ASB – Active Signal Box - CROSSOVER (April 2020)

ASB Crossover is designed to provide secure control of trains at isolated diamond crossovers. It stops train-through-train events, SPADS and blocked signals.

It does NOT provide control of points/turnouts so double track junctions will not benefit from ASB Crossover. ASB 'Turnout' is specifically designed for this feature. Details of that can be found at www.boatztrainz.co.uk/turnout.html

The latest version of ASB Crossover is now Trainz Build 4.5, (Tane SP3 and up). Links to earlier versions can be found in Content Manager. Note that these earlier versions may have minor bugs and less features. This tutorial is for the Tane SP3/TRS19 version. See 'Old Tutorial' on my Tutorials webpage for earlier Trainz versions. Always use the latest version you can!

NOTE 1) Not all Trainz signals will work with ASB! Most will, but some have their own internal script which conflicts with the ASB program. See 'Signal Choice'.

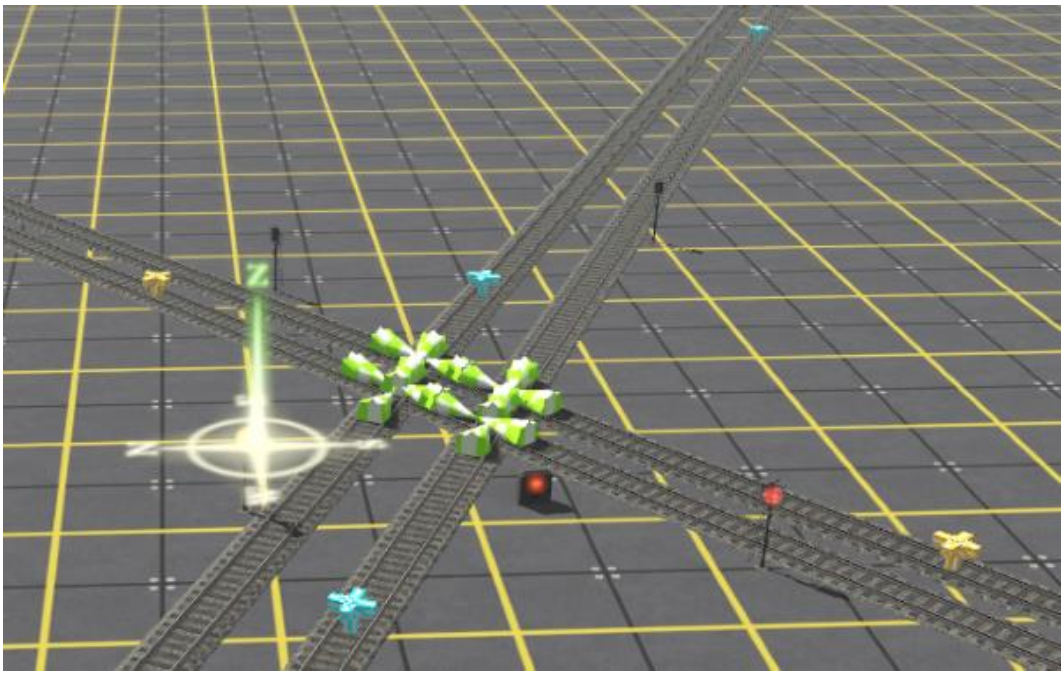
NOTE 2) It is recommended that no trains are placed in-between Triggers at Session start-up. However, if careful and where route design makes it essential, this can be done. See Start-Up Train Placement.

The ASB Crossover Kit comprises two main assets and 3 add-on optional assets.

The main assets are…

The optional assets are…

The Crossover Controller can be found in Objects/(buildings) in Surveyor, the other Surveyor assets are in Tracks/trackside.



