

ASB TURNOUT TUTORIAL - LHM

(Issue 4.4)

ASB stands for Active Signal Box. Imagine having a virtual Signaller at every double track junction, holding other trains and switching the junctions the way you want to go.

[All automatic! Works for both AI and Manually Driven trains!](#)

ASB Turnout helps eliminate SPADS and stops train-thru-train effects.



ASB Turnout supports either Left-Hand Main running or Right-Hand Main running. This Tutorial concerns the LHM asset for layouts where trains drive on the left, e.g. UK Routes. For RHM routes, see RHM Tutorial. Please ensure the correct Controller is used!



NEW VERSION - NOW WITH NO TRIGGERS TO SET UP!

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Setting Up the LHM Controller



This is the 'brain' of the system. It controls the signals and points, (switches) after receiving instructions from the Driver Commands. After you've placed the signals and points, the Turnout Controller is the first asset you should set-up as it will automatically choose a free Channel for you. Each Turnout (or Junction) must work on a different Channel. The maximum number on any one map is 99.

This Controller is used on Turnouts where trains drive on the left!

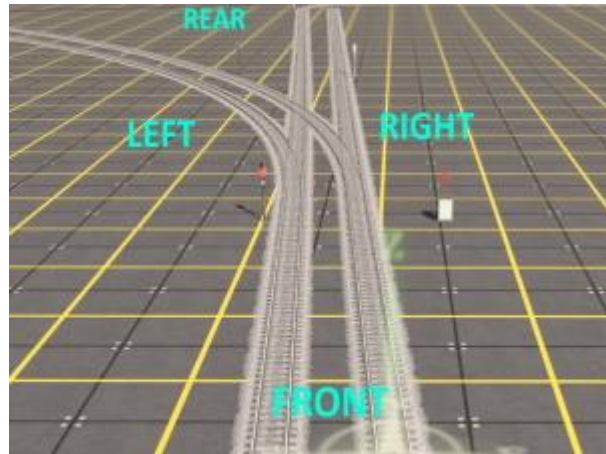
No train will be allowed through that does not have appropriate Driver Commands.

The illuminated lines indicate:-

Off: No train expected. Green: Path clear. Yellow/Red: Train expected but path denied.

Terminology:

Throughout this Tutorial I will talk about 'Left', 'Right', 'Front' and 'Rear'. You should always view your Junction with the 'single' end pointing towards you. This I call the 'Front' of the Junction. The 'Rear' is the 'double' end. 'Left' and 'Right' refer to the diverging tracks as seen from the Front.



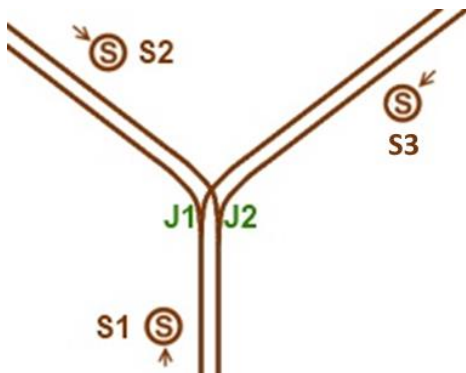
Assigning Assets:

When you first open the Controller, click on the '+' and it will automatically select the next available Channel. In order to work, ASB Turnout needs to take control of the three Signals at your Turnout, plus the two points, (switches). To do this you must assign them to the ASB. Click on the white chart to open a list of signals.

Select the signal you want to be 'Signal 1' for this Junction, then do the same for Signals 2 & 3 and the 2 junction levers. Each asset will highlight in turn as you click the chart.

Caution if you do this in the 'Route' layer! Re-editing the 'Route' will allow duplicate signals to be assigned since used signal data is only saved to the Session! Beware!

If you delete and change a signal at a later date it will need to be reassigned, even if you give it the same name. See also, [Updating Existing Routes](#).



The chart shows a 'Y' shaped layout but the track may go straight with the 'turnout' to the left or right. It doesn't matter. The set-up is the same. Add all 5 assets until the assignment is complete as shown below.

