Cisco IOS XR MDT Configuration Overview

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XR Configuration Steps

- MDT Dial-Out
  - 1. Create a destination to collect Telemetry data from a router
  - 2. Specify the subset of the data that you want to stream from the router using sensor paths
  - 3. Subscribe to telemetry data that is streamed from a router
- gNMI
  - Enable gRPC on the router

1. MDT Dial-Out

1. Create a destination to collect Telemetry data from a router

```
!

telemetry model-driven

destination-group docker-server

address-family ipv4 10.58.244.75 port
57000

encoding self-describing-gpb

protocol grpc no-tls

!
```

Where:

- docker-server is the name of the destination-group

- 10.58.244.75 is the IP address of the destination where data is to be streamed

- 57000 is the port number of the destination

- self-describing-gpb is the format in which data is encoded and streamed to the destination

- grpc is the protocol through which data is transported to the destination.

- no-tls indicates tls option for gRPC is not used

2. Specify the subset of the data that you want to stream from the router using sensor paths

```
!

sensor-group example

sensor-path openconfig-
interfaces:interfaces/interface/state

!
```

Where:

- example is the name of the sensor-group

- openconfig-interfaces:interfaces/interface/state is the sensor path from where data is streamed

3. Subscribe to telemetry data that is streamed from a router

```
!

subscription example

sensor-group-id example sample-
interval 10000

destination-id docker-server

!
```

Where:

- example is the name of the subscription
- example is the name of the sensor-group
- docker-server is the name of the destination-group
- 10000 is the sample interval in milliseconds.

The sample interval is the time interval between two streams of data. In this example, the sample interval is 10000 milliseconds or 10 seconds.

Checking MDT state

```
RP/0/RP0/CPU0:xr9kv-3#show telemetry model-
driven subscription example
Mon Jun 14 11:37:56.615 UTC
Subscription: example
-------------
State: ACTIVE
Source Interface: Loopback0(Up 0x60000000)
Sensor groups:
Id: example
Sample Interval: 10000 ms
Sensor Path: openconfig-
interfaces:interfaces/interface/state
Sensor Path State: Resolved
```

```
Destination Groups:
Group Id: docker-server
Destination IP: 10.58.50.220
Destination Port: 57001
Encoding: self-describing-gpb
Transport: grpc
State: Active
TLS : False
Total bytes sent: 277670494
Total packets sent: 3884
Last Sent time: 2021-06-14
11:37:55.1239304674 +0000
```

Checking MDT state (cont.)

```
Collection Groups:
------------------
Id: 59
Sample Interval: 10000 ms
Encoding: self-describing-gpb
Num of collection: 7
Collection time: Min: 114 ms Max: 156 ms
Total time: Min: 114 ms Avg: 130 ms Max: 156
ms
Total Deferred: 0
Total Send Errors: 0
Total Send Drops: 0
Total Other Errors: 0
No data Instances: 0
Last Collection Start:2021-06-14
11:37:56.1239992829 +0000
Last Collection End: 2021-06-14
11:37:46.1230110452 +0000
Sensor Path: openconfig-
interfaces:interfaces/interface/state
```

2. gNMI

gNMI configuration

```
!
grpc
 port 57000
 no-tls
!
```

- nothing else !
- subscriptions are dynamically instantiated by the gNMI collector application

Python cisco_gnmi subscription example

```
# Subscribe
subscribe_reply = client.subscribe_xpaths(
         xpath_subscriptions=
         'Cisco-IOS-XR-infra-statsd-oper:infra-
         statistics/interfaces/interface[interface-
         name="MgmtEth0/RP0/CPU0/0"]/
         generic-counters’,
         request_mode='STREAM’,
         sub_mode='SAMPLE’,
         encoding='PROTO’,
         sample_interval=60000000000,
         suppress_redundant=False,
         heartbeat_interval=None
         )
```



```
DEBUG:cisco_gnmi.client:path {
  origin: "Cisco-IOS-XR-telemetry-model-driven-oper"
  elem {
    name: "telemetry-model-driven"
  }
}
encoding: JSON_IETF
timestamp: 1624083138438797683
path: telemetry-model-driven {
  "channel-statistics": {
    "channel-statistic": [
      {
        "channel-id": "1",
        "destination-address": "10.61.66.183",
        "destination-port": 63720,
        "dropped-messages": 0,
        "encoding": "gnmi-proto",
        "in-use-buffers": 0,
        "state": "dest-active",
        "subscription-id": "GNMI__8892453317995001798",
        "transport": "dialin"
        }
      ]
    },
...
```