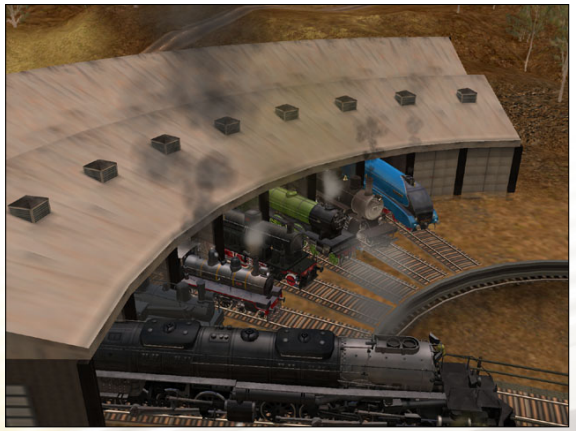
# Contents

# 1 - Introduction

Welcome to the next generation of Railroad Simulation and the fourth in the current Trainz series.

With this, the 2005 Edition of Trainz Railroad Simulator (TRS2006), we have created an open-ended, interactive, living, breathing world that lets you customize the experience to suit your own personal tastes. Whether you want to drive trains, manage the movements of passengers and goods, control industry outputs or create your very own unique railroad route or layouts, TRS2006 is the platform that helps your dreams come true.



The team at Auran wish to thank you for purchasing this evolutionary product and we trust you will not only enjoy what's in the box, but that you will also join the rapidly growing online Trainz community to expand and enhance your experience. Here you are able to download new content for free, share your creations and ideas. Discover more about the world of Trainz at www.railroadsimulator.com.

## 2 - About This Manual

The manual you are reading is designed to show you how to install TRS2006, configure it to suit your PC and then get started with each of the major components.

To gain a deeper understanding of each module and component, and to make the most out of your Trainz experience, there are a number of other Guides included in this manual.

As Trainz is constantly evolving, you should also visit the online community section of the Trainz website to discover more about the latest updates and improvements.

The website also contains additional documentation which provides more information for those users who want to have a go at creating their own custom content.



## 3 - What's New In TRS2006?

If you have enjoyed previous versions of the Trainz product, we'd like to bring you up to date with a list of the major new features you will find in TRS2006.

- All new localized content appeals to regional markets.
- Deeper and more complex routes take advantage of the many new features added since the release of TRS2004.
- Cab Control Graphical Interface available when in Cab Control.
- Wheelslip and Coupler breakage enhancements made to the physics engine.
- New Animated Turnouts give trackwork a more realistic appearance.
- iTrainz in game chat allows users to talk to other users while playing.
- Backdrops: a new object type that is rendered regardless of the view distance settings.
- View camera can now be placed within passenger cars.
- New Content Manager Plus makes it easier to access and organise content.
- Improved tutorials help first time users into the game.
- Hint and Tips added to Loading Screens.
- Added functionality on the Mini-map screen; query industry and consist information.
- Re-styled Driver and Session menu screens allow for easier navigation of installed routes and sessions.
- New PaintShed with more flexible interface that is included as part of the installation.
- Over 50 rules, more than double the amount included with TRS2004.
- Bogey and bridge sounds supported.

## 4 - Conventions

Throughout this manual we use abbreviations and terminology that are explained here.

| | |
|---|---|
| **TRS2006** | Trainz Railroad Simulator 2006 |
| **CMP** | Content Manager Plus |
| **CCP** | Content Creator Plus |
| **DS** | Download Station |
| **Click LMB** | Click on the left mouse button |
| **Click RMB** | Click on the right mouse button |
| **Click LMB+H** | Click on the left mouse button and hold it down |
| **Click RMB+H** | Click on the right mouse button and hold it down |
| **Zoom** | Zooming in or out using the mouse wheel or PageUp/PageDown keys |
| **Compass** | The three-dimensional compass cursor in Surveyor. |
| **Red Lights** | Red LED-like buttons |
| **Green Lights** | Green LED-like buttons |
| **KUID/KUID2** | Unique identifier for an object |
| **Turnout** | To simplify things this refers to a point or a junction, so as not to confuse it with a switch lever, which is used to control a turnout. |
| **Switch** | Lever used to control a turnout |
| **Driver** | An artificial intelligence (AI) avatar that can be given commands in a Driver session (also the name of the driving simulation module). |
| **Consist** | Any mixture of rolling stock and/or locomotives |
| **Loco** | Short term for Locomotive. Normally refers to the powered unit of any consist. |
| **Vehicle** | Refers to a piece of railroad rolling stock. Can be a loco, passenger car or freight wagon. |
| **Route** | A map defining world objects, (rails, industries, scenery, etc.) textures and terrain. |
| **Session** | A Driver session associated with a Route capable of being run as a self-contained activity. |
| **Product** | Any commodity produced or required by industries that can be transported by a capable vehicle. |
| **Passengers** | A special type of Product associated with passenger stations and passenger cars. |
| **Railroad** | Equivalent to the term "railway" in Australia and Britain. |
| **Bogey** | British/Australian term for a truck (wheelset) on a piece of rolling stock. |
| **Industry** | Interactive scenery component placed on a route. |
| **BR** | British Rail |
| **QR** | Queensland Rail |
| **SAR** | South Australian Railways |

**Tip:** Train terminology varies greatly throughout the world (even between English speaking nations), so please take note of any unfamiliar terms in this section.

# 5 - Installation

Before installing, ensure that you have sufficient disk space (of at least 4GB) and that you have no other programs running.

**WARNING: Please turn off any virus scanning programs for the installation! Don't forget to turn your virus scanner back on once the installation is over.**

Begin the installation process by inserting the TRS2006 DVD Disk or CD Disk 1 into your CD/DVD drive.

**CD Users**

Begin the process by inserting disc #1 into your CDROM drive. If you have auto play enabled you will be presented with the install shield program that will guide you through the installation process. If the install shield does not appear try double clicking on your CDROM drive through My Computer or manually browse the contents of the CD and double click on the SETUP.EXE file found in the root directory of the CD to start the installation process.

**DVD Users**

Begin the process by inserting the DVD into your computers DVD drive. If you have auto run enabled on your computer you will be presented with the Trainz2006 DVD menu. If you don't have auto run enabled and no menu appears try double clicking on your DVD drive through My Computer or manually browse the contents of the DVD and double click on the AUTORUN.EXE file found on the root directory of the DVD.

Once you are presented with the DVD menu you can choose to either install TRS2006 or view the bonus movie that has been included.

When you choose to install TRS2006 the DVD menu will close and the Install Shield will now begin to guide you through the installation process.



**Install Shield**

The Install Shield will now guide you through the steps of the installation process. When prompted, enter your CD Key in upper case.

For further help in installing TRS2006, please refer to the Readme file found in the install directory of Trainz or on the TRS2006 Disk.

**Tip:** Once you have installed TRS2006, be sure to register with Planet Auran to get all the benefits that come with being a registered user such as new content and the forums. See section 7.1 for further details.

