



# NEWSLETTER

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Digital Consultants

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**Current Central Station 3 Version – 2.4.0 (5)**

**Current Central Station 2 Version – 4.3.0 (5)**

**Current Mobile Station 2 Version – 3.148**

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The Holidays are here and with all the festivities with friends and family there may not be time to play with trains. We hope everyone has a safe and happy Holiday Season filled with joy and happiness. After all, it is just a steppingstone to the 2023 New Items!

Our first article is about uploading custom sounds onto a Märklin Sound Decoder 3 (mSD/3 decoder), and our second article is about Setups for Yard/Depot Constructs.

## **mSD/3 Custom Sounds**

One great aspect with the mSD/3 is that custom sounds can be loaded. This can be any sound that is desired. All you need is the sound file.

I will admit that I am not a computer person, but I was able to program custom sounds into a recent project of mine. For some reason, I liked the Märklin Halloween locomotive (36872). I thought it would be a fun experiment to put sounds into it. Unfortunately, this was a physically more difficult project than I had thought. Since the sound decoders are larger than non-sound decoders, extensive modifications had to be made, but this article is not about the modifications of the locomotive.

For this Halloween locomotive, I did not want any traditional locomotive sounds in it, I wanted funny and creepy Halloween sounds. Therefore, I needed to load my own sounds into a mSD/3 decoder. This is how I did it.

I should start out by saying this is just an overview with basic instructions. This is not intended to be a manual, more like a beginners guide where a person can expand on their knowledge on their own. Also, a person should be familiar with the mDecoder Tool3

software. We have covered this topic in previous newsletters, (Digital Newsletter September – October and November - December 2017).

I was able to download a variety of Halloween sounds from the internet. They were free and easy to do. Once I had a variety of sounds saved on my computer, I was ready to begin with the programming.

## Sound Files

Any sound you plan to use needs to be in an electronic file on a computer. The format needs to be a .wav or .mp3 format. The file should not be too large either since the decoder capacity is only 64MB. Typically sounds are short so the size usually is not a problem. One note though, a stereo file will be larger, and since there is only one speaker in a locomotive, a stereo file is not recommended. Also, the desired sound files should all be in a single folder on a computer so they can be chosen without a lot of searching.

## Creating a Sound Library

First, I open the mDecoder Tool3 and select the appropriate decoder that I am using. Then I select the “Sound Selection” tab and click on the “eigeneBibliothek” (own library) folder to expand it (Fig 1). Here is where I will upload all my sound files for use in the decoder. Since I am not making “traditional” locomotive sounds, I will be putting my sounds into the “Sounds” folder. If I were building a sound file for a traditional locomotive, I would divide the sounds into their correct folders like “Anfahrt” (Start) “Bremsen” (Brakes), etc.

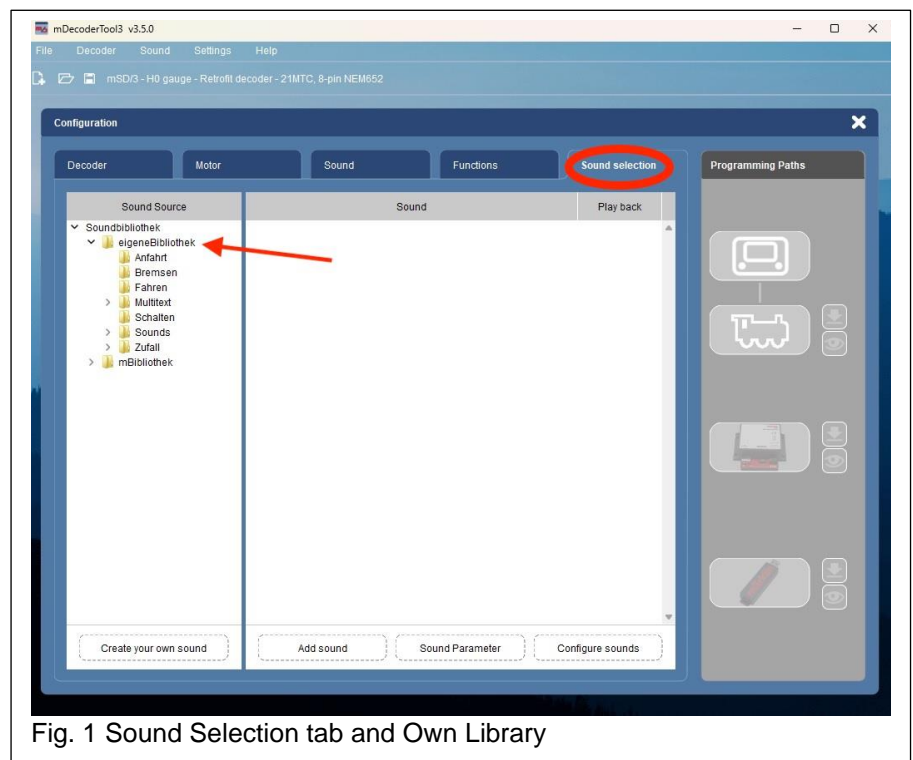


Fig. 1 Sound Selection tab and Own Library

At the bottom left, there is a box called “Create your own sound”. Clicking on this will open another box that will explain exactly how to add custom sounds. By scrolling down, the text will explain what the sounds folders should consist of. Also, if a folder is selected, detailed explanations are given for the sound files to be uploaded. I suggest reading them beforehand (Fig 2).

