PX4 / **PX4-GPSDrivers**

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u-blox: reduce update rate for M9N to 5Hz (instead of 10Hz) #57

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⌥ Merged　　**bkueng** merged 1 commit into `master` from `m9n_5hz` ⧉ on Apr 27, 2020

Conversation 16	Commits 1	Checks 0	Files changed 2

bkueng commented on Apr 24, 2020　　　　　　　　　　　　　　　　　Member

Apparently a 10Hz update rate restricts the number of used satellites to 16, and as soon as the update rate is reduced, the number of used satellites increases.

The datasheet only mentions that the navigation rate can go up to 25Hz.

Cross-tested on an F9P.

☺

─◦─　　`ubx: reduce update rate for M9N to 5Hz (instead of 10Hz)`　　⋯　　cdee27f

◉　　**bkueng** requested a review from **LorenzMeier** 6 years ago

⬚　　**bkueng** mentioned this pull request on Apr 24, 2020

GPS # of satellites used dropped to 16 (u-blox M9N) PX4/PX4-Autopilot#14722

⊘ Closed

julianoes commented on Apr 24, 2020　　　　　　　　　　　　　　　　Contributor

@bkueng and this has nothing to do with baudrate or number of messages configured?

☺

julianoes approved these changes on Apr 24, 2020

View reviewed changes

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ryanjAA commented on Apr 25, 2020 • edited ▾

That's too bad about the 16 sat limitation.

This commit breaks functionality on the m9n reverted to previous submodule fix and changed hz to 5 and another to 20.

I have one unit sitting at 5hz and one at 20hz (for good measure although the 20hz was an accident but it's sitting logging so will look anyway). Will report back on max sats.

☺

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ryanjAA commented on Apr 25, 2020

16 sats on 25hz (changed it to max to try) and >20 sats at 5hz so it's strange that at anything 10hz and above it drops it to 16 sats no matter what but still needed to use your previous driver change for it to work (with amendments to the ubx.cpp file to test sat vs hz).

☺

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bkueng commented on Apr 27, 2020   (Member) (Author)

> **@bkueng** and this has nothing to do with baudrate or number of messages configured?

No, I played around in u-center with different settings.

> That's too bad about the 16 sat limitation.

Yes that's unfotunate. It makes sense though as the ZED-F9P has the larger form factor and thus more compute.

☺

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bkueng merged commit **4d51e53** into `master` on Apr 27, 2020

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bkueng deleted the `m9n_5hz` branch 6 years ago

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ryanjAA commented on Apr 27, 2020

This breaks m9n functionality though completely.

☺

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bkueng commented on Apr 28, 2020   Member   Author

How?

☺

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ryanjAA commented on Apr 28, 2020