## 6 - TRS2006 Launcher

Once you have successfully installed TRS2006, Double Click on the TRS2006 icon on your Desktop (or at Auran > on the Start menu) to access the Trainz Launcher menu.


The Trainz Launcher menu has a number of items:

**Start**
This will launch Trainz.

**Options**
Enables you to customize your settings for Trainz, including your Planet Auran settings, display settings and advanced graphics features such as shadows. Chapter 7 of this manual examines these settings in detail.

**Manage Content**
This will start Content Manager Plus, a utility to help you manage your Trainz content and to download additional content. Chapter 17 of this document examines the CMP utility.

**Manual**
Opens up the .PDF version of the Trainz manual (i.e. what you are reading now). The Adobe® Reader® application must be installed for you to view this manual.

**Website**
This will open up your browser to the TRS2006 community website where tens of thousands of Trainz fans are ready to help you with your questions and share experiences.

**Extras**
A number of extra documents from Auran and the 3rd Party Content Creators.

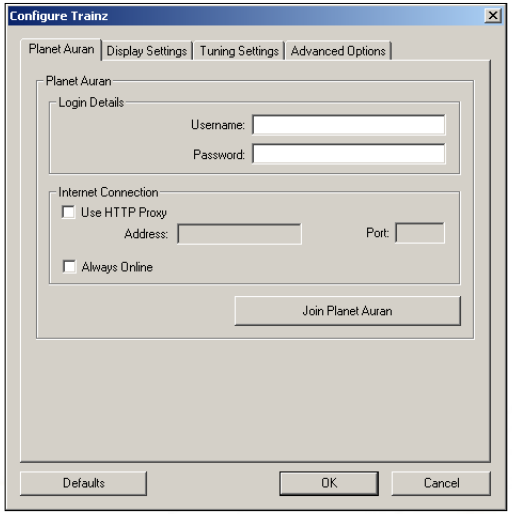
**Read Me**
Opens the readme text file which details last minute information about this release of Trainz.

**Quit**
Closes the TRS2006 Launcher menu.

We strongly suggest that you check out these other menu items and familiarize yourself with the Options, Read Me and Trainz Website.

# 7 - Configure TRS2006

This is where you can customize various options to maximize your enjoyment of Trainz Railroad Simulator 2006.




## 7.1 Planet Auran

Planet Auran is the rapidly growing online community that is free for all TRS2006 users to join.

Why join? Because there is an incredible wealth of additional information and content available that will enormously expand your enjoyment of TRS2006. Highlights include:

- Additional files and utilities that help you get the most out of TRS2006;
- Online forums (message boards) where you can ask questions you have about using TRS2006 and learn from others; and
- Interactive online features like iTrainz Chat and iPortal.



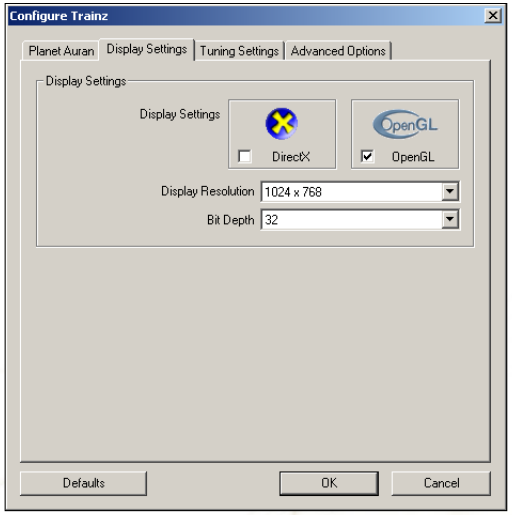
If you have not already joined, click on the **"Sign up for a new account"** button to register. This will launch your default browser with the Planet Auran registration page that will guide you through the registration process. You will need to have an Internet access and be online to do this.


Once you've registered, by using Content Manager Plus you'll have access to over 40,000 different items such as routes, engines, rolling stock, buildings, bridges, track, etc so that you can build exactly the rail empire you want to.

Once you have joined Planet Auran, you can enter your Username and Password and check the "Always Online" box.

## 7.2 Display Settings

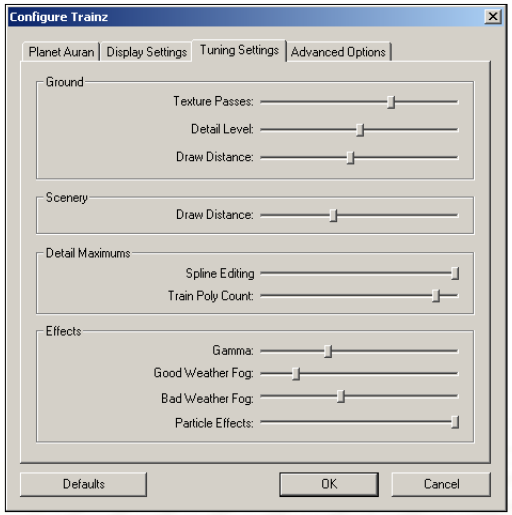
Next, click on the Display Settings menu tab. DirectX mode or OpenGL mode can be used depending on your graphics hardware requirements. For older systems, DirectX generally improves rendering speed. Experiment to see which graphics setting works best with your hardware. Display Resolution determines what resolution your screen will run at. Bit Depth should be left at 32 bit unless your graphics card doesn't support 32 bit graphics.




**Note:** Ensure that your latest graphics drivers are installed for maximum performance.

## 7.3 Tuning Settings

This is where you can configure TRS2006 to create a balance between your hardware and your graphical performance and frame rate. Each of the sliders affects the way the graphics are handled in Trainz and only the latest systems will allow you to run with "full sliders" (moved to the right) and maintain satisfactory frame rates. Even then, by adding more objects or trains to a scene, it is possible to make the latest hardware struggle. Quite simply, the better your hardware, the better the performance.




To balance scene density and frame rate, your challenge is to decide whether to decrease the sliders, thereby lowering the quality or upgrade your hardware to improve performance.

**Note:** These settings are also accessible in the Driver and Surveyor modules under the main menu. See sections 9.14 and 11.13.8 for further details.

### Ground - Texture Passes

Determines the number of ground textures per area. Set Texture Passes to the first notch (0) and you will see square textures. Moving the setting to '1' and you will notice one set of textures blend into the next one. Some graphics cards handle multiple textures better than others.

**Ground - Detail Level**
Defines the degree of definition in the terrain. The lower the settings, the lower the number of ground polygons drawn.

**Ground - Draw Distance**
Defines the maximum viewable distance of the ground. A higher setting will stop the ground "popping" into view, but requires a more powerful video card.

**Scenery - Draw Distance**
Determines the maximum viewable distance of the scenery objects. Generally you should set this at a similar scale to the ground draw distance.

**Detail Maximums - Trains Poly Count**
Determines how many polygons will be allocated to the locos and wagons on screen. The number of cars displayed at one time also affects this rate, so a low setting with lots of cars will result in some deformation of the models.