The ASB Crossover Controller (kuid:76656:70001)

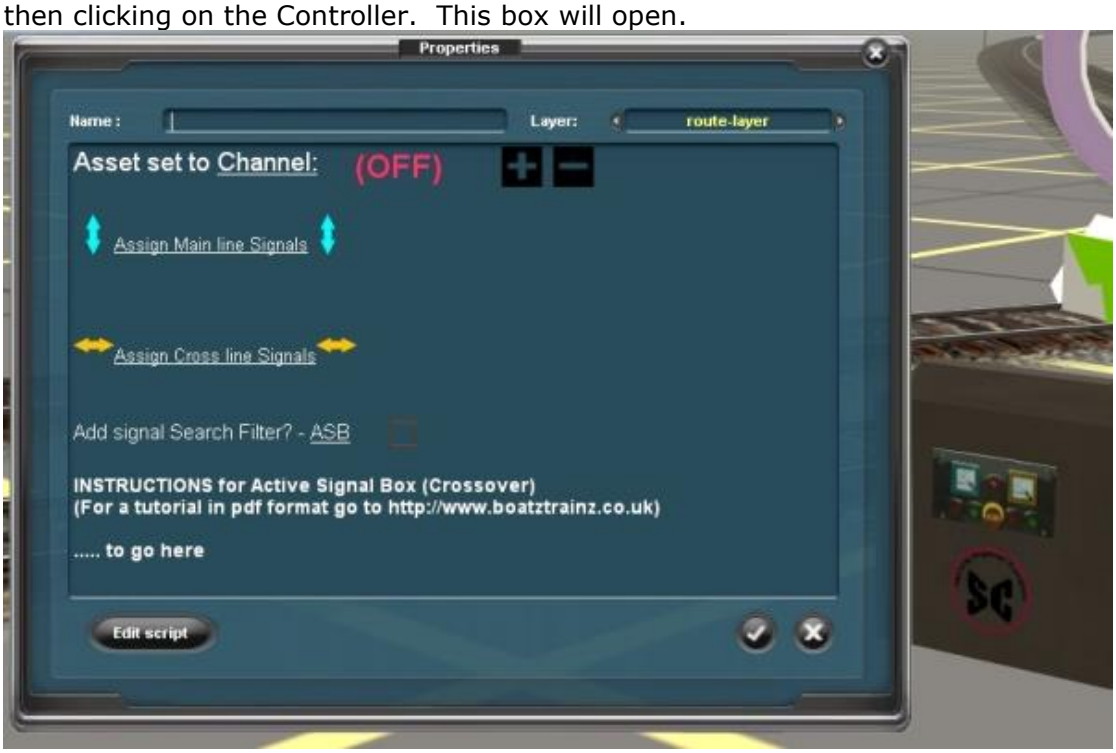
This is the 'brain' of the system. It controls the signals after receiving instructions from the Triggers. The Crossover Controller is the first asset you should set-up as it will automatically choose a free Channel for you.
You should use a different Channel and a new Controller for each Diamond Crossover on your map!
(For ATLS users, ASB works on a different 'band'. So it's OK to have ATLS and ASB on the same Channel. They will not interfere.)

The Main & Cross Concept

We need to distinguish between the two intersecting routes, so call one the 'Main' line and the other the 'Cross' line. It doesn't matter which is which as there is no priority difference between them but you must make a choice and stick to it!
To aid clarity, all 'Main' line features are coloured **BLUE** and all 'Cross' line features are coloured **YELLOW.** See Layout Plans for more information.