ASB TURNOUT - LEFT HAND MAIN v3
Asset set to Channel: 15

Click to assign signal 1

Select Signal:

- DTT 151
- DTT 152
- DTT 153

Add asset Search Filter? - DTT

Range S1 = 1500 mtrs Clear Front :
Range S2 = 1500 mtrs Clear Left :
Range S3 = 1500 mtrs Clear Right :

ASB TURNOUT - LEFT HAND MAIN v3
Asset set to Channel: 15

Click to assign junction 2

Select Junction:

- Junction 128
- Junction 130
- Junction 131
- Junction 133
- Junction 172
- Junction 356
- Junction 392
- Junction 684
- Junction 688

S1 DTT 151 (re)
S2 DTT 152 (re)
S3 DTT 153 (re)
J1 Junction 126 (re)

Add asset Search Filter? - DTT

ASB TURNOUT - LEFT HAND MAIN v3
Asset set to Channel: 15

Asset assignment complete!
Now add your Driver Commands

S1 DTT 151 (remove/change)
S2 DTT 152 (remove/change)
S3 DTT 153 (remove/change)
J1 Junction 126 (remove/change)
J2 Junction 133 (remove/change)

Range and Clear Settings

Range S1 = <u>1500</u> mtrs	Clear Front = <u>100</u> mtrs
Range S2 = <u>1500</u> mtrs	Clear Left = <u>130</u> mtrs
Range S3 = <u>1500</u> mtrs	Clear Right = <u>150</u> mtrs

Default Settings

These equate to trigger placement distances in the old version of ASB Turnout.

These settings can be left as their default or modified to suite your own needs.

'Range S' is the distance from each signal where an oncoming train can first be detected. If that train has an ASB Driver Command for that Channel in its schedule, it will request that junction. The junction will 'set' for that train, either immediately or after any earlier trains have cleared the junction.

'Range S' can be re-set to anywhere between 50 meters and 4 Kilometres.

'Clear' is the distance from the junction where a departing train will release that junction. Each 'Clear' can be re-set to anywhere between 1 and 500 meters. Set as required for the size and spread of your junction.

Priority for claiming junctions is on a first come first served basis. However, if a main-line is set to 4Km Range, a train on it will plainly take priority over a side-line train set to 50 meters. If a distant train which has claimed a junction stops or goes in reverse, the claimed junction will be released.

Note - The Range setting is the maximum distance a train can be detected searching along the track from the signal. The search will be terminated by any junctions set against the route or very occasionally by a rare rogue trackside asset.

Now all that's needed is to add the Driver Commands to your train's schedule.

The Driver Commands



Driver Commands are essential to the working of ASB Turnout. Only trains with an appropriate Driver Command in their schedule will be allowed through the Junction.