**Detail Maximums - Spline Editing**
Can be set at 3 levels. At the simple setting, the splines are drawn in "white line" form until you have finished laying the last spline point. At the detailed level, the splines are updated dynamically as you are laying them.

**Effects - Gamma**
Sets the brightness of the screen while in TRS2006. If you are finding the screen too dark move the Gamma slider to the right, if it's too bright move the Gamma slider to the left.

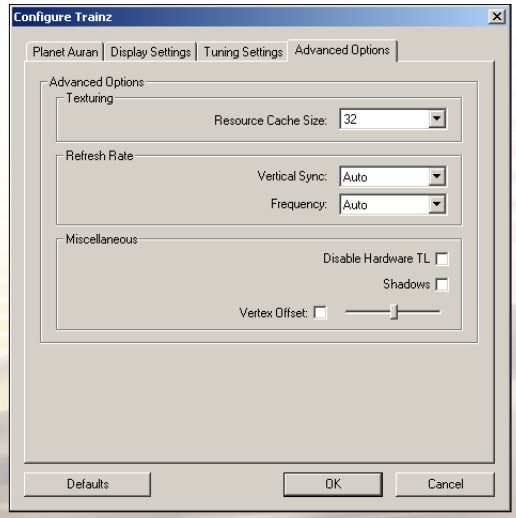
**Effects - Good Weather Fog**
Adjusts the distance the "fog" is drawn. The lower the setting, the less fog is drawn. Fog itself, however, doesn't place a high load on your system. Rather, it is used to disguise the visual artifacts that can occur in the distance if your sliders are set low. Therefore, it is recommended that if you have your general performance sliders set low, you should increase the fog slider to hide the visual "clipping".

**Effects - Bad Weather Fog**
Works in the same manner, but is only drawn when it is raining or snowing.

**Effects - Particle Effects**
Level of effects such as smoke from a locomotive or factory chimney. The lower the setting, the less smoke etc. you will see, but your graphics performance will increase.

## 7.4 Advanced Options

These options let you tweak some of the other hardware related systems to improve performance even more. The main bottleneck on current graphics cards is the Shadows option. Turning this option off will generally improve your performance dramatically. For a full explanation of the other options, please read the Readme found on the Trainz Launcher.



## 7.5 Configuration File Settings

You can also tweak performance of TRS2006 to suit your PC hardware by using a text editor like Notepad to edit the "trainzoptions.txt" file. You will find the "trainzoptions.txt" file in the directory into which you've installed TRS2006.

**WARNING: Please be aware that these command line parameters are to be used at your risk. If you experience any problems with your copy of TRS2006, including crashing or visual problems, return your "trainzoptions.txt" to its original state (see Section 9.4) before contacting the Auran helpdesk. Auran will not be able to provide support on issues that relate to the use of these options. Before you start playing with the "trainzoptions.txt" file why not make a backup of the default "trainzoptions.txt" file by saving the file with a different filename, say "trainzoptions.BAK".**

### 7.5.1 Command Line Parameters

**-DepthBits = XXX**
Select the number of bits used for the z-buffer (depth buffer.) Available choices are generally 16, 24, or 32. Some video card drivers incorrectly interpret '32' as '16', so '24' may give better results on these cards. When a stencil buffer is used, the depth bits may need to be adjusted down according to the size of StencilBits; ie. 24 depth + 8 stencil = 32 total. It is possible that this option can be overridden by the settings for the video card driver.

**-StencilBits=XXX**
Selects the number of bits used for the stencil buffer. Usually 0, or 8. A stencil buffer is required for Trainz to render shadows. Some cards do not support stencil buffers, or do not support stencil buffers in certain resolutions / modes. Where a card does not support a Stencil Buffer, the driver will sometimes attempt to use a Software stencil buffer, which is very slow. Generally a 24 or 32 bit DepthBits is required in order to enable the Stencil Buffer.



**-disablestencil**
Overrides the StencilBits selection and forces it to zero.

**-ColorBits=XXX**
Selects the number of bits used for the color buffer. Usually 16, 24, or 32. Larger numbers result in better color accuracy and less dithering. Some cards may require ColorBits = (DepthBits + StencilBits)

**-Jet=XXX**
Provide the path to the Jet folder. In the release version of Trainz, this is the path from the Trainz directory to the bin directory, ie. "bin". For internal builds, this usually points at the "Jet" directory, not "Jet/Bin". This option is required, if it is set incorrectly Trainz will crash at load time.

**-ResourceMemory=XXX**
Specifies the amount of memory reserved (in megabytes) for resource disk caching. This will prevent Trainz from accessing the disk as often, reducing caching time and 'stutter' caused by slow disk access. This option defaults to 0.

**-vsync**
Activates 'vertical sync'. This option may be overridden by the video card driver settings. When active, vertical sync results in smoother updates (no visual tearing) but lower frame rates. This is usually a good thing. This is equivalent to "-vsync = 1".

**-vsync=XXX**
See "-vsync" for more info. Allows finer control over vsync, attempting to synch to every second frame ("-vsync=2") or every third frame ("-vsync=3") etc. Larger numbers lower the maximum possible frame rate further but may improve the chance of achieving a steady frame rate. Probably not useful for most people.

**-frequency=XXX**
Attempt to force the refresh rate of the display to the specified frequency (in Hz.) If the video card does not support the specified frequency at the specified resolution, this may cause Trainz to exit on load with a "check your settings" message. Some common frequencies are: 60, 70, 72, 75, 85. Higher numbers provide visually better results as long as the display properly supports the requested frequency. Selecting a frequency which is supported by the video card but too high for the display is untested and could cause the display to become garbled.

**-width=XXX**
Manually specify the window/screen width (in pixels). When in fullscreen mode, this must match one of the available display resolutions, and an appropriate height must be selected. When in dualhead or surround modes this is the horizontal resolution across all displays, not across a single display.

**-height=XXX**
Manually specify the window/screen height (in pixels). When in fullscreen mode, this must match the Width setting used. Width-to-Height ratios other than 4:3 are untested. When in dualhead or surround modes, this is still the vertical height of a single display.

**-640**
Equivalent to specifying "-width=640" and "-height=480".

**-800**
Equivalent to specifying "-width=800" and "-height=600".

**-1024**
Equivalent to specifying "-width=1024" and "-height=768".

**-znear=XXX**
Override the default z-buffer near distance. Specified in meters. The default is 0.1 meters. Smaller numbers allow the viewing of objects closer than 10cm but rapidly decrease the z-buffer accuracy and will cause visual artifacts on most graphics cards. Larger numbers will improve the z-buffer accuracy and may provide less artefacts, especially in 16-bit depth buffer modes, however there may be problems viewing nearby objects such as inside cabin view.

**-zfar=XXX**
Override the default z-buffer far distance. Specified in meters. The default is 1500m. Decreasing the far distance will result in slightly improved z-buffer accuracy but will result in far-away objects not being visible (Note: this may not result in a speed gain if a high draw distance is specified in the Trainz tuning screens as Trainz will still consider the far-away objects as visible even if the video card is unable to render them.) Increasing the z-buffer distance probably isn't useful as Trainz doesn't allow the selection of draw distances greater than about 1300m, and the z-buffer accuracy will be decreased causing visual artefacts.

