Simple signal protection Tutorial

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First of all: The "test setup" is a simple track intertwining. Of course, this also applies to single-track sections.

Goal: Set up a signal protection for user and AI trains.

1 Create and configure the route district

Then the question: Why do we set what.

1. "Deactivate, if track is free again":

The explanation why this option remains active is quite simple. The track entanglement/ single-track section should of course be reported free again as soon as it is no longer occupied. Otherwise, it cannot be requested by the other direction of travel.

2. "Signals show only, if route is active":

An option that I always leave active, since the course of the route is no longer correct when a turnout is set by the player (actually only by the player), and the route should therefore no longer be valid.

3 "Deactivation by switching junction":

At this point not relevant or to be decided arbitrarily, as it is only about the state of turnout position signals. So it depends on personal taste.

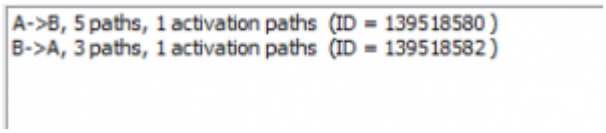
4 "Auto activation by track occupation":

This option is not selected for me, because with correct driving behaviour a train can never enter the track section to be secured, as it must be actively requested.

That's it already.Further information on these settings can be found HERE in the lexicon.

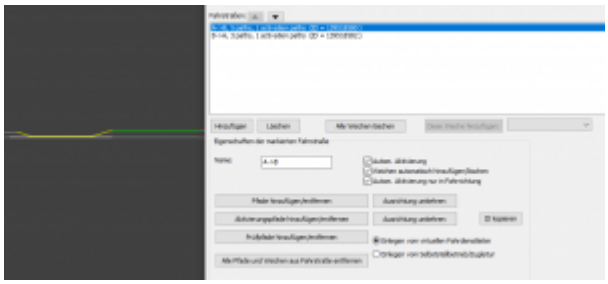
2 Create and configure the routes

We need a route for each direction of travel.



In my example, these are named quite trivially.

Let's first look at the first of the two routes: A->B.



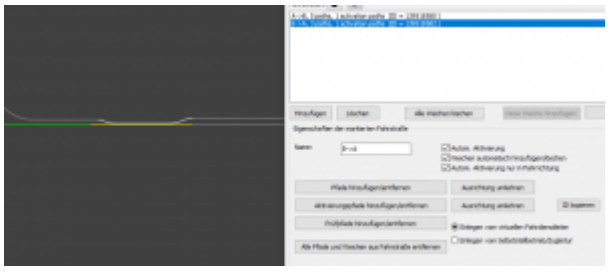
First of all, let's take a look at the paths.

For this type of route, we use the normal paths (yellow) and the activation paths (green). These are each added without gaps and in the direction of travel.

Activation paths: The activation paths (in my case only one) are laid before the start of the route. As soon as a vehicle travels along this activation path, the route is to be activated.

Paths: These indicate the route. In this case, they cover all track segments that are to be signalled.

At this point, for the sake of completeness, the 2nd route B->A is added.



Now let's take a look at the other settings. These are identical for both routes.

1. "automatic activation":

This option determines whether the route should also be activated if the train on the activation path has no timetable.

I always activate this option, because I usually don't assume a timetable for my test runs.

2 "Automatically add/delete switches":

An option that does not play a role here, as it only plays a role in routes with clear sections. Therefore not relevant here.

3, "Automatic activation only in direction of travel":

Another option for journeys without a timetable. This option determines whether routes should also be activated in case of "wrong turns".

This option is important to activate for single-track sections, as otherwise the route may be activated in the wrong direction of travel. Even opposite-track movements on the main line should not activate the routes in the normal direction of travel. This is a small comparison.

4 "Insertion from virtual dispatcher" / "Insertion from self-service/train control":

This option is only relevant for the use of Signalboxes. If the option "Insert from virtual dispatcher" remains active, routes will always be inserted automatically, unless you take over an Signalboxes and deactivate the virtual dispatcher there.

