

AJS TUNNEL KIT

These are non standard tunnels which can be set out at any angle to the baseboard grid and have no restrictions on the placement of spline points. It is therefore possible to use them in a more prototypical manner than is possible with the default tunnels.

As a bonus the kit includes components which allow the formation of junctions in the tunnels themselves. Meshes for associated underground stations have been prepared and will be released, all being well, following the release of SP2.

The kit contains four different single and double track tunnel profiles together with associated portals walls and utilities. Track spacing follows UK standards.

The principal drawbacks are that holes in the baseboard grid must be formed and masked manually (components to help with this are included) and that automatic camera switching is not included at present.

The components have been prepared and tested using TRS 2004. If you find any errors or omissions please let me know and I will attempt to correct. Suggestions for additions and improvements will be welcome.



If there are alterations which can be made to make the components comply with standards for previous versions I will try to do that but I would need a full technical explanation as I don't have access to earlier versions of the software.



If you have downloaded either of the beta versions of this pack I would recommend that you delete all of the components. I am new to Trainz and the test versions failed to follow many of the conventions related to organisation of kuid numbers and so on. I cannot guarantee that there will not be kuid or username duplication if you retain the previous versions. If this gives rise to any confusion please accept my apologies.



SURVEYOR GEOMETRY

There are four basic types of tunnel component: The kit has been uploaded to the DLS under kuid 122285.

'Bridge' Tunnels

These are tunnel sections defined as bridges. A 'bridge' tunnel can connect to another 'bridge' if both have the same track spacing but cannot connect to anything else. If you connect one 'bridge' to another the start and end segments of both will be deleted. To preserve the



initiators and terminators you need to connect 'bridge' tunnel components using sections of 'track' tunnel.

'Track' Tunnels

These are sections of track which have tunnel walls and roofs built into the model. Type D and type M 'track' tunnels contain the entire tunnel profile but only one set of rails. You will need to complete the connection using ordinary track components.

'Junction Tunnels'

These are 'track' tunnels with a roof and floor but with only one wall. You use them to form the outer walls of junction halls. The 'Type D & S Junction' will connect with all of the other tunnel profiles whereas the other junctions may leave gaps when connecting between dis-similar profiles.



'Continuation Tunnels'

These are the same as junctions but with both walls omitted. Use them to form multi track tunnels of unlimited width. There is a separate column spline to hold the roof up.

COMPONENTS

All of the components are sorted under region = AJS, type = Tunnel Kit. The property page and sub page for each is listed below.



Tunnel Type S - F4/Tracks

Single track tunnel, flat floor and roof, vertical sides.

Tunnel Type D - F4/Tracks

Double track tunnel, flat floor and roof, vertical sides.

Tunnel Type M - F4/Tracks

Typical UK main line double track tunnel. This is the same section used in my Severn Tunnel (kuid 122285 2050 which has been uploaded separately) and these components can be interchanged.



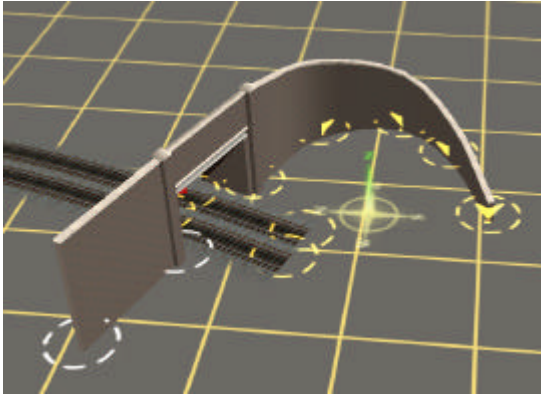
Tunnel Type D - F4/Tracks

5 metre diameter tube tunnel, single track. This is not the tube tunnel used by the London Underground (which has varying diameters of less than 4 metres) but it will fit typical mainline UK stock.

Track - F4/Tracks

Single and double track components using the same ballast, sleepers and rails used in the tunnels.