**-disablefog**
Causes fog to be completely disabled.

**-fullscreen**
Causes Trainz to take over the chosen display. This is the preferred mode.

**-windowed**
Causes Trainz to run in a window. This is useful for debugging, however may result in reduced frame rate and cause visual 'stutters', especially in DirectX mode.

**-dualhead**
Enables support for dual-display mode. This will only work if you have two displays attached to a single video card acting as a single, large display (i.e. single frame-buffer). This wont work if there are two displays on different video cards or configured to act as independent displays. Currently dualhead support is only utilized in the Driver module. This option requires that a dualhead resolution is selected (ie. 8:3 ratio) and that Trainz is run in fullscreen mode. On some video cards this option may require you to switch to the appropriate resolution prior to launching Trainz.

**-surround**
Enables support for triple-display (triple-head / surround gaming) mode. This will only work if you have three displays attached to a single video card acting as a single, large display (ie. single frame-buffer.) This wont work if there are three displays on different video cards or configured to act as independent displays. Currently surround gaming support is only utilised in the Driver module. This option requires that a surround gaming resolution is selected (ie. 12:3 ratio) and that Trainz is run in fullscreen mode. On some video cards this option may require you to switch to the appropriate resolution prior to launching Trainz.

**-disablecarz=X**
Default 0 (carz enabled). If set to 1 (carz disabled), then carz will not appear on roads. This may (untested) result in smoother framerates. Experimental only.

**-framestoaverage=XXX**
This option controls the 'smoothing' of frame rate timing. Increasing this option may result in less visual 'stutter', however can cause period 'surges' if rapid changes in frame rate occur. Increasing this option may be useful for high-end machines with fast graphics cards where the frame rate remains fairly constant. Default is 4, maximum is currently 16, minimum is 1 (no averaging.)

**-heartbeat=XXX**
Specify the time interval at which the physics heartbeat occurs (in seconds). Defaults to 0.03sec. Larger intervals decrease processor usage for physics at the expense of accuracy. Intervals larger than 0.05sec are not recommended. Changing this option is probably unnecessary and may have a negative impact on physics accuracy.

**-filter=XXX**
Specify the texture filtering mode. Default is trilinear which provides the best visual results. Other options are bilinear and none. This option is unlikely to provide performance gains, except perhaps on minimum-spec (or lower) graphics cards.



**-intro=XXX**
Changes the playing mode of the Trainz loading movies. Available options are "disable" and "fullscreen". Fullscreen causes the movies to be played in fullscreen mode instead of centered on the screen. Disable skips the intro movies.

**-quit**
Causes Trainz to quit after the loading sequence has completed. Used for diagnostic purposes only.

**-DisableEnvMap**
Causes Trainz to not render Environmental maps. This may improve performance on certain minimum-spec (or lower) graphics cards.

**-framerate=XXX**
Requests that Trainz limit the frame rate to the specified number of fps. Not tested. Doesn't appear to work with vsync enabled. May help with maintaining a stable frame rate on faster machines.

**-render=renderdirectx**
Cause Trainz to use the Direct3D API for graphics rendering as opposed to OpenGL (default). This may improve performance or compatibility where the video card drivers do not correctly support OpenGL.

**-autopilotsignaldistance = XXX**
Modifies the autopilot signal-visibility distance, specified in meters. Default value is 200m. Smaller values are not permitted. This will affect how the autopilot reacts to the signals - how soon it will begin to slow down and how close to the signal it will attempt to stop.

**-disableztest**
Turns off z-buffer testing for coronas (signal flares, headlights, sun.) This will make the flares shine *through* other objects, however will reduce artefacts with the ground and train clipping the flare.

**-showcachebar**
This option enables the display of the cache bar. The cache bar is the horizontal red bar that appears in the bottom left corner of the screen when assets are being loaded such as when you open a route up or a moving around in a large route. Unlike previous versions of Trainz, TRS2006 does not have the cache bar displayed by default.

**-debug**
Including this option enables debug mode. The main feature of debug mode is that it allows you to accelerate the game speed by holding down the Shift key. This can be useful for content creators that might want to test their sessions more quickly. However debug mode is not a supported feature and the behavior of Trainz in not guaranteed when using the Shift speed-up.

**-allownoctrlrightclick**
Disables the requirement of having to hold the Ctrl key when using RMB top open the menu of a vehicle or industry in Driver. Previous versions of Trainz did not require the Ctrl key to use RMB to access the menu and this option allows for those who prefer the older way.

### 7.5.2 Defaults

If you have been tweaking the "trainzoptions.txt" file and caused your TRS2006 install to become unstable you can either copy in the backup file we asked you to create in Section 9.2 or you can return it to the default "trainzoptions.txt" file by making it read as follows:

```
-DepthBits=24
-StencilBits=8
-fullscreen
-Jet=bin
-cabinfov=65
-driverfov=55
-DefaultAutoMip=none
```



## 7.6 Troubleshooting

If you get any error messages or have problems while running Trainz, please read the Readme found on the Trainz Launcher for general information on how to solve these issues. Make sure that you have the latest video card drivers installed and that you have installed DirectX 9 or above.

You can also visit the website and go to the Technical Support section for the latest fixes and solutions. Another excellent source of information is the Trainz forums where users just like you offer tips and tricks for almost any aspect of using Trainz or getting the most out of your experience.

# 8 - Launching TRS2006

Use your mouse to highlight the menu options in the Trainz Launcher then use the LMB on the "Launch Trainz" menu option and you will see the loading gear rotating whilst Trainz takes a few moments to load.

In the Trainz Main Menu, there are 3 game modules to choose from: Surveyor, Driver and Railyard, as well as the Trainz Exchange option.

The following sections of this TRS2006 Manual give you a basic understanding into each of these areas.

**Note:** To find out more about the Driver module, read Chapter 9. Surveyor is covered in Chapters 10 and 11.



# 9 - Driver

## 9.1 Introduction

The Driver Module provides a lot more than just a train driving simulation. TRS2006 provides you with a number of different ways of controlling the trains on your railroad.

Firstly you can hop into the cab and explore the tracks from behind the throttle. You can choose either the simple DCC speed control system or the realistic Cab controls using each of the levers and switches in the cab. You can watch the trains from trackside as they come thundering past, or from a bird's eye view tracking along with the train.

You can even switch to a Map View and control all the junctions, monitor signals and control traffic flows from a 2D perspective.

While running multiple consists, you can choose to control each train yourself, or let the computer AI system control the trains as you control the switches.

Finally, you can even issue specific orders to Drivers that you allocate to each train.

