

---

# **mobile\_modem\_exporter**

**Thomas Steen Rasmussen**

**Nov 06, 2020**



**CONTENTS:**

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Usage</b>	<b>3</b>
<b>3</b>	<b>Examples</b>	<b>5</b>
3.1	Basic Use . . . . .	5
3.2	Debug Mode . . . . .	5
3.3	Metrics . . . . .	7
<b>4</b>	<b>Changelog</b>	<b>9</b>
<b>5</b>	<b>[0.1.0] - 2020-11-08</b>	<b>11</b>
5.1	Added . . . . .	11



## INTRODUCTION

`mobile_modem_exporter` is a Prometheus exporter for mobile modems. It uses `PipeSerial` to get the data.  
Read on for usage instructions and examples!



## USAGE

Until I get something better written here are the argparse usage instructions:

```
usage: mobile_modem_exporter.py [-h] [-d]
                                [-l {DEBUG,INFO,WARNING,ERROR,CRITICAL}]
                                [-s [SLEEP]] [-q] [-v]
                                PROMPATH SERIALDEVICE [SERIALDEVICE ...]

mobile_modem_exporter version 0.1.0. Exports signal quality information
for mobile modems. See the manpage or ReadTheDocs for more info.

positional arguments:
  PROMPATH              The path to the prometheus node_exporter textfile
                        collector file to write output to.
  SERIALDEVICE          The path to a serial device to get signal quality
                        from. Can be specified multiple times.

optional arguments:
  -h, --help            show this help message and exit
  -d, --debug           Debug mode. Equal to setting --log-level=DEBUG.
  -l {DEBUG,INFO,WARNING,ERROR,CRITICAL}, --log-level {DEBUG,INFO,WARNING,ERROR,
  ↪CRITICAL}           Logging level. One of DEBUG, INFO, WARNING, ERROR,
                        CRITICAL. Defaults to INFO.
  -s [SLEEP], --sleep [SLEEP]
                        Sleep this many seconds between runs, default: 10
  -q, --quiet           Quiet mode. No output at all if no errors are
                        encountered. Equal to setting --log-level=WARNING.
  -v, --version         Show mobile_modem_exporter version and exit.
```

Read on for examples.





## EXAMPLES

### 3.1 Basic Use

A basic run looks like this:

```
[tykling@container1 ~]$ sudo mobile_modem_exporter /var/tmp/node_exporter/mobile_
↳modem.prom /dev/modem-quectel-control /dev/modem-huawei-control
2020-11-06 12:02:10 +0000 INFO mobile_modem_exporter Initialising serial ports...
2020-11-06 12:02:12 +0000 INFO mobile_modem_exporter Initialising serial ports...
2020-11-06 12:02:14 +0000 INFO mobile_modem_exporter Entering main loop, writing_
↳metrics for modems ['/dev/modem-quectel-control', '/dev/modem-huawei-control'] to /
↳var/tmp/node_exporter/mobile_modem.prom, sleeping 10 seconds between runs...
^CTraceback (most recent call last):
  File "mobile_modem_exporter.py", line 312, in <module>
    init()
  File "mobile_modem_exporter.py", line 308, in init
    main()
  File "mobile_modem_exporter.py", line 234, in main
    time.sleep(args.sleep)
KeyboardInterrupt
[tykling@container1 ~]$
```

### 3.2 Debug Mode

The same thing with debug mode enabled:

```
[tykling@container1 ~]$ sudo mobile_modem_exporter --debug /var/tmp/node_exporter/
↳mobile_modem.prom /dev/modem-quectel-control /dev/modem-huawei-control
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.main():140: Initialising_
↳serial ports and Prometheus objects...
2020-11-06 12:05:14 +0000 INFO mobile_modem_exporter.main():186: Initialising serial_
↳ports...
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.main():187: Opening serial_
↳port /dev/modem-quectel-control and getting modem info...
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.__init__():54: Configuring_
↳serial port /dev/modem-quectel-control ...
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.open():75: Opening serial port.
↳..
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.open():82: Serial port opened_
↳OK!
2020-11-06 12:05:14 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload_
↳line: ATI
```

(continues on next page)