Fixed Track - F4/Tracks

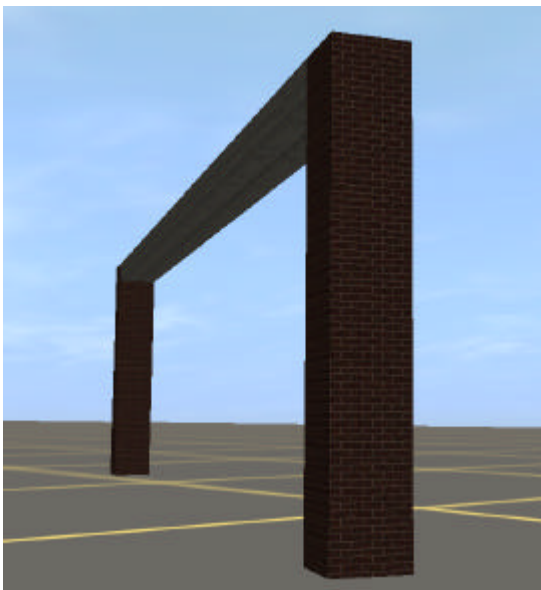


Double track curved and straight fixed track sections which make it easier to produce clean curves and straight track. These tracks will self update when you attach a 'track' type tunnel. It is important to attach the tracks in the correct direction. You can use the Aurant supplied fixed track with single 'track' type tunnels.

Portals - F4/Trackside

Except for the Severn Tunnel portals are trackside objects. You may need to rotate the portal to get the orientation right and moving trackside objects can be a struggle. There is tolerance built into the portal meshes so you do not need to be too precise.

Wing Walls - F3/Splines



Curvable wall splines used to form 'wings' to tunnel portals.

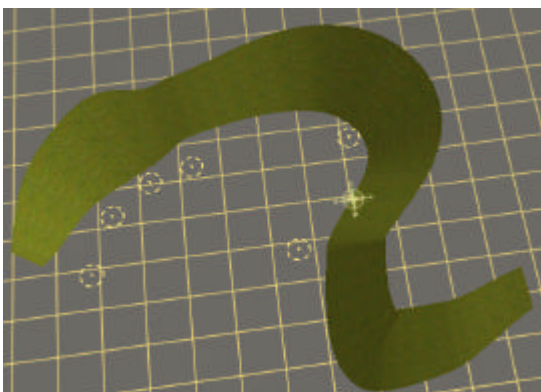
Column Pair F3/Splines

A pair of columns with a variable length of downstand beam to help support wide tunnel chambers. This spline, placed at right angles to the tracks, can also be used to mask spline gaps in type S and type D tunnels resulting from a bug in Trainz or for just creating a little variation in profile. Although a spline this component is not designed to create a continuous run of columns.

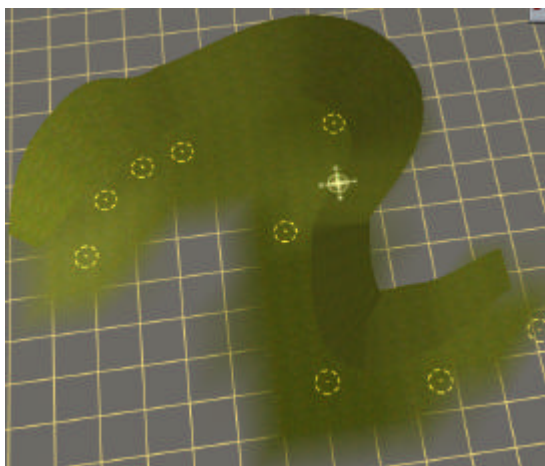
Terrain - F3/Objects

A slightly convex scenery item to mask the holes left by cutting the tunnel entrance in the baseboard. You can use shift + rotate to alter the slope of the component.

Terrain Splines - F3/Splines



A flexible spline providing an alternative method for masking the digholes. There are three alternative slopes supplied. If you use more than one spline segment you can model the sloping versions of these components to mimic rolling hillside.