In addition to the various systems of control, there is also a fully interactive industry model that automatically generates waybills for goods that need to be delivered to the various industrial sites. Your task under this mode is to maintain the operation of these industries by controlling movement of goods and resources along your railroad. You can watch as your train or the trains under the control of your drivers are each loaded and unloaded at the various industries. For more information about configuring an industry, see section 10.4.4 of this manual.

**Note:** This chapter is only an introduction to Driver. More detailed instructions can be found in Chapter 12 - Engineer's Guide.

## 9.2 Starting your Railroad Career

Once you have launched TRS2006, start Driver by Clicking LMB on the Driver menu option.


Once Driver loads you will see a list of available Routes with the number of sessions available for each route shown in the brackets next to it. Click on a route, then select a session.


When you click on a Session, check the text information contained in the Description window that appears in the top left of the screen. Note how the "Load" button appears at the bottom right of the screen when a session has been selected.

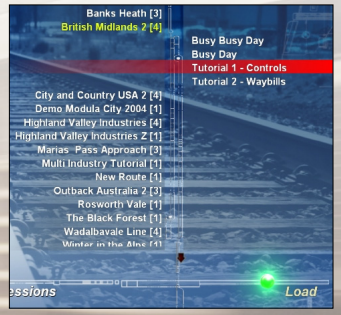
### 9.2.1 Tutorial Sessions

TRS2006 includes 6 introductory tutorial sessions to help you get started with using Driver. The 6 tutorials listed in order are:

- Tutorial 1 - Controls (British Midlands 2)
- Tutorial 2 - Waybills (British Midlands 2)
- Tutorial 3 - Diesel Cab (City and Country USA 2)
- Tutorial 4 - Steam (Outback Australia 2)
- Tutorial 5 - Drivers (Highland Valley Industries)
- Tutorial 6 - Commodities (City and Country USA 2)

**Note:** The tutorial sessions take place on several different routes and won't appear in order on the Driver Main Menu. To get to a tutorial, find its corresponding route in the above list and expand that route in the Driver Main Menu.

To get started Click LMB on the "British Midlands 2" route. Then select "Tutorial 1 - Controls". Once the session has been selected, Click LMB on the load button found in the bottom right corner of the screen.

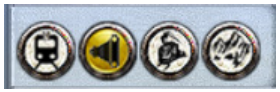


Trainz will now start running Tutorial 1 where you will be guided through all the basic controls that make up the TRS2006 Driver interface. Once you have gone through Tutorial 1, go through the other tutorials and see what else there is to do.

### 9.3 Camera Controls – Controlling Your View

There are many different views of the 3D world in TRS2006 as well as a Map View that gives you a 2D top down view. You can zoom in or out, pan around and change the camera focus point with each of these views.

Shown here is the Camera HUD Panel. The different camera view icons and their shortcut keys are listed as follows. Try to explore the Trainz world with them.



#### 9.3.1 Cab View

Firstly, make sure the view is focused on a locomotive (Click LMB on a loco to focus the view) then Click LMB on the Cab View button (or use the "1" key). Your view is now from in the driver's seat of the cab. Use RMB+H to look around the cab and out of the different windows. You can also change your viewpoint in the cab by pressing the "[" and "]" keys. If the locomotive is a dual cab unit you can press the "Alt+C" key to switch between the cabs.

#### 9.3.2 External View

When you first start Driver you will generally be in the External View with the scene focused on a particular locomotive. Use RMB+H and move the mouse around to rotate and elevate the view (you can also use the cursor keys), with the locomotive at the center of the screen at all times. Want to get closer? You can use your mouse wheel to zoom in and out, or use the Page Up/Page Down keys on your keyboard.

If you Click LMB on one of the cars attached to the train, the view changes so that the selected car now becomes the focus of the view. You can also press the "-" and "+" keys on the main keyboard to select the next or previous car in the consist. You can even Click LMB on other trains to shift the focus to the selected train or click on the consist icons in the 2D Map View as well.

#### 9.3.3 Tracking Views

Now Click LMB on the Tracking View icon and your view changes to the nearest Tracking camera. There are two types of cameras; Static and Tracking, and these are placed in the 3D world in Surveyor mode. Static cameras will stay fixed in direction and allow the tracked object to move out of the frame. Tracking cameras are fixed in place, but pan with the tracked object, keeping it in the center of the view. If there are no Tracking/Fixed Cameras within visual range of the tracked object, the view reverts back to the external view until a Tracking Camera comes within range.

#### 9.3.4 Free Roaming View

The Free Roaming view is extremely flexible and operates in a similar fashion to navigating in Surveyor. To move the camera focus point, simply Click RMB in the 3D world to where you want the new central focus point to be. The view smoothly moves to the new focus point. Now you can use the cursor keys to rotate or change elevation and the mouse wheel or Page Up/Page Down keys allow you zoom in and out. By holding down RMB and moving the mouse you can continuously change the focus point and hence the view. By combining this mouse movement with the cursor keys and the zoom function it lets you roam around the scenery at your will.

#### 9.3.5 Map View

The icon for the Map View is at the bottom right of the screen or you can use the Ctrl-M shortcut key. You will find the Map View is useful to get an overview of where your trains are in relation to the industries, the track configuration, plotting your train movements, and checking turnout settings and signal states.

On the 2D Map View you will see the position, length and name of each Consist, the direction set for each turnout and important names for assets

such as turnouts, industries and stations. Zoom in and out using the "Page Up" or "Page Down" keys (or your mouse-wheel) to see more or less of the route.

The map follows the movement of the currently selected Consist. The currently selected Consist shows as green and all other Consists show as gray on the map. Click LMB on one of the gray Consists to center the map view on that Consist.

Click RMB on a point in the map to center the map view to a new location, losing focus on any particular Consist.

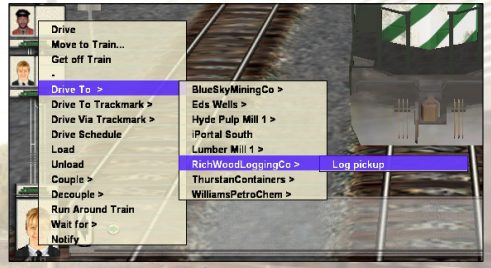
You can also set the turnouts by clicking on them and seeing the direction arrows change. Also visible are the state of any signals on the Route.

Exit the map screen by Clicking LMB again on the Map Screen button, or press Ctrl-M.

### 9.4 Driver Commands – Who Goes Where

Open the "FreeformiPortal" session on the "Tidewater North" route. Click LMB on the Driver picture in the lower left of the screen and a list of allocated Drivers appear along the left side of the screen. Click LMB on the Driver "Ami" who should be at the bottom of the list. The camera focuses on the loco of the selected Driver.

We will get this driver to pick up the logs from the Logging Co. and take it to the Lumber Mill.

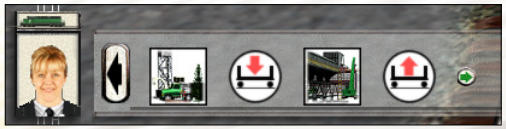





Click RMB on the driver's picture to bring up the Driver Command menu. Select **Drive To > RichWood Logging Co. > Log pickup** from the subsequent pop out menus. Note that an icon representing the logging yard appears at the bottom of the screen next to the driver picture. The Driver will immediately begin to carry out his duties, and you can queue up additional orders whilst he is driving.