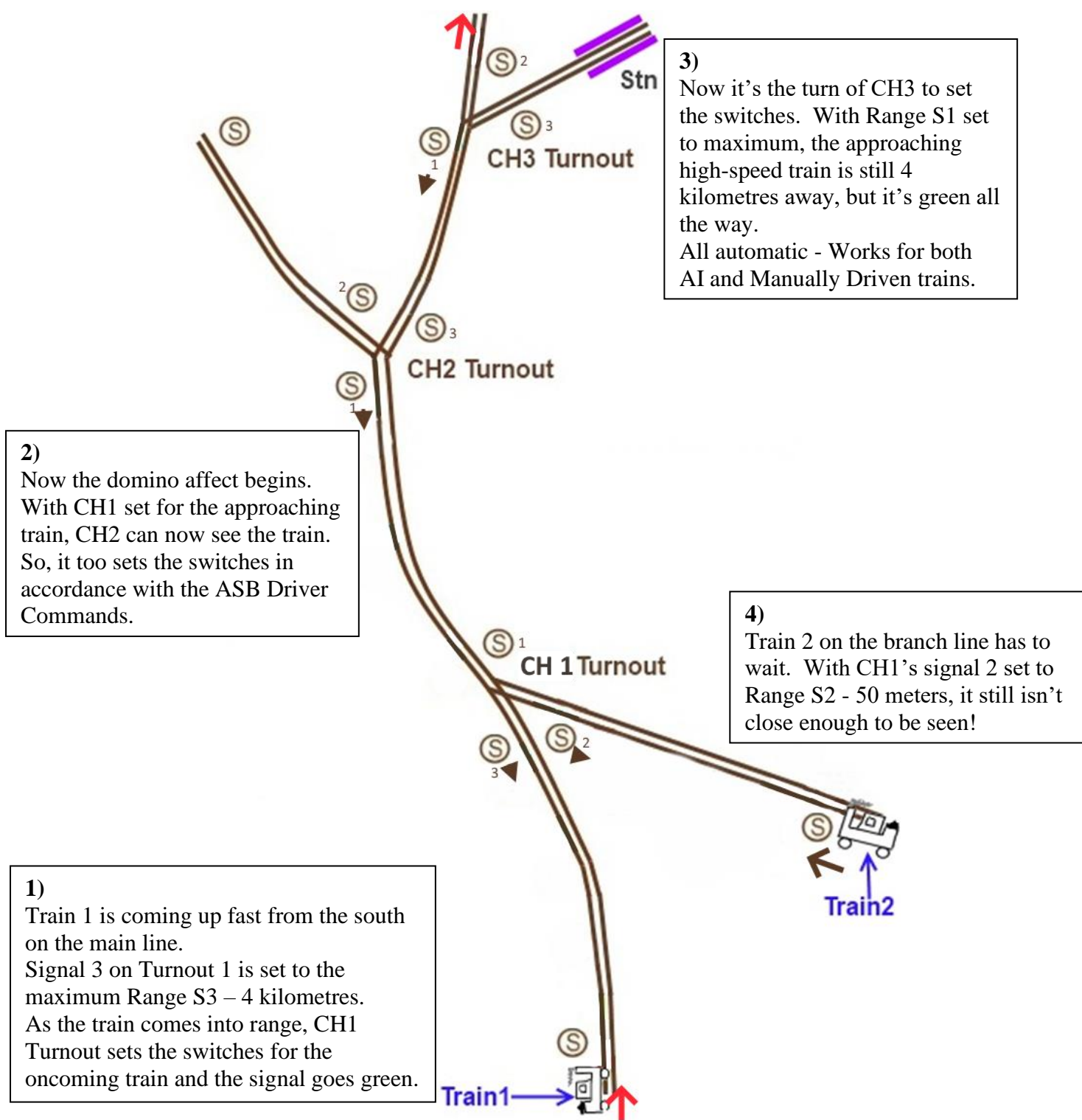
The 3 'core' Driver Command's function is pretty straight forward. When approaching the front of a Turnout they will tell the Controller which way the train wants to go, left or right. A 'rear approach' Command is also needed but the 'Y' version above is used for either arm.

The ASB Turnout Controller will search along an approaching train's Driver Schedule until it sees a Turnout Command on its Channel. It will then set the switches, either immediately or when an in-use junction is free. This way, several junctions ahead will be set ready!



The 3 Advanced 'X' Hold Commands work like the 3 core commands except they will not request activation of an ASB Junction until the command reaches the head of the Driver Schedule. This is useful if you have a train stop at a station and load passengers. It will delay claiming the next junction until the train is ready to leave. Note these commands work slightly differently if your train is being driven manually. See [Driving Trains Manually](#) below.

It's when you have a lot of ASB Turnout Junctions that the system really works best.



2)
Now the domino affect begins. With CH1 set for the approaching train, CH2 can now see the train. So, it too sets the switches in accordance with the ASB Driver Commands.

3)
Now it's the turn of CH3 to set the switches. With Range S1 set to maximum, the approaching high-speed train is still 4 kilometres away, but it's green all the way. All automatic - Works for both AI and Manually Driven trains.

4)
Train 2 on the branch line has to wait. With CH1's signal 2 set to Range S2 - 50 meters, it still isn't close enough to be seen!

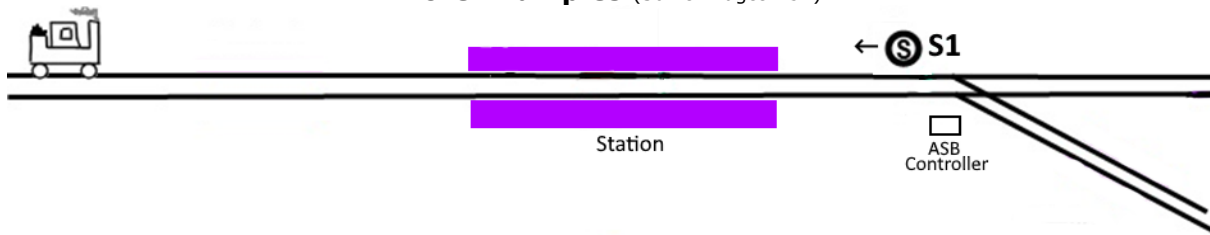
1)
Train 1 is coming up fast from the south on the main line. Signal 3 on Turnout 1 is set to the maximum Range S3 - 4 kilometres. As the train comes into range, CH1 Turnout sets the switches for the oncoming train and the signal goes green.