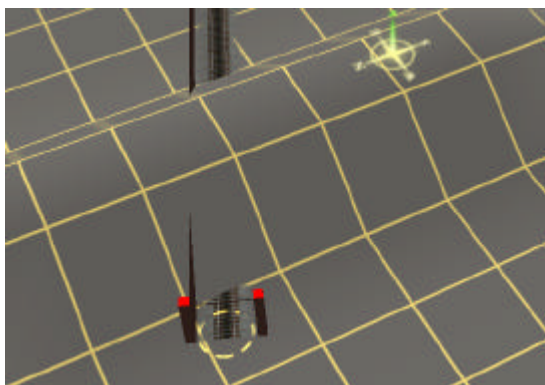


Textures - F2

A range of textures which are based on the same file as that used to texture the terrain components. There is a range of gamma variations which with a degree of trial and error can be used to hide the joins with the baseboard.

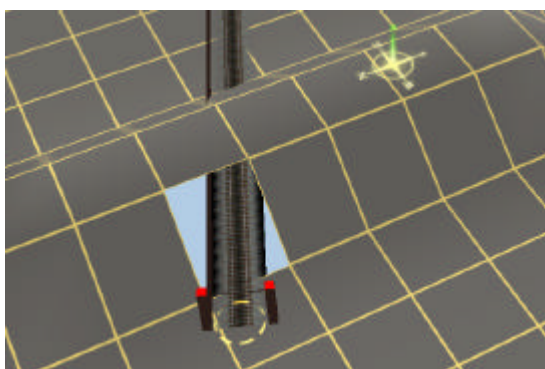
Digihole F3/Objects

A tool to cut a 1 x 1 hole in the baseboard. Digiholes can be manipulated in the normal way by moving or deleting the white cross marker which is placed below ground level in the centre of the hole. Any textures placed on the tile which was removed will be reinstated if the hole is deleted.



Spline Fixes - F4/Trackside

A horrendous and hopefully temporary bodge to fix the gaps in the splines which result from a horrendous bug in Trainz itself. These will be needed at the end of each 'track' segment or junction hall. You will need to insert one each side and you may need to rotate them.



USAGE

Laying Tunnels

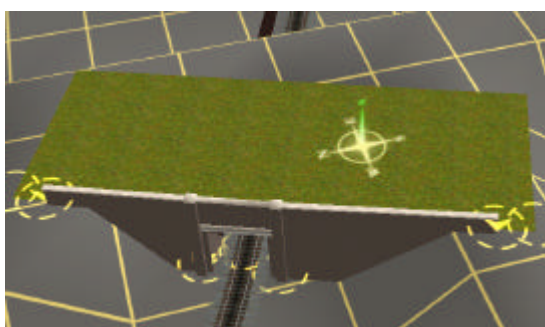
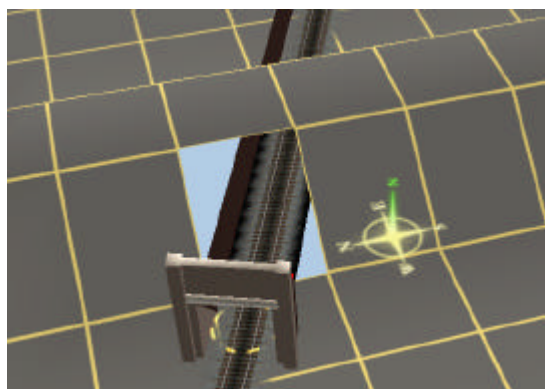
It is easier to lay tunnel components on the baseboard surface and raise the ground above them afterwards.

Creating Digiholes

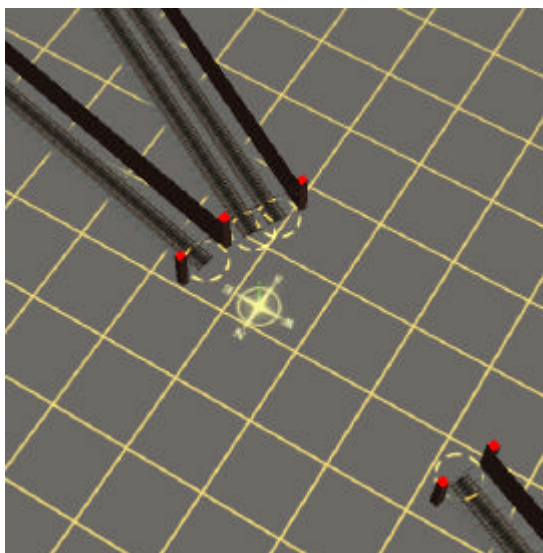
All of the tunnel types will pass through a single digihole if the tunnels are parallel or nearly parallel to the baseboard grid. At different angles more than one digihole may be needed. The best way to insert the digihole is to raise the ground at the back of the tunnel entrance to seven or eight metres higher than the track and to add digiholes until there are no sections of baseboard visible from inside the tunnel. The Alt-Walk command is a useful way of checking this.

