

Advanced Traffic Light System – (ATLS)

Tutorial Updated Feb 2020

This is the FULL Tutorial if you want to use ATLS for its original purpose of controlling road traffic junctions with optional trams.

If you only want to use ATLS to control train level crossings, see the [ATLS – LCM Tutorial](#) which is an abridged version of this tutorial.

ATLS has now been updated to work in TRS19 'Streaming Mode'. The following instructions will apply to all versions.

Overview

The Advanced Traffic Light System comprises several assets designed to control both tram and traffic flow at a road junction. The latest available core assets are...

1) A Controller	kuid2:76656:500010:13	page 2
2) A Traffic Light , (with tram light)....	kuid2:76656:500011:6	page 7
3) An ATLS Slave OUTDATED	kuid2:76656:500012:14	page 10
4) A Traffic Stopper	kuid2:76656:500017:3	Page 12
5) A Tram Stopper	kuid2:76656:500013:7	page 16
6) A Stand Alone Tram Signal (x2)....	kuid2:76656:500014/15:8	Page 17
7) An ATLS Trigger	kuid2:76656:500016:12	Page 18
8) A Corrector Trigger	kuid2:76656:500029:3	Page 23
9) A close offset Tram Signal (x2)....	kuid2:76656:500030/31:2	Page 17
7) A Slave Trigger NEW REPLACEMENT	kuid2:76656:500040:1	Page 25
8) A Controller/Slave NEW ALTERNATE	kuid2:76656:500041:2	Page 25

(The first 4 assets will be found in Objects/(buildings) in Surveyor)

(The rest assets will be found in Tracks/tracksides in Surveyor)

The idea is to provide a set of separate assets that will work together to form a versatile system which can cope with both small and large junctions. Being versatile, the assets cannot be just placed quickly but they need to be set up carefully to your individual junction requirements.

Things to Understand

The ATLS assets are interdependent. In other words they won't do much on their own. The Lights won't work or stop the traffic on their own. The Slave isn't much use if it's not connected to a Traffic Stopper, etc.

They communicate by 'radio link'. Each Junction requires a different Channel and it's the user's responsibility to allocate and set each asset to the correct channel for their chosen junction.

The first thing you should do with every asset, before you set anything else up is to open the Properties Dialogue Box and set it to the Channel you have designated for the junction you are building. By default, assets are set to 'Off' so they won't do anything. However, if you set the wrong channel, they *will* interfere with each other.

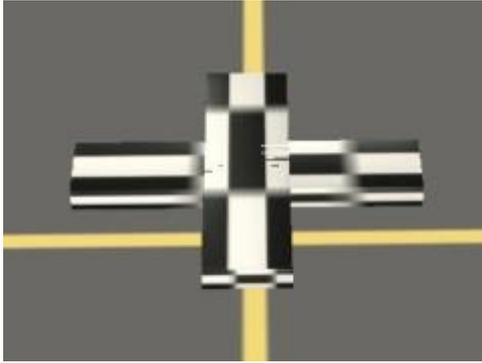
Saving to a map – [See page 25](#).

All settings will be automatically saved with a Session. However if you wish to save to a map (Route), details of how to do that are at the end of these instructions.

Getting Started

First you need to design your junction and decide how many paths or 'Routes' the cars approaching the junction can take and how many traffic light 'Phases' your junction will need. This can be as simple or as complicated as you wish. There are two examples intended to explain the 'Route & Phase' concept in the CONTROLLER instructions below. Read that first. Once you understand this concept everything else will fall into place.

The ATLS CONTROLLER

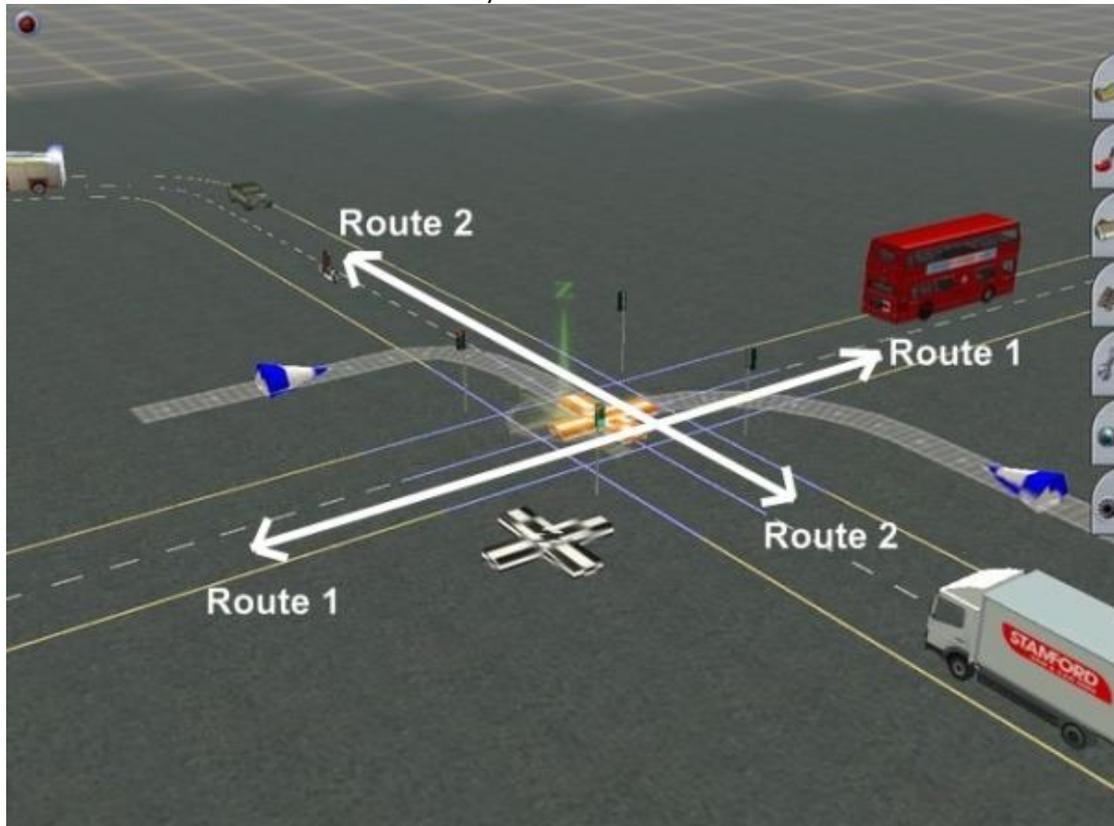


This is the 'brain' of the system. It sends commands to the other assets. It's the first asset you should set-up but to begin you need to understand the Route & Phase concept.

The Route & Phase Concept

I have included two example junctions to help illustrate this. First, take this simple crossroads junction below. It has traffic coming from 4 directions. In the real world traffic can go left, right or straight-on but since Trainz traffic will probably only go straight across, we fortunately only have to deal with 4 possible Routes – one for each arriving direction. Also, since the Routes run in pairs and stop/go together, this particular junction can be simplified to a total of just **2 Routes**.

So, let's decide that for this junction, the East/West direction is Route 1 and the North/South direction is Route 2. It doesn't matter how you number them but remember what you decide for when you set up the other assets. The north/south cars need to alternate with the east/west vehicles so there are **2 Phases** needed.



Setting up Routes & Phases in CONTROLLER

Place a CONTROLLER near your junction. Open its Properties Dialogue Box and first select a radio channel to use. By default it is (OFF). If it's your first junction, select Channel 1 by pressing the large '+' box...

Then, click the small 'Route' '+' box once and 2 Routes are revealed...

and click the small 'Phase' '+' box for 2 phases, (This set-up is the minimum).

You should now have 4 red dots.

(Do not click on the red 'SPL'. Ignore these for now as they are an advanced optional feature for later.)



Phase One is the first row of vertical dots and Phase Two is the second.

To set up Phase One, click on the top left red dot. It will turn green. This means that for Phase One, Route 1 will be on 'Go' and Route 2, (vertically below) will 'Stop'. We need the opposite to happen in Phase Two, so click accordingly.

Make a note of the Route numbers you designated to your junction and their direction if appropriate. You will need them when you set up the Lights, Slaves, Stoppers and other ATLS assets. See instructions for those assets next.

Once all the assets are set up, the lights will begin to go through their sequence in a Surveyor session, (though there may be some instability until you go into Driver). Also, traffic will not stop in Surveyor Mode.

The maximum possible number of Routes in the Controller is 20. The maximum number of Phases is 9. For a more complicated junction example, continue....