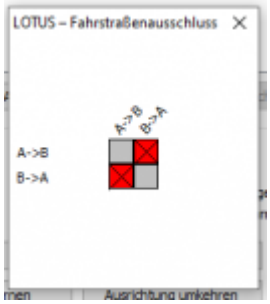
With the option "Insert from self operation/train control", these routes are still inserted automatically even after deactivating the virtual dispatcher. The *term self operation* or *Auto FS* might be familiar to some from various Signalboxessimulations.

Now we have our routes. So let's move on.

3 Check/correlate route exclusion

In the case of a single-track line, the two routes A->B and B->A would exclude themselves because the same route elements are used for both routes. This is not the case with track interlacing. Here, the route exclusion must be created manually.

Exclusions created by the creator himself are indicated with an X in the red boxes. This must then look like this.



With this, we are done with the settings in the route district.

4 Add signals to the district

Here we have to distinguish whether we use F-signals (Tramsignals) or light signals. While in Lotus the signal in "rest position" always shows a stop term for light signals, we have to set this separately for F-signals. To do this, we configure the signal properties of the F-signals.

Here is the F1 signal at the entrance to the carriageway from B to A. Specifying and selecting the district and the route for which the signal is to apply should be self-explanatory.

That leaves the last dropdown menu. We select "Active and no track occupancy", but what does which options mean here?

1. "Active":

The route has been requested and has not been released again by the vehicle the route.

2 "Active and no track occupancy":

The route is active and there is not yet a train on the tracks.

3 "Track(s) occupied":

The track of the route is occupied irrespective of whether the route has been activated or not.

4. "can be activated":

The conditions for requesting the route are fulfilled and the route has not been activated.

The F0 Signals are configured in the same way.

As the signal term already says, the control is inverted here. The F0 Signal therefore goes off as soon as the condition is fulfilled.

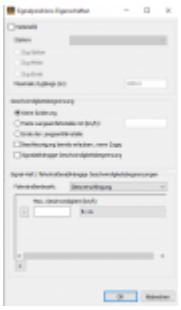
More on the topic HERE in the Lexicon.

5 Configure the route cube (signal position trigger)

First of all, the answer to the question, "Where must the route cube be placed?"

The answer is quite simple. Where the train should come to a stop in front of the signal in case of a stop. IMPORTANT: The cube should not be within the route, as the route can then no longer be activated, as it is already blocked by the train. (A Deadlock)

Now for the configuration:



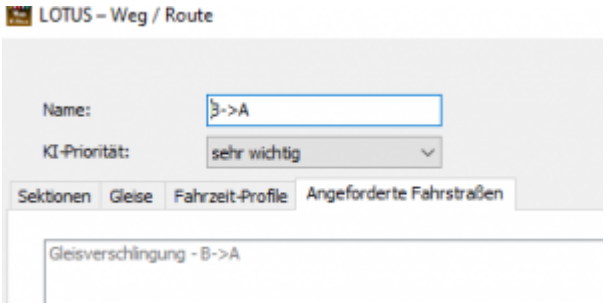
The two upper parts (i.e. the stop position area and the speed limit area) remain untouched here.

We configure only one signal stop. To do this, the route district is selected and a new signal stop is added with +.

There we select the appropriate route. The text field for the speed limit can remain empty if the maximum speed defined in the track still applies.

6 Check that the request also appears in the journeys in the timetable

Ideally, nothing remains to be done here.

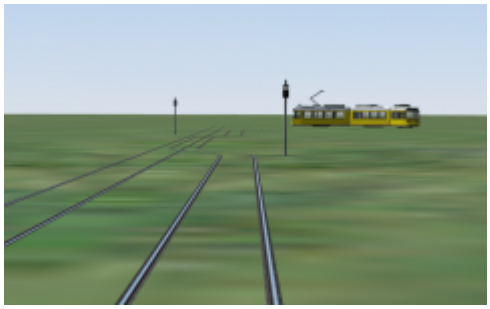


We check in the timetable in the paths and routes whether the route appears there as a requirement. If this is the case, the probability is quite high that we have done everything correctly. Otherwise, the earlier steps should be checked again.

Now all that remains is to look at the whole thing in the simulation.

7 Testing

When approaching the signal in an AI train, it also switches from F0 to F1.



And now we are done and thank you for your attention.