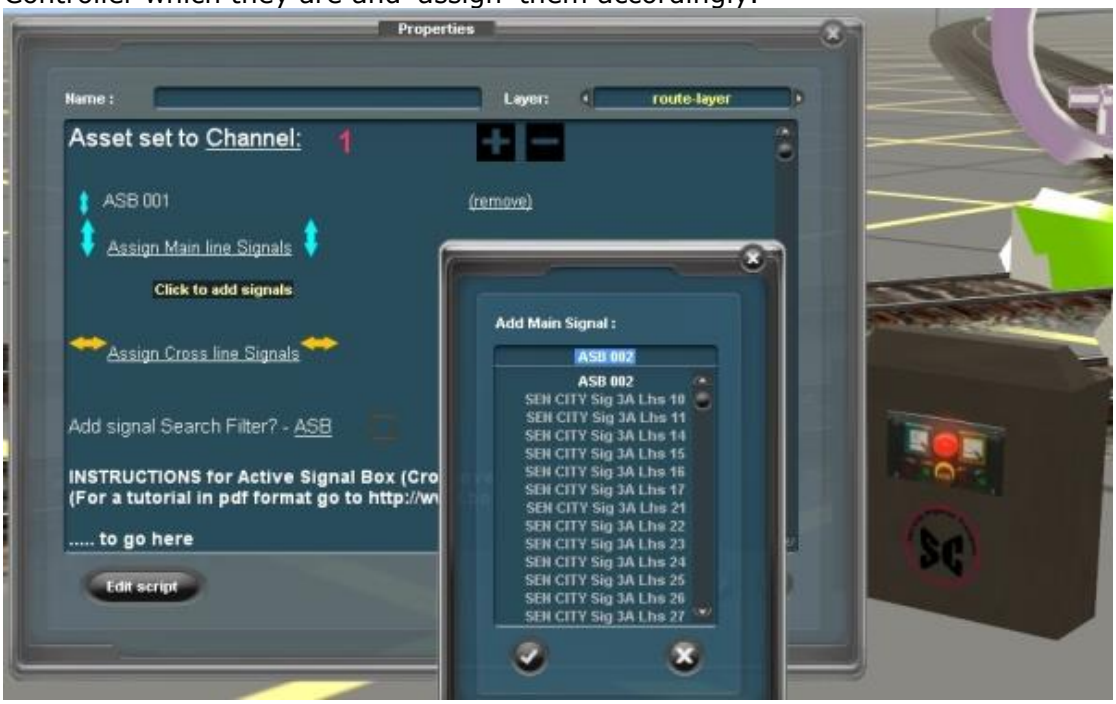
Setting Up the Controller

Open the Controller's Properties Dialogue Box by clicking on the '?' in Surveyor, then clicking on the Controller. This box will open.



First you need to set a free Channel. Experienced users may click on the word Channel and type in a Channel number directly, (maximum 9,999,999 Channels). Alternatively click on the + symbol and the Controller will automatically jump to the first free Channel. It's not possible for two Controllers to operate on the same Channel. (ATLS and ASB Channels do not interfere with each other)
In this case it's the first ASB on the map so Channel 1 has been selected. Note the 'on' light is now lit on the Controller model.

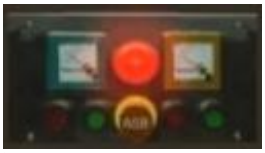
Assigning Signals
Having previously placed and named the signals you have chosen to protect the intersection, (see Signal Choice and Asset Layout Plans), you now need to tell the Controller which they are and 'assign' them accordingly.



Click on 'Assign Main Line Signals' and a 'pick-list' of all the signals on your map will appear. Choose the 'Main Line' signal (or signals) you have designated and they will be added to the list. Click 'remove' if you make a mistake. There needs to be a signal to control trains on all of the approaching lines intersecting your crossover. Multi track routes and 2 way running are possible. (See Crossover Trigger for more information.) Now do the same for the 'Cross Line' signals. That's it!

Search Filter
Once a signal has been selected by any ASB Controller, it will disappear from the Pick-List. However, if you have lots of signals on you map it still may be difficult to find the ones you want. A Search Filter has been included to limit displayed signals to those whose name starts with certain letters. Click the 'tick-box' to turn this on. By default, if ticked it will only display signals starting with 'ASB', however the filter characters may be changed to your specification by clicking on 'ASB'.