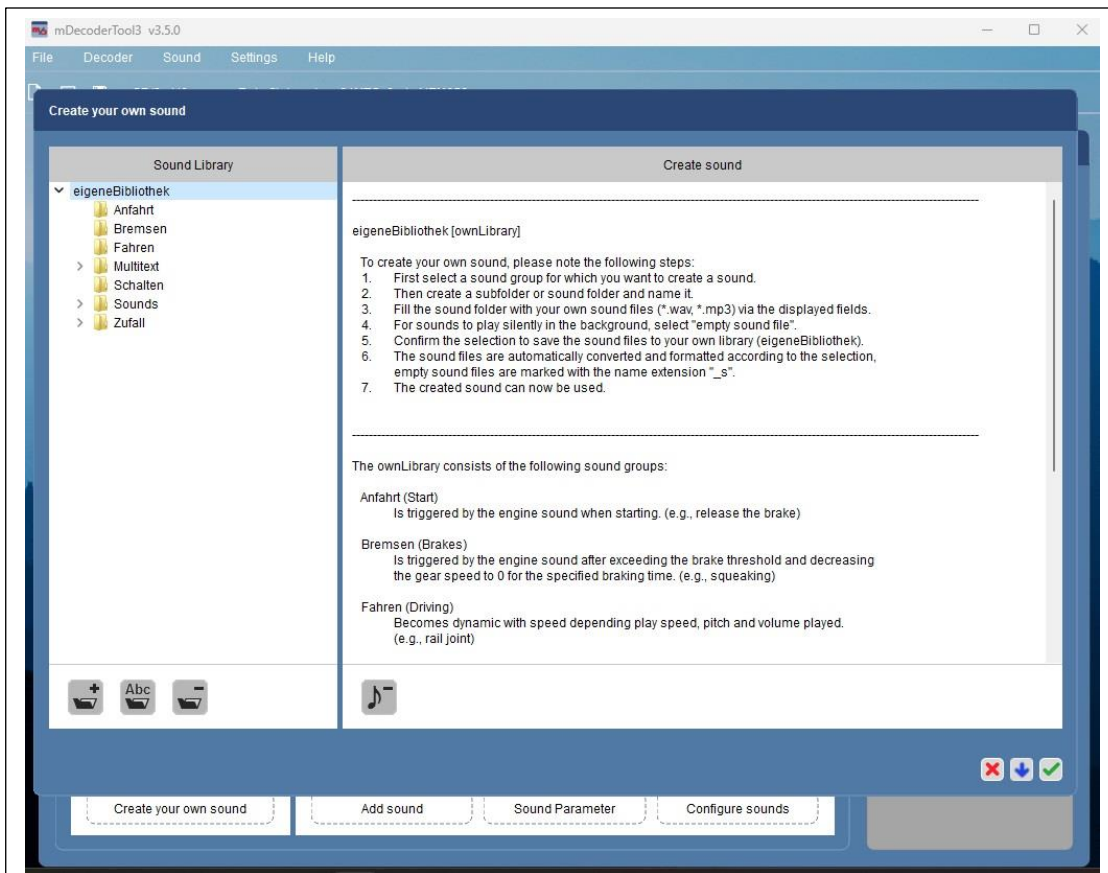


Fig. 2 – Steps to loading sound files

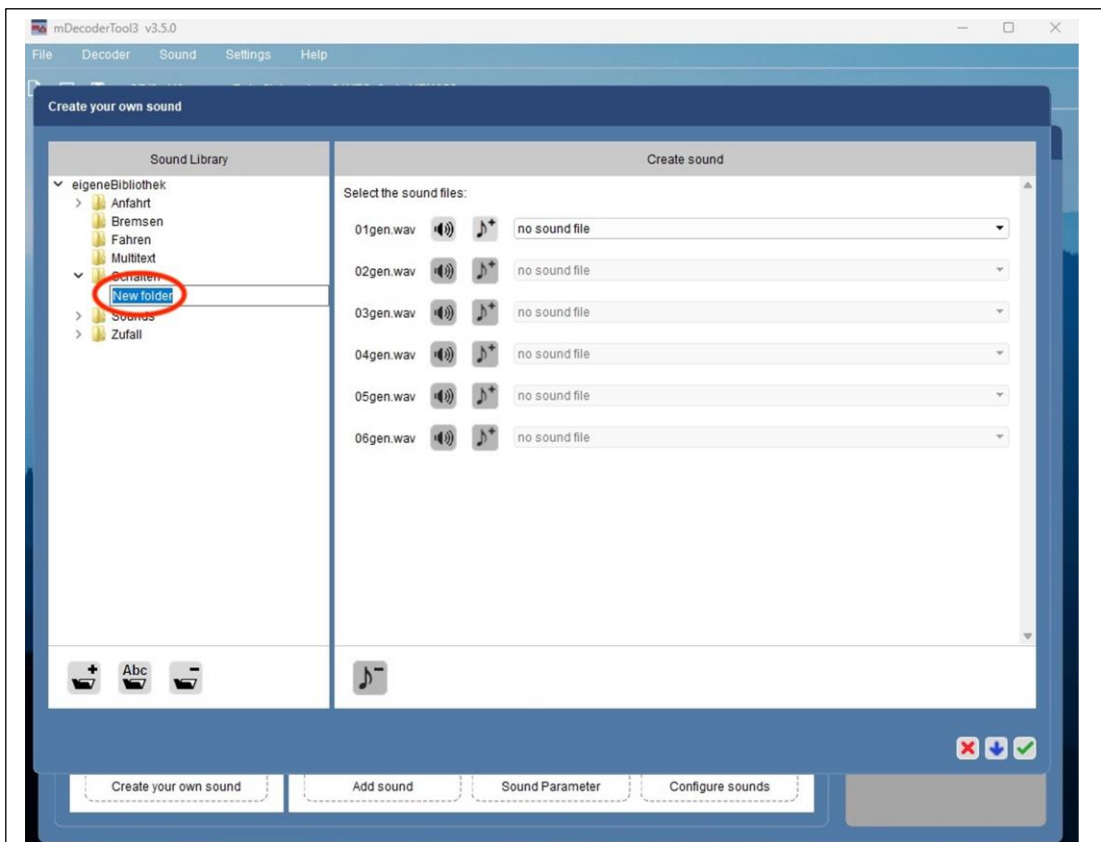


Fig. 3 – Enter the name of the sound FILE, not the FOLDER

From the list of folders on the left, select the category that is desired. Then click on the “+” box in the lower left with an icon of a folder. This will allow you to name the file. (Note: The software will say “New Folder” but you will actually be typing the name of the sound file. It is a computer thing, the computer does not know that it is a file, not a folder (Fig 3).