It never finds the device. Just keeps cycling through the GPS probe at different bauds. Tried also changing to 115200 and still no go but using the exact hardware and just flashing a build with the previous driver change and it finds it immediately (was wanting to remove this exact piece of hardware as a variable).
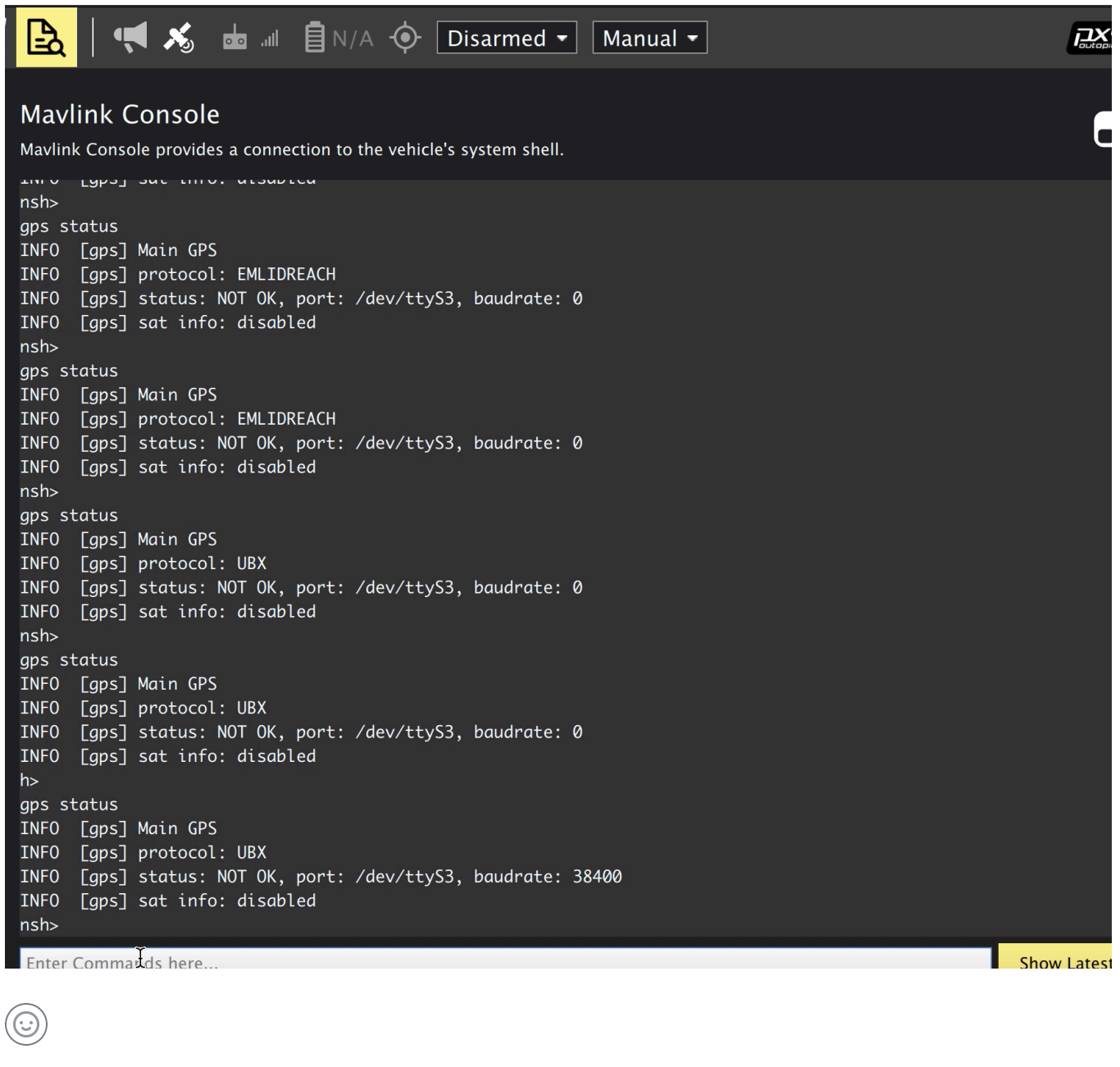
📄🔍 | 📢 🛰️ 🎛️ 📶 🔋 N/A ◎ [Disarmed ▾] [Manual ▾]   PX4

Mavlink Console

Mavlink Console provides a connection to the vehicle's system shell.

```
INFO  [gps] sat info: disabled
nsh>
gps status
INFO  [gps] Main GPS
INFO  [gps] protocol: EMLIDREACH
INFO  [gps] status: NOT OK, port: /dev/ttyS3, baudrate: 115200
INFO  [gps] sat info: disabled
nsh>
gps status
INFO  [gps] Main GPS
INFO  [gps] protocol: EMLIDREACH
INFO  [gps] status: NOT OK, port: /dev/ttyS3, baudrate: 115200
INFO  [gps] sat info: disabled
nsh>
gps status
INFO  [gps] Main GPS
INFO  [gps] protocol: UBX
INFO  [gps] status: NOT OK, port: /dev/ttyS3, baudrate: 115200
INFO  [gps] sat info: disabled
nsh>
gps status
INFO  [gps] Main GPS
INFO  [gps] protocol: UBX
INFO  [gps] status: NOT OK, port: /dev/ttyS3, baudrate: 115200
INFO  [gps] sat info: disabled
nsh>
gps status
INFO  [gps] Main GPS
INFO  [gps] protocol: UBX
INFO  [gps] status: NOT OK, port: /dev/ttyS3, baudrate: 115200
INFO  [gps] sat info: disabled
nsh>
```

Enter Commands here...   Show Latest

bkueng commented on Apr 29, 2020   Member   Author

Which exact gps device is that?

And just that we use the same code, can you test with PX4/PX4-Autopilot#14785?