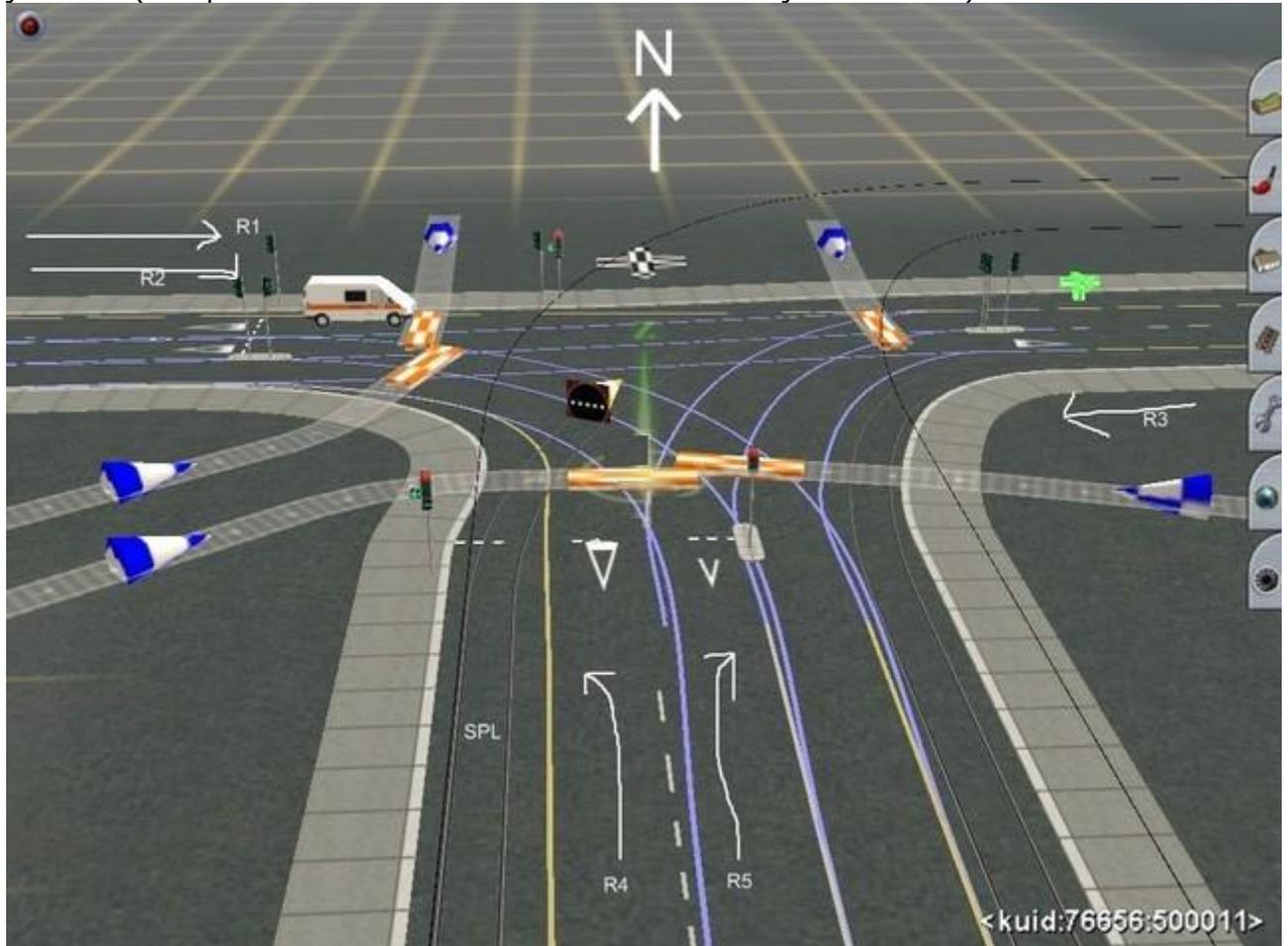
Changing the Phase Timing

You can change the length of time each phase will last, independently. Just click on 'Press to adjust Phase Timings' and the timings will be revealed. Adjust as required. Minimum is 5 seconds, Maximum is 120 seconds. The default is 20 seconds.

Also you can adjust the 'Gap' setting. This is the time the lights will stay red before the next phase turns green, thus allowing traffic to clear a junction before the next 'Route' enters. Minimum is 0 seconds, Maximum is 99 seconds. The default is 2 seconds. Increase this time a little if you have made a large junction. The longer durations may be used if for example you make a long 'road works' section that requires a long time for traffic to clear.

A more Complicated Junction Example

The junction below is a left hand drive T junction. The carriageway coming from the south is a double lane approaching the junction, as is the carriageway coming from the west. All exits from the junction are single lane. To make things more complicated, a tram track comes up from the south, turning right across the junction. (It is possible to construct a RHD version of this junction also!)



First, calculate the number of routes. This will require some thought and a piece of paper. It doesn't matter how you number them so long as you remember what you've done for when you set up the other assets. Let's decide the following....

Route 1 – Eastbound left lane. Will go straight on at the lights.

Route 2 – Eastbound right lane. Will turn right at the lights.

Route 3 – Westbound single lane. Will go straight on at the lights.

Route 4 – Northbound left lane. Will turn left at the lights.

Route 5 – Northbound right lane. Will turn right at the lights.

This leaves the tram route. This could go on its own route and phase and perhaps be allocated Route 6 but since the junction designer decided that trams will have priority at the junction, it will get allocated Route (SPL) so ignore it for now. See ATLS Lights and ATLS Trigger instructions for more details on (SPL) and how to implement it.

Now to set the phases. It's probably best to model real traffic lights near you.

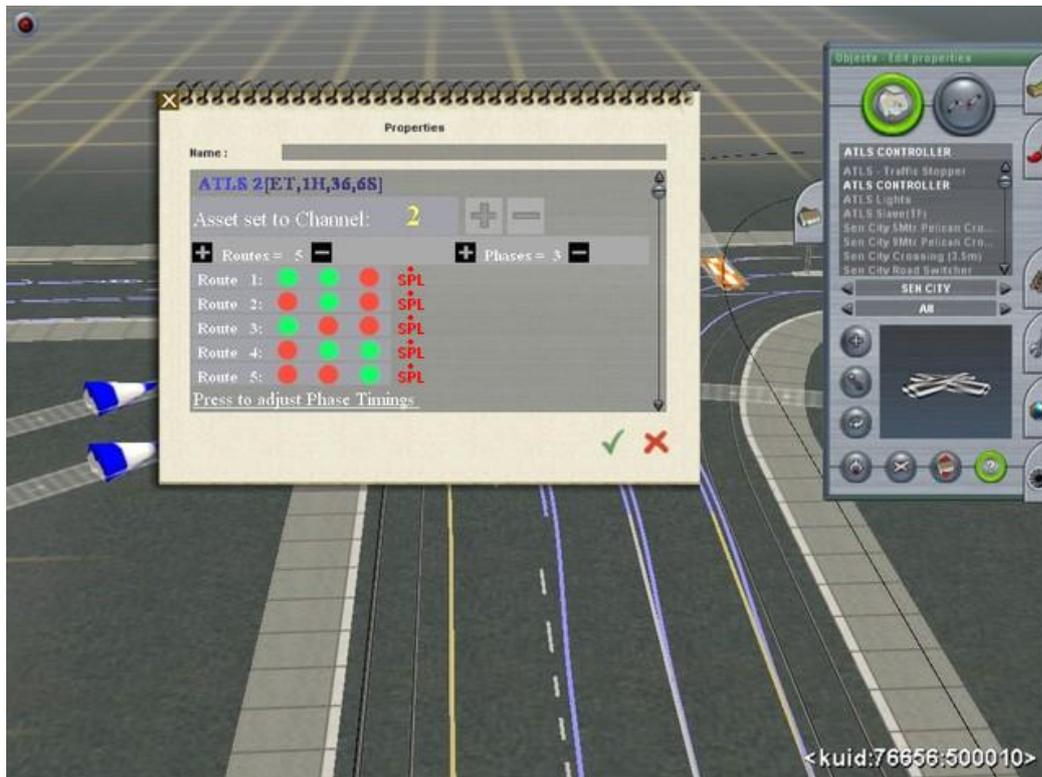
This junction exists near me, (without the tram) and it has 3 phases.

Phase 1 sees Routes 1 & 3 go. (1 on an 'ahead' filter)

Phase 2 sees Routes 1 & 2 & 4 go. (4 on a 'left' filter)

Phase 3 sees Routes 4 & 5 go.

So set that up accordingly in the Controller. See below.....



It doesn't matter if it's a 'filter' or not for now – if its any type of 'go' just turn the button on that phase green.

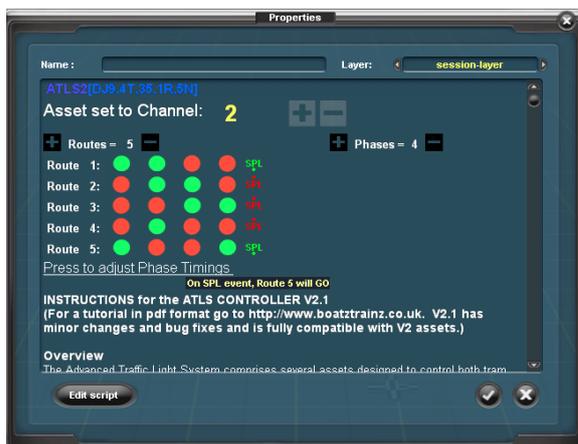
Again, make a note of the Route numbers you designated to your junction and their direction. You will need them when you set up the Lights, Slaves and Stoppers which is your next task.

On this junction, you will also need to make a note of which routes require the filter lights and their direction, plus you'll need a [Tram-Stopper](#) and two [ATLS Triggers](#). See those assets instructions below.

V2.1 Optional Extra Features

SPL Control

In addition to Routes 1,2,3 etc, a Route SPL, (Special) has been included in the ATLS system. With Route (SPL) implemented, as soon as a tram arrives it will call for all car traffic to be stopped and the tram will be given priority clearance to 'go'. However, on some junction designs, the layout makes it unnecessary to stop all car Routes. If that is the case you may set any or all of the first 10 Routes to 'Go' on an SPL event. If the junction you have designed benefits from it, simply click on the relevant SPL button to turn that Route green. Default is all red! *Note that the SPL Route itself is set up in the other ATLS assets – in particular, the [Trigger](#).*



Level Crossing Mode

As an offshoot from the original ATLS function, there is now a setting called Level Crossing Mode or LCM. This is specifically intended to control the opening and closing of level/grade crossings from a distance. It will also open bridges, or indeed any asset that is normally triggered by a close approaching train. In conjunction with the [Traffic Slave](#) and [Trigger](#) it opens the way for new assets to be designed for more versatile level crossings. (Search out my 'Level Crossings with built-in Controller' and also many assets made by Trainz user, bnsf50). With some preparation it will also control any older level, (grade) crossing.

As far as the 'Controller' is concerned, setting up LCM is easy. Just assign a Channel to control a particular level crossing and select Route '-1'. This will put the Controller into 'Level Crossing Mode' and its sole function will then be to pass information from the V2 Triggers, (set to SPL) to the V2 Traffic Slave, (set to LCM). See the relevant instructions for Traffic Slave and Trigger for more information. Also, see the 'Controlled Level Crossing Tutorial' for details of how to lay the assets to a crossing on a map.