Note: depending on the sound category, there will be places for the “Start” of the sound, the “Loop” of the sound and the “End” of the sound (Fig. 4).

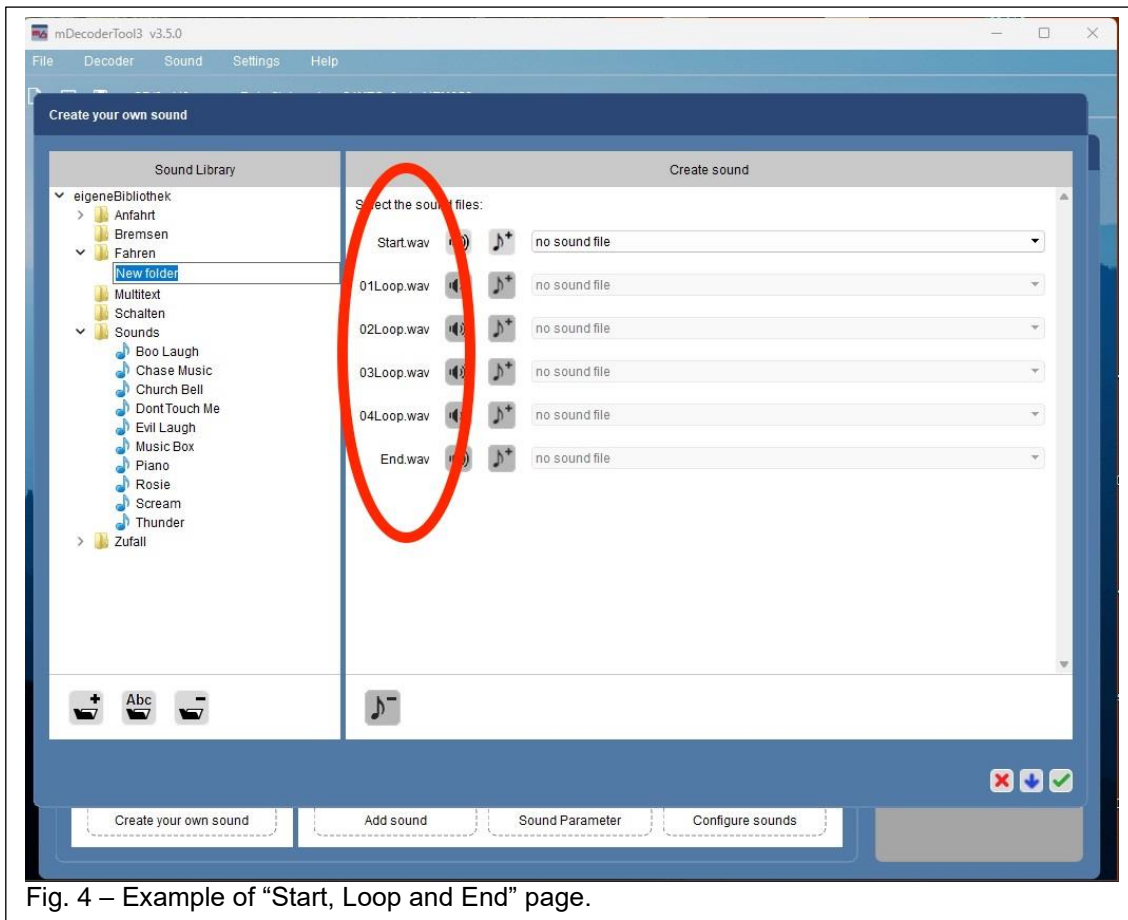


Fig. 4 – Example of “Start, Loop and End” page.

A whistle is a good example of this. It has a start, middle (loop) and an end sound played back-to-back for the full whistle sound for a long or short whistle depending on the function configuration. If a sound is to be played as one file, then only the “Start” box needs to be populated.