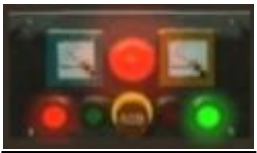
In Use Indicators



On but not yet used in Driver

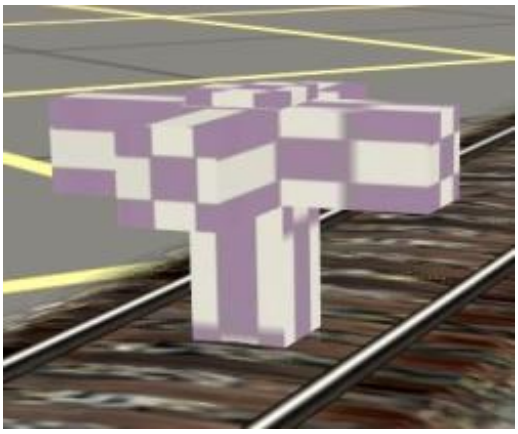
Rest State.
No trains in area
All signals red

Main Line cleared to auto.
Cross Line red



Cross Line cleared to auto.
Main Line red

The ASB Crossover Trigger (kuid:76656:70002)



This Trigger tells the ASB Controller when a train is approaching. The Controller will then clear the train to proceed but only if the Crossover is clear of other crossing trains. The Trigger is mauve in colour when placed in Surveyor but will light-up **Blue** or **Yellow** when allocated a Channel and route.

Setting Up the Trigger

The Trigger should be set to the same Channel as that allocated by the Controller for this crossover. The 'route' should then be set so the Trigger becomes **blue** when placed on the 'Main' Line or **yellow** when placed on the 'Cross' Line. To do this, after setting the Channel, simply click on the appropriate icon for the track.

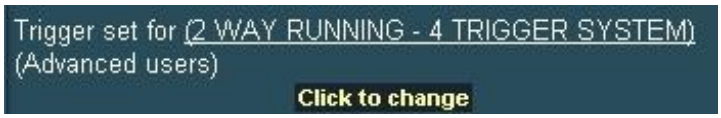
or

Train Priority

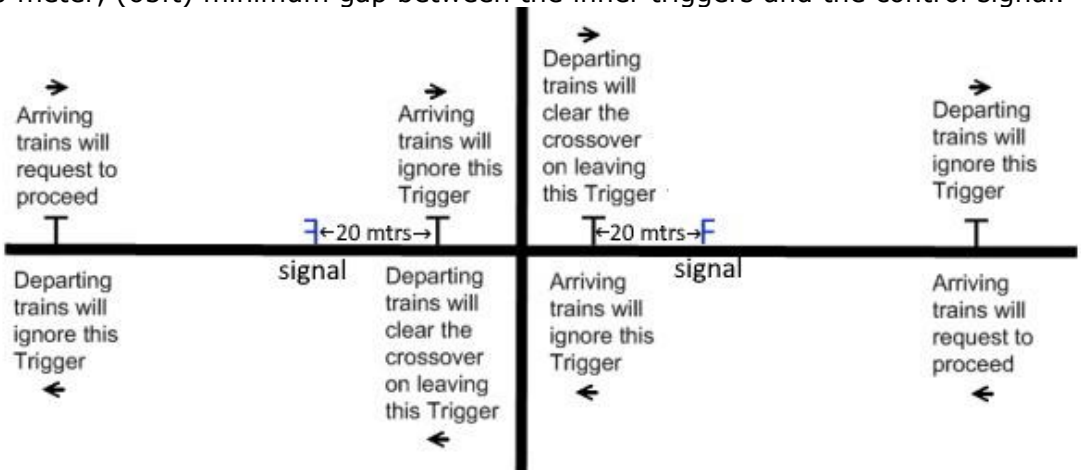
By default, the Trigger will react to all trains. However, you may make it invisible to trains of a specified Priority. This may be useful for example, if you have a local shunting train which may hit a Trigger but will not be going through the crossover. Trainz trains are normally set to Priority '2'. You can change their priority via the train's own properties box.

Trigger Method
By default the Trigger Method will be set to '1 or 2 Way Running – Basic'. This is adequate for most track layouts, either multi track or single two-way running tracks. Two Triggers per track are required; one as a train approaches the crossover and another after it has cleared the crossover. (See Layout Plans).

Advanced Users
However, advanced users running two-way lines, (trains in both directions on a single line), may wish to use the Four Trigger System.