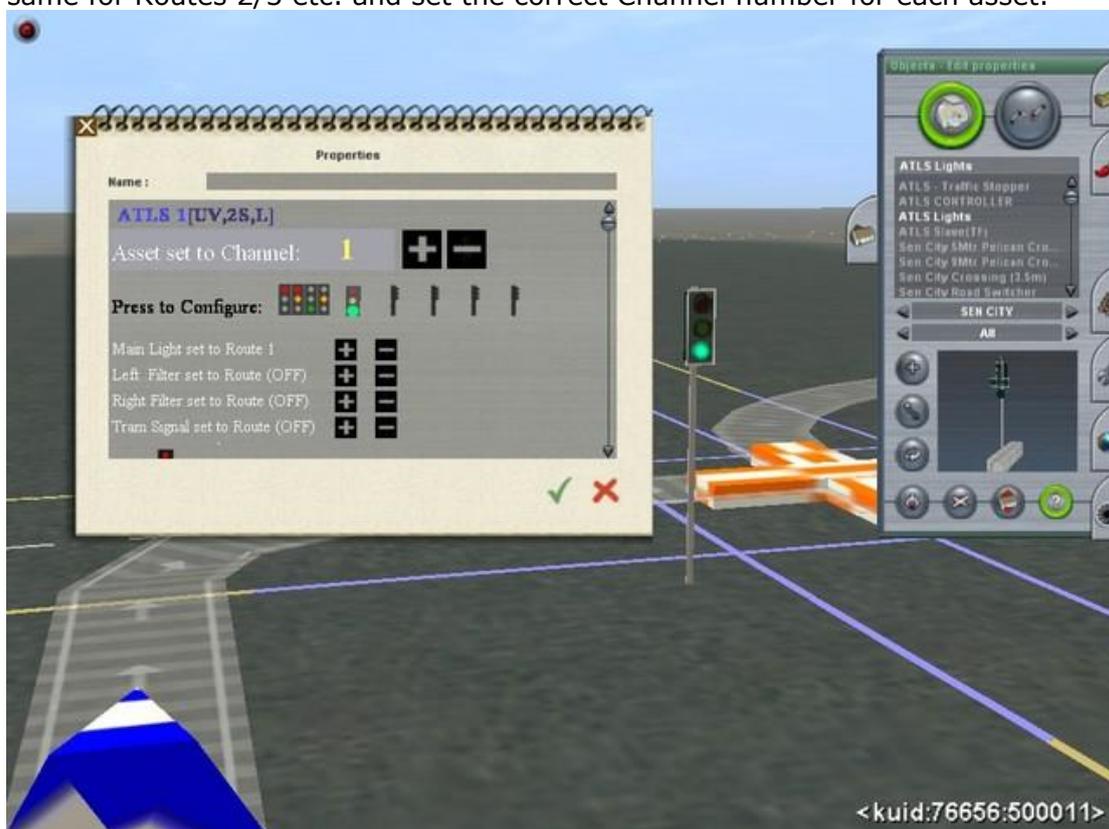
The ATLS MULTI-LIGHT



This 'Traffic Light' is the visual part of the kit seen in Driver. **It will not stop traffic or trams on its own but needs to be used in conjunction with the ATLS Traffic-Slave, Traffic-Stopper and Tram-Stopper.** The Light receives commands sent out by 'radio link' from the CONTROLLER to set its lights to the correct aspect. It needs to be set-up and placed on your map in accordance with the Route & Phase choices you have set in its associated Controller. You can place as many lights as you wish. **Make sure your system had downloaded all the coronas for this asset or it will not light.** They are all on the DLS.

Setting up the ATLS MULTI-LIGHT

Starting with 'Route 1', place a light in any appropriate position, (so that traffic coming from Route 1 can see it). Open its Properties Dialogue Box and select the same Channel for this junction that you chose when you set up the CONTROLLER, by pressing the large '+' box. Now you need to allocate 'Route 1' to the light. In the simple crossroads example, you will probably only use the main light. Set that to Route 1. It will now follow the red/green phases you set in Controller for Route 1. You can place as many lights allocated to Route 1 as you like. Then do the same for Routes 2/3 etc. and set the correct Channel number for each asset.



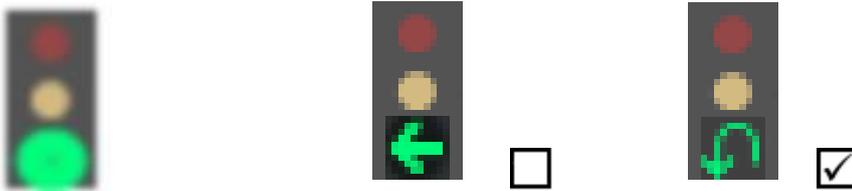
For more complicated junctions, including the use of a Tram Light, filters and (SPL) mode, see lower.

Extras

There are various 'extras' to choose to change the appearance of your light.



This button toggles between British style lights, (which hold a red-amber phase before turning green).... and US/AUZ style lights, (which go straight from red to green) Note - whatever you select here will affect all ATLS lights globally on your map.



This button lets you select whether the 'main-green' light is a round light or an arrow light, (3 directions). V2 also has 'U Turn' light options. A white box will appear when using lights other than 'all round'. If this box is ticked, the amber and red lights will follow the green light shape. Click it to tick it.



The four silhouette buttons allow you to add a base, a rear repeater head, a decorative sensor or to make the light-head free floating – so you can place it on a 3rd party gantry etc..

Adding Filter Lights and/or a tram Light.

This asset is capable of displaying up to 2 filter lights and a tram light. They will appear automatically as you allocate a Route number to them. In the more complex 'T' Junction example, a left filter has been allocated to Route 4. The Tram Light could have been given a normal 'Route' number, in which case it would take its turn with the traffic. However in this particular case, the junction designer decided that trams will have priority at this junction, so it gets allocated Route (SPL). See below.



Route (SPL) – Special.

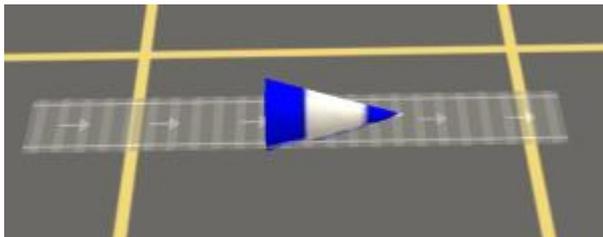
So that trams do not have to wait at traffic junctions, an (SPL) Route has been included. With Route (SPL), as soon as a tram arrives it will call for all traffic to be stopped and to be given clearance to go. At worst it will have to wait for the current traffic light phase to end, at best it won't need to stop at all. **In order for Route (SPL) to work, in addition to using a Tram-Stopper you must also include at least two ATLS Triggers on the track**, one for approach, the other for departure. These triggers need to be set-up, so see the [ATLS Trigger](#) instructions. (See instructions about the optional Signal Guard Trigger for normal Routes there too.)

Other Lights

There are a number of ATLS LIGHT variants, including a double light and some USA style lights, some by 3rd parties. Search 'ATLS' on the DLS. (Make sure the TRS 04 box is ticked!).

Check out the recent huge set of USA style lights made by Trainz user kj3400 on the DLS.

The ATLS TRAFFIC-SLAVE **OUTDATED** – Please use [SLAVE TRIGGER](#)



This Traffic Slave is the asset that receives commands sent out by 'radio link' from the Controller and 'energises' the traffic Stopper. It needs to be set-up and placed on your map in accordance with the Route & Phase choices you have set in its associated Controller.

Setting up the ATLS TRAFFIC-SLAVE

Begin with Route 1 and place the Traffic Slave near to a section of Route 1 roadway where you want the traffic to stop for the lights as cars approach the junction.

Open the Traffic Slave's Properties Dialogue Box and select the same Channel for this junction that you chose when you set up the CONTROLLER by pressing the large '+' box.

Now you need to allocate 'Route 1' to the Traffic Slave using the smaller '+' & '-' boxes. The Slave is now ready to be connected to a '[Traffic Stopper](#)' via a short piece of any invisible rail track in Surveyor. Then do the same for Route 2/3 etc.. Don't forget to set the correct Channel number each time.

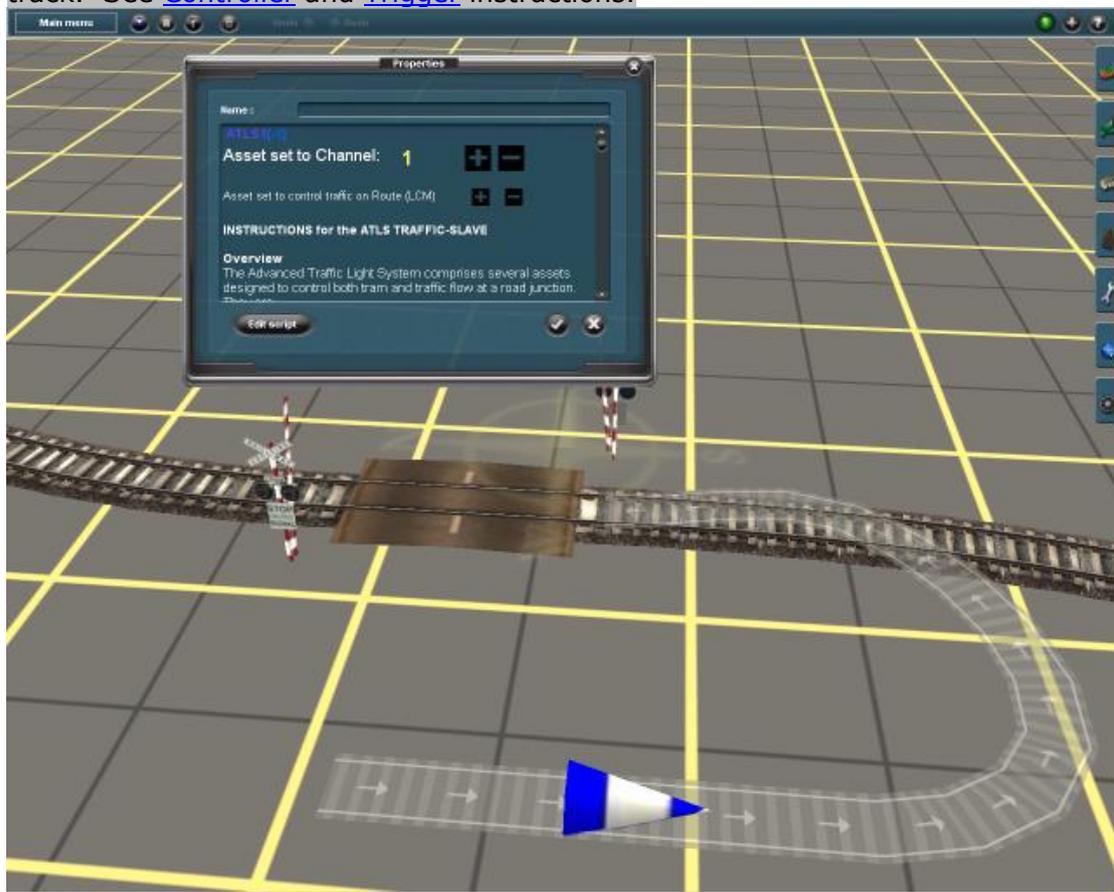


Level Crossing Mode, (LCM) **OUTDATED – SEE NEW LCM TUTORIAL**

Some people used the original ATLS to control level crossings, allowing crossings to open far in advance of approaching trains. In version 1 however, it was rather fiddly and probably involved waiting for phases to finish. The current ATLS has a setting called Level Crossing Mode or LCM, specifically designed for this purpose. In conjunction with the V2 [Controller](#) and V2 [Trigger](#) it opens the way for new assets to be designed for more versatile level crossings. With some preparation it will also control existing assets.