Adding Portals

Make sure that the portals are placed as close to the digihole as possible but that no sections of the blue 'underworld' can be seen below the approach tracks. Add wing walls (which must be positioned manually) as required.



Use the various terrain components, roads or buildings to mask the hole in the baseboard from above.



Creating Junctions

Bring the various lines up to the junction position making sure they terminate in 'bridge' components with red location markers. Adjust the final splines so that the red markers overlap.

Join the outer sides of the junction using the appropriate 'junction' track. When you draw the junction the wall will be on the left side relative to the direction of drawing.

Complete the trackwork using ordinary rails.

Cameras

You can place cameras inside the tunnels provided you do so before you raise the ground. You need to make sure that the cameras (which will not be aware that they are underground) do not have a line of sight to trains above ground otherwise they will show long shots of blank brickwork until those trains pass 'out of view'. Trainz appears to be reluctant to place cameras below 0.0 height even if the ground is depressed lower than this.

In driver the chase camera will not be aware that you are entering a tunnel and will continue to follow the train from above ground. The simplest way to fix this is to switch to cab view on entry and to switch back on exit. I am trying to devise a rule which will do this automatically.

Alternatively you can use tracking cameras and make sure that the tunnel is fully covered by static or moving view cameras.

Signals

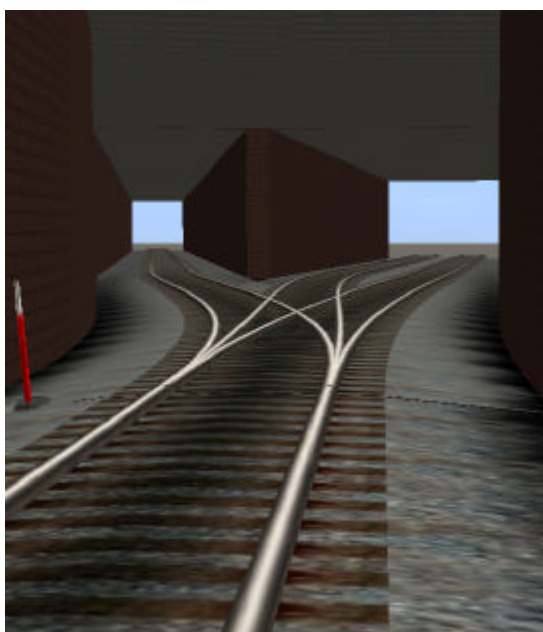
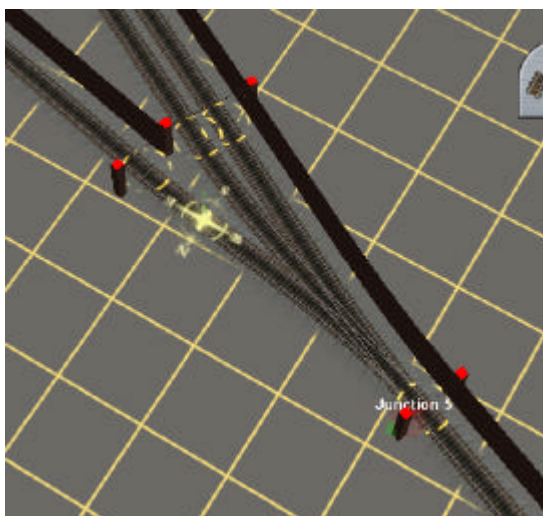
You can use gantry type signals in tunnels S and D. These will appear to be suspended from the roof. There is only one type I have found which will fit inside type M Tunnels (Australia/Default/Dwarf) and nothing fits Type T. If anyone can provide the Gmax source for a three aspect signal I will modify it as a wall mounted variant.

