

# SHWOZ



## **Railway Train System Simulation Track Controller User Manual/Installation Guide**

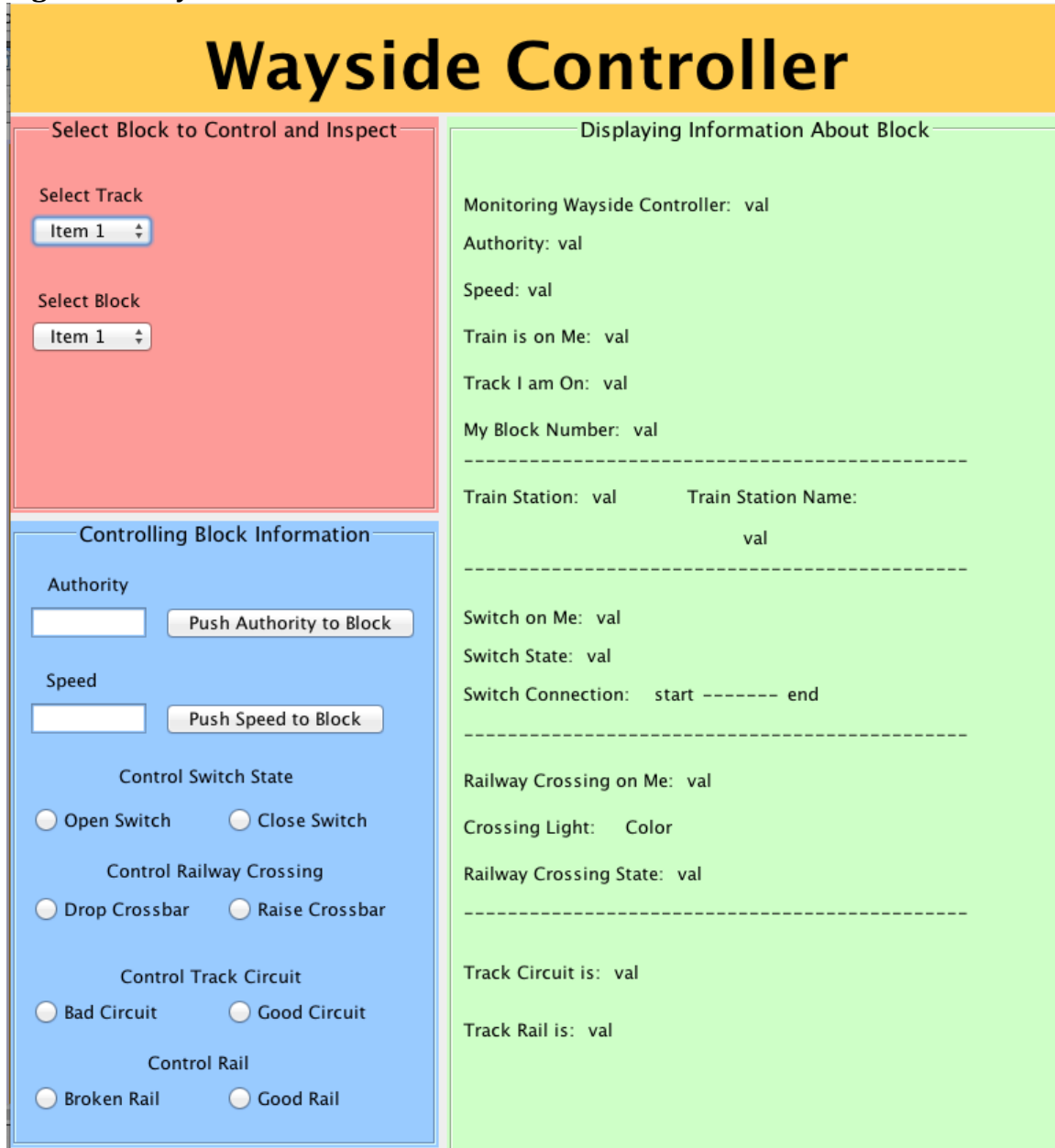
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## Installation Guide:

Please Make Sure the red\_line.txt, the green\_line.txt, railCrossingPullDownLogic.txt, railCrossingPullUpLogic.txt, switchFromCloseToOpenLogic.txt, and the switchFromOpenToCloseLogic.txt file are in the same location as the TrainSimulator.jar program. Then simply run TrainSimulator.jar.

**Figure 1: Wayside Controller User Interface Overview**



The image shows a screenshot of the 'Wayside Controller' user interface. The title bar is yellow and reads 'Wayside Controller'. The interface is divided into three main colored panels: a red panel on the top left for selecting blocks, a blue panel on the bottom left for controlling block information, and a large green panel on the right for displaying information about the selected block.

**Select Block to Control and Inspect (Red Panel):**

- Select Track: A dropdown menu showing 'Item 1'.
- Select Block: A dropdown menu showing 'Item 1'.