Train 1's Driver Schedule for the above would look like this....



etc..... (Up to a maximum of 99)

More Examples (Some images N3V)



Above, a train is approaching a station where it stops for 5 minutes. It will then turn right. Range S1 is set to 1,500 meters so the train is detected and the junction claimed and set very early. This blocks the junction unnecessarily. So that the junction can stay free for other trains, an 'X' Hold Command is used. Now the junction will not be claimed until the train is ready to leave. (Not the case for Manually Driven trains).

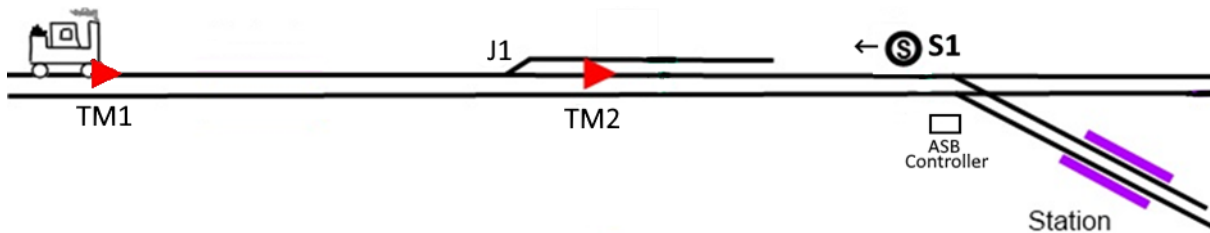
The train's Driver Schedule will look like this...



Getting to an ASB Turnout area and navigating random junctions.

Once a Driver Command is activated it puts the train into Autopilot to take it through the Turnout/Junction. It will not pass to the next Command until it is at that Turnout. Trains in Autopilot do not switch junctions as they do in Trainz AI. That's fine for the ASB Turnout as the Controller is working the signals and switches. But it must have a clear run to the Turnout once the ASB Driver Command is reached. For that reason, if you only use a few ASB Junctions it will probably be necessary to add an N3V 'Navigate Via' or preferably 'Drive Via' Command to pre-route the train. Be sure the Commands are placed in the correct order for your map. Here is a typical example.

An extra Track Mark is needed due to Junction 'J1'.



The above train's Driver Schedule may look like this....



The train 'Navigates' to the area using 'TM1'. It then uses TM2 to navigate past 'J1' before approaching the Turnout Junction. Put the commands in the order the train will see things. ASB Turnout Controllers don't just look at the first Driver Command, they look along ALL of them. This junction is already set for the train as the signal 'S1' saw the train coming and found its ASB Commands 1,500 meters away. Note though, S1 won't see the train coming if J1 is set against it!

Blocker Command



This can be used as an alternative to an 'X' Hold Command. Placed in a Driver Schedule it will stop a Controller from looking any further along. Use as required.

Optional Extra Settings

Asset Search Filter

Add asset Search Filter? - DTT

A Signal and Junction filter is provided to reduce the clutter when choosing assigned assets. You can type in up to 5 letters of your chosen signal's name. e.g 'DTT'. Click to change. Make sure the box is ticked to activate.

Add Feather

Add Feather? LEFT RIGHT NONE
Supported signals only!

If you tick the box, a UK style feather will be attached to SUPPORTED SIGNALS ONLY, and that probably just means my DLS available Sen City range, kuid:76656:24010 - on.

Allow Manual Trains

Allow Manual Trains?

In T:ane and TRS19, as soon as you take manual control of a train, the Driver Schedule for that train will stop and commands will no longer move on.

ASB Turnout Commands are the exception and will run as normal in either manual or AI mode. Other Driver Commands will freeze.