Click RMB on the driver's picture and select **Load** from the Driver Command menu. The Load icon appears to the right of the logging yard icon. Continue on with the sequence and selecting **Drive To > Lumber Mill 1 > Logs Drop off** and then the **Unload** command.

You should now have a group of four "Command" icons across the bottom of the screen that represent the commands you have given to this Driver.



Your Driver will continue with his duties in the order that they appear along the bottom of the screen, taking into account speed restrictions and other rail traffic. Each time a task is completed, the Command icon disappears and the Driver commences his next task.

Not only can you issue orders to several Drivers at once (up to 7), you can also give Drivers orders to accomplish tasks based on the Waybill list of industry requirements at the same time. Once your orders are allocated, watch as your railroad comes to life around you.

When you need to exit, move the mouse to the top left of the screen, a menu scrolls down and you Click LMB on the Exit button (X) or hit the Esc key. A pop-up window asks if you want to save this session – very handy if the real world interrupts your Railroad Operations.

### 9.5 Drive that Train – You Take Control

There are times when you will want to get into the cab of your very own locomotive and take charge. When any one of your Drivers has no current commands, the Driver HUD appears on the right hand side of the screen. If you are in DCC mode, you will see a speed dial. This is a simplified control system not unlike the DCC (Digital Command Control) systems used on model railroads. Using the dial you can control the speed of your loco and get a feel for driving without having to worry about monitoring brake pressures or knowing which lever to pull and when.

Click LMB+H on the speed dial and drag to change speed. Click LMB on the Stop icon to stop the train. There are momentum effects built into this control system, so don't expect the train to stop and start immediately. Alternatively use the "W" and "X" keys to accelerate and decelerate respectively. Use the "S" key to get to idle state and the "A" key to apply the handbrake.

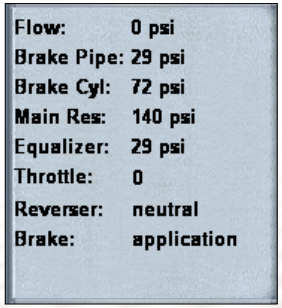
The current speed and the track speed limits are shown at the top right of the screen in the Time and Display HUD Panel. Make sure you obey all signals and speed restrictions along the way.




### 9.6 Driving in Diesel/Electric Cab Mode – Are you ready?

Cab Mode provides a more realistic driving experience taking into account factors such as the different power levels at each throttle notch, or the length of the train when applying the brakes. Each of the levers, switches and dials in the 3D cab can be used to operate the locos or you can use the Hotkeys or Cab Control HUD to carry out the same function. (This lets you control the locos from outside, even in Cab Mode).

The following tips will get you started, but we recommend that you check out Chapter 12 - Engineer's Guide of this manual more detailed information about driving using Cab controls.




Launch Driver and select "Tutorial 3 - Diesel Cab" from the expanded list of the "City and Country USA 2" route. Click LMB on the "Load" button at the bottom right of the screen to launch the Driver Session. Follow through the tutorial's instructions to learn how to drive a locomotive in cab mode.

To start a locomotive in cabin mode, release the train brakes ("Q"). If the brake cylinder has not emptied you may need to also release the independent brake ("D"). Put the reverser into forward pressing "F". Increase the throttle ("W") slowly and the train will begin to move forward. Use "X" to decrease the throttle and "S" to set the throttle to idle. Use "A" to apply the brakes, and "Z" to lap the brakes. Watch the information in the Cabin HUD Panel to get information on speed, throttle, brake settings and Reverser direction.

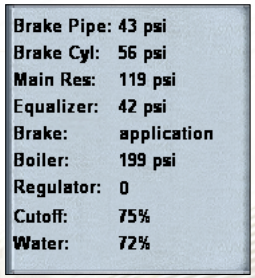
**Note:** You cannot engage the Reverser unless the throttle is at idle.

See Chapter 12 - Engineer's Guide of this manual for more detailed information about driving a locomotive in cabin mode.

### 9.7 Driving a Steam Engine – Are you up to the challenge?

Entering the cab of a steam locomotive for the first time during a new session, you will find that the light-up crew will have prepared you a nice hot fire. Fire temperature can be gauged by looking at the color; an orange fire is relatively cool, and a white-hot fire is required to raise the necessary pressure to power the locomotive. You should have a nice head of steam already raised and you can check the gauge pressure either in the cab or on the Cabin HUD Panel (pictured below).

Launch Driver and select "Tutorial 4 - Steam" from the expanded list of the "Outback Australia 1" route. Click LMB on the "Load" button at the bottom right of the screen to launch the Driver Session. Follow through the tutorial's instructions to learn the basics of a driving a steam locomotive in cabin mode.




Opening the firebox doors to increase the airflow and add more coal to the fire by pressing the spacebar. The doors MUST be open to shovel coal. Care should be taken not to add excessive coal, as this will lower the temperature of the fire for a time. As the fire heats up, the boiler pressure should start to rise. Always ensure there is sufficient water in the boiler by checking the water gauges; they should show be half to two-thirds in the glass. Water level in the boiler is increased by use of the injectors.

Once full pressure has been attained and the brakes released ("Q" and "D"), you can move the locomotive by opening the regulator. The "cutoff" is the percentage of the piston's travel that steam is applied to it and is affected by use of the reversing gear. Full stroke length is 75% and is used for starting the train. As the train begins to gather momentum, the cutoff is reduced and the expansive qualities of steam are used to generate power without depleting boiler pressure so rapidly. As the cutoff is reduced, there is increased potential maximum speed and reduced cylinder power output.

Long cutoff (40-75%) delivers higher tractive effort and increased coal/water consumption. Short cutoff results in lesser tractive effort, but more efficient fuel consumption. Operating at high speeds in full forward gear will soon deplete the boiler. A parallel can be drawn with an automobile, where fifth gear is great on fuel, but not so efficient when you come to a hill. The cutoff is a very important tool in managing the available steam.

When nominal boiler pressure is exceeded, Safety Valves lift to vent excess pressure to the atmosphere. A good crew will avoid this waste of steam and fuel by striking a good balance between the temperature of the fire, the pressure in the boiler, and the conditions of the road ahead. When approaching a heavy ascent for example, a hot fire will be required to maintain adequate steam pressure. Conversely when approaching an easy section with a very hot fire, pressure can be eased to prevent lifting safety valves by adding more water to the boiler.

Observe the water level in the locomotives tender periodically, especially after working the locomotive hard, as it may require a visit to a steam filling station several times en route.

See Chapter 12 - Engineer's Guide of this manual for more detailed information about driving a locomotive in cabin mode.