And to further debug can you enable debug output in
https://github.com/PX4/GpsDrivers/blob/master/src/ubx.cpp#L80, and either start the gps driver from
the shell or use `dmesg` to get the output?

ryanjAA commented on Apr 29, 2020

Devices were made in house, the M8N modules work fine and these work fine with the other PR changes, just not this one.

Tried with PX4/PX4-Autopilot#14785

GPS Debug enabled. It is timing out after receiving UBX msg 0x068a (see attached).

Mavlink Console

Mavlink Console provides a connection to the vehicle's system shell.

```
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
WARN   [gps] baudrate set to 38400
WARN   [gps] timed out, returning
WARN   [gps] timed out, returning
WARN   [gps] ubx msg 0x068a ACK timeout
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
WARN   [gps] baudrate set to 57600
WARN   [gps] timed out, returning
WARN   [gps] timed out, returning
WARN   [gps] ubx msg 0x068a ACK timeout
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
WARN   [gps] baudrate set to 9600
WARN   [gps] timed out, returning
WARN   [gps] timed out, returning
WARN   [gps] ubx msg 0x068a ACK timeout
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
WARN   [gps] baudrate set to 115200
WARN   [gps] timed out, returning
WARN   [gps] timed out, returning
WARN   [gps] ubx msg 0x068a ACK timeout
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
WARN   [gps] baudrate set to 230400
WARN   [gps] timed out, returning
WARN   [gps] timed out, returning
WARN   [gps] ubx msg 0x068a ACK timeout
WARN   [gps] trying old protocol
WARN   [gps] timed out, returning
```

bkueng commented on Apr 30, 2020   Member   Author

Thanks. So it's timing out on the first UBX_MSG_CFG_VALSET. And you say reverting `cdee27f` makes it work?

Just want to double-check, because that would be really strange, as `cdee27f` only affects code happening after the first UBX_MSG_CFG_VALSET.

😊

ryanjAA commented on Apr 30, 2020

No problem. No, `cdee27f` doesn't work. It's the initial m9n addition that works, `4cc28b8` That as we know has the 16 sat limit so then changing the update rate in the cpp file from 100 to 200 manually (10hz to 5hz) in `4cc28b8` has full functionality and unrestricted sat usage.

😊

🗗 🦟 **ryanjAA** mentioned this pull request on May 1, 2020

u-Blox Neo-M9N GPS support PX4/PX4-Autopilot#14509

⊘ Closed

ryanjAA commented on May 2, 2020

Whats the difference between this and master? If i flash master as of right now from QGC, it works. If i pull `cdee27f` in as i did from ~2 days ago, it does not. Normally is wouldn't matter but if this is trying to be put into 11 release this needs to work with that and not master.

😊

cturvey commented on Feb 10, 2021

The ceiling looks to be 8 Hz (125ms), not 5 Hz
FW SPG 4.03 using 28-30 satellites at 8 Hz
-Clive

https://portal.u-blox.com/s/question/0D52p0000AOK91vCQD/can-neom9n-only-use-16-satellites-with-nav-update-rate-5hz

☺

bkueng commented on Feb 11, 2021   Member   Author

Thanks **@cturvey**. Did you test that already with this driver? If so we can update it to 8 Hz.

☺

cturvey commented on Feb 11, 2021

This is a receiver level observation, I'm not using this driver.
The threshold condition to 16 satellites used is 100 ms or lower rate. It continues to track a fuller complement of satellites, it just doesn't use these in the solution.
Testing indicated 101 ms (9.9 Hz) was also workable for higher satellite counts, but 125 ms (8 Hz) and 200 ms (5 Hz) are definitely usabled. The benefit of 125 ms being it is still divisible into 1 second.
I can't speak to the knock-on effect of these speeds with other aspects of the drivers.
I will push the issue into uBlox to document better (ceiling, choice of satellites, etc), or move the threshold.
-Clive

☺

bkueng commented on Feb 12, 2021   Member   Author

Ok, I'll do the testing then and adjust accordingly

☺

⤢   👤 **bkueng** mentioned this pull request on Feb 17, 2021

u-blox: increase update rate for M9N to 8Hz (from 5Hz) #72

⑂ Merged

Reviewers

👤 **julianoes**   ✓

👤 **LorenzMeier**   ●

Assignees

No one assigned

Labels

None yet

Qodo Merge filters   ⚙️

Show All

Projects

None yet

Milestone

No milestone

Development

Successfully merging this pull request may close these issues.

None yet

5 participants