Using the “Start – Loop and End” would mean the desired sound file would need to be edited and broken up into three or more files. This would require editing a file with software to divide the sound file. Most people will probably just use custom station announcements or at least a whole sound, since this will be played all at once, there is no need for a loop and an end.

Click on the box with the music note and the “+” symbol (Fig. 5). This will allow the selection of a file on the computer, then select the desired sound file. Once the sound is uploaded, the sound can also be played back by clicking the box with the speaker icon.

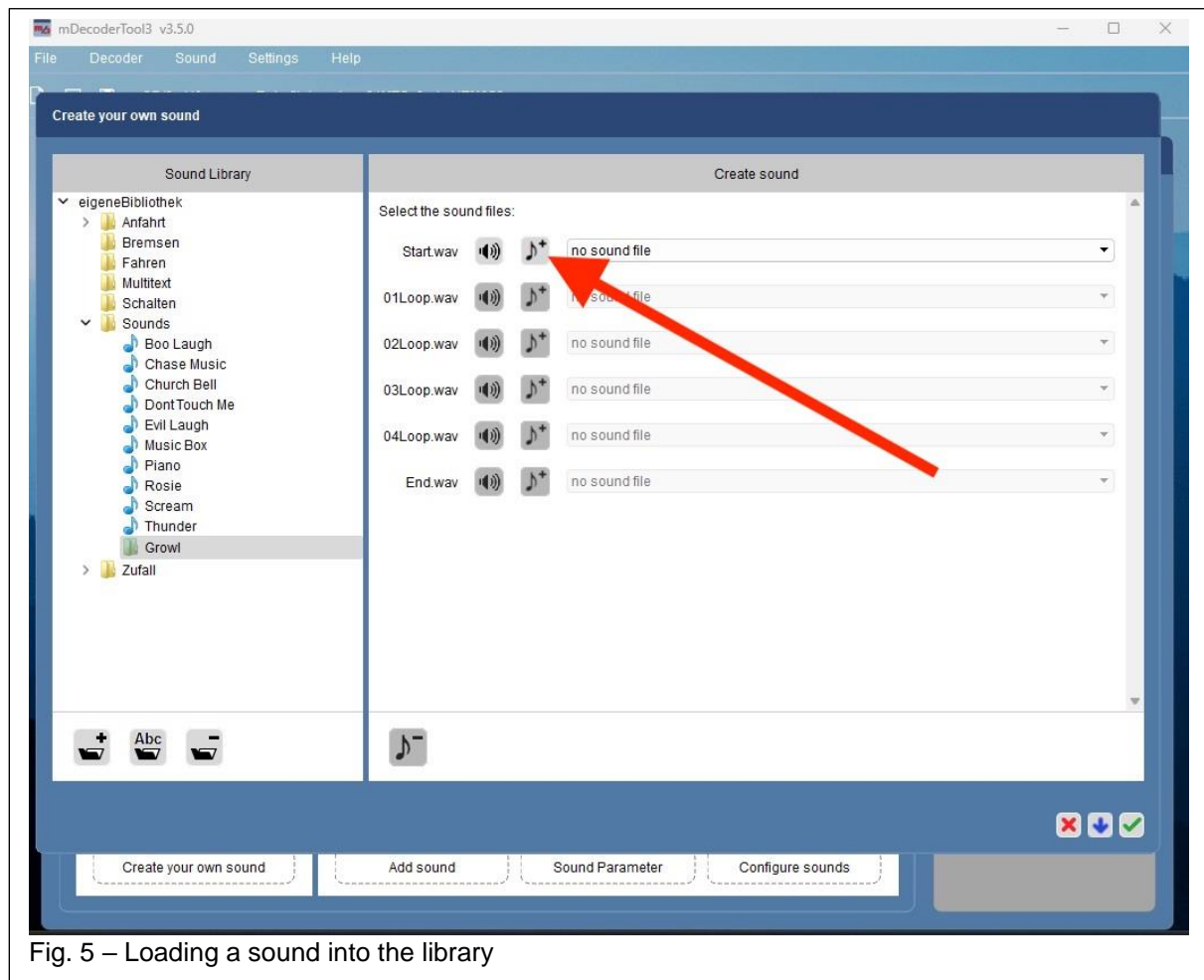


Fig. 5 – Loading a sound into the library

After all the desired files have been saved in the “Own Library”, they can be used for many upgrades in the future. From this point all that is needed is to program the decoder, for that refer to Digital Newsletter from November – December 2017 for programming sounds into a locomotive decoder.

Hopefully this article will help those who were curious about adding custom sounds, but my fear is that I was as boring as Curtis’ articles.

**Enjoy Your Hobbies**  
**Rick Sinclair**

## Setups for Yard/Depot Constructs

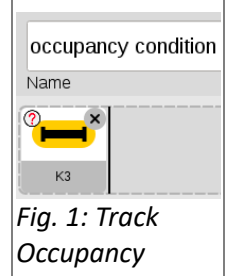
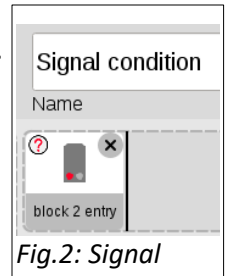


In this issue, we will have a look at the station construct in Fig. 1. I will display some varieties in the setup and different approaches for yard or depot constructs. Some with completely different approaches.