Points

Point levers tend to disappear into the tunnel walls. You can use Third_Party_UK/Default/UK Point Motor instead.

Raising the Ground

Remember to fix the spline heights before you raise the ground over the tunnel roof. You can do this by explicitly setting the splines to a fixed height. They will turn yellow once this has been done. There is also an option in Trainz to use fixed spline heights by default.





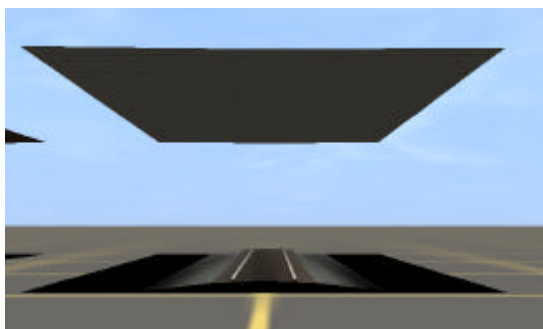
CUSTOMISATION

I have tried to make all of these components as flexible as possible. Some of the changes you might wish to make are described below. In some cases you will need access to the meshes. If you email me with a request I will send the Gmax files.

Track

Track is a modification of originals by Mike10. The main change is the introduction of a raised centre to the rails to avoid texture flashing at junctions.

Choice of replacement track will be governed by several considerations: You will need access to the Gmax meshes. You will not be able to use tracks based on 'chunky meshes' and the transparency of the ballast textures to some tracks will allow you to see through the tunnel floor to the blue underworld.



Track Spacing

Track spacing for double tunnels is UK standard 3.5 metres. The spacing can be amended in the config.txt file for the bridge components. 4 metre spacing will work with all double track components and UK rolling stock but you will need to modify and re-export the gmax meshes for the 'track' components.

Texture Mapping

The various textures used are described below together with hints on how to change them. You will of course need to change every instance of every file which you modify.

ashlar.jpg

Dressed stone used for portals. The coursing is deliberately uneven so it is best to change the face texture only. This texture must be tileable.

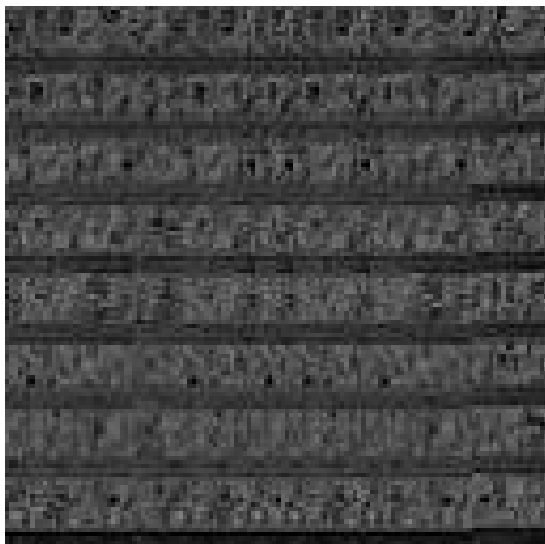
ballast.jpg Track bed.

black.tga Tunnel floor.

brick.jpg

Brickwork for portals. This texture must be tileable and, because of the prominence of portals any obvious pattern will show strongly at middle distances.





grass.bmp

Grass for terrain cover components. The ground textures are derived from this file with progressive 0.10 point variations in gamma to allow compensation for the way Trainz applies light and shade differently to ground textures and scenery items. The colour matching is based on noon light and will go astray earlier or later in the day.

lintel.tga

Colour and shadow simulation for the steel beam over the generic portal entrances. You should probably avoid altering this except for changes in the overall colour.



red.tga

Bridge location markers. These should only be visible in Surveyor.

soffit.jpg

Tunnel roof. There are deliberate variations in the scale of this texture at right angles to the tracks.

stone.jpg

Rough stone used in Severn Tunnel portals. This texture must be tileable and any strong variations will show as a pattern.



tbrick.jpg

Tunnel Brickwork. This texture must be tileable and ANY variation in colour will show up as a repetitive pattern in cab view especially if you turn headlamps on. If this happens it may also generate strobe effects which will make it look as though you are travelling backwards. You can change this to a solid colour if you wish.