

# Setting Timetables for AI Trains

## Introduction

In Open Rails (OR) Artificial Intelligent (AI) trains can be run to a defined timetable by setting the arrival and departure times at known stopping locations for the train.

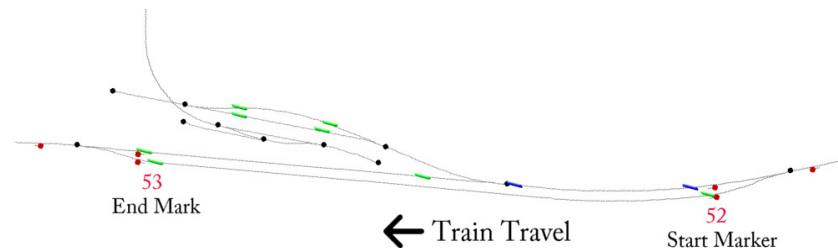
A know stopping location can either be defined by a *station* or *siding* marker.

This guide refers only to siding markers as station markers can be defined through the MSTS Route Editor.

## Placement of Markers

To ensure that AI timetabling works correctly the *station* and *siding* markers need to be placed correctly in the route.

Markers will have a starting and ending mark, and depending upon the direction of travel for the train. These will reverse with changes in the direction of train travel.



**Figure 1 - Siding Markers**

The red numbers in the figure above are the “TrItemId” numbers and they are usually sequential for each pair of markers. Route builders should ideally name markers with a meaningful name to assist in identifying a marker. Trains will be stopped at the “End Mark”.

When placing a marker and referencing it in the timetable, it is important to check that the train can fit fully between it and the point where any other train may need to run, for example the main line, otherwise incorrect clearance of signals, etc may occur.

## Creation of Timetable

The process for timetabling the AI train is as follows:

- i) Identify the marker to be used as a stopping location.
- ii) Set the arrival and departure times

Stopping points at stations for AI trains can be created when defining an AI service, whereas a siding stopping point can only be created by text editing the relevant text files.

## Typical text file entries

### Stopping location

The stopping information is stored in the timetable section of the service (srv) file and looks like this:

```
TimeTable (
    StartingSpeed ( 17.8816 )
    EndingSpeed ( 0 )
    StartInWorld ( 0 )
    EndInWorld ( 0 )
    StationStop (
        PlatformStartID ( 271 )
        DistanceDownPath ( 1379.65 )
        SkipCount ( 0 )
    )
)
```

Note: it is important to ensure that the information is within the appropriate brackets.

### Arrival and Departure Times

Arrival and departure times are stored in the relevant service definition within the traffic (trf) file and should look like this:

```
Service_Definition ( w20a_ai-w9 27000
    ArrivalTime ( 27600 )
    DepartTime ( 27660 )
    SkipCount ( 0 )
    DistanceDownPath ( 126.443 )
    PlatformStartID ( 277 )
)
```

Note again that the brackets should be checked for correctness around each service.

## Worked Example

The following is a worked example based on the track configuration shown in Figure 1 above and demonstrates the process to timetable an AI train on the siding markers.

### Identification of Stopping Marker

Stopping points are created by selecting the relevant station or siding marker. MSTs Activity Editor (AE) can be used for selecting station markers in the “Service” menu.

To select a stopping siding marker it will be necessary to do the following:

1. Open the route in MSTs Route Editor (RE) and then find the location of the stopping point

- Identify the direction of train travel and then place the camera over, or “in” the ending marker.

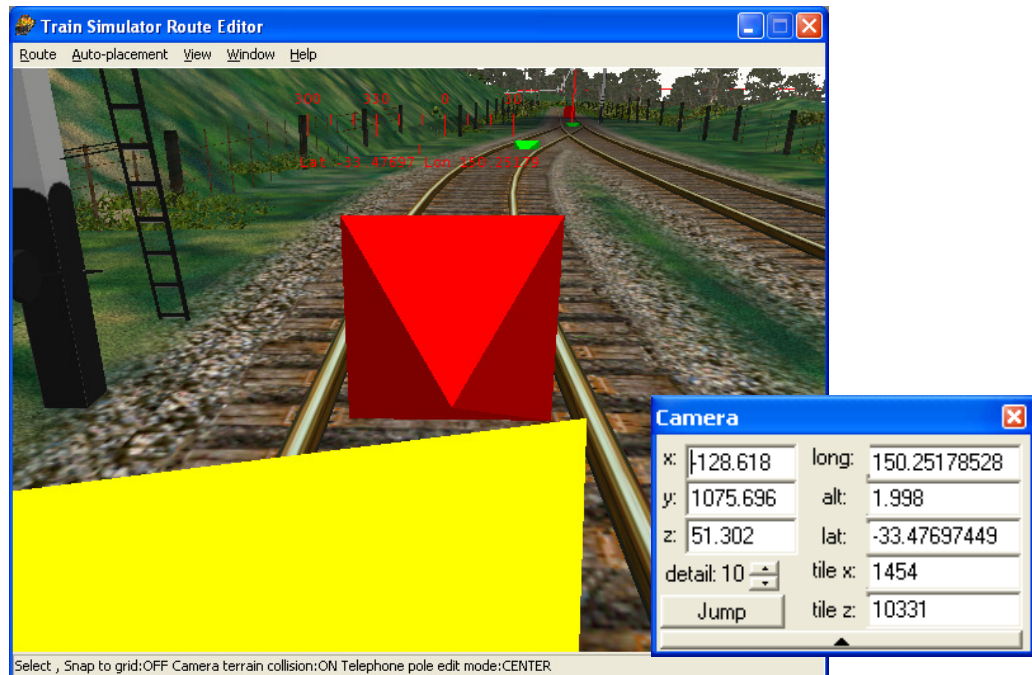


Figure 2 - Identification of Siding Marker

- Open the route.tit file and find the Siding Marker which has the closest reference co-ordinates to the required point shown in the camera co-ordinates. Record the “TrItemId”. This number will be the required marker number.

```
SidingItem (
    TrItemId ( 53 )
    TrItemSDData ( 392.308 00000002 )
    TrItemRData ( -128.566 1073.73 51.196 1454 10331 )
    SidingTrItemData ( 00000000 31 )
    SidingName ( "Sam's Crossing - Loop" )
)
```

- Open the srv file for the relevant service and paste the following lines into the timetable section of the file

```
StationStop (
    PlatformStartID ( 53 )
    DistanceDownPath ( 0 )
    SkipCount ( 0 )
)
```

Note: “DistanceDownPath” and “SkipCount” are not used by OR and therefore can be set to 0.

### Set Arrival and Departure times

Once the stopping points are defined, the arrival and departure times can be set.

Arrival and departure times are stated in seconds from midnight, so it will be necessary to quote all times in these units.

For example, 08:43 (am) will be 31380 seconds.

To establish the timetable it will be necessary to do the following:

- i) Open the trf file and add the following set of lines for each stopping point within each service to be timed.

```
ArrivalTime ( 30000 )  
DepartTime ( 30720 )  
SkipCount ( 0 )  
DistanceDownPath ( 0 )  
PlatformStartID ( 53 )
```

In this instance the arrival time is 0820 (30000 seconds) and the departure time is 0832 (30720 seconds).

A simple hours,minutes,seconds to seconds converter is available at:

<http://www.easysurf.cc/utime.htm#hmstos>