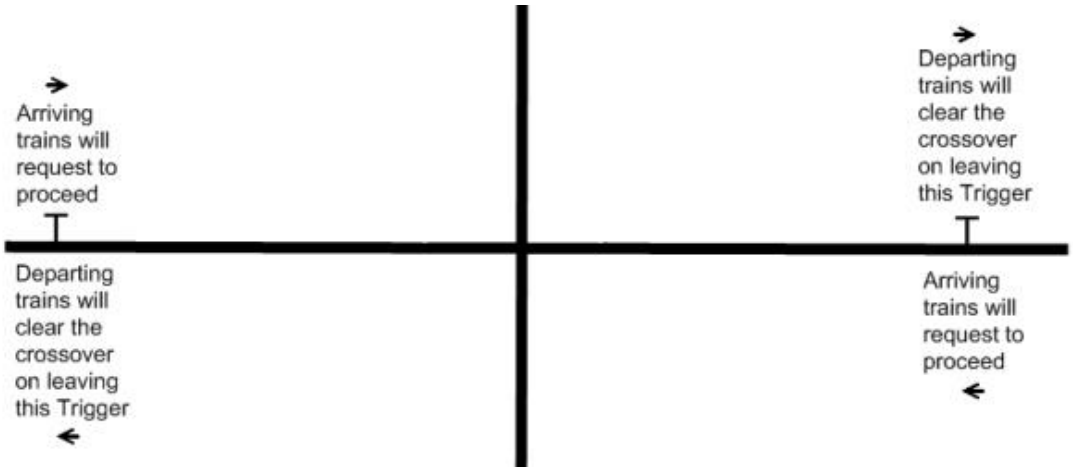
As its name implies, this method requires 4 Triggers and is only an advantage for two-way lines. If you choose this method, set all 4 Triggers on your chosen line to the 4 Trigger System and place on the track as below….NOTE- There must be 20 meter, (65ft) minimum gap between the inner triggers and the control signal.



Special Consideration for 4 Trigger Placement
Ensure Triggers are placed in the correct order. Incoming trains should hit - Trigger-Signal-Trigger-Crossover-Trigger-Signal-Trigger.
Also, ensure there is a minimum 20-meter (65 feet) gap between the inside Triggers and the signal. (Alternatively, experienced users may reduce the trigger radius to fall behind the signal.)

The only advantage of the 4 Trigger system is that the crossover will clear more quickly than if using the 2 Trigger system for two-way tracks. If you are not running trains in both directions on the same track or if the Triggers are very close to the crossover anyway, there is no point in using the 4 Trigger method!

This is the same 2-directional crossover using 2 Triggers…



The ASB Crossover Re-Set Command (kuid:76656:80009)

ASB Crossover is designed to work forever and never go wrong. ☺
When it does you can use this Driver Command to re-set it to zero. Any stuck trains will then be seen by the system and hopefully allowed through.

Just place it at the head of *any* train's Driver Command list and select the Channel you want to re-set. It will instantly re-set that channel's ASB.
Note – Do not use if any trains are moving between ASB Triggers! Wait till the area is clear and only stuck trains remain!

The ASB Corrector Trigger (kuid:76656:70003)

In previous versions of ASB Crossover, this optional asset was used often. Its purpose was to clear-out stuck trains which had started in-between Triggers. It is now largely obsolete since the ASB controlled signal will detect any trains stuck in front of it.

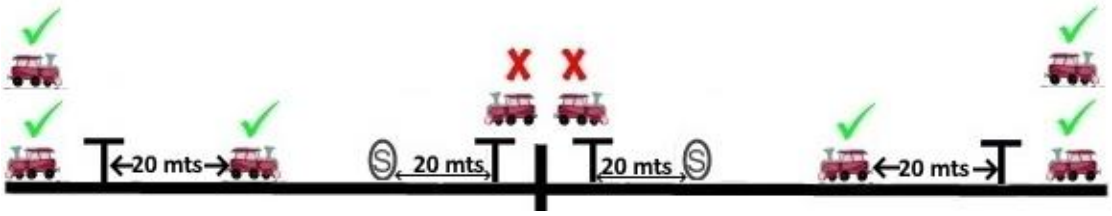
If placed where it is not needed it may impede the workings of some new features in ASB Crossover. Therefore, it requires confirmation when setting up. 'Click to confirm' in the asset to proceed only when you are sure it is needed.

