_report_stats

Description: Node Manager handling of node report from UPF about the status of NR's or gNB's having sessions with the UPF

Sample Query: 'nodemgr_node_report_stats{up_ep_key="192.168.10.2:192.168.20.3", node_report_peer_gtpu="192.168.30.4", node_report_no_of_sess="0", status="success", node_report_type="", session_tmr="10", backlog_tmr="1564555678270689300"}'

Labels:

- Label: `up_ep_key`

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: `node_report_peer_gtpu`

Label Description: Peer GTPU IP address of gNB or NR to which UPF has established the userplane session

Example: 192.168.30.4

- Label: `node_report_no_of_sess`

Label Description: Total number of session established for the Peer GTPU gNB or NR via the UPF

Example: 0

- Label: `status`
Label Description: Node report message handling status by Node manager
Example: attempted, success, failure
- Label: `node_report_type`
Label Description: Type of node report message being handled
Example: upd_TS_failed, duplicate, origin
- Label: `session_tmr`
Label Description: Time duration in minutes during which the node report message has to be handled by the SMF/SGW/PGW node
Example: 0, 10
- Label: `backlog_tmr`
Label Description: Current time stamp in unix epoch value for node report message processing
Example: 1564555678270689300
- Label: `gr_instance_id`
Label Description: GR instance ID
Example: 1, 2

Nodemgr node report message handling timer stats Category

nodemgr_node_rpt_timer_stats

Description: Timer to handle Node Manager handling of node report from UPF about the status of NR's or gNB's having sessions with the UPF

Sample Query: 'nodemgr_node_rpt_timer_stats{up_ep_key="192.168.10.2:192.168.20.3", node_report_peer_gtpu="192.168.30.4", node_report_no_of_sess="0", status="success", node_report_type="", backlog_tmr="1564555678270689300"}'

Labels:

- Label: `up_ep_key`
Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF
Example: 192.168.10.2:192.168.20.3
- Label: `node_report_peer_gtpu`
Label Description: Peer GTPU IP address of gNB or NR to which UPF has established the userplane session
Example: 192.168.30.4
- Label: `node_report_no_of_sess`
Label Description: Total number of session established for the Peer GTPU gNB or NR via the UPF

Example: 0

- Label: `status`

Label Description: Node report message handling status by Node manager

Example: attempted, success, failure

- Label: `node_report_type`

Label Description: Type of node report message being handled

Example: `tmr_start_failed`, `dbg_tmr`, `retry_clrBlkSubs`

- Label: `backlog_tmr`

Label Description: Current time stamp in unix epoch value for node report message processing

Example: 1564555678270689300

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr resource management batch reconciliation counter Category

`nodemgr_rmgr_batch_reconcile_stats`

Description: Node manager resource management batch reconciliation counter

Sample Query: `'nodemgr_rmgr_batch_reconcile_stats{status="success"}'`

Labels:

- Label: `status`

Label Description: reconciliation status

Example: success, failed

Nodemgr resource management response statistics Category

`nodemgr_resource_mgmt_resp_stats`

Description: Node Manager resource management response statistics

Sample Query: `'nodemgr_resource_mgmt_resp_stats{req_type="1", ip_ver_type="1", status="attempted", error=""}'`

Labels:

- Label: `req_type`

Label Description: The request for which this response is being sent, Request with no operation = 0, Request with IP allocation = 1, Request with IP release = 2, Request with IP reallocation = 3, Request with Static IP allocation = 4

Example: 0, 1, 2, 3, 4

- Label: `ip_ver_type`

Label Description: Type of IP addresses requested in the message, IP type requested NONE = 0, IP type requested V4 = 1, IP type requested V6 = 2, IP type requested V4V6 = 3

Example: 0, 1, 2, 3

- Label: `status`

Label Description: Status of the request

Example: attempted, success, failed

- Label: `error`

Label Description: A non unique error String in case of Status is failure, for other cases use this value as empty string

Example: Unable to get UpfKey for upf

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr UPF ip address threshold hit stats Category

nodemgr_up_threshold_stats

Description: When particular IP address pool threshold hit for usage of ip addresses of a particular address type, this stats will be recorded

Sample Query: `'nodemgr_up_threshold_stats{up_ep_key="192.168.10.2:192.168.20.3", dnn="sampleDNN", threshold_hit="yes", ip_ver_type="IP_TYPE_V4"}'`

Labels:

- Label: `up_ep_key`

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: `dnn`

Label Description: DNN of which ip pool reached the configured threshold usage.