### Entering a Station

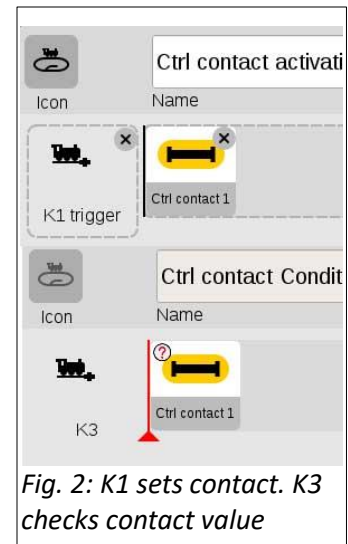
To start, we will try to identify one of two conditions: if a station line is occupied, or when a train has entered a station line. Usually, I like to identify if a line is occupied because without this, we would open ourselves up to collisions.

To do this, we set up a condition that lets us determine occupancy. For a simple option, you can use a signal as an occupancy condition. In Fig. 2, if the signal is set as 'stop', we can say the track has a train on it ('go' if it does not). However, a signal does not really correlate to occupancy. A contact sensor icon is best for determining occupancy.



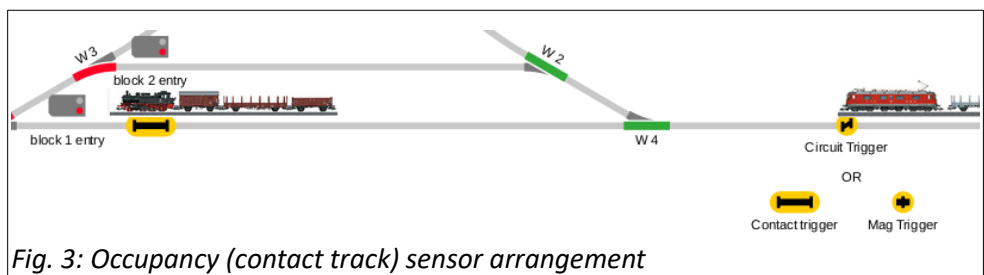
The sensor icon can have two variants: a physical sensor, or a control contact sensor. A physical sensor is a contact track and will read for wheel contacts on track to show occupancy (Fig. 3).

By comparison, the 'Control contact' sensor uses momentary sensor contacts (circuit track or Magnet sensors). This method will first activate the control contact 'CTRL contact 1', then in separate event read if the contact has been set to 'on' or 'off' (Fig. 4). This is because a slider or magnet does not represent the entire train, only the segment where the magnet or center slider is located.



### Using Occupancy Detection

The process of checking for occupancy should be done prior to the station entrance because you will need time for the controller to re-route the train. In Fig. 5 the lower track sensor is activated by the train on track. At this time there



is no associated event, it is simply to show that the line is occupied. The train approaching the yard/station will trigger the event shown in Fig. 6. This event will first check the value of the occupancy sensor. If the sensor matches the 'on track' condition, then the routing steps will activate. Otherwise, the subsequent steps will be ignored. Without physical means of track occupancy readings, the examples in Fig.'s 7, 8 & 9 should be used. This accommodates 2 -rail systems as well as users who prefer Circuit Tracks (slider switches).

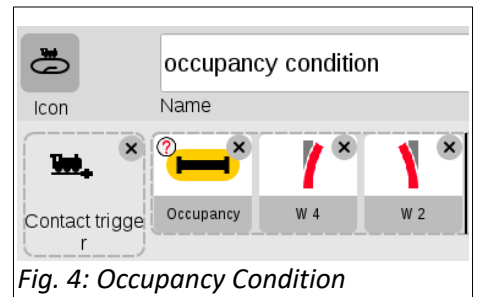


Fig. 4: Occupancy Condition

In the example below (Fig. 7), when a train enters a yard line, it activates the control contact that will mimic occupancy ('K1' will turn on 'Ctrl contact 1'). When a following train

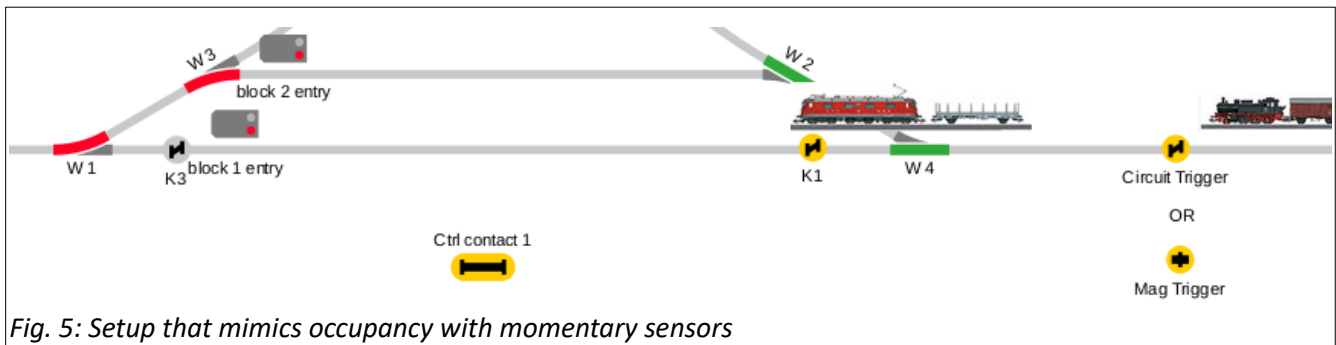


Fig. 5: Setup that mimics occupancy with momentary sensors

activates the 'circuit' or 'Mag trigger', it will see that the line is occupied and re-route. 'Ctrl contact 1' is not physically placed on track, because it is not a piece that is physically connected to any device, it is a software construct that can mimic a contact sensor. Fig. 8 shows the two events that create the occupancy control.