(continued from previous page)

```

2020-11-06 12:05:15 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,
↳looking for one of these regular expressions: ['OK']
2020-11-06 12:05:15 +0000 DEBUG mobile_modem_exporter.run():116: Will stop
↳collecting after 1 matches
2020-11-06 12:05:15 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'
↳(match number 1 of 1)
2020-11-06 12:05:15 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 53
↳bytes of output from serial device
2020-11-06 12:05:15 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload
↳line: AT+GSN
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,
↳looking for one of these regular expressions: ['OK']
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.run():116: Will stop
↳collecting after 1 matches
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'
↳(match number 1 of 1)
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 32
↳bytes of output from serial device
2020-11-06 12:05:16 +0000 INFO mobile_modem_exporter.main():186: Initialising serial
↳ports...
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.main():187: Opening serial
↳port /dev/modem-huawei-control and getting modem info...
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.__init__():54: Configuring
↳serial port /dev/modem-huawei-control ...
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.open():75: Opening serial port.
↳..
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.open():82: Serial port opened
↳OK!
2020-11-06 12:05:16 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload
↳line: ATI
2020-11-06 12:05:17 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,
↳looking for one of these regular expressions: ['OK']
2020-11-06 12:05:17 +0000 DEBUG mobile_modem_exporter.run():116: Will stop
↳collecting after 1 matches
2020-11-06 12:05:17 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'
↳(match number 1 of 1)
2020-11-06 12:05:17 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 146
↳bytes of output from serial device
2020-11-06 12:05:17 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload
↳line: AT+GSN
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,
↳looking for one of these regular expressions: ['OK']
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.run():116: Will stop
↳collecting after 1 matches
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'
↳(match number 1 of 1)
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 32
↳bytes of output from serial device
2020-11-06 12:05:18 +0000 INFO mobile_modem_exporter.main():212: Entering main loop,
↳writing metrics for modems ['/dev/modem-quectel-control', '/dev/modem-huawei-control
↳'] to /var/tmp/node_exporter/mobile_modem.prom, sleeping 10 seconds between runs...
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.main():218: Getting CSQ from
↳device: /dev/modem-quectel-control
2020-11-06 12:05:18 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload
↳line: AT+CSQ
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,
↳looking for one of these regular expressions: ['OK']

```

(continues on next page)

(continued from previous page)

```

2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.run():116: Will stop_
↳collecting after 1 matches
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'_
↳(match number 1 of 1)
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 28_
↳bytes of output from serial device
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.main():227: parsed AT+CSQ_
↳output to rssi 31 and BER 99
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.main():218: Getting CSQ from_
↳device: /dev/modem-huawei-control
2020-11-06 12:05:19 +0000 DEBUG mobile_modem_exporter.run():107: Sending payload_
↳line: AT+CSQ
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.run():114: Collecting output,_
↳looking for one of these regular expressions: ['OK']
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.run():116: Will stop_
↳collecting after 1 matches
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.run():120: Found match: 'OK'_
↳(match number 1 of 1)
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.run():127: Done! Returning 28_
↳bytes of output from serial device
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.main():227: parsed AT+CSQ_
↳output to rssi 21 and BER 99
2020-11-06 12:05:20 +0000 DEBUG mobile_modem_exporter.main():233: Sleeping 10_
↳seconds before next run...
^CTraceback (most recent call last):
  File "mobile_modem_exporter.py", line 312, in <module>
    init()
  File "mobile_modem_exporter.py", line 308, in init
    main()
  File "mobile_modem_exporter.py", line 234, in main
    time.sleep(args.sleep)
KeyboardInterrupt
[tykling@container1 ~]$

```

### 3.3 Metrics

An example of the metrics exported for two modems:

```

[tykling@container1 ~]$ cat /var/tmp/node_exporter/mobile_modem.prom
# HELP mobile_modem_up This metric is always 1 if the mobile_modem scrape worked, 0_
↳if there was a problem getting info from one or more modems.
# TYPE mobile_modem_up gauge
mobile_modem_up 1.0
# HELP mobile_modem_build_info Information about the mobile_modem_exporter itself.
# TYPE mobile_modem_build_info gauge
mobile_modem_build_info{pipeserial_version="0.3.0",version="0.1.0-dev"} 1.0
# HELP mobile_modem_info Information about the mobile modem being monitored,_
↳including device path, manufacturer, model, revision and serial number.
# TYPE mobile_modem_info gauge
mobile_modem_info{device="/dev/modem-quectel-control",manufacturer="Quectel",model=
↳"EC25",revision="EC25EFAR06A06M4G",serial="860548043742078"} 1.0
mobile_modem_info{device="/dev/modem-huawei-control",manufacturer="Huawei_
↳Technologies Co., Ltd.",model="ME909s-120",revision="11.617.15.00.00",serial=
↳"864172044791624"} 1.0

```

(continues on next page)

(continued from previous page)

```
# HELP mobile_modem_atcsq_rssi RSSI for the mobile modem as returned by AT+CSQ
# TYPE mobile_modem_atcsq_rssi gauge
mobile_modem_atcsq_rssi{device="/dev/modem-quectel-control"} 31.0
mobile_modem_atcsq_rssi{device="/dev/modem-huawei-control"} 24.0
# HELP mobile_modem_atcsq_ber BER for the mobile modem as returned by AT+CSQ
# TYPE mobile_modem_atcsq_ber gauge
mobile_modem_atcsq_ber{device="/dev/modem-quectel-control"} 99.0
mobile_modem_atcsq_ber{device="/dev/modem-huawei-control"} 99.0
[tykling@container1 ~]$
```

## **CHANGELOG**

All notable changes to the `mobile_modem_exporter` project will be documented in this file.

This project adheres to Semantic Versioning from <https://semver.org/spec/v2.0.0.html>, and this changelogs format is based on Keep a Changelog from <https://keepachangelog.com/en/1.0.0/>.



[0.1.0] - 2020-11-08

## 5.1 Added

- Initial code and package
- Docs including this changelog
- The humble beginnings of a testsuite