Example: sampleDNN

- Label: `threshold_hit`

Label Description: Indicates if threshold hit is yes or no.

Example: yes

- Label: `threshold_clear`

Label Description: Indicates if threshold hit is cleared or not

Example: yes

- Label: `nodemgr_id`

Label Description: Indicates which instance of nodemgr hit the threshold

Example: 1

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

- Label: `ip_ver_type`

Label Description: Type of IP addresses for which threshold is hit or clear

Example: IP_TYPE_V4, IP_TYPE_V6

Nodemgr UPF Path failure reasons Category

`nodemgr_up_pathfail_reasons`

Description: Node manager userplane heart beat message failure reasons stats

Sample Query:

```
'nodemgr_up_pathfail_reasons(app_name="smf",cluster="tr",data_center="tr",instance_id="0",service_name="nodemgr",up_pathfail_reason="up_pathfail_ignored_hb_retry")
1'
```

Labels:

- Label: `up_pathfail_reasons`

Label Description: Node manager UPF Path Failure reasons due to retransmission failure, RTS change and Sx Release from peer node

Example:

`up_pathfail_reasons=up_pathfail_ignored_hb_retry`

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr UPF Peer status Category

`nodemgr_up_peer_status`

Description: Node manager userplane heart beat message failure reasons stats

Sample Query:

```
'nodemgr_up_peer_status(app_name="smf",cluster="tr",data_center="tr",instance_id="1",interface_type="Sx",service_name="nodemgr",up_peer_ip="20.20.20.66/20.20.20.42",up_peer_status="up_peer_ghup")
1'
```

Labels:

- Label: `up_peer_ip`

Label Description: unique key to identify UPF `YYY.YYY.YYY.YYY:XXX.XXX.XXX.XXX` where `XXX.XXX.XXX.XXX` is Ip address of the NF service like SGW / SMF and `YYY.YYY.YYY.YYY` is the IP address of UPF

Example: 20.20.20.66:20.20.20.42

- Label: `up_peer_status`

Label Description: Node manager UPF Peer status

Example: `up_peer_path_down`, `up_peer_path_up`

- Label: `interface_type`

Label Description: interface type between Peer Node (UPF)

Example: SXA

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr userplane heart beat message failure due to retransmission stats Category

`nodemgr_up_heartbeat_fail_stats`

Description: Node Manager userplane heart beat message failure counters between UPF node and SMF/PGW/SGW node as retransmission requests exhausted to UPF

Sample Query: `'nodemgr_up_heartbeat_fail_stats{up_ep_key="192.168.10.2:192.168.20.3", primary_nodemgr_id="0", current_nodemgr_id="0", up_msg_type="up_heartbeat_req_tx", interface_type="SXB"}'`

Labels:

- Label: `up_ep_key`

Label Description: unique key to identify UPF `XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY` where `XXX.XXX.XXX.XXX` is Ip address of the NF service like SGW / SMF and `YYY.YYY.YYY.YYY` is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: `interface_type`

Label Description: Interface type between current node (SMF/SGW) and Peer Node (UPF)

Example: SXA, SXB, SXAB, SXC, N4

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr userplane heart beat message failure stats Category

nodemgr_up_hb_msg_fail_stats

Description: Node Manager userplane heart beat message failure counters between UPF node and SMF/PGW/SGW node as unable to send request to UPF

Sample Query: 'nodemgr_up_hb_msg_fail_stats{up_ep_key="192.168.10.2:192.168.20.3", primary_nodemgr_id="0", current_nodemgr_id="0", up_msg_type="up_heartbeat_req_tx", interface_type="SXB"}'

Labels:

- Label: up_ep_key

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: primary_nodemgr_id

Label Description: Node Manager instance Identifier of SGW/SMF service which originally established interaction with UPF