To use with an existing level crossing, connect a [Traffic Slave](#) to your chosen crossing via a section of invisible track. Overlay the original train track as shown in the 'Controlled Level Crossing Tutorial' at www.boatztrainz.co.uk. The level crossing will now operate when the Traffic Slave activates it, not when a train approaches it.

To set the Slave to Level Crossing Mode, after setting the Channel to the one you have allocated for that crossing, select Route '-1'. Note – in order for the Slave to receive the correct radio signals, you must also have allocated a [Controller](#) to the same channel and set that to LCM, AND added appropriate Triggers to the track. See [Controller](#) and [Trigger](#) instructions.

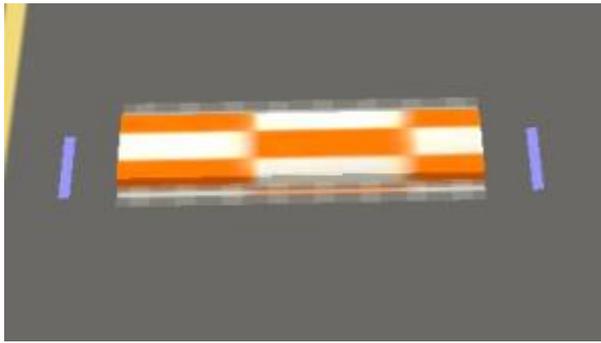


In addition you may also set a timed delay in seconds, before the Slave will clear, (after receiving instruction from the Controller). This is useful for example if you have a slow barrier that takes time to rise. By adding some extra seconds, the animation will have time to complete before the Slave releases traffic across.

Important Technical Note

The Slave contains an invisible train which should have been downloaded automatically. Derailments of this train may occur after game-save restores IF you have the wrong version of the invisible train installed. For the latest version of the Slave, the invisible train must be kuid2:76656:1158:2. If you are using the latest TRS 2004 version of the Slave then the invisible train must be kuid:76656:1158. If your version of the invisible train is kuid2:76656:1158:1 then you should download the latest invisible train AND Slave from the DLS!

The ATLS TRAFFIC-STOPPER



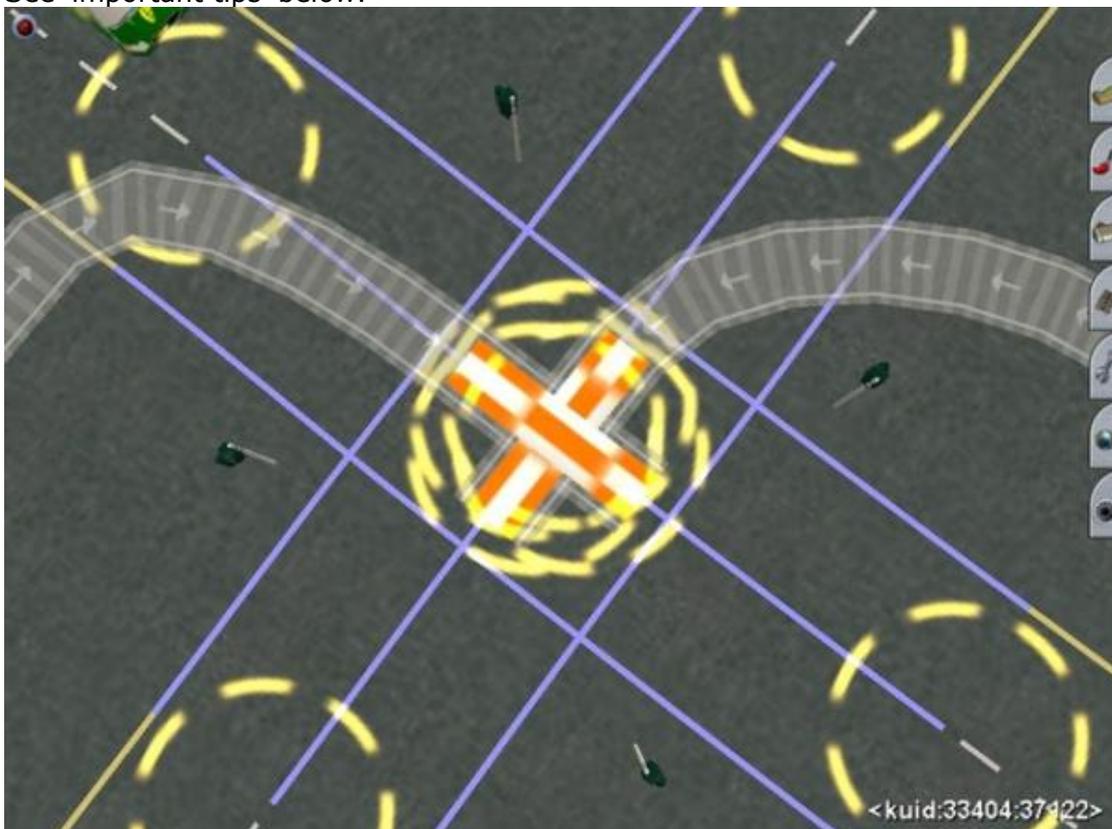
This 'Traffic Stopper' is the asset that actually stops the traffic after being 'energised' by the Traffic-Slave. It does not require any set-up as it takes its instruction directly from the Traffic-Slave connected to it. It is in effect an invisible level crossing. Its correct placement is critical.

Placing the ATLS TRAFFIC-STOPPER

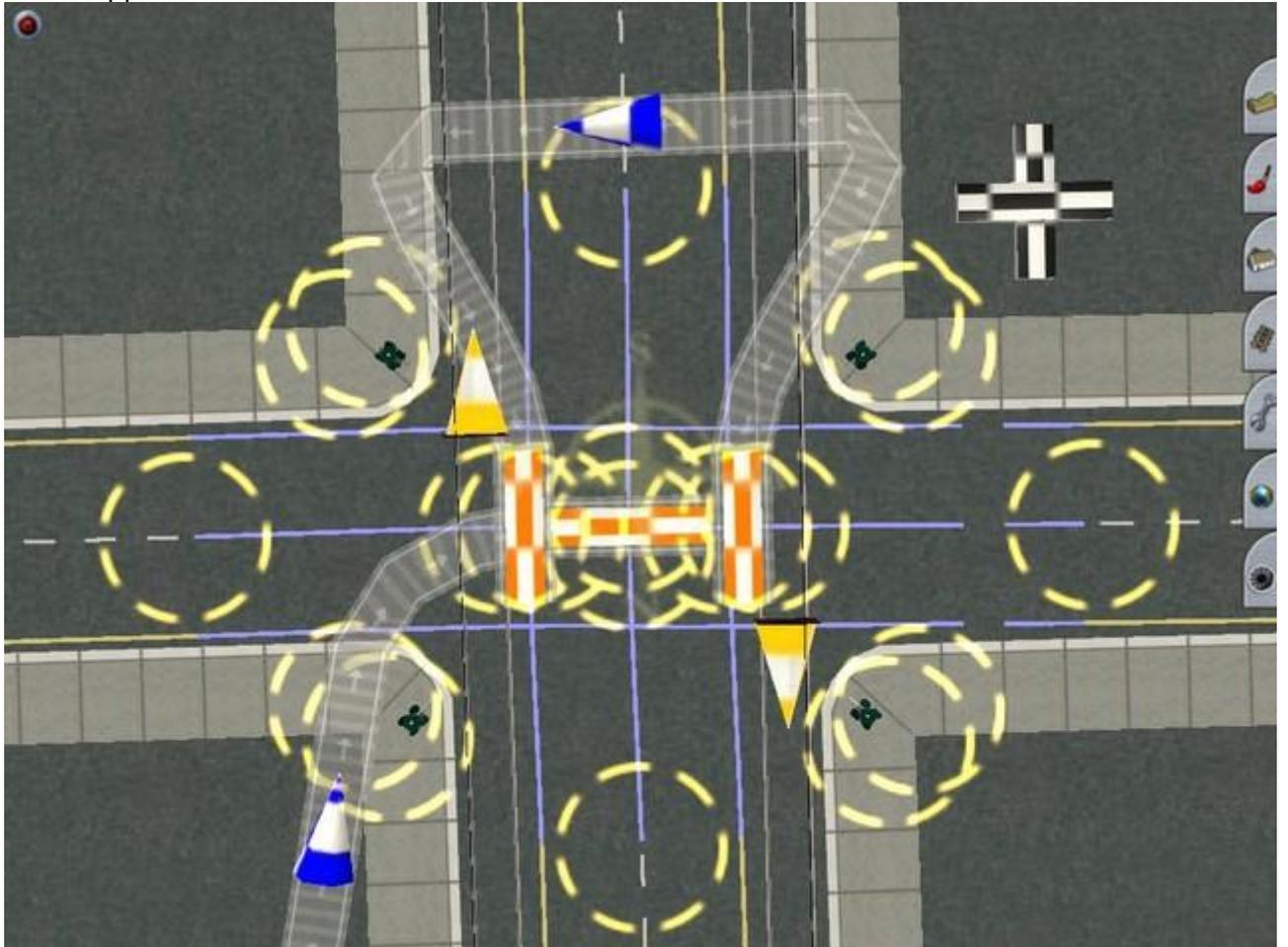
Begin with a section of road you have designated Route 1. Break the roadway just beyond where you want the traffic to stop for the lights and cut in the Traffic Stopper, just as you would a level crossing. Connect a short piece of any invisible rail track from the Traffic-Slave that you have designated Route 1 and attach it to either end of the Traffic-Stopper rail section. Then do the same for Route 2/3 etc..