### 9.8 Operating Turnouts

You change the direction of the Turnout (Junction/Switch) by Clicking LMB on arrows associated with the Switch. The green arrow points in the direction the Turnout is set to. If you are in the Cab, hold the Ctrl key when you Click LMB or use the J key to change the junction ahead (Ctrl-J if you are reversing).

You can also change turnouts in the 2D Map View, which is useful for planning your train's movements well in advance of its progress.

**Tip:** Click between the arrows to change their direction.

### 9.9 Signals

TRS2006 primarily uses a basic block signal approach but there is a large amount of flexibility built in to allow customized signaling systems that reproduce many of the different types of signaling found around the world.

The most typical light signal states are shown below. For a more complete discussion of signaling (including semaphores) see the Signaling Guide. Indications are as follows:

**Green - Line Clear**
The next signal is either green or yellow, proceed at normal speed.

**Yellow - Caution**
The next signal is red, proceed at low (half) speed.

**Red - Stop**
The block is occupied, terminates, or is closed.

All of the signals are red unless a train is approaching one, in which case it will turn green to allow passage of the train. There are several reasons why a signal may not be showing green in the presence of a train:

1. The line may terminate or be closed, meaning a turnout within the block it protects is set against it;
2. A part of a train may be occupying a part of the block it protects, the signal shows red preventing any further traffic from entering the block; or
3. A part of a train may be occupying a part of the adjacent block when the signal will display Caution to indicate that the next signal is at stop.

When a train encounters a green light, it is permissible to pass the signal at normal speed. The signal will stay green until the rear of the train enters the block, at which time it will change to red. Once the train leaves the block, i.e. passes the next signal, the first signal will turn yellow, meaning it is safe to proceed as far as the next signal which is now at stop.

When a light is at Yellow, the Driver must proceed at half speed and of course you must always stop at a Red signal unless the Controller allows you to pass.

During Driver sessions, any of the circumstances that result in a red or yellow signal can be revealed. Move the mouse pointer over the signal lamp, and a message will display the status of the block. Clicking on the signal lamp will transport you to the obstacle whether it is a turnout that needs switching, a terminating line or another train. Alternatively, your path can be cleared using the 2D Map Screen overview.

**Tip:** If your AI Drivers seem to be misbehaving, you may have placed your signals incorrectly. Read the Signaling Guide for more information on how to place signals correctly.

### 9.10 Industry Information

Behind each interactive industry in TRS2006 is a complete resource model where industries consume resources and produce goods. Click Ctrl+RMB on an interactive industry and a pop up menu will appear. You can Click LMB on View Details to open up a pop up window that describes the industry and the current Commodity levels.


See the section 10.4.4 of this manual for more detailed information on how to configure commodity levels in an industry.


Close the window by Clicking LMB on the "X" in the top left corner.



## 9.11 Waybills – Who Needs What


Click LMB on the Waybill icon to bring up a list of industries that have created waybills showing that they require certain products for delivery. Click LMB on each industry icon in the list to show what quantities of products are required.

Waybills are automatically produced by an industry when that industry reaches a percentage of capacity of a particular commodity. Once the full amount required by the Waybill has been delivered, the Waybill is deleted from your list (although another one may well have appeared in its place).

The tutorial sessions "Tutorial 2 - Waybills" (British Midlands route) and "Tutorial 5 - Drivers" (Highland Valley Industries route) introduce you to how Waybills can be used to keep you informed.

## 9.12 Commodities

You can allocate which commodities are carried by a particular item of rolling stock. Click on the Commodities icon on the lower right of the screen to bring up the Commodities Menu. Click on an appropriate icon and then click on an item of rolling stock. The icon shows that the rolling stock is now limited to carrying only that type of Commodity. To stop any commodity being loaded or unloaded, use the "Stop" icon. To allow the default load only, use the "Default" icon. You can only assign commodities to vehicles built for carrying that type of commodity.

Play through "Tutorial 6 - Commodities" on the "City and Country USA" route for an introduction to working with commodities.

## 9.13 Decoupling

To activate decouple mode, click on the Decouple icon (or press the "Ctrl-D" key), then move your cursor over the couplers between train cars until you see a red decouple icon. When the red decouple icon appears, click LMB to decouple the consist at this point. When you have successfully performed the decouple operation, the red coupler icon “opens” and a message is displayed on the screen. The act of decoupling creates a

new consist and your camera remains focused on the same car or loco as before the decoupling operation. To re-couple, ensure that you are operating at speeds below 5mph (8kph). Experiment with different camera positions to make this task easier.

**Tip:** In DCC mode you must apply the handbrake ("A") before uncoupling to avoid runaway wagons.

### 9.14 Other Functions

At the top left, there is a group of icons that let you carry out other general functions.

**Exit (Esc)**

Quit the current session back to the Driver Main Menu or Surveyor screen with the option to save the session before exiting.

**Pause (P)**

Suspend the current session so that you can answer that important phone call or finally stop for a lunch or dinner break.

**Save (Ctrl-S)**

Lets you Save your progress including where each train is located and the state of each industry. To reload a Saved Session, choose the "Saved Session" option from the Driver Main Menu screen.

**Performance Settings (Ctrl-T)**

This is where you can tweak the graphics slider settings to improve the visual quality of your game. See section 7.3 for more details of what these settings do.

**Imperial/Metric (G)**

Toggles the settings from Imperial to Metric or vice versa. This will affect parts of Trainz that involve the display of measurement/speed information such as the Time & Speed HUD Panel.

**Find (Ctrl-F)**

Lets you locate a particular item such as a junction, station, loco or interactive industry. Selecting the item will move the camera position to that position on the route. See section 11.13.4 for further details of the Find functionality.

**On Screen Help (Ctrl-H)**

Toggles the display of on screen icons such as turnout direction markers.

More details of what these icons do can be found in section 12.6 of this manual.

### 9.15 Mastering Operations

The tutorials mentioned in section 9.2.1 show you how simple it is to get started in Driver mode to operate the railroads that come with TRS2006 or those built by yourself or others. For an expanded explanation of the capabilities of Driver Mode, see Chapter 12 - Engineer's Guide of this manual.

# 10 - Surveyor


## 10.1 Introduction

Welcome to Surveyor, the user-friendly World/Route/Layout builder. Surveyor is a tool where you can jump in straight away and have some fun, but also may take some time and patience to master.

Using Surveyor and your imagination you can create terrain, paint it with textures and then populate it with trees, shrubs, buildings, roads, power lines, animals and people. You can create lakes and rivers, change the weather conditions and even change the color of the sunset.

There is the ability to create your railroad, with track, stations, signals, maintenance facilities, turntables and the plethora of trackside infrastructure that combine together to form a working railroad. You can edit the default Routes or start out from scratch making your own creation. You can also download a huge number of Routes created by others from the Trainz Download Station and modify them to suit your tastes.

In Surveyor you also place the locomotives, rolling stock and drivers that are the "actors" on the stage you create for each of your Driving Sessions.