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: current_nodemgr_id

Label Description: Current Node Manager instance Identifier of SGW/SMF service which is currently established and interacting with UPF

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: up_msg_type

Label Description: Message type which is received or sent for heartbeat messaging

Example: up_heartbeat_req_tx, up_heartbeat_req_retx, up_heartbeat_rsp_rx

- Label: interface_type

Label Description: Interface type between current node (SMF/SGW) and Peer Node (UPF)

Example: SXA, SXB, SXAB, SXC, N4

- Label: gr_instance_id

Label Description: GR instance ID

Example: 1, 2

Nodemgr userplane heart beat message stats Category

nodemgr_up_hb_msg_stats

Description: Node Manager userplane heart beat message counters between UPF node and SMF/PGW/SGW node

Sample Query: 'nodemgr_up_hb_msg_stats{up_ep_key="192.168.10.2:192.168.20.3", primary_nodemgr_id="0", current_nodemgr_id="0", up_msg_type="up_heartbeat_req_tx", interface_type="SXB"}'

Labels:

- Label: up_ep_key

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: primary_nodemgr_id

Label Description: Node Manager instance Identifier of SGW/SMF service which originally established interaction with UPF

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: current_nodemgr_id

Label Description: Current Node Manager instance Identifier of SGW/SMF service which is currently established and interacting with UPF

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: up_msg_type

Label Description: Message type which is received or sent for heartbeat messaging

Example: up_heartbeat_req_tx, up_heartbeat_req_retx, up_heartbeat_rsp_rx

- Label: interface_type

Label Description: Interface type between current node (SMF/SGW) and Peer Node (UPF)

Example: SXA, SXB, SXAB, SXC, N4

- Label: gr_instance_id

Label Description: GR instance ID

Example: 1, 2

Nodemgr userplane link status stats Category

nodemgr_upf_link_status

Description: Nodemgr gauge counter to keep track of userplane link status between UPF and SMF/SGW

Sample Query: 'nodemgr_upf_link_status{up_ep_key="192.168.10.2:192.168.20.3", primary_nodemgr_id="0", peer_nodemgr_id="0", interface_type="SXB"}'

Labels:

- Label: up_ep_key

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: `primary_nodemgr_id`

Label Description: Current Node Manager instance Identifier of SGW/SMF service

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: `peer_nodemgr_id`

Label Description: Peer Node Manager instance Identifier of UPF service

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: `interface_type`

Label Description: Interface type between current node (SMF/SGW) and Peer Node (UPF)

Example: SXA, SXB, SXAB, SXC, N4

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

Nodemgr userplane routes update or delete counter Category

nodemgr_up_route_stats

Description: Nodemgr userplane routes update or delete counter

Sample Query:

```
'nodemgr_up_route_stats(app='sf',dst='br',src='br',instance_id=0,service='routing',integration='ipsec',status='Success',peer='192.168.10.2:192.168.20.3',tx_type='N4')
1'
```

Labels:

- Label: `route_operation`

Label Description: Kind of route operation

Example: Update, Delete

- Label: `status`

Label Description: Status of the request

Example: Success, Failed, Dropped

- Label: `up_ep_key`

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: `tx_type`

Label Description: Type of the transaction for the route operation

Example: NewTx, RetTx

Nodemgr userplane stats Category

nodemgr_up_stats

Description: Node Manager to userplane (UPF) link status up guage counters

Sample Query: 'nodemgr_up_stats{up_ep_key="192.168.10.2:192.168.20.3", primary_nodemgr_id="0", peer_nodemgr_id="0", interface_type="SXB"}'

Labels:

- Label: up_ep_key

Label Description: unique key to identify UPF XXX.XXX.XXX.XXX:YYY.YYY.YYY.YYY where XXX.XXX.XXX.XXX is Ip address of the NF service like SGW / SMF and YYY.YYY.YYY.YYY is the IP address of UPF

Example: 192.168.10.2:192.168.20.3

- Label: primary_nodemgr_id

Label Description: Current Node Manager instance Identifier of SGW/SMF service

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: peer_nodemgr_id

Label Description: Peer Node Manager instance Identifier of UPF service

Example: 0, 1, 2, 3, 4, 5, 6, 7, 8

- Label: interface_type

Label Description: Interface type between current node (SMF/SGW) and Peer Node (UPF)