As a workaround, for manually controlled trains ONLY, ASB Turnout will automatically remove any non-Turnout commands as they reach the top of the schedule (or pass them to the back if repeat is set).

In T:ane you will see this happening, in TRS19 it will happen in the background.

This action may not be appropriate for all users. If it causes you problems, just untick the 'Allow Manual Trains' box and save the session. The Driver Schedule will then be left alone but manual driving will be restricted.

NOTE - Changes to this setting can only be saved to a Session!

Driving Trains Manually

ASB Turnout is unique in allowing a Driver Schedule to run on both AI and Manually Driven trains. This means you can let an AI train run under automation or at any time you can take manual control of a train. Junctions will still switch and react to ASB Turnout Commands. Be aware though that other Driver Commands will not react in Manual Mode. ASB Turnout deals with this. See 'Allow Manual Trains' above. Switching to manual driving is done 'live' in the game. The procedure is slightly different in T:ane and TRS19. See below.

Manual Driving in T:ane

- 1) Ensure 'Allow Manual Trains' is ticked in the Controller, then run Driver.
- 2) In Driver, select 'Additional Tools Menu' and 'Show Message Overlay'.
- 3) Choose the train you want to drive and click on the front vehicle, usually the loco where the driver is sitting. A message will appear - 'ASB TARGET TRAIN IS xxx'. This can be a bit hit and miss and may take a couple of clicks to settle! Ensure the correct train has stuck and the correct driver's name is the last one printed. **This step is essential** to ensure ASB Turnout knows which train you want to drive. If missed, commands will not move on! It *is* possible to be in manual mode without ASB being updated so take care!
- 4) Ctrl Right click on the selected train and select 'Stop Train'. You will now be in manual mode. Tip – Take care not to select 'Abandon Schedule' or you will lose all your commands!
- 5) To return to AI mode, Ctrl Right click and select 'Continue Schedule'

Manual Driving in TRS19

- 1) Ensure 'Allow Manual Trains' is ticked in the Controller, then run Driver.
- 2) Choose the train you want to drive and click on the front vehicle, usually the loco where the driver is sitting. A message will appear - 'ASB TARGET TRAIN IS xxx'. This may take a couple of clicks to settle! (Clicking anywhere on the train, then jumping in the Cab works well.) Ensure the correct train has stuck and the correct driver's name is printed. There may be a slight delay. **This step is essential** to ensure ASB Turnout knows which train you want to drive. If missed, commands will not move on! It *is* possible to be in manual mode without ASB being updated so take care!
- 3) Click on 'Change Control Mode, (3 dots bottom right). You will now be in manual mode.
- 4) To return to AI mode, Ctrl Right click and select 'Continue Schedule'

T:ane users will continue to see the Driver Schedule update in Manual Mode but TRS19 users will not as switching to manual hides the schedule.

ASB Crossover Commands will react and update as they do for an AI train but other Driver Commands will not. Non ASB Turnout Commands will be removed from the schedule as they appear, (or sent to the back if repeat is set). See '[Allow Manual Trains](#)' above. For this reason, the 'X' Hold Commands will probably release early in manual mode.

Signal Choice

ASB Turnout, in common with any script which attempts to control remote signal aspects will not work with all Trainz signals.

This is because the local script in some signals interferes with the ASB script. There is really nothing that can be done to remedy this, other than change to a different signal. If your signal won't go red this may be the problem.

Most Trainz signals should be OK but the few exceptions, (signals that do NOT work) include some of the semaphore signals from TC3 onwards and notably, Bloodnock's excellent VSR range. There may be others!

As a replacement for Bloodnok's VSR range I have produced a small set of British Rail style signals that will work with ASB. These are free on the DLS or see [Sen City Signals](#). (If you use one of these signals for ASB, do NOT enable ATLS on the same signal!)

Note that the script clash only happens with the ASB 'Controlled Signals'. Other signals placed in your map will not interfere with ASB or vice versa.

Using 'Copy From' command and 'Schedule Library'



These assets are available on the DLS and built-in to some versions of Trainz. They provide a method to copy and paste a collection of Driver Commands quickly.

While they will work OK with ASB Turnout Commands for AI trains, they should be used with care.

