

Telemetry Configuration

This section contains the following topics:

- Telemetry Overview, on page 1
- Configure Telemetry in WAE, on page 1

Telemetry Overview

Streaming model-driven telemetry (MDT) provides a mechanism to select data of interest from IOS XR routers and to transmit it in a structured format to a collector such as WAE that can use the data for near real-time monitoring and optimization of the network. For more information on MDT, see the "Configure Model-driven Telemetry" chapter in the Cisco IOS XR Telemetry Configuration Guide.

WAE understands IOS XR operational YANG models and can receive streamed telemetry from IOS XR routers, then parse and store the data. After the data is in WAE, the sr-traffic-matrix NIMO can read the data and use it to create a network model with demands.

Configure Telemetry in WAE

Before you begin

Enable segment routing for routers and configure traffic collector on devices to make sure there is traffic in the system. Check for prefix and tunnel traffic on the routers using the following commands:

Prefix Traffic:

```
sh traffic-collector ipv4 counters prefix <prefix-name>
```

Tunnel Traffic:

```
show traffic-collector ipv4 counters tunnels <tunnel-name>
```

Procedure

Step 1 Configure the WAE Telemetry Agent.

```
admin@wae(config)# wae agents telemetry-agent ports <port-number1> <port-number2> <port-numberxx>
admin@wae(config)# commit
```

Note
The ports that the agent will use to receive telemetry information must be available on the WAE machine.

Step 2 Configure telemetry on devices to send Key-Value Google Protocol Buffers (KV-GPB) encoded telemetry on ports using TCP that will be used for WAE. Three attributes must be defined on the router: sensor-group, destination-group, and the subscription. For information on how to do this, see the "Configure Model-driven Telemetry" chapter in the Cisco IOS XR Telemetry Configuration Guide. Examples are provided at the end of this procedure.

Step 3 Configure the sr-traffic-matrix-nimo. For more information, see Segment Routing Traffic Matrix Collection.

```
admin@wae(config)# networks network <network-model-name> nimo sr-traffic-matrix-nimo source-network
 <source-network> collection-period <collection-period-in-seconds>
```

`collection-period` configuration is enabled by default and is set to 60 sec.

The options available are:

```
admin@wae(config)# networks network srt nimo sr-traffic-matrix-nimo ?
Possible completions:
  advanced
  collection-period   Frequency in seconds for automatic periodic generation of demands ('0' value
disables periodic demand generation).
  source-network      Source network for this network to use.
  <cr>

admin@wae(config)# networks network srt nimo sr-traffic-matrix-nimo advanced ?
Possible completions:
  action-timeout             Specifies the timeout value (in minutes) for running actions - default
 of '0' specifies the system default.
  copy-network               When set to 'true', copies the source network into this NIMO network
and create demands in the new model.
  telemetry-agent-callback   Callback for telemetry-agent to inform sr-traffic-matrix-nimo about new
 telemetry data.
```

`telemetry-agent-callback` is not an configuration option and it is an action used by Telemetry Agent internally.

Note
For SR policy (XTC-nimo), `use-signaled-name` property in the source network has to be set to true (by default it is true) while performing collection.

For RSVP LSP tunnels (lsp-snmp-nimo), `use-signaled-name` property in the source network has to be set to false (by default it is false) while performing LSP collection.

Step 4 Run the sr-traffic-matrix-nimo collection to generate demands.

```
admin@wae# networks network <network-model-name> nimo sr-traffic-matrix-nimo run-collection
```

By default, demands are generated by using locally cached information. However, if you want demands to be generated using the raw telemetry data from the WAE Telemetry agent, you must set the **`use-cache`** option to false. For example:

```
admin@wae# networks network <network-model-name> nimo sr-traffic-matrix-nimo run-collection use-cache
 false
```

Example

1. Configure the WAE Telemetry Agent

```
admin@wae# config terminal
Entering configuration mode terminal
admin@wae(config)# wae agents telemetry-agent ports 1624
admin@wae(config)# commit
```

2. Configure the router to send telemetry data to WAE:

a. Define sensor-group

```
telemetry model-driven
 sensor-group SRTM
  sensor-path Cisco-IOS-XR-infra-tc-oper:traffic-collector/afs/af/counters/tunnels
  sensor-path
Cisco-IOS-XR-infra-tc-oper:traffic-collector/vrf-table/default-vrf/afs/af/counters
 !
!
```

b. Define destination-group

```
telemetry model-driven
 destination-group my_workstation
  address-family ipv4 10.152.130.41 port 1624
   encoding self-describing-gpb
   protocol tcp
 !
```



Note The ip-address and port from the above example must be the same as the one configured previously in WAE telementry agent.

c. Define subscription

```
telemetry model-driven
 subscription ABC
  sensor-group-id SRTM sample-interval 5000
  destination-id my_workstation
 !
!
```

3. Configure the SR LSP Traffic Matrix NIMO (sr-traffic-matrix-nimo)

```
admin@wae# config terminal
Entering configuration mode terminal
admin@wae(config)# networks network srtm nimo sr-traffic-matrix-nimo source-network igp
collection-period 50s
admin@wae(config)# commit
```

To view connections between WAE and the router, use the shell CLI netstat command. For example:

```
# netstat -an | grep :1624 | grep ESTABLISHED
tcp        0     28 10.10.10.10:1624        10.152.130.41:61092      ESTABLISHED
```

where 10.10.10.10 is the address of the WAE machine and 10.152.130.41 is the address of the connected router.

4. Run the sr-traffic-matrix-nimo collection to generate demands.

```
admin@wae# networks network srtm nimo sr-traffic-matrix-nimo run-collection
status true
```

```
message Succeeded: Retrieved 12 SR demands from network srtm
admin@wae# show running-config networks network srtm model demands | nomore
networks network igp
model demands demand "PE1|PE2|default"
source node node-name PE1
destination node node-name PE2
service-class-name default
traffic 22.203833
!
.......
!
model demands demand "PE4|PE3|default"
source node node-name PE4
destination node node-name PE3
service-class-name default
traffic 22.202989
!
!
admin@wae#
```