Examples

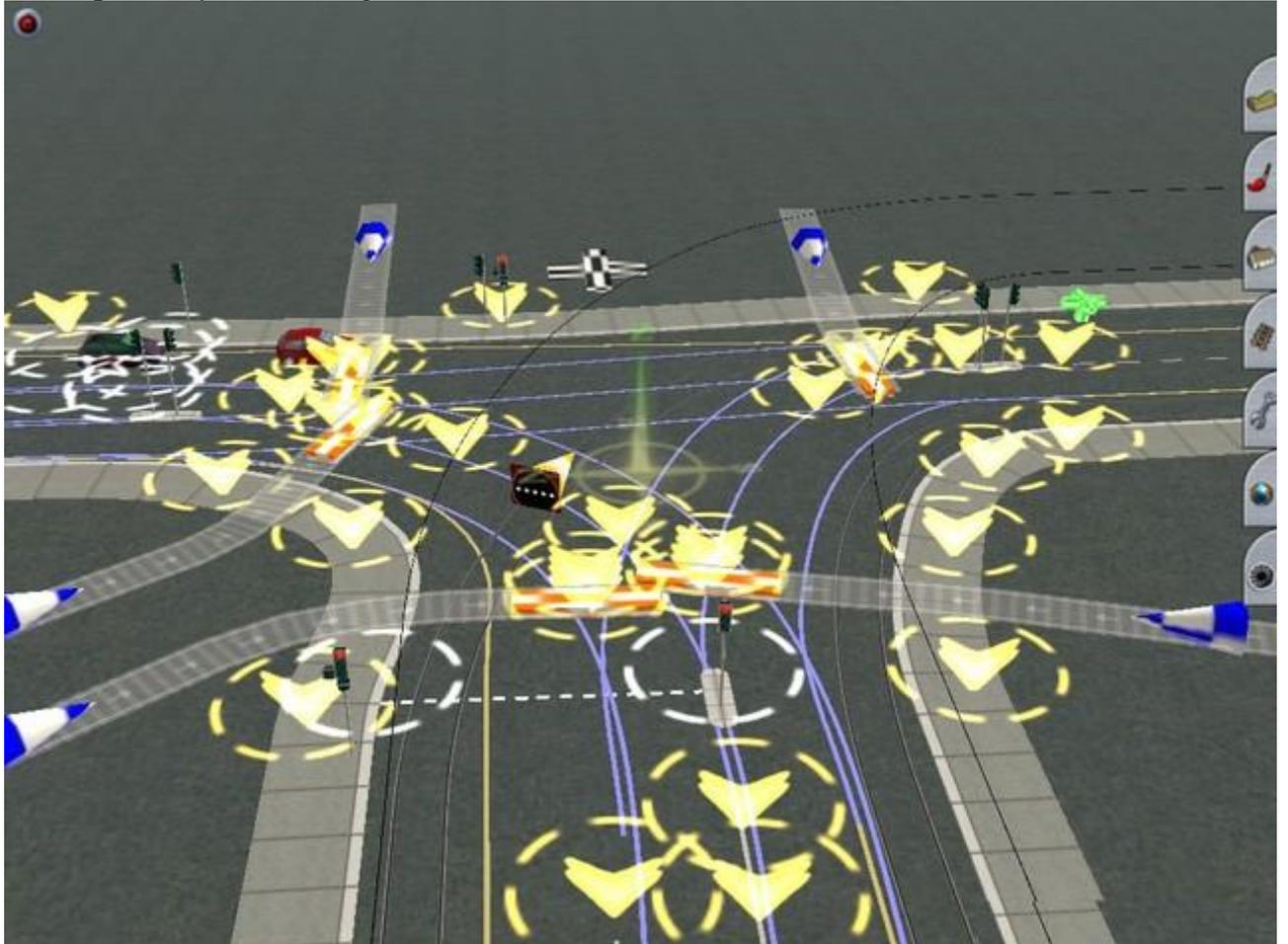
In the simple crossroads example, you can get away with just two Traffic Stoppers for the whole junction. Place them in the middle at right angles to each other, one for each direction, (Route) and traffic should stop in the correct place. See 'important tips' below.



This next example has a tram track on one axis which makes the road wider, so just placing one Traffic-Stopper will mean the cars stop too close to the tram lines. To make them stop further out, place two Stoppers, both controlled from the same Slave. Route 2 which does not have parallel tram lines here, only needs one Stopper.



In this 3rd example, you just need to place the stoppers in line with each Route. It can get complicated but just be methodical.

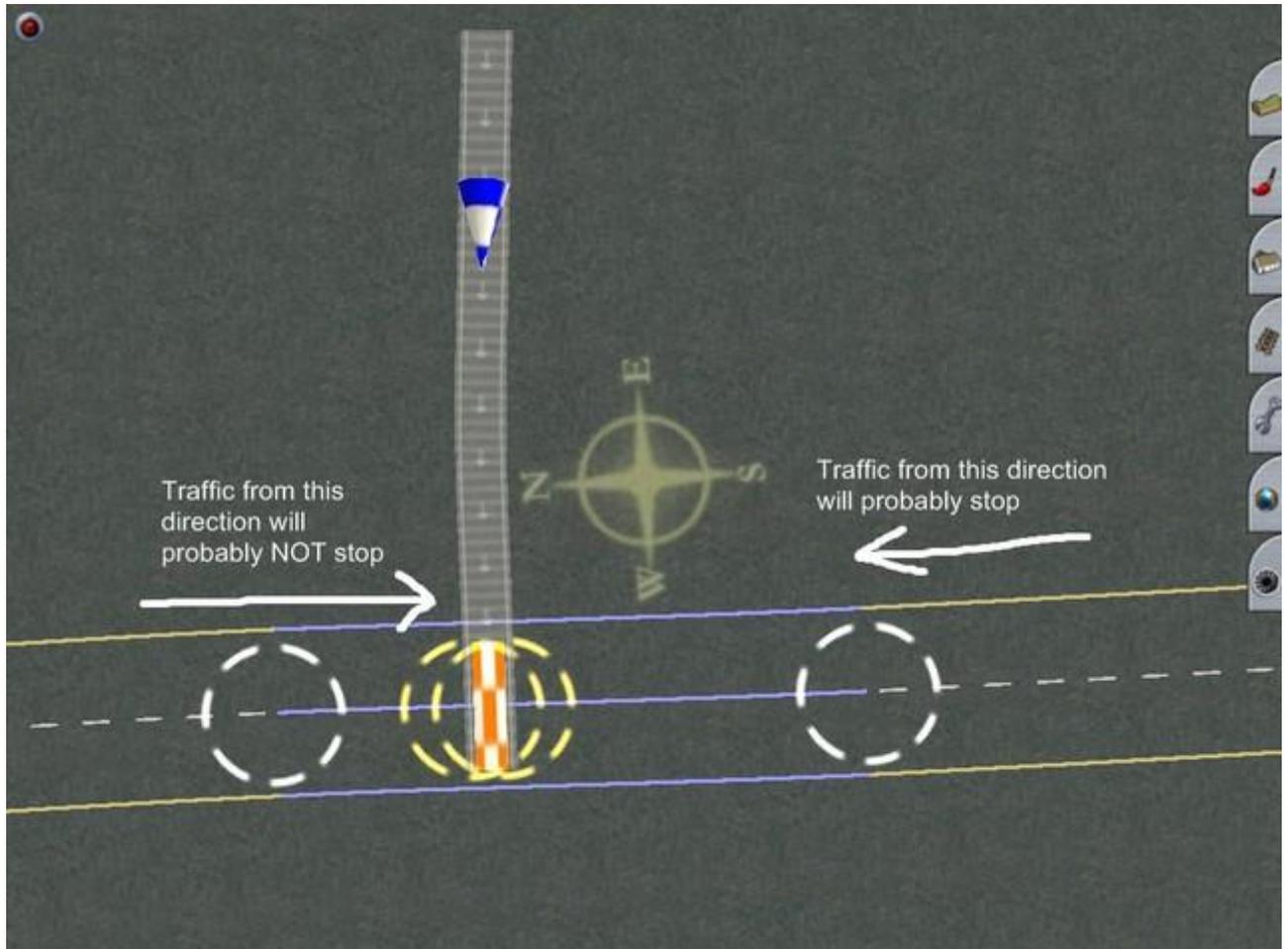


Important Tips

Consider using invisible roads for the centre of the junctions. It looks better than the middle dotted lines crossing over. The Stopper will adopt the road that you attach to it.

Remember that traffic will not stop if a spline point is too close to the Stopper. (This is just a Trainz-ism for any level crossing). If traffic won't stop where you expect it to, you may have a spline point too close. Move it further away by trial and error.

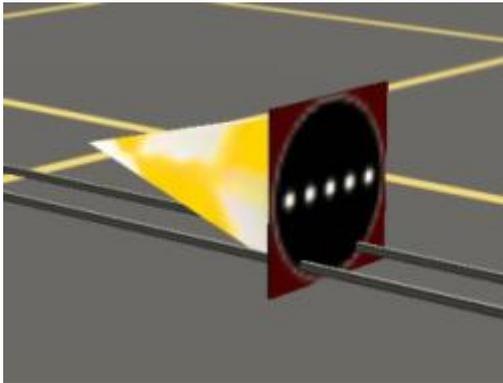
You can use the 'not-stopping' phenomenon to your advantage. When constructing your junctions it may be that you place a Stopper in a road but you only want one direction of traffic to stop. This can be done by adjusting the distance of the nearest spline point as indicated below. As I said before, the critical point is found by trial and error.



Note – The critical point is MUCH closer in TS12!

THIS DOES NOT WORK IN TANE AND BEYOND. There are now many longer Traffic Stoppers on the DLS which will straddle a junction. Search 'Stopper'.