Example: SXA, SXB, SXAB, SXC, N4

- Label: gr_instance_id

Label Description: GR instance ID

Example: 1, 2

SMF Recovery Value stats Category

smf_recovery_value

Description: SMF Recovery Value stats

Sample Query: 'smf_recovery_value{smf_ip="192.168.10.2"}'

Labels:

- Label: smf_ip

Label Description: smf ip address

Example: 192.168.10.2

oam Metrics Reference

Node level LCI metric Category

node_lci_metric

Description: Total node level LCI metric

Sample Query: `node_lci_metric{}`

Node level OCI metric Category

node_oci_metric

Description: Total node level OCI reduction metric

Sample Query: `node_oci_metric{}`

Node level overload state Category

node_overload_status

Description: Total node level overload state

Sample Query: `node_overload_status{}`

PFCP Decoded Messages Category

proto_pfcg_decode_msg_total

Description: Total number of pfcg decode by type,size

Sample Query: `'proto_pfcg_decode_msg_total{message_name="session_modification_res"}'`

Labels:

- Label: `message_name`

Label Description: PFCE Message name

Example: `session_modification_res`, `session_report_req`, `session_deletion_res`, `heartbeat_res`, `heartbeat_req`

- Label: `optimised`

Label Description: PFCE Message decode optimised

Example: `true`, `false`

- Label: `status`

Label Description: PFCE Message status - accepted/denied/discarded

Example: accepted, denied, discarded

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

PFCP Encoded Messages Category

proto_pfcpl_encode_msg_total

Description: Total number of pfcpl encode by type,size

Sample Query: `'proto_pfcpl_encode_msg_total{message_name="session_modification_req"}'`

Labels:

- Label: `message_name`

Label Description: PFCP Message name

Example: session_establishment_req, session_modification_req, session_report_req, session_deletion_req, heartbeat_req, heartbeat_res, session_report_res

- Label: `msgbufsize`

Label Description: PFCP Message buffer size

Example: little, jumbo, optimized

- Label: `status`

Label Description: PFCP Message status - accepted/denied/discarded

Example: accepted, denied, discarded

- Label: `gr_instance_id`

Label Description: GR instance ID

Example: 1, 2

radius-ep Metrics Reference

Radius COA and DM packet statistics Category

Radius_CoaDM_Requests_Current

Description: Current outstanding radius COA/DM requests

Sample Query:

`'Radius_CoaDM_Requests_Current{radSvrIp="1.1.1.1", radMsgCode="CoaReq", grInstId="1"}'`

Labels:

- Label: `radSvrIp`
Label Description: Radius Server IP address
Example: Any string
- Label: `radMsgCode`
Label Description: Message type
Example: DisconnectRequest, CoARequest
- Label: `grInstId`
Label Description: GR Instance Id
Example: 1 or 2

Radius_CoaDM_Requests_Statistics

Description: Total number of radius COA and DM packets sent and received

Sample Query:

```
'Radius_CoaDM_Requests_Statistics{radSvrIp="1.1.1.1",radMsgCode="CoaRequest",grInstId="1"}'
```

Labels:

- Label: `radSvrIp`
Label Description: Radius Server IP address
Example: Any string
- Label: `radMsgCode`
Label Description: Message type
Example: DisconnectRequest, DisconnectACK, DisconnectNAK, CoARequest, CoaDMReq, CoAACK
- Label: `radPacketType`
Label Description: Direction
Example: Tx, Rx
- Label: `radResult`
Label Description: Result
Example: Success, Failure_Invalid_Request
- Label: `grInstId`
Label Description: GR Instance Id
Example: 1 or 2

Radius Server status Category

Radius_Server_Status

Description: Display active/inactive status of radius-server

Sample Query:

```
'Radius_Server_Status{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth"}'
```

Labels:

- Label: `radSvrIP`
Label Description: Radius Server IP address
Example: Any string
- Label: `radSvrPort`
Label Description: Radius Server Port
Example: Any string
- Label: `radSvrPortType`
Label Description: Type of server
Example: Auth, Acct