As already mentioned, ASB Turnout looks along the list of Driver Commands so junctions can be set up ahead of the train's arrival. The 'Copy From' Command may restrict Turnout's ability to look ahead. Any Turnout Commands contained in the Schedule Library will not be seen until the Library has unpacked. It's like putting a 'Block' Command in the schedule!

Also, they are NOT recommended for use in a manually driven ASB Turnout train. When the Library unpacks, it puts the train back to 'Auto' and I have also noticed failures to move the command on when repeat is set. So, avoid the Schedule Library for trains you intend to drive manually. I have only tested these assets using the 'insert' option.

Updating existing Routes

The procedure for updating existing Routes saved with previous versions of ASB Turnout is below.

Name Controllers

In previous versions of ASB Turnout, Controllers did not need to be named. Now they should be. Any blank Controllers will show as broken. To fix, simply give them a unique name, e.g ASB1, ASB2 etc. Then save the Route.

Reassign Assets

Previously saved versions of the Controller will need to have their assets re-assigned. Both Junctions and now all three signals.

This is due to the changes in the way ASB Turnout works. Re-assigning is a one-time operation. Asset data will be saved when you save the Session. Re-assigning assets should be done in the 'Session' layer.

Triggers

Triggers are no longer used in ASB Turnout as the system now uses a track-search method. Existing triggers can be deleted or left where they are. They do nothing.

Old Driver Commands no longer used

Go Manual, Go Auto, Manual Load and Manual Unload Commands are no longer used. Please remove these from your Driver Schedule.

X FAP Left/Right Commands are replaced with X Hold Left/Right Commands. X RAP Left/Right Commands replaced with a single X Rear Hold Command. This is automatic.

Tips & System Limitations

- 1) ASB Controllers will only detect a distant train which is moving towards it. Stopped trains or trains moving away from the Turnout will be ignored.
- 2) If a previously detected distant train stops, reverses or disappears, the Turnout junction will 'clear'.
- 3) The above does not apply to close stopped trains within 50 meters of the Turnout controlled signal. They will still be detected and presumed to be coming through unless they reverse.
- 4) The maximum number of Channels/Junctions on any one map is 99.
- 5) Not all signals will work with ASB Turnout but if they worked in ASB Crossover, they'll work with Turnout
- 6) Does not support 2-way running on the same track but does support left **or** right hand drive layouts, (These instructions for left hand drive).
- 7) Moving drivers into different trains during play is not recommended as it may confuse the system.
- 8) It's not designed or recommended to change Driver Commands on-the-fly in Driver. It's better they be pre-saved in Surveyor.
- 9) If a Controller is 'on', only trains with ASB Driver Commands in their schedule will be allowed through
- 10) Be aware, the system has not been tested using many different specialised 'Layers'. Testing has been done using only a Route and a Session layer. I favour placing Controllers in the Route layer and assigning assets in the Session Layer.

The Asset List

There is a total of 13 assets in this kit, (14 with both Controllers).

The Core Assets

- | | |
|-------------------------------------|-----------------------|
| 1) ASB Turnout Controller LHM | (kuid2:76656:80100:8) |
| 2) 'Turn Left' Driver Cmd | (kuid2:76656:80105:4) |
| 3) 'Turn Right' Driver Cmd | (kuid2:76656:80106:4) |
| 4) 'Rear App.' Driver Cmd | (kuid2:76656:80107:4) |

The Extended (optional) Assets

- | | |
|------------------------------------|-----------------------|
| 5) 'X Hold Left' Driver Cmd | (kuid2:76656:80103:4) |
| 6) 'X Hold Right' Driver Cmd | (kuid2:76656:80104:4) |
| 7) 'X Hold Rear' Driver Cmd | (kuid2:76656:80109:4) |
| 8) 'Blocker' Driver Cmd | (kuid2:76656:80127:3) |

Background Assets

- | | |
|-------------------------------|------------------------|
| 9) Feather left | (kuid2:76656:24030:1) |
| 10) Feather Right | (kuid2:76656:24031:1) |
| 11) ASB DTT Textures | (kuid2:76656:21003:1) |
| 12) ASB Script Library | (kuid2:76656:80020:8) |
| 13) Sigs Script Library | (kuid2:76656:80018:11) |

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