The ATLS TRAM-STOPPER



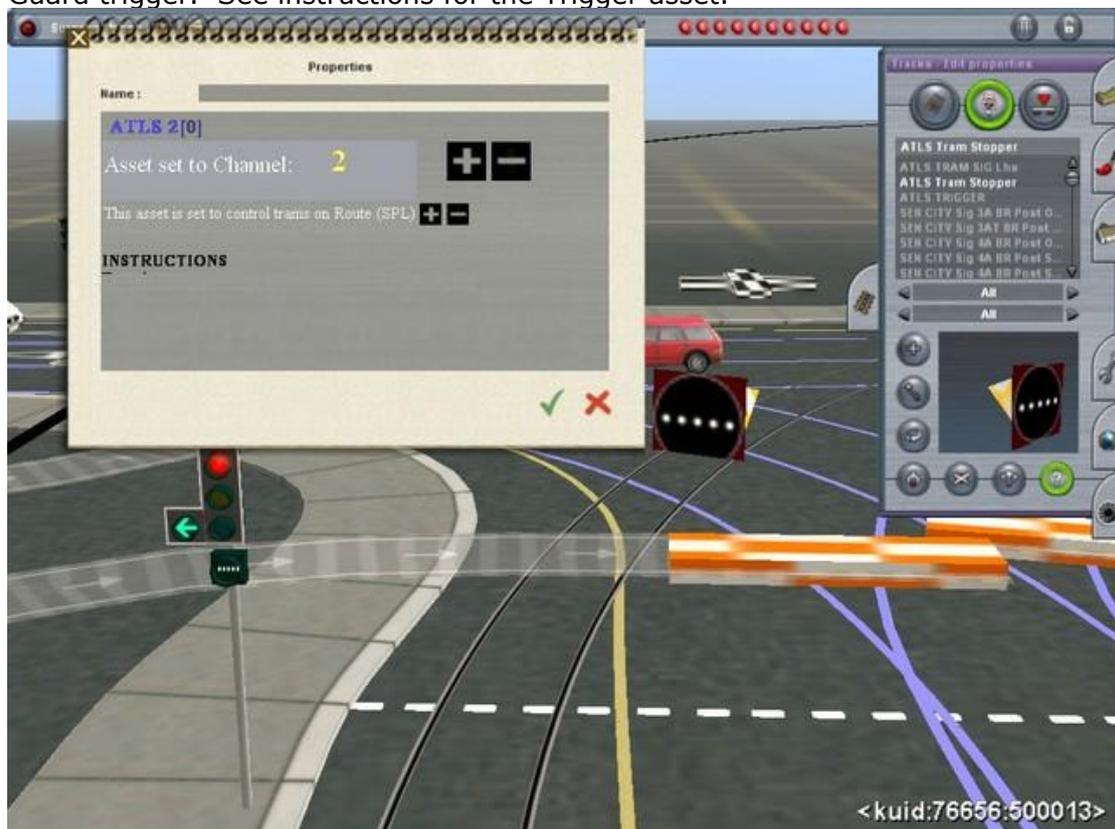
This 'Tram Stopper' does the job of both the Traffic Slave and the Traffic-Stopper, only for trams. It is basically a specialized invisible signal which receives commands sent out by 'radio link' from the Controller to control tram traffic at an ATLS junction. **It is required if you are using the tram signal indicator on the ATLS Traffic Light asset.** A Tram stopper is not required if you are using a Stand Alone Tram Signal.

Setting up the ATLS TRAM-STOPPER

Place the Tram-Stopper on the track just beyond the traffic light that you want the tram to stop at.

Open the Tram-Stopper's Properties Dialogue Box and select the same Channel for this junction that you chose when you set up the CONTROLLER by pressing the large '+' box.

Now you need to allocate whatever Route you have decided to use for the tram to the Tram-Stopper using the smaller '+' & '-' boxes. **If you are using 'Route (SPL)' then you will also need to place 2 Tram triggers on the track.** If you are using a normal Route (1 to 20), you may also wish to place an optional Signal Guard trigger. See instructions for the Trigger asset.



The ATLS STAND-ALONE TRAM-SIGNAL



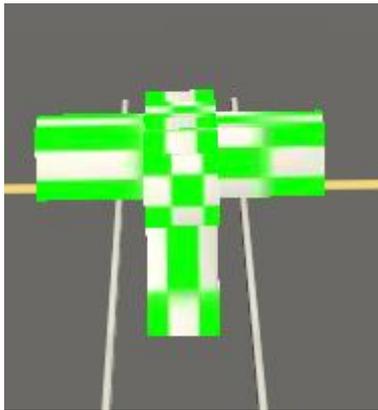
This 'Stand Alone Signal' is basically a specialized signal which receives commands sent out by 'radio link' from the Controller to control tram traffic at an ATLS junction. If switched to (OFF) it will act like a standard Trainz '2 aspect' signal. It is intended to be used in an ATLS junction where the traffic light tram-head is not appropriate. **A Tram stopper is not required if you are using a Stand Alone Tram Signal.**

Setting up the ATLS TRAM-SIGNAL

Place the Signal on the track where you want the tram to stop. Open the signal's Properties Dialogue Box and select the same Channel for this junction that you chose when you set up the CONTROLLER by pressing the large '+' box. Now you need to allocate whatever Route you have decided to use for the tram to the Signal using the smaller '+' & '-' boxes. **If you are using 'Route (SPL)' you will also need to place 2 Tram triggers on the track.** If you are using a normal Route (1 to 20), you may also wish to place an optional Signal Guard trigger. See instructions for the Trigger asset.



The ATLS TRIGGER



This Trigger, sometimes called a 'Tram Trigger', is a specialized version of the green Auran Trigger. It (probably) does everything that does, plus it sends out a message by 'radio link' to the ATLS Controller to tell it that a tram has arrived.

In an ATLS set up, the Trigger has two uses.

Its Primary use is to monitor trams approaching on Route (SPL).

A Tram Trigger is ESSENTIAL if you have set a tram route to (SPL).

Its Secondary use is to act as a ['Signal Guard'](#). This is optional but it is recommended as it reduces the possibility of Trams running red lights.

PRIMARY USE –

Route (SPL) – Special.

Route (SPL) was created so that trams do not have to wait at traffic junctions. As soon as a tram arrives it will call for all traffic to be stopped and to be given clearance to go. At worst it will have to wait for the current traffic light phase to end, at best it won't need to stop at all. **For Version 2 SPL mode can also be used to control Level Crossings, LCM Mode!** (For more dedicated information on LCM see the LCM Tutorial at www.boatztrainz.co.uk)

Trigger Placement – (Primary)

There are 3 ways to place Triggers for Primary use. All 3 Methods will result in control of either trams at a junction, (SPL mode) or if selected in the Controller and Slave, Level Crossing Mode. Trigger placement is the same for both uses.

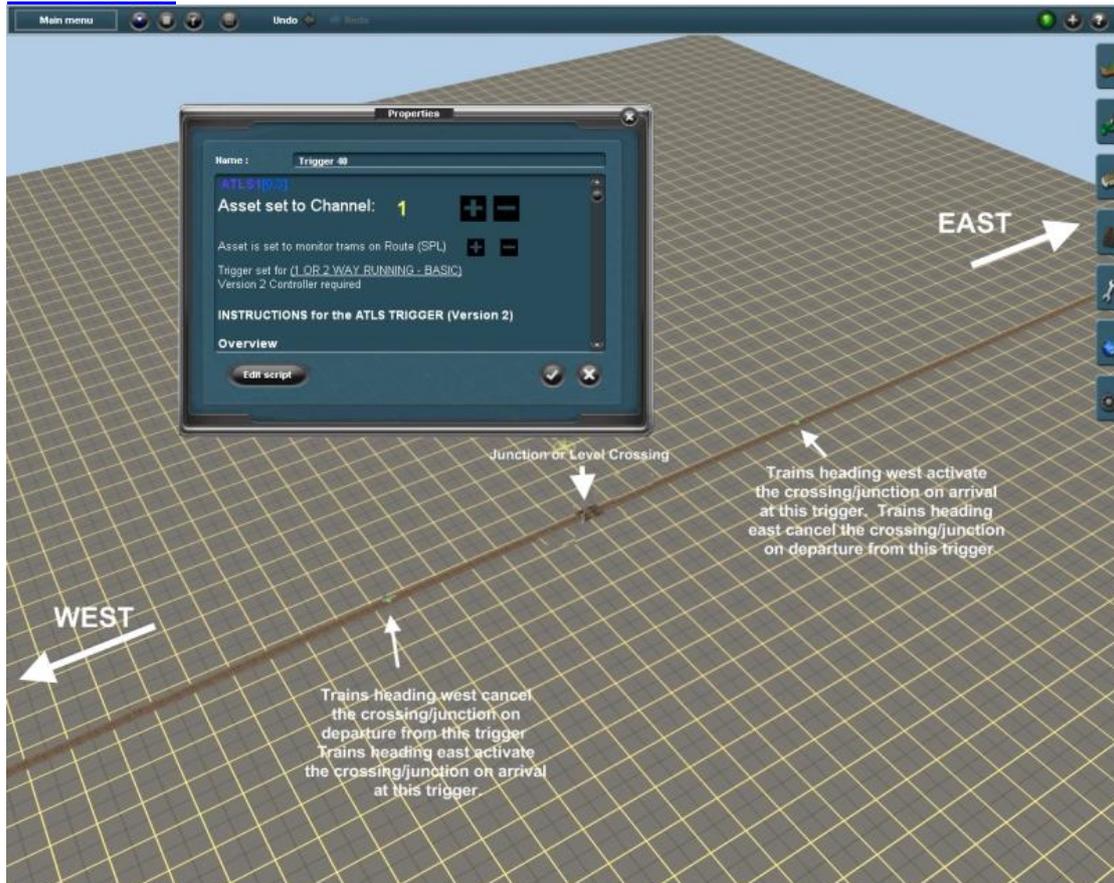
Method 1 – (Obsolete Version 1 method. – Not recommended)

TWO triggers are required per Route. Place one Trigger on the track so trams will pass it just before the junction. Then place another Trigger that trams will pass just after the junction. The earlier you place the 'arrival trigger' the sooner the Controller will start to give priority. The radius of the Trigger can be set in the normal Surveyor way. Open each trigger's Properties Dialogue Box in turn and select the same Channel for this junction that you chose when you set up the CONTROLLER by pressing the large '+' box.

Now make sure the Route is set to (SPL). It's the default so it should already be but if not, select it. (SPL is between (OFF) and Route 1). Now you just need to set whether the Trigger is monitoring the tram 'Arriving' or 'Leaving'. This obviously depends on the direction your tram will be taking and which Trigger you are setting up. Select accordingly and that's it.