Radius packet statistics Category

Radius_requests_current

Description: Current outstanding radius requests

Sample Query:

```
'Radius_requests_current{radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth",grInstId="1"}'
```

Labels:

- Label: `radSvrIp`
Label Description: Radius Server IP address
Example: Any string
- Label: `radSvrPort`
Label Description: Radius Server Port
Example: Any string
- Label: `radSvrPortType`
Label Description: Type of server
Example: Auth, Acct
- Label: `radMsgCode`
Label Description: Message type

Example: SecondaryAuthenReq, RadiusAcctReq, TestAuth, TestAcct

- Label: `radPacketType`

Label Description: Direction

Example: Tx, Rx

- Label: `dnn`

Label Description: DNN of session

Example: Any string

- Label: `procType`

Label Description: Procedure type

Example: Any string

- Label: `ratType`

Label Description: RAT Type

Example: Any string

- Label: `sessType`

Label Description: Session type

Example: Any string

- Label: `grInstId`

Label Description: GR Instance Id

Example: 1 or 2

Radius_requests_statistics

Description: Total number of radius packets sent and received

Sample Query:

```
'Radius_requests_statistics(radSvrIp="1.1.1.1",radSvrPort="1812",radSvrPortType="Auth",grInstId="1")'
```

Labels:

- Label: `radSvrIp`

Label Description: Radius Server IP address

Example: Any string

- Label: `radSvrPort`

Label Description: Radius Server Port

Example: Any string

- Label: `radSvrPortType`

Label Description: Type of server

Example: Auth, Acct

- Label: `radMsgCode`
Label Description: Message type
Example: SecondaryAuthenReq, RadiusAcctReq, TestAuth, TestAcct
- Label: `radPacketType`
Label Description: Direction
Example: Tx, Retry_Tx, Rx
- Label: `radResult`
Label Description: Result
Example: Success, Timeout, Failure_Reject, Failure_NoServer
- Label: `dnn`
Label Description: DNN of session
Example: Any string
- Label: `procType`
Label Description: Procedure type
Example: Any string
- Label: `ratType`
Label Description: RAT Type
Example: Any string
- Label: `sessType`
Label Description: Session type
Example: Any string
- Label: `grInstId`
Label Description: GR Instance Id
Example: 1 or 2

rest-ep Metrics Reference

Discover Messages statistics Category

`nf_discover_messages_total`

Description: Discover Messages statistics

Sample Query: `nf_discover_messages_total{nf_type=\"udm\", host=\"10.105.227.109:8082\", svc_name=\"nudm-sdm\", version=\"v1\", result=\"timeouOrRPCError\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol
- Label: `host`
Label Description: End Point address
Example: 10.105.227.109:8082
- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `version`
Label Description: Api version info
Example: v1, v2,
- Label: `result`
Label Description: result of discover message
Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure, empty_response

Discover Messages Time statistics Category

nf_discover_total_time

Description: Discover Messages Total time statistics

Sample Query: `nf_discover_total_time(nf_type=\"udm\", host=\"10.105.227.109:8082\", svc_name=\"nudm-sdm\", version=\"v1\", result=\"timeouOrRPCError\")`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol
- Label: `host`
Label Description: End Point address
Example: 10.105.227.109:8082
- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `version`
Label Description: Api version info

Example: v1, v2,

- Label: `result`

Label Description: result of discover message

Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure

FQDN resolution statistics Category

fqdn_dns_msg_total

Description: Number of FQDN attempted/resolved/failed

Sample Query: `fqdn_dns_msg_total{fqdn="host.example.com", nf_type="udm", svc_name="nudm-sdm", status="attempted", req="resolution", error="8314"}`

Labels:

- Label: `fqdn`

Label Description: End Point hostname

Example: host.example.com

- Label: `nf_type`

Label Description: Network Function type

Example: nrf, udm, amf, pcf, chf, ciscocontrol

- Label: `svc_name`

Label Description: Network function service name

Example: nudm-sdm, namf-comm

- Label: `status`

Label Description: resolution status

Example: attempted, success, failure

- Label: `req`

Label Description: whether resolved from dns-server or read from cache

Example: resolution, cache

- Label: `error`

Label Description: result of fqdn

Example: 8311, 8312, 8314,

NF End point selections Category

nf_endpoint_selections_total

Description: NF End Point Selection Statistics

Sample Query: `nf_endpoint_selections_total{nf_type=\"udm\", host=\"10.105.227.109:8097\", svc_name=\"nudm-sdm\", version=\"v1\", req=\"initial\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol
- Label: `host`
Label Description: End Point address
Example: 10.105.227.109:8097
- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `version`
Label Description: Api version info
Example: v1, v2,
- 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{nf_type=\"udm\", host=\"10.105.227.109:8097\", svc_name=\"nudm-sdm\", version=\"v1\", message_type=\"UdmUecmRegisterSMF\", req=\"initial\", response=\"202\", status=\"final\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol
- Label: `host`
Label Description: End Point address
Example: 10.105.227.109:8097
- Label: `svc_name`
Label Description: Network function service name

Example: nudm-sdm, namf-comm, nnrf-disc

- Label: `version`

Label Description: Api version info

Example: v1, v2,

- Label: `message_type`

Label Description: Message Type

Example: UdmUecmRegisterSMF, UdmSdmGetUESMSubscriptionData, DiscoverNF

- 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, retry-next, blocklist

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", result="timeouOrRPCError" }`

Sample Query: `nf_management_stats_total{host="10.105.227.109:8082", svc_name="nnrf-nfm", version="v1", direction="inbound", message_type="notification", result="success", notification_event_type="NF_REGISTERED", condition_event_type="NF_ADDED", gr_instance_id="0" }`

Labels:

- Label: `host`

Label Description: End Point address

Example: 10.105.227.109:8082

- Label: `svc_name`

Label Description: Network function service name

Example: nudm-sdm, namf-comm

- Label: `version`

Label Description: Api version info

Example: v1, v2,

- 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: `notification_event_type`

Label Description: Notification Event Type

Example: NF_REGISTERED, NF_DEREGISTERED, NF_PROFILE_CHANGED

- Label: `condition_event_type`

Label Description: Condition Event Type

Example: NF_ADDED, NF_REMOVED

- Label: `result`

Label Description: result of registration/subscription/notification message

Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure

- Label: `gr_instance_id`

Label Description: GRInstanceId

Example: 0, 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=\"nudm-sdm\", version=\"v1\", direction=\"outbound\", message_type=\"registration\", result=\"timeouOrRPCError\" }`

Labels:

- Label: `host`

Label Description: End Point address

Example: 10.105.227.109:8082

- Label: `svc_name`

Label Description: Network function service name

Example: nudm-sdm, namf-comm

- Label: `version`
Label Description: Api version info
Example: v1, v2,
- Label: `direction`
Label Description: Direction indicates about the message going out or coming in
Example: inbound, outbound
- Label: `message_type`
Label Description: Type of Message
Example: registration, heartbeat, subscription, notification
- Label: `result`
Label Description: result of discover message
Example: 200, 201, 204, success, timeout_rpc_error, response_parse_failure, request_parse_failure, invalid_notify_event, invalid_nf_instance_uri, internal_error

NF Send messages statistics Category

`nf_req_recieved_messages_total`

Description: NF recieved messages to NRF client library

Sample Query: `nf_req_recieved_messages_total{nf_type="udm", svc_name="nudm-sdm", message_type="UdmUecmRegistersSMF"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: udm, amf, pcnf, chf, ciscocontrol
- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `message_type`
Label Description: Message Type
Example: UdmUecmRegistersSMF, UdmSdmGetUESMSSubscriptionData

`nf_resp_sent_messages_total`

Description: NF message responses sent from NRF client library

Sample Query: `nf_resp_sent_messages_total{nf_type="udm", svc_name="nudm-sdm", message_type="UdmUecmRegistersSMF", result="SendSuccess", status_code="200"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol
- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `message_type`
Label Description: Message Type
Example: UdmUecmRegisterSMF, UdmSdmGetUESMSubscriptionData
- Label: `result`
Label Description: result of discover message
Example: SendSuccess, SendFailure
- Label: `status_code`
Label Description: result of NF send message
Example: 200, 201, 204,

nf_send_message_total_time

Description: NF send message total time taken

Sample Query: `nf_send_message_total_time{nf_type=\"udm\", svc_name=\"nudm-sdm\", message_type=\"UdmUecmRegisterSMF\", result=\"SendSuccess\", status_code=\"200\"}`

