New and Changed Feature Information

This section lists all the new and changed features for the *Telemetry Configuration Guide for Cisco NCS 560 Series Routers*.

New and Changed Telemetry Features

Feature	Description	Changed in Release	Where Documented
Support streaming telemetry data for ~~Cisco-IOS-XR-sysadmin-asic-errors-ael~~ Sysadmin model.	Support added to stream telemetry data for `Cisco-IOS-XR-sysadmin-asic-errors-ael` Sysadmin model.	Release 7.1.2	See Sensor Path topic for the list of supported Sysadmin data models. Obtain this data model from Github repository.

Feature	Description	Changed in Release	Where Documented
Support to poll specific processes to stream telemetry data.		Release 7.1.2	Obtain this data model from Github repository.

Feature	Description	Changed in Release	Where Documented

	Introduced `Cisco-IOS-XR-wdsysmon-fd-proc-oper.yang` data model with process keys to poll specific processes and stream telemetry data.
	NETCONF Request:
	`<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">`
	`<get>`
	`<filter>`
	`<process-monitoring xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-wdsysmon-fd-proc-oper">`
	`<nodes>`
	`<node>`
	`<node-name>0/RP0/CPU0</node-name>`
	`<process-name>`
	`<proc-cpu-utilizations>`
	`<proc-cpu-utilization>`
	`<process-name>`
	`dumper`
	`</process-name>`
	`</proc-cpu-utilization>`
	`</proc-cpu-utilizations>`
	`</process-name>`
	`</node>`
	`</nodes>`
	`</process-monitoring>`
	`</filter>`
	`</get>`
	`</rpc>`
	NETCONF Response:
	`<?xml version="1.0"?>`
	`<rpc-reply message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">`
	`<data>`
	`<process-monitoring xmlns="http://cisco.com/ns/yang/Cisco-IOS-XR-wdsysmon-fd-proc-oper">`
	`<nodes>`
	`<node>`
	`<node-name>0/RP0/CPU0</node-name>`
	`<process-name>`
	`<proc-cpu-utilizations>`
	`<proc-cpu-utilization>`
	`<process-name>dumper</process-name>`
	`<total-cpu-one-minute>0</total-cpu-one-minute>`
	`<total-cpu-five-minute>0</total-cpu-five-minute>`
	`<total-cpu-fifteen-minute>0</total-cpu-fifteen-minute>`		

Feature	Description	Changed in Release	Where Documented
	<process-cpu> <process-name>dumper</process-name> <process-id>3572</process-id> <process-cpu-one-minute>0</process-cpu-one-minute> <process-cpu-five-minute>0</process-cpu-five-minute> <process-cpu-fifteen-minute>0</process-cpu-fifteen-minute> <thread-cpu> </thread-cpu> ------------------------ Truncated for brevity ---------------------------- </process-cpu> </proc-cpu-utilization> </proc-cpu-utilizations> </process-name> </node> </nodes> </process-monitoring> </data> </rpc-reply> The following example shows a telemetry query to fetch CPU utilization data in JSON format: mdt_exec -s Cisco-IOS-XR-wdsysmon-fd-proc-oper: process-monitoring/nodes/node[node-name=0/RP0/CPU0]/process-name/proc-cpu-utilizations/proc-cpu-utilization[process-name=bodls] -c 2000 -d output.json		