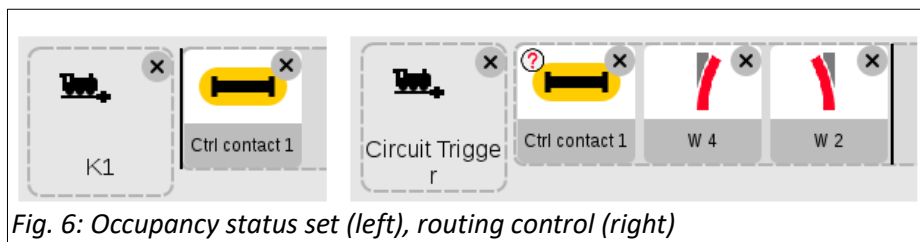


Fig. 6: Occupancy status set (left), routing control (right)

In Fig. 9, 'K3' is positioned after the signal, which will turn off 'Ctrl contact 1'. It would be incorrect to place 'K3' outside the yard, as it will not indicate which yard line would have been vacated.

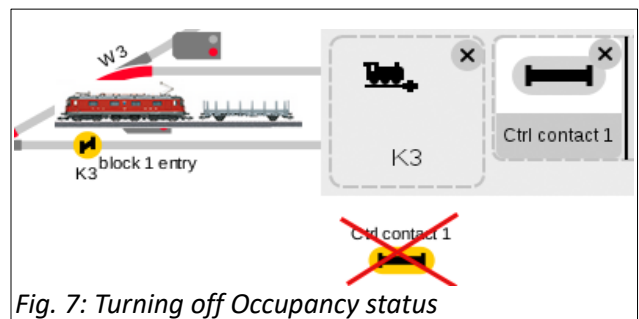


Fig. 7: Turning off Occupancy status

A contact track (Fig. 5, 6) is a simpler construct when compared to the momentary switch model (Figs. 7,8,9).

### Leaving a Station

A Station/Yard/Depot creates a restrictive level of control where you can only allow one train to exit at a time. Unlike a standard block where there is typically only one train to control, a yard has multiple lines that feed into a single main line. The normal event setup



that I use is that when a train is entering, it will trigger another train to exit. In other words, "one train in, one train out." This also requires that you always have one empty line within the yard for an arriving train.

You have a choice of randomly selecting which line a train will exit from or using a cycle approach. The cycle approach is a pre-set method of train entry and exit routing. Line 1 enters and sets line 2 to go, line 2 enters and sets line 3 to go, line 3 enters then sets line 1 to go (which restarts the cycle). And of course, when a train leaves a station, it creates an open line.

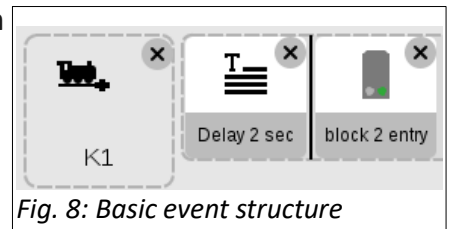


Fig. 8: Basic event structure

Fig. 11 illustrates a sample event for K1. You will need a similar event for each of the entry contacts (K1, K2, K3). Included in the events is a delay which allows for the incoming train to

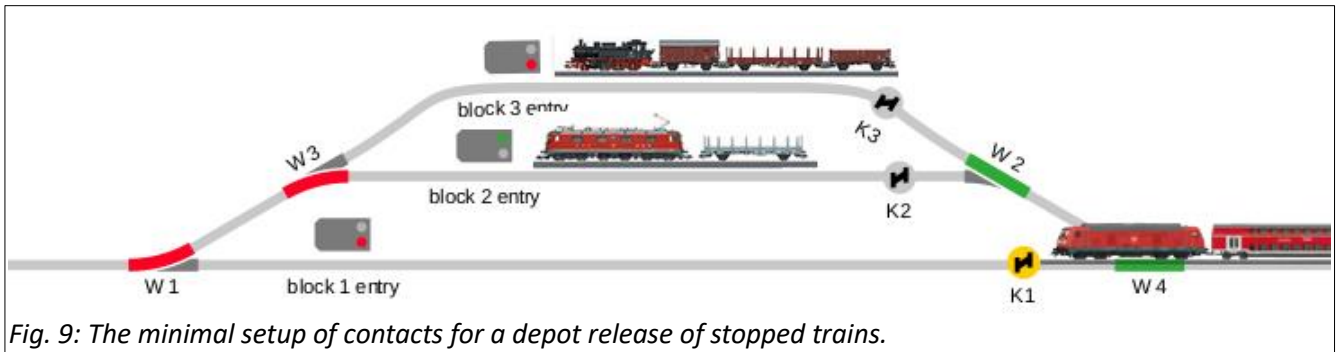


Fig. 9: The minimal setup of contacts for a depot release of stopped trains.

