Question on `max_velocity` #4178

Closed | Answered by TZECHIN6 | **Kim-mins** asked this question in **Q&A**

Kim-mins on Feb 14

Hi Team,

I'm currently trying to change the `max_velocity` by publishing to the topic `/planning/scenario_planning/max_velocity`, and I have a question on how Autoware handles the max velocity.

When I changed the max velocity to `30`, Autoware sometimes over the limit(can be 31). Is the max velocity a hard constraint?

↑ 1

Answered by **TZECHIN6** on Feb 15

the velocity unit used in autoware should be `m/s`. Instead of publishing the max_velocity via CLI, you might also try publishing it via the RViz GUI (should be located at somewhere bottom left, please make sure to press the button to activate it). Another indicator is the max velocity under the velocity gauge, I believe you have already noticed that.

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TZECHIN6 on Feb 15

How do you confirm the value is over 30? Do you reading from status or reading from the raw publish?

↑ 1

5 replies

Kim-mins on Feb 15 Author

Thank you for the response @TZECHIN6!

I'm sorry that I did not note whether the scale is `km/h` or `m/s`. I set the maximum `km/h` of Autoware to `30 km/h`, which is `8.3333... m/s`. So I publish the message to the topic `/planning/scenario_planning/max_velocity` with `8.3333...`.

Category

Q&A

Labels

None yet

2 participants

I confirmed that the value is over `30 km/h` by checking RViz. During the driving, the velocity(`km/h`) of the ego vehicle sometimes goes over `30 km/h` , even though the maximum velocity is set to `30 km/h` (I could check the maximum velocity(`km/h`) by checking the number below the current velocity).
I wonder if Autoware intentionally goes over the maximum velocity sometimes, since going over 1 or 2 km/h sometimes is ok (at least in my country).

This may happen since I'm using old version of Autoware now. So I'll check it with the planning simulation of latest version.

Thank you!

TZECHIN6 on Feb 15

the velocity unit used in autoware should be `m/s` . Instead of publishing the max_velocity via CLI, you might also try publishing it via the RViz GUI (should be located at somewhere bottom left, please make sure to press the button to activate it). Another indicator is the max velocity under the velocity gauge, I believe you have already noticed that.

The max velocity is a limiter to the target velocity that autoware could publish, but the vehicle speed are controlled by the PID longitudinal controller and the raw command converter which have a lookup table for pedal position.

I am not sure will the planning simulator consider this as well... should be not (means it's perfectly ideal). But in real situation, you should tune the performance parameter, other even set a margin buffer to tackle the constant error or overshoot.

Marked as answer

Answer selected by **Kim-mins**

Kim-mins on Feb 15 Author

Thank you for the detailed answer **@TZECHIN6**!

In my understanding, maybe you mean the speed of Autoware could be over the limit sometimes by the PID longitudinal controller, even though the planning module published the target velocity below the max velocity.

Also, I guess you mean the testing with the planning simulator does not make sense for this question.

Thank you for the answer! I think the question is resolved now!

TZECHIN6 on Feb 16

> Autoware could be over the limit sometimes by the PID longitudinal controller, even though the planning module published the target velocity below the max velocity.

Yes, that's what I want to say. More detail can be found in here.

> I guess you mean the testing with the planning simulator does not make sense for this question.

I believe so, first of all I am not sure whether you are testing on planning sim or on a real ego-car. For the planning simulator, the vehicle feedback status is a mirror of autoware control output, which is a very ideal situation. Under this condition, I believe there are no overshoot in planning sim.

👍 1

Kim-mins on Feb 16 Author

I got your point. Thank you for the kind response!