Method 2 – (1 or 2 Way Running - Basic)

TWO triggers are required per Route. This is the new default method which allows for train or trams to approach in either direction. As in Method 1, SPL is the default route setting. Just place 2 triggers *per track*, one either side of the crossing/junction at the point where you want the tram/train to trigger events, make sure its set to SPL and set it's Channel to the one chosen for this crossing/junction. **There is no need to do anything else.** The arriving and leaving function is now automatic. The tram/train coming from afar will hit the first trigger, (whichever side of the crossing it is) and trigger the event. When it leaves the trigger on the opposite side of the crossing/junction it will cancel events. **This is all computed by the Controller on the same channel. Just place the triggers and set the Channel – Trigger Job done. [See Limitations!](#)**

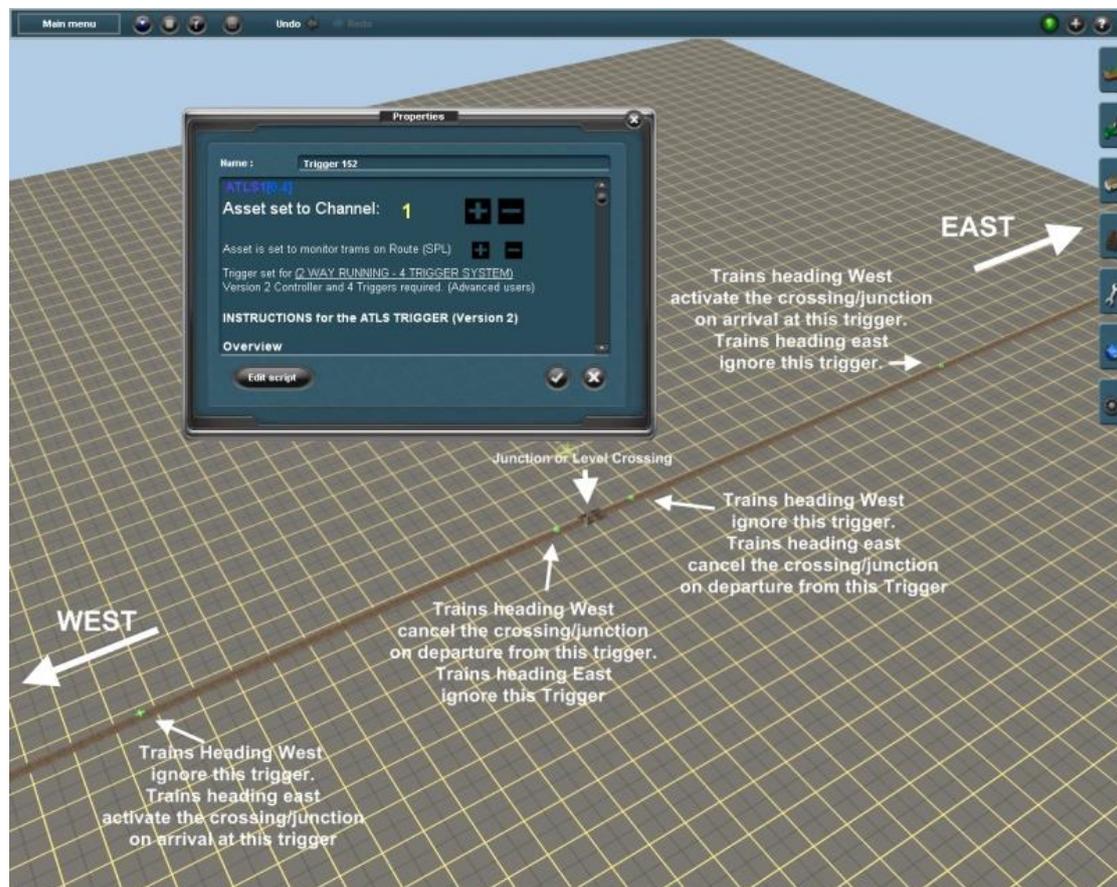


Method 3 – (2 Way Running – 4 Trigger System)

FOUR triggers are required per Route. This is an **alternative** way of doing things, only an advantage if you *are* running trains or trams in both directions on the same track. If trains only ever run in one direction per track, just use the BASIC version above or even the old 'Arriving/Leaving' system. The reason for 4 Triggers is that if you *are* running trains in both directions, you probably want the crossing event to trigger a long way before the junction.... but you will want the crossing to re-set quickly after the train has gone. If you only have 2 triggers that can't be done, with 4 it can!

First, place 2 triggers *per track* a long way, either side of the crossing where you want the train to **ACTIVATE** the crossing. Then place another 2 triggers *per track*, again either side of, but *near* to the crossing where you want the event to cancel as the train leaves. **Set the Trigger to '4 Trigger System'**, then as before just set the Channel to the correct one for this crossing, make sure it's on SPL and all will happen automatically, taken care of by the associated Controller.

[\(See Limitations\)](#)



Limitations

- 1) There is only one Route (SPL) on each channel.
- 2) **Method 1** - If you decide to use the old 'Arriving/Leaving' system, (Method 1), then the rail track can only have trams running on it from a single direction. i.e., Two Way Running on the same track is not possible.
- 3) **Method 2 or 3** - If you use Method 2 or Method 3 then Two Way Running is OK.... BUT be careful how you place trains/trams when you build your map or save a session. See 4 & 5 below.
- 4) **THERE MUST NOT BE ANY TRAINS PLACED IN-BETWEEN TRIGGERS AT THE START OF A SESSION.** Ensure all trains approach a crossing/junction from afar when the session begins or the Triggers will have an identity crisis. They won't know whether the train is coming or going - literally! (See Corrector Trigger later).
- 5) **This will also be an issue if you 'save' a session** as you cannot start with trains inside triggers. If you save sessions a lot, it may be better to stay with the old, Arriving and Leaving Trigger system as that will cope with trains/trams starting midway.... but it won't be bi-directional!
- 6) **Don't mix and match Triggers on the same Channel until you fully understand the system.** If you do, only mix and match Method 2 with Method 3. For these Methods, your train route should always cross 4 Triggers per Channel. M2 Triggers represent a factor of '2'. M3 Triggers represent a factor of '1'. Add them up and make 4! ATLS Driver Commands may be used **instead** of Triggers but always make the combination add up to '4'!
- 7) **The system is NOT designed to run a train to the crossing or junction, then stop it and reverse it!** Once a tram or train hits the first Trigger it must complete the journey through the crossing, passing both Triggers (or all 4 if you're using the 4 Trigger System). Failing to complete the sequence in order will cause unpredictable results, particularly with bi-directional methods. It's permissible to have a turnout but extra Triggers must be placed so the train can complete the correct sequence whatever path it takes.

SECONDARY USE – 'Signal Guard'

Routes 1 to 20

If a Tram-Stopper or Tram-Signal is set to a normal Route number then an approaching tram will take its turn with the rest of the traffic to cross the junction (and probably obey the traffic lights along with the rest of the traffic travelling in the same direction or Route). The problem is, if the signal turns to 'stop' just as the tram arrives at speed, the tram may either stop in the middle of the junction or run the red light. This will cause the usual re-set in Trainz AI Autopilot. To avoid, (or at least reduce) this you can place a Trigger in 'Signal Guard' mode. Then, if a tram is very near to the signal when it turns to 'stop', it will ignore it and continue across the junction.

Trigger Placement – (Secondary)

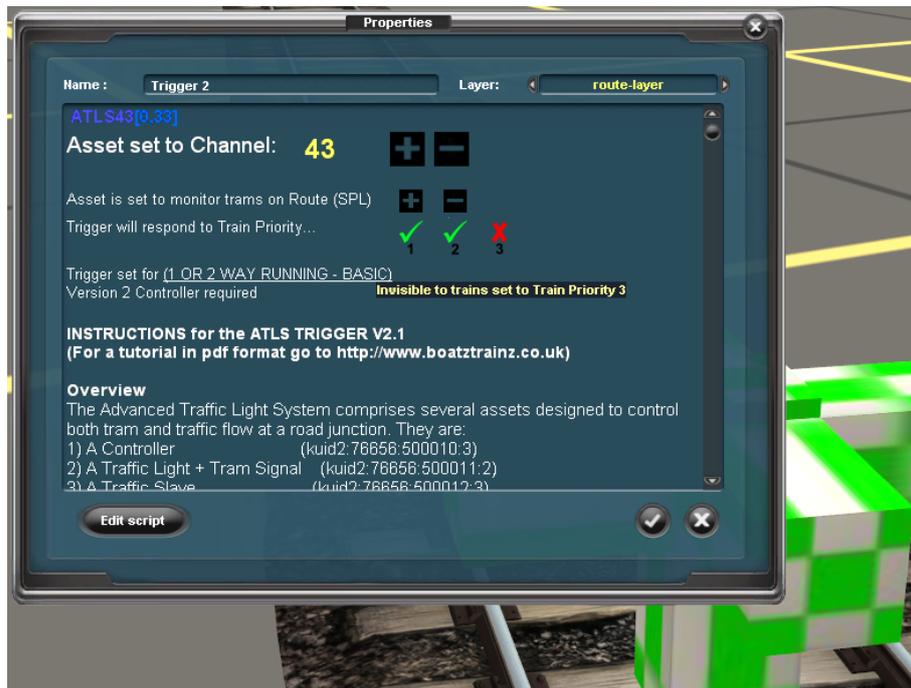
ONE trigger is required per Route. Place the Trigger a little way in front of the Signal or Tram Stopper you want to guard as shown. Note – There are two Routes in this example.



Then, set the Trigger to the same Channel Number and Route Number that the Signal/Tram Stopper you are intending to guard is set to. The Trigger will automatically turn into 'Signal Guard' mode as you select the Route. That's it.

Train Priority Selection

ATLS main Triggers can be set to react to specific trains if Train Priority is set on those trains. See Auran's Trainz Manual for an explanation of 'Train Priority'. Just click on the arrows to set your choices. If in doubt, leave all 3 ticked.



CORRECTOR TRIGGER



This optional asset should only be placed if using ATLS in LCM mode or with trams using SPL mode.

As previously mentioned, you should normally ensure that no trains or trams are in-between Triggers at Session start-up because trains/trams hitting Triggers in the wrong order will get stuck. This does not apply however if you use this ATLS Corrector trigger!

Beware though that the Corrector may not be 100% effective. There could still be some occasional Start-Up positions where it will not work.

Also as the Corrector is a method for clearing-out stuck trains/trams, these first ones could run through a level crossing or jump traffic lights at Start-Up. After that, ATLS should begin to work correctly.

For details on optimal Corrector Placement, see the plans below.

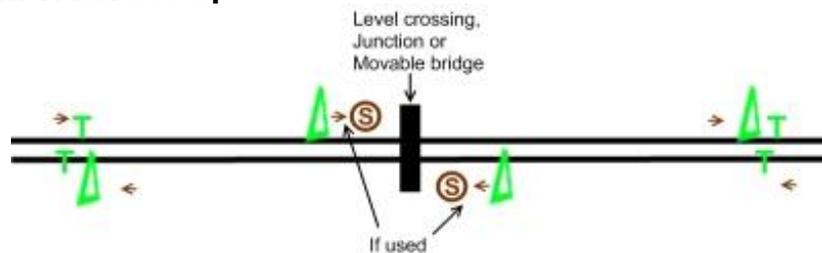
Setting Up the Corrector

The only set-up needed for the ATLS Corrector is to set the Channel to the one allocated for this junction/crossing by the Controller.