travel further into the depot before the next train departs. You can even time it for the incoming train to have stopped before the next train leaves. Simulating a transfer of passengers. The contacts in this instance are circuit tracks. You have the option of moving the contacts along the line for a different trigger point, but you cannot place them within the stop section, because they will not be triggered if the train stops before reaching the

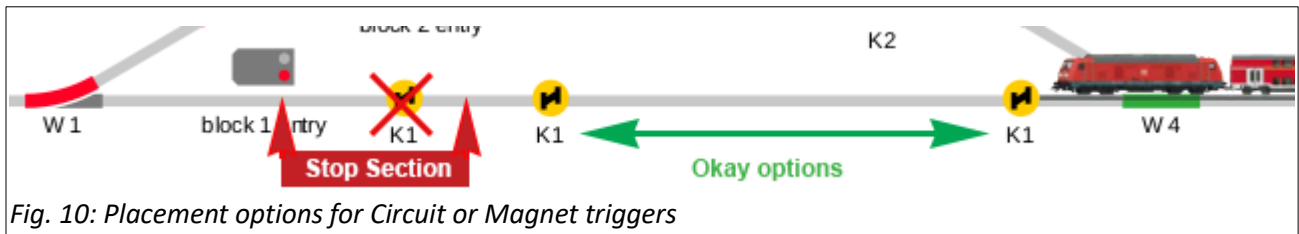


Fig. 10: Placement options for Circuit or Magnet triggers

trigger (Fig. 12).

If you wish to avoid the structured exiting of trains (1,2,3,1,2,3, etc.), then you can create a random macro. Fig. 13 shows the Steps for the random Macro (left side) and the event containing the random macro (right), which replaced the 2nd step shown in Fig. 11.

Remember, you will need to repeat the modification for each trigger (K1, K2, K3). The delay

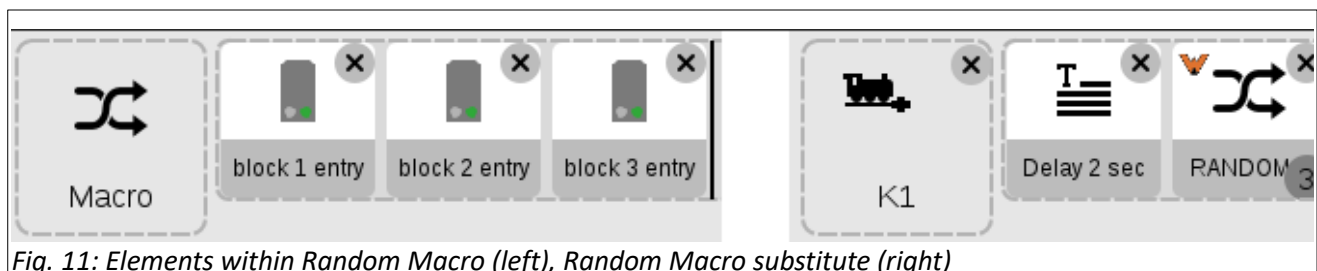


Fig. 11: Elements within Random Macro (left), Random Macro substitute (right)



was not replaced, giving you an option of having different delays for each line. You can also try to randomize the delay in a separate random macro container if you prefer.

Instead of using momentary sensors (circuit or magnetic) for the above actions, you can use



Fig. 12: A contact at the entry point of the depot line

contact tracks. Contact tracks can be beneficial for including some operational features that are not readily available with momentary sensors.

In the above example, a line entry contact is used. When the train makes contact, the event script would be the same as the previous contact track examples (Figs. 10 - 13). The big difference is that the contact will remain in an 'on' state if there is wheel contact. Once wheel contact is lost, I can employ an 'off' contact event. This is useful if I want instant re-routing behind a traveling train. In Fig. 15, the trigger is set for when the wheels disconnect from the contact, which then sets the turnout to divert from the line (behind the train). The length of this contact track does not need to be extensive, just long enough to ensure wheel contact while the entire train traverses the track.

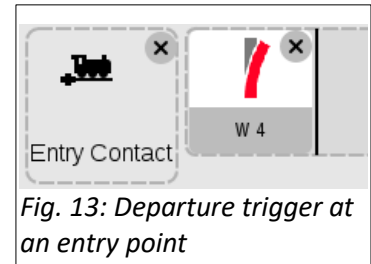


Fig. 13: Departure trigger at an entry point

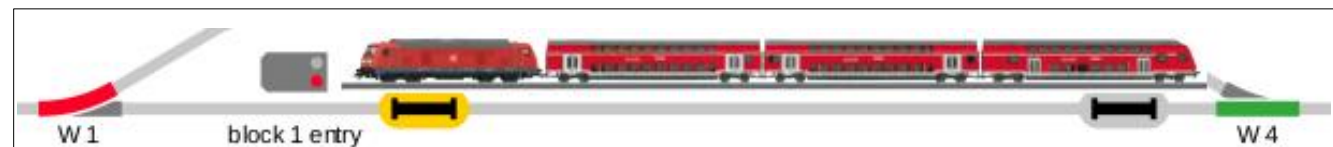


Fig. 14: End of line occupancy contact. Ideal for hidden staging with track stops instead of signals.

The second example is a contact at the exit end of the yard line (Fig. 16). The primary advantage of this position is the track occupation reading while the train is stopped before the signal. The contact icon shown will not correlate to the true length of the contact area. It can extend to practically the entire length of the line. Other details to be aware of this contact position. A contact track can be situated on the same track as a stop/brake section. You can vary where the start point of the contact will occur by extending the contact toward the entry point of the line. This setup works ideally for hidden staging yards.