Set-up is similar to the Trigger asset. Just set the Channel, plus 'Main' or 'Cross'.

For its only use, see Start-Up Train Placement below

Start-Up Train Placement

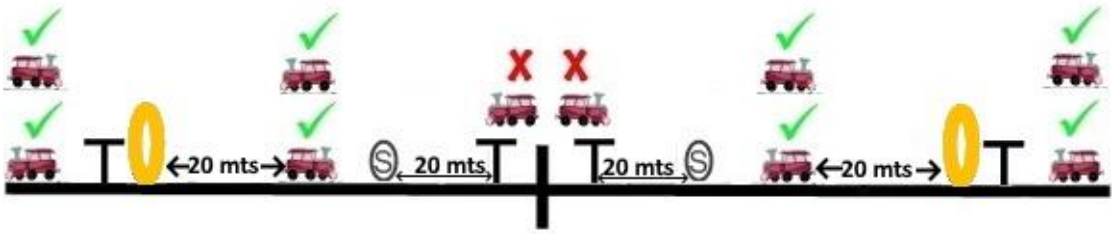
You can ignore this section if you build your route with all trains positioned outside ASB Triggers at start-up. However, if your route design makes it necessary you *can* place trains inside triggers in the following places…..



Never place a train on top of an ASB Trigger!

Always keep a minimum of 20 metres, (65 feet) between any triggers or controlled signals and your start-up trains.

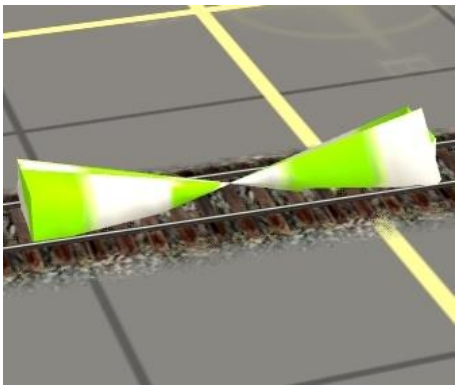
If essential, you may also place start-up trains in either of the 2 extra places below. This will require Corrector Triggers before the departing triggers.



The above positions are the only places you will ever need Corrector Triggers.