Feature	Description	Changed in Release	Where Documented

	The following stream of data shows the streamed data in JSON format:
	`Sub_id 200000001, flag 0, len 0`
	`Sub_id 200000001, flag 4, len 6496`
	`--------`
	{"node_id_str":"ios","subscription_id_str":"app_200000001", "encoding_path":"Cisco-IOS-XR-wdsysmon-fd-proc-oper: process-monitoring/nodes/node/process-name/proc-cpu-utilizations/ proc-cpu-utilization","collection_id":"4","collection_start_time": "1589478552400","msg_timestamp":"1589478552471", "data_json":[{"timestamp":"1589478552469","keys":[{"node-name": "0/RP0/CPU0"},{"process-name":"bcdls"}], "content":{"total-cpu-one-minute":0,"total-cpu-five-minute":1, "total-cpu-fifteen-minute":0, "process-cpu":[{"process-name":"bcdls","process-id":5113, "process-cpu-one-minute":0, "process-cpu-five-minute":0,"process-cpu-fifteen-minute":0, "thread-cpu":[{"thread-name": "lwm_service_thr","thread-id":5127,"process-cpu-one-minute":0, "process-cpu-five-minute":0, "process-cpu-fifteen-minute":0},{"thread-name":"qsm_service_thr", "thread-id":5128, "process-cpu-one-minute":0,"process-cpu-five-minute":0, "process-cpu-fifteen-minute":0}, {"thread-name":"bcdls","thread-id":5130,"process-cpu-one-minute":0, "process-cpu-five-minute":0, "process-cpu-fifteen-minute":0},{"thread-name":"bcdls","thread-id":5131, "process-cpu-one-minute":0, "process-cpu-five-minute":0,"process-cpu-fifteen-minute":0}, {"thread-name":"bcdls","thread-id":5132, "process-cpu-one-minute":0,"process-cpu-five-minute":0, "process-cpu-fifteen-minute":0},
	`----------Output trunacted for brevity ----------`		

Stream telemetry data using `openconfig-platform` data model	Streaming data related to the underlying characteristics of the device including the operational state or configuration of that device using openconfig-platform data model.	Release 7.1.1	Obtain this data model from Github repository.

Feature	Description	Changed in Release	Where Documented

Congestion control for telemetry	Support to provide congestion management for telemetry.
	With congestion control, each destinationis allowed a maximum of 4000 outstanding messages. The events are throttled when the outstanding messages exceed 3000; throttling of cadence messages happen when outstanding messages exceed 250. Events have higher priority than cadence messages.
	A sample output is provided as follows:
	`Router#show telemetry model-driven destination`
	`DialIn_1002 1 192.x.x.x`
	`19687 self-describing-gpb dialin Active`
	`TLS: False`
	`Collection statistics:`
	`Maximum tokens : 4000`
	`Event tokens : 750`
	`Cadence tokens : 723`
	`Token processed at : <time-stamp>`
	`Cadence token advertised at : <time-stamp>`
	`Event token advertised at : >time-stamp>`
	`GNMI initial synchronization time:`
	`Pending queue size : 0`
	`Processed events : 0`
	`Collection tokens : 723`
		Release 7.1.1	NA

Feature	Description	Changed in Release	Where Documented

Support for retrieving information about CPU utilization at thread level	Enhanced `Cisco-IOS-XR-wdsysmon-fd-oper.yang` data model to include CPU utilization at thread level for each running process.
	The following example shows a sample output for a process:
	`<process-cpu>`
	`<process-name>tam_sync</process-name>`
	`<process-id>5062</process-id>`
	`<process-cpu-one-minute>0</process-cpu-one-minute>`
	`<process-cpu-five-minute>0</process-cpu-five-minute>`
	`<process-cpu-fifteen-minute>0</process-cpu-fifteen-minute>`
	`<thread-cpu>`
	`<thread-name>lwm_service_thr</thread-name>`
	`<thread-id>5063</thread-id>`
	`<process-cpu-one-minute>0</process-cpu-one-minute>`
	`<process-cpu-five-minute>0</process-cpu-five-minute>`
	`<process-cpu-fifteen-minute>0</process-cpu-fifteen-minute>`
	`</thread-cpu>`
	`</process-cpu>`
		Release 7.1.1	NA

Support for retreiving information about process threads	The `Cisco-IOS-XR-procthreadname-oper.yang` data model helps query thread-level details such as thread name, priority, state, stack size of a running processes.
	The following example shows a sample output:
	`<thread>`
	`<name>qsm_service_thr</name>`
	`<state>Sleeping</state>`
	`<stack>0K</stack>`
	`<pri>20</pri>`
	`<rtpri>0</rtpri>`
	`<jid>69381</jid>`
	`<tid>3866</tid>`
	`</thread>`
		Release 7.1.1	NA