For visual yards that include signals and brake modules, I may use a different approach to the end of line contact. I should note, there are different ways of handling the situation that

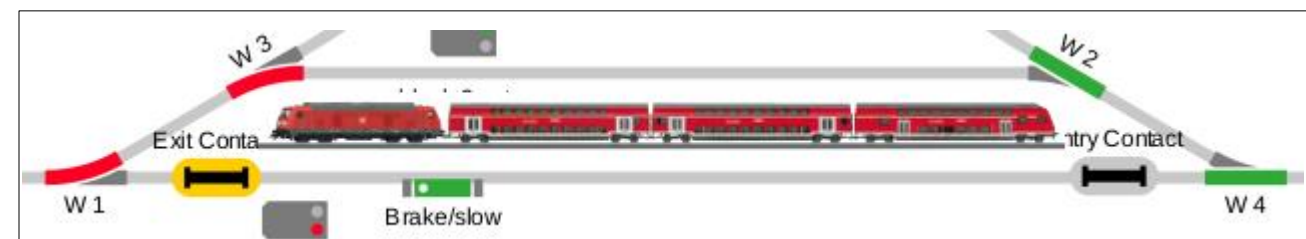


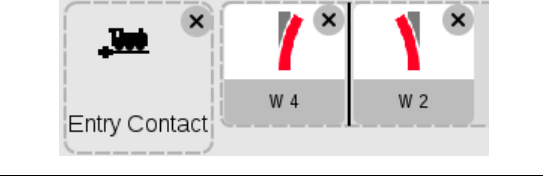

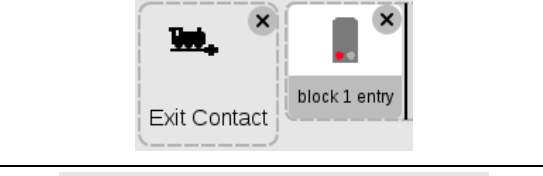
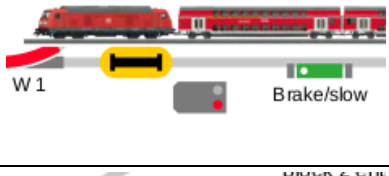
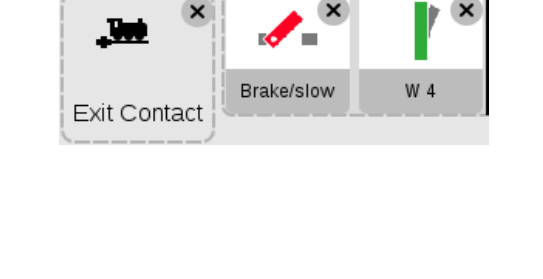
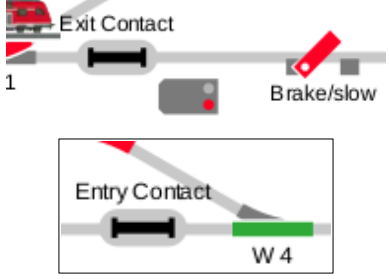


Fig. 15: Contact track placements for station lines with signal and brake modules

I'm going to describe. The track devices will be laid out according to Fig. 17 (the signal will be out of position for clarity). The end of line contact ('Exit Contact') is placed past the Signal. If necessary, its length can extend in front of the signal, but it should NEVER be in contact with a stopped train, because it is not used for track occupancy and will prevent proper activation of the 3rd event in the following table.

The event process for the line layout displayed in Fig. 17 are as follows (Included are previously described steps):

<p>Activation of entry contact. Fig. 17 right side.</p>		
<p>De-activation of entry contact. (Entry contact turns off)</p>		
<p>Activation of Exit Contact. Fig. 17 left side.</p>		
<p>De-activation of Exit Contact. Note that the signal and brake switching are separate events (see above). Also, because train has departed, re-routing has allowed for line entry.</p>		

While the first half of this article deals with track occupation to control traffic, the example above only uses the contact track reading to prototypically activate the signal and the brake module. To point out and summarize some of the actions:

Note how the contact triggers differ. They are either arrival or departure type trigger settings.

**Step 1** - as the train enters, it signals another line to leave. First the signal is set to 'go'. Then after a delay, the brake module is turned off and the train begins to move.

**Step 2** - Once the train clears the entry contact, it clears the turnout allowing a re-routing of incoming traffic. This essentially eliminates the requirement of occupancy reading.

**Step 3** - When a train receives the effects of Step 1, then it proceeds onto the exit contact. This sets the light to 'stop'. This is somewhat prototypical when a lead car passes the signal. This is essentially an aesthetic aspect of signal control.

**Step 4** - When the exiting train clears the 'Exit Contact', it clears the yard line, and the brake module can be activated to prevent any rear end collision. It also re-routes the yard entrance for track entry.

As you can see, setting up a yard or a depot station can take various forms. It is good to be aware of some of the approaches to setting up the hardware for your events to tackle some of your own layout structures. - **Curtis Jeung**

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**Upcoming appearances:**

- **ONLINE Webinar**  
December 14, 2022 – See email for more information

**To contact Rick and Curtis for help with your Digital, technical and product related questions:**

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