



New Features for Cisco IOS XE 17.8.1

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Cellular Serviceability Enhancements

Enhancements have been made for cellular and GPS features as follows:

Trigger points and debug code can be enabled via controller cellular CLIs for generating and trap the debug data automatically without manual intervention. The following CLI options are available:

```
(config-controller)#lte modem serviceability ?
gps                GPS debugging
interface-resets   Interface resets/Bearer deletion
modem-crash        Modem-crash debugging
modem-resets       IOS initiated unknown modem-resets
```

The debug data includes the following:

- Context Based debug logs (tracebacks, and GPS locations).
- Well formatted debug messages.
- Vendor specific debug data at a broader range.

The debug logs are located in the following location of flash:

```
router#dir flash:servelogs
Directory of bootflash:/servelogs/

259340  -rw-                122   Sep 7 2021 17:40:44 +00:00  gpslog-slot5-20210907-174044
259339  -rw-                1734  Sep 7 2021 12:14:07 +00:00  celllog-slot5-20210905-164628
```

GPS and cellular log files are created separately with file names using the timestamp at the time of the creation. These files are created as follows:

- If the existing file has reached 10Mb, a new file will be created.
- A new file will be created if the feature (GPS, or cellular) is completely disabled, and then re-enabled.

GNMI Broker (GNMIB) Update

The GNMI Broker (GNMIB) has been extended to support the gRPC Network Operations Interface (gNOI) `reset.proto` service. This service provides functionality for restoring the device to its factory defaults via gRPC.

When the service is executed, it behaves similarly to the ‘factory-reset all’ command, and subsequently triggering a reload. Additionally, the service will maintain the current booted image. The additional steps below will be taken to comply with the `reset.proto` service:

- Set the `rommon BOOT` variable to the current booted image and maintain it through reload following `factory-reset`
- Enable `autoboot` to bring the device up on the current booted image following `factory-reset`.

gRPC Network Operations Interface Update

gNOI is the gRPC Network Operations Interface. gNOI defines a set of gRPC-based microservices for executing operational commands and procedure on network devices, such as OS Install, Activate, and Verification.

Through `gNOI os.proto` will be possible to perform operating system related tasks such as OS activation, install, detailed overview, internal OS commands, and finally to output a summary of OS operations.

Furthermore, `gNOI os.proto` can also be used to display the `gnmib` detailed state, check the `gnmib` operational statistics, and also to output modifiers.

Raw Socket Feature Enhancement

This enhancement allows the user to input the maximum number of retries available to the write socket. The range of the number of retries goes from 1 to 1000. The default number of retries is 10. To accommodate this feature, a new CLI has been created, `raw-socket tcp max-retries <1-1000>`. `<1-1000>` is the maximum number of retries.

SCADA Enhancement for TNB

This enhancement provides compatibility with TNB’s WG RTUs, including the following:

- TNB RTUs require `Reset-Link` message to be sent out along with `Link-Status` message to ensure correct initialization of the serial. The feature can be selectively turned on using the new configuration CLI `scada-gw protocol force reset-link`.
- When `clock passthru` is enabled and if the router hasn’t received the timestamp from the DNP3-IP master, the router’s hardware time will be sent downstream to RTU. Upon receiving a new timestamp from DNP3-IP master, the router will start sending the new timestamp sourced from DNP3-IP master to RTU.
- The number of bufferable DNP3 events in memory will be increased from 600 to 10000.
- The `scada-gw protocol interlock` command will be supported for DNP3. Previously, the support only existed for T101/T104. With this new enhancement, the router will disconnect Serial link if the DNP3-IP

master is down or unreachable. Similarly, when the Serial link to RTU is down, the TCP connection to DNP3-IP master will be untethered.

- Custom “requests” will be automatically ordered based on priority so that the user can specify them in any order that they would like to.