Labels:

- Label: `nf_type`
Label Description: Network Function type
Example: nrf, udm, amf, pcf, chf, ciscocontrol

Labels:

- Label: `svc_name`
Label Description: Network function service name
Example: nudm-sdm, namf-comm
- Label: `message_type`
Label Description: Message Type
Example: UdmUecmRegisterSMF, UdmSdmGetUESMSubscriptionData
- Label: `result`
Label Description: result of discover message
Example: SendSuccess, SendFailure

- Label: `status_code`
Label Description: result of NF send message
Example: 200, 201, 204,

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, chf, ciscocontrol
- Label: `response_type`
Label Description: Discovery response choosen from
Example: local, cache, expired-cache

NRF subscription messages statistics 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\", gr_instance_id=\"1\", subscrCond=\"NFSetId\"}`

Labels:

- Label: `host`
Label Description: End Point address
Example: 10.105.227.109:8082
- Label: `message_type`
Label Description: subscription message typwe
Example: unsubscription,subscription,updateSubscription
- Label: `req`
Label Description: req type
Example: resourceUri, initial,retry_2
- Label: `gr_instance_id`
Label Description: GRInstanceId
Example: 0, 1

- Label: `subscrCond`

Label Description: sunscription condition

Example: `NFInstanceId`, `NFSetId`

REST EP message Exchange Time Category

`smf_restep_http_msg_seconds`

Description: SMF REST time between request and response messages

Sample Query: `'smf_restep_http_msg_seconds{message_direction="inbound",nf_type="amf"}'`

Labels:

- Label: `nf_type`

Label Description: Network Function type

Example: `nrf`, `udm`, `amf`, `pcf`, `chf`, `ciscocontrol`

- Label: `message_direction`

Label Description: direction of message from SMF perspective

Example: `inbound`, `outbound`

- Label: `api_name`

Label Description: API name

Example: `register_ue`, `deregister_ue`, `subscription_req`, `sdm_subscription_req`, `sdm_data_change_notify`, `nf_registration`, `nf_discovery`, `slice_selection`, `amf_create_sm_context`, `amf_update_sm_context`, `amf_release_sm_context`, `amf_n1_n2_transfer`, `amf_n1_n2_transfer_notify_failure`, `amf_assign_ebi`, `amf_status_notify`, `pcf_sm_policy_control_create`, `chf_charging_data_request`, `pcf_sm_policy_control_update`, `pcf_sm_policy_control_delete`, `pcf_sm_policy_control_update_notify`, `cisco_control_clear_subscriber`, `cisco_control_show_subscriber`, `pcf_sm_policy_control_terminate_notify`, `chf_abort_notify`

- Label: `nf_uri`

Label Description: Network Function URI

Example: actual HTTP URI of the message

- Label: `response_status`

Label Description: HTTP response status code

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

- Label: `response_cause`

Label Description: HTTP response cause code

Example: cause string as received from peer nf

REST EP messages Category

smf_restep_http_msg_total

Description: SMF REST message counter

Sample Query: 'smf_restep_http_msg_total{message_direction="inbound",nf_type="amf"}'

Labels:

- Label: `nf_type`

Label Description: Network Function type

Example: nrf, udm, amf, pcf, chf, ciscocontrol

- Label: `message_direction`

Label Description: direction of message from SMF perspective

Example: inbound, outbound

- Label: `api_name`

Label Description: API name

Example: register_ue, deregister_ue, subscription_req, sdm_subscription_req, sdm_data_change_notify, nf_registration, nf_discovery, slice_selection, amf_create_sm_context, amf_update_sm_context, amf_release_sm_context, amf_n1_n2_transfer, amf_n1_n2_transfer_notify_failure, amf_assign_ebi, amf_status_notify, pcf_sm_policy_control_create, chf_charging_data_request, pcf_sm_policy_control_update, pcf_sm_policy_control_delete, pcf_sm_policy_control_update_notify, cisco_control_clear_subscriber, cisco_control_show_subscriber, pcf_sm_policy_control_terminate_notify, chf_abort_notify