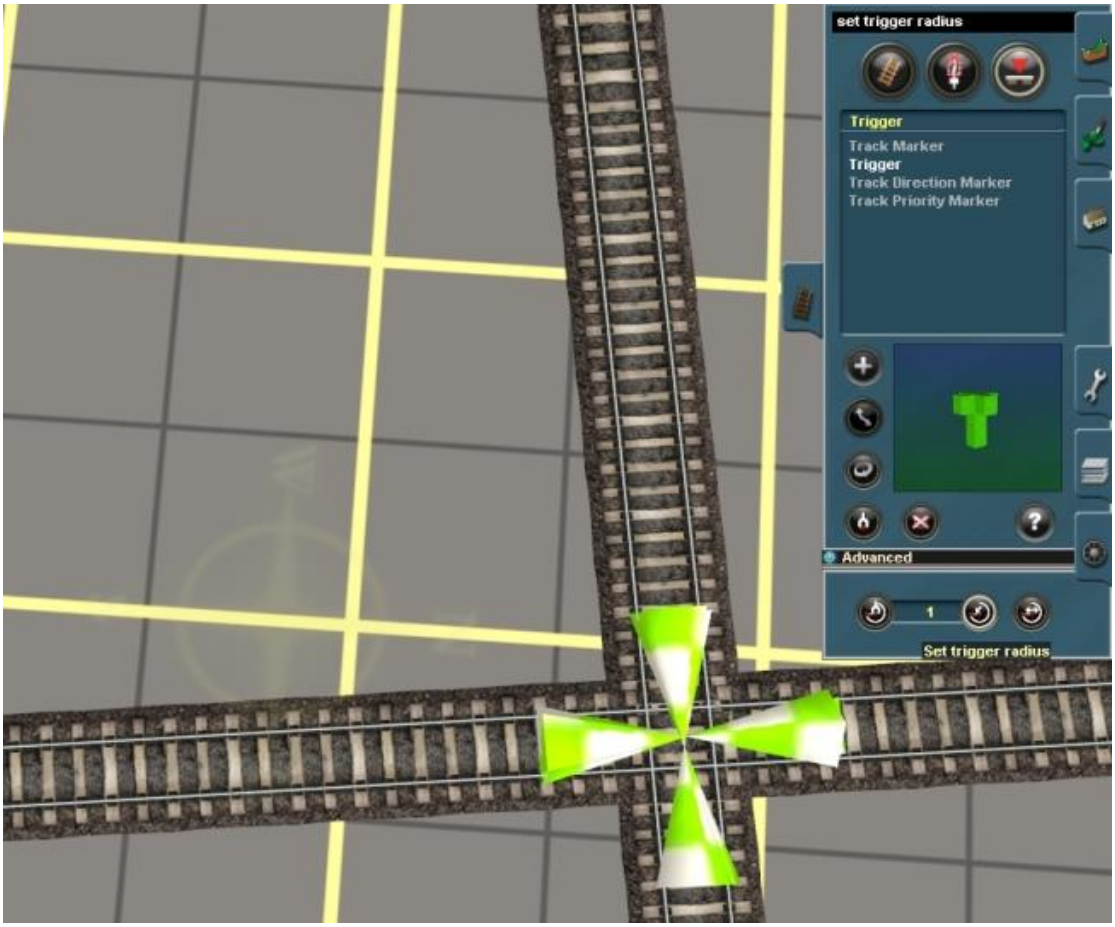
If using the 2-trigger system, Corrector positioning is the same, just before the departing outer trigger, in front of the train you have chosen to position there.

The Clickety Clack Trigger (kuid:76656:70004)



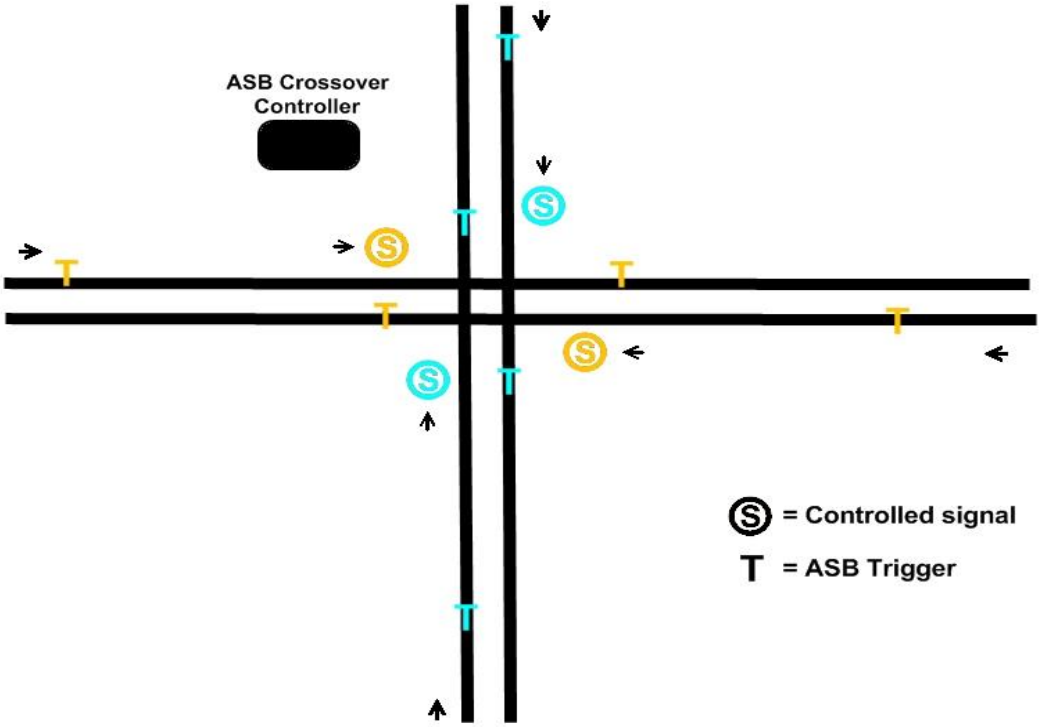
This is an optional asset which provides a 'clickety clack' sound when a train passes over it. It is similar to the sound made when a train runs over points, (turnouts).