**Controlling Block Information (Blue Panel):**

- Authority:** A text input field and a 'Push Authority to Block' button.
- Speed:** A text input field and a 'Push Speed to Block' button.
- Control Switch State:** Two radio buttons: 'Open Switch' and 'Close Switch'.
- Control Railway Crossing:** Two radio buttons: 'Drop Crossbar' and 'Raise Crossbar'.
- Control Track Circuit:** Two radio buttons: 'Bad Circuit' and 'Good Circuit'.
- Control Rail:** Two radio buttons: 'Broken Rail' and 'Good Rail'.

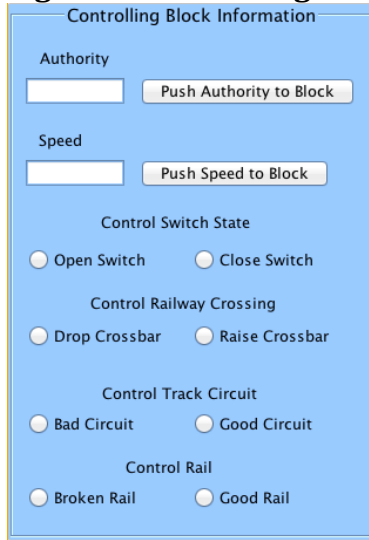
**Displaying Information About Block (Green Panel):**

- Monitoring Wayside Controller: val
- Authority: val
- Speed: val
- Train is on Me: val
- Track I am On: val
- My Block Number: val
- 
- Train Station: val      Train Station Name: val
- 
- Switch on Me: val
- Switch State: val
- Switch Connection: start ----- end
- 
- Railway Crossing on Me: val
- Crossing Light: Color
- Railway Crossing State: val
- 
- Track Circuit is: val
- Track Rail is: val

Within the “Select Block to Control and Inspect Panel” (Red), you choose which track you want to inspect and which block you want to inspect on that track. The

“Displaying Information About Block” (Green) Panel and the “Controlling Block Information” (Blue) Panel are both not visible until both a track is selected and a block is selected.

**Figure 2: Controlling Block Information**



The image shows a software interface titled "Controlling Block Information". It contains several sections for controlling a railway block:

- Authority:** A text input field followed by a button labeled "Push Authority to Block".
- Speed:** A text input field followed by a button labeled "Push Speed to Block".
- Control Switch State:** Two radio buttons labeled "Open Switch" and "Close Switch".
- Control Railway Crossing:** Two radio buttons labeled "Drop Crossbar" and "Raise Crossbar".
- Control Track Circuit:** Two radio buttons labeled "Bad Circuit" and "Good Circuit".
- Control Rail:** Two radio buttons labeled "Broken Rail" and "Good Rail".

Within this panel we can push an Authority and a Speed to be stored in a given block. We can also control whether the track circuit is good or bad at a given block location. We can also control whether the rail at a given block location is broken or fine. The controls for the "Switch State" are only visible if the selected block contains a switch.

The controls for the "Railway Crossing" are only visible if the selected block contains a railway crossing. With the controls for switch state we can open and close the switch, at a given block location, as long as the system verifies we are able to do so. With the controls for the railway crossing we can raise and lower the crossing bar, at a given block location, as long as the system verifies we are able to do so.

**Figure 3: Displaying Information About a Block**

Displaying Information About Block

Monitoring Wayside Controller: 1

Authority: 0

Speed: 0.0

Train is on Me: No

Track I am On: Red Line

My Block Number: 9

-----

Train Station: No      Train Station Name:

N / A

-----

Switch on Me: Yes

Switch State: Closed

Switch Connection: 9 ----- 10

-----

Railway Crossing on Me: No

Crossing Light: N / A

Railway Crossing State: No Railway Crossing Present

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Track Circuit is: Track Circuit is Fine

Track Rail is: Rail is Fine

Within this panel we can view the identification number of the wayside controller that monitors this block, we can view the authority and speed stored in this block. We can also view if there is a train currently located on this block. You are also shown the name of the track you are currently viewing and the block location. If there is a train station located on this block, its name will be displayed. If there is a switch on this block, its real-time state will be displayed as well as the block numbers that are being bridged. If there is a railway crossing on this block, its real-time state will be displayed as well as the Crossing light. If a track circuit is bad or good, at this block location, that information will be displayed at the bottom as well. If the track rail is broken or fine, at this block location, that information will be displayed at the bottom as well. It is important to note that all information in the panel is displayed and refreshed in real-time.

### **File Configuration:**

Four text files are required to have the system work correctly. The first is railCrossingPullDownLogic.txt, the second is railCrossingPullUpLogic.txt, the third is switchFromCloseToOpenLogic.txt, and the fourth is switchFromOpenToCloseLogic.txt. It is pretty clear from the file names which part of the system the logic applies to. Contained in these files is the logic the system will abide by. An example of the logic is “(!&(1|(!)))”. “!” Stands for false or not existing.

"1" Stands for true or existing. "&" Stand for the logical AND operation. "|" Stands for the logical OR operation. Parenthesis must be placed as seen. The true/false and "not existing"/existing relates to the train presence at varies points on the train track .