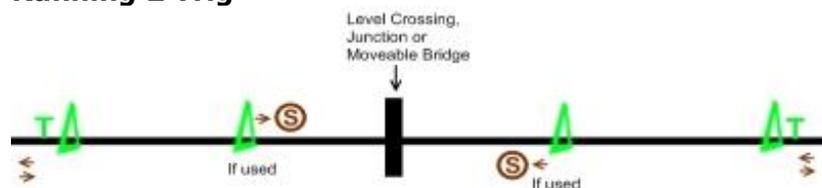
Placing the Corrector for best results

A Corrector should be placed on each track, just before the 'downstream' ATLS Trigger. If you are using an ATLS controlled signal (for example to protect a level crossing) or an ATLS controlled Tram Stopper, then a second Corrector will be needed in front of that signal too. Note - do NOT use the obsolete Arriving/Leaving method for ATLS triggers!

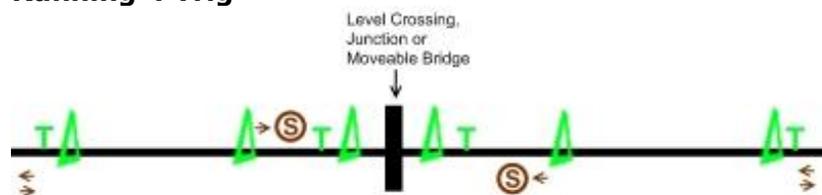
Basic Twin Track Set-Up



Two Way Running 2 Trig



Two Way Running 4 Trig



ATLS DRIVER COMMANDS. (Advanced users)

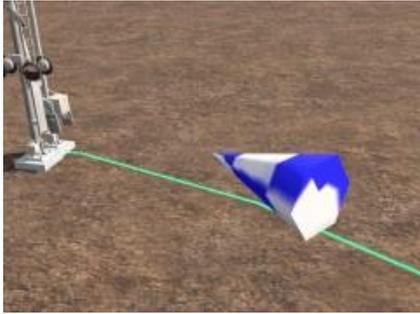
In some cases you may wish to 'trigger' the Controller at a specific *time* in your Session which may be different to the time a train actually arrives. For this reason ATLS Driver Commands are available in the three Trigger Methods. These may be inserted into your train's Driver Command List and used INSTEAD of a similar Trigger. If you use a Driver Command then you must count it as a Trigger when adding up to '4', if necessary removing an already placed Trigger from your map. (Note, from V2.1, you can make Triggers invisible to trains of different Priorities if you wish. This may help!).

NEW - ATLS Re-Set Command. Re-sets the ATLS if things go wrong. Add to any Driver Schedule to activate. Kuid2:76656:80000:1.

ATLS INVERSE SLAVE

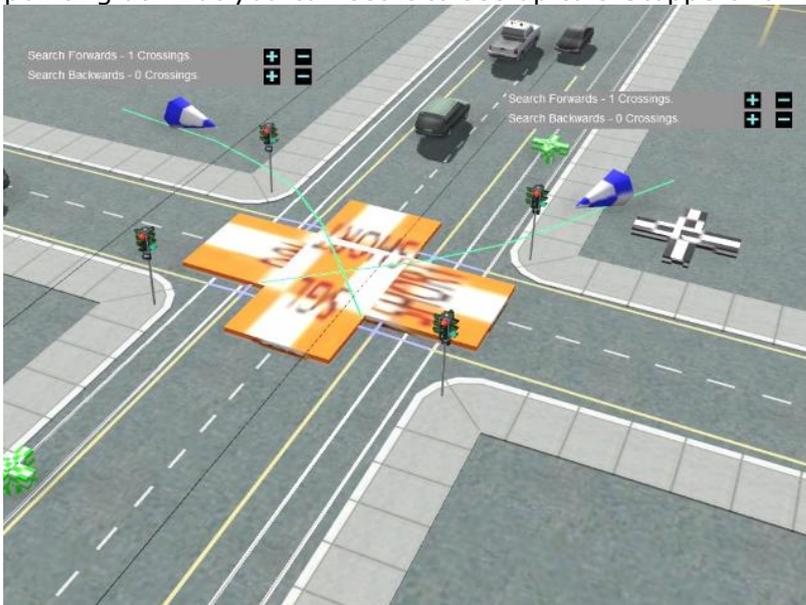
An ATLS Inverse Slave now exists that is 'on' when the normal Slave is 'off'. This is at the request of advanced users. I think it's safe to say that if you don't know how or where to use this, you probably won't want to. But if you should suddenly realise a need, its KUID is kuid2:76656:500019:4. Use with caution!

ATLS SLAVE TRIGGER – NEW!



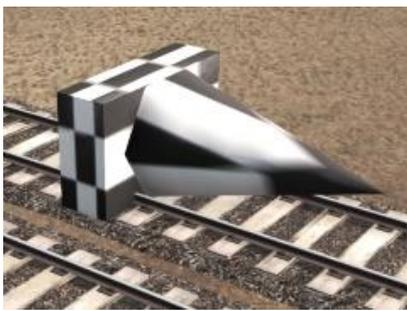
This asset is the recommended replacement for the ATLS Traffic Slave, ([page 10](#)). It aims to be future proof as it does not use an invisible train. Be aware though that there are currently a few crossings which do not respond correctly, e.g: Bloodnok's UK Crossings will not work and BNSF50's complete crossings may not respond correctly. His separate NRC barriers/lights etc work OK with some slight issues. Use this asset if you can!

Set up is similar to the old Traffic Slave. The main difference is that you will need to provide a section of invisible track to put it on. By default the Slave Trigger will 'read' the first Stopper or Crossing it is pointing at. But you can set it to see up to 3 Stoppers forwards and backwards.



The new Slave defaults to LCM but you can select any 'Route'. After downloading, you will find it in Tracks/trackside in Surveyor.

ATLS CONTROLLER/SLAVE



This asset is a Controller and Slave combined but only works in Level Crossing Mode. See the LCM Tutorial for details.

SAVING TO THE MAP/ROUTE (if required)

All the settings you make in the ATLS will be saved to a Soup, so if you are running a Session that's all you need to do. In most cases you may re-name an asset to your choice and it will have no impact on its working, settings still being saved to a Soup. However, if you are saving purely for identification purposes, then you must avoid using the Control Characters. These characters are [] ().

If you want to save the settings you have made to a map (Route) in addition to the Session, then this may be done by saving the name of the asset as follows, *using* those Control Characters.

Open the Properties Dialogue Box of the ATLS asset you want to save and set it up as required. Then, look in the top left corner and you will see something like 'ATLS1[65,E,O]'.

This is an encoded representation of all the settings you have made to the asset. If you save the *name* of this asset EXACTLY as shown, the settings will be retained and recovered when you re-load the map, (route). They will also work in an old fashioned Scenario!

It's important to keep the format exactly, including the square brackets and commas or it will either just not work, or may cause errors.

On occasions you may encounter the '*That Name Is Already In Use*' message. If you do, don't save it but add '(A)' to the name you are saving. So you will save: 'ATLS 1[65,E,O](A)'. Use the letter (B), (C) etc., for subsequent clashes. The brackets are important.

If you want to change the 'saved name' or delete it, its always best to save the map and re-load afterwards. Otherwise errors may occur.

Remember, ATLS assets MUST have a 'name' of some sort!

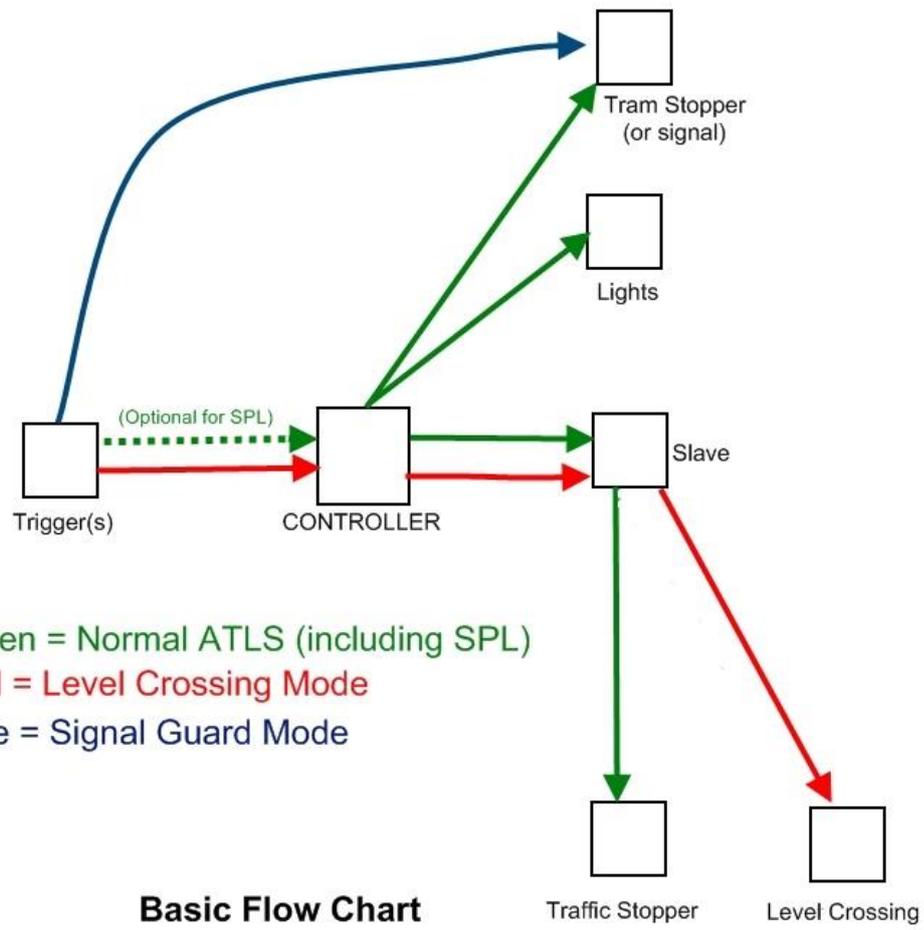
(Special warning for the Controller asset. The generated name in this asset will get very long if you have lots of Routes and Phases. Note also that the Phase Timing durations are 'rounded' when saving to a map.)

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Basic Flow Chart