It may be used at a crossover, one asset placed on each track. It is recommended that the Trigger Radius is reduced to '1' as shown below. (Click the Advanced tab in TrackMark Mode). No other set-up is required.



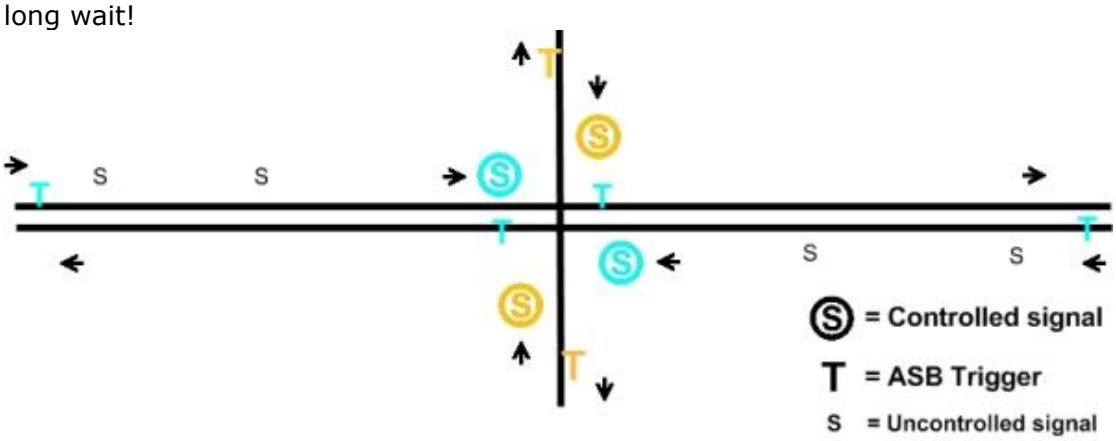
Layout Plans

The placing of the ASB Trigger, relative to the Crossover and the signals to be controlled is fairly straightforward. However, manipulating the exact placement correctly will allow for some control of priority at the crossover.
The basic layout for a double track crossover using ASB Triggers and controlled signals could look something like this…



The first Trigger on approach will request permission to proceed. The second Trigger clears the train from the area. The Triggers here are quite close to the crossover. In fact the approach Trigger could as far ahead of the crossover as desired. As a general rule, the more trains on the line … or the slower the trains, the closer the Trigger should be to the crossover.

The layout below shows a double track 'Main' line' being crossed by single track 2-way 'Cross' Line. The 'Cross' line Triggers are just before the crossover but the 'Main' line Triggers are a mile away. Therefore the 'Main' line has priority. Be aware though that the 'Cross' line will not clear if any trains are between the Triggers on the 'Main' line….. So if it's a busy line, the 'Cross' train may have a long wait!



The above are placed for trains driving on the left. Just reverse everything for right hand drive trains.

See also 'Special Consideration for 4 Trigger Placement' above.

Signal Choice

ASB was originally planned to work with all Trainz signals. However it is apparent that not all signals will work with ASB.

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.

At the moment, most Trainz signals seem OK but 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. 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.

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Note that the ASB Crossover Controller, Trigger and Corrector should not be confused with the ASB Turnout Controller, Trigger and Corrector which are separate payware assets.