- Label: `nf_uri`

Label Description: Network Function URI

Example: actual HTTP URI of the message

- Label: `response_status`

Label Description: HTTP response status code

Example: 200, 201, 204

REST EP messages Decode Status Category

smf_restep_http_msg_decode

Description: SMF REST number of decoding failures

Sample Query:

'smf_restep_http_msg_decode{nf_type="amf",api_name="register_ue",decoding_status="decoding_failure"}'

Labels:

- Label: `nf_type`

Label Description: Network Function type

Example: nrf, udm, amf, pcf, chf, ciscocontrol

- Label: `api_name`

Label Description: API name

Example: register_ue, deregister_ue, subscription_req, sdm_subscription_req, sdm_data_change_notify, nf_registration, nf_discovery, slice_selection, amf_create_sm_context, amf_update_sm_context, amf_release_sm_context, amf_n1_n2_transfer, amf_n1_n2_transfer_notify_failure, amf_assign_ebi, amf_status_notify, pcf_sm_policy_control_create, chf_charging_data_request, pcf_sm_policy_control_update, pcf_sm_policy_control_delete, pcf_sm_policy_control_update_notify, cisco_control_clear_subscriber, cisco_control_show_subscriber, pcf_sm_policy_control_terminate_notify, chf_abort_notify

- Label: `decoding_status`

Label Description: Decoding status

Example: decoding_failure

- Label: `interface_type`

Label Description: Interface Type

Example: N11, N1, N2

- Label: `response_status`

Label Description: HTTP response status code

Example: 200, 201, 204

- Label: `application_error`

Label Description: Application error

Charging final unit indication statistics Category

chf_recieved_fui_stats

Description: Statistics for final unit indication with final unit action

Sample Query: 'sum (chf_recieved_fui_stats{interface_type="Gy"})'

Labels:

- Label: `chf_type`

Label Description: Type of CHF with which message is exchanged

Example: online, offline

- Label: `interface_type`

Label Description: Type of Interface communicate with PGW

Example: N40, Gy

- Label: `fua_type`

Label Description: Type of final unit action

Example: FinalUnitActionType_TERMINATE, FinalUnitActionType_REDIRECT, FinalUnitActionType_RESTRICT_ACCESS

CHF Notification Statistics Category

smf_chf_notification_stats

Description: SMF Charging CHF Notification stats

Sample Query: 'smf_chf_notification_stats{notification_type="reauthorization"}'

Labels:

- Label: `notification_type`

Label Description: Type of notification request

Example: reauthorization, abort_charging

- Label: `dnn`

Label Description: DNN for which the flow is created

Example: cisco.com

- Label: `status`

Label Description: Status of notify message processing

Example: attempted, success, failures

- Label: `rat_type`

Label Description: RAT type on which the flow is created

Example: EUTRA, NR, WLAN, VIRTUAL, rat_type_unknown

- Label: `reason`

Label Description: Reason for notify message failure

Example: pdu_session_not_established, charging_failed, offline_converted

udp-proxy Metrics Reference

UDP-Proxy BGP Routes Count Category

upd_proxy_bgp_routes_count

Description: UDP Proxy BGP routes added count

Sample Query: 'upd_proxy_bgp_routes_count{service_name="udp-proxy", status="success"}'

Labels:

- Label: `status`

Label Description: Status of message while sending or receiving

Example: success, failed

UDP-Proxy messages Category

udp_proxy_msg_total

Description: UDP Proxy message counters being recieved or sent

Sample Query: `'udp_proxy_msg_total{message_name="radius_request", message_direction="inbound", status="success"}'`

Labels:

- Label: `message_name`

Label Description: UDP messages coming via udp-proxy service

Example: radius_request, radius_response, heartbeat_request, heartbeat_response

- Label: `message_direction`

Label Description: Message being sent or being received

Example: inbound, outbound

- Label: `status`

Label Description: Status of message while sending or receiving

Example: success, failed