## 10.2 What's new in Surveyor Mode in TRS2006?

If you are familiar with earlier versions of the Trainz product, we thought we'd give you a quick list of significant differences in the Surveyor module between TRS2006 and the earlier versions:

- Backdrop scenery items
- Animated turnouts
- More than 50 rules
- Custom content search filter

## 10.3 Flexibility and Framerates

Welcome to the Surveyor world builder tool. Surveyor is a tool that needs some experimentation. It is free-form, open-ended software at its best and our users will probably find ways to utilize it beyond anything we originally envisioned.

With this freedom also comes a dilemma. The Surveyor tool has no constraints on the amount and variety of objects that can be placed in your 3D world. Therein lies the issue, the more types of objects, the slower will be the performance of the Driver component of the software. You can minimize these frame rate effects by keeping the variety and number of objects minimal. Their effect on frame rate is in that order, first variety and then quantity. Keep this in mind when putting your world together and you will have a more pleasant driving experience.

With Surveyor you can create terrain, populate it with trees, shrubs, buildings, roads, vehicles, aircraft, ships, power lines, animals and people. Then of course there is the ability to create your railroad, with track, stations, signals, maintenance facilities, turntables and the plethora of trackside infrastructure that combine together to form a working railroad.

Let's not forget the new working industries that give your railroad purpose and the locomotives and rolling stock that are the actors on the stage you create.

We will start with a step-by-step guide to creating a very basic operational

route. This will demonstrate the main aspects of Surveyor. The sections that follow that provide a detailed description of each of the tools available to you within Surveyor.

Surveyor is a powerful editor that lets you create your own worlds, landscapes and railroads. Create hills, mountains, valleys and streams, populate the world with all types of scenery objects, and of course lay your track, signals, turnouts, consists and even program the operation of the Route.

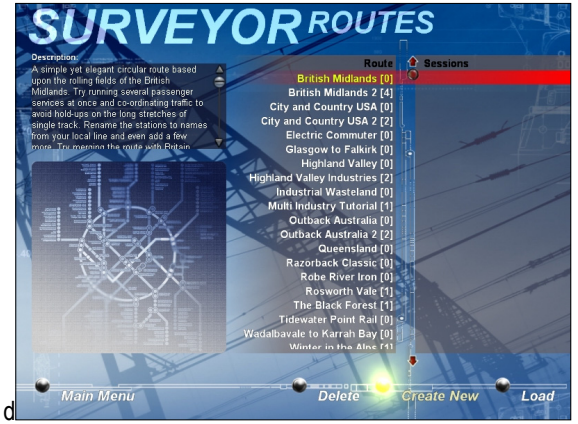
You can edit the default Routes or those created by others. Or you can start out from scratch making your own creation. You can also download a huge number of Routes created by others just like yourself from the TRS2006 Download Station and modify them to suit your tastes.

The following tutorial provides you with just the basics to help you get started in making your first TRS2006 route.

### 10.4 My First Railroad

In this section we will be building a single baseboard map with a hill in the center and a simple oval of track connecting a power station to its source of fuel, a coal mine. If you feel you are ready you may wish to skip this section and move to the more detailed instructions beginning with Chapter 11 - Surveyor in Depth.

Begin by selecting the Surveyor option on the TRS2006 Main Menu. The following screen appears.

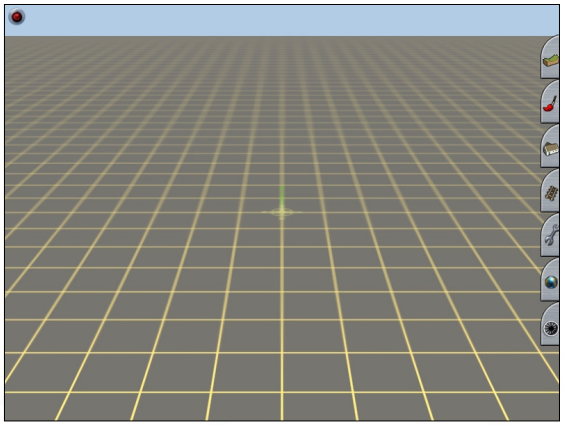



The details of this screen will be discussed later in this document.

For the purpose of this tutorial, Click LMB on Create New. We are going to create our route from scratch. A new window will pop up as follows, asking you for some map details.

For now click in the "Route Name:" field and type "My First Layout" and leave the rest of the fields as they are. Click LMB on the tick (checkmark) to be taken to the Surveyor editor.

The next thing you notice is the baseboard marked out with a grid and with a 3D compass in the center of the screen.



This compass is always centered on your screen. If you get close enough to the compass, you will see that the compass is marked with the East, West, North and South compass directions to assist you in aligning your route geographically.

### 10.4.1 Compass Movement and Camera Skills

The first task to learn in Surveyor is how to move around the baseboard and control your camera. Mastering these two basic skills will make your time in Surveyor much more enjoyable.

In the middle of the baseboard is your Surveyor Compass. There is also a small white arrow on the screen. The arrow is your default cursor, which you can control by moving your mouse. Move your cursor to the right of the Compass and Click RMB. The compass will move to that position and the screen is re-centered on the compass.

Next, Click RMB+H and move your mouse slowly towards the edge of the screen. You will notice the compass following the cursor as you move around the terrain. Learn to control the speed of movement by moving the compass close to or away from the center of the screen. Keep practicing these movements until you can successfully control the direction and speed you wish to move.

Use the arrow keys on your keyboard to rotate the camera around the compass. The left and right arrows rotate the camera. The up and down arrows change the elevation of the camera. Press the Page Up and Page Down keys to zoom in and out or you can use the mouse-wheel on your mouse if you have one.

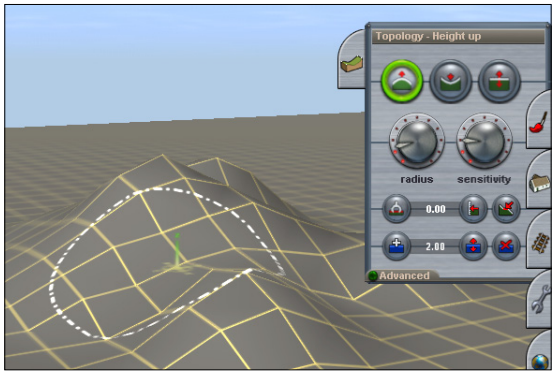
When you zoom in close, notice how the compass has the four directions N, S, E and W. This is helpful to stay orientated in your TRS2006 world, positioning your railroad properly with respect to the rising and setting sun. Yes on a clear day, the sun does rise and set in your TRS2006 World!!!

**Tip:** Spend some time using a combination of the mouse and keyboard commands that control the viewing pane in Surveyor. This is an important skill to develop and some time invested now will reward you with effortless flitting around the map as you construct your railroad empire.

**Tip:** The Undo/Redo buttons are found on the top menu panel. Use them if you want to retrace your steps backwards and forwards respectively.

### 10.4.2 Make a Mountain

Okay let's start by clicking on the Topology Tab. It's the Tab at the top of a Tab Panel on the far right of the screen. Out from the right of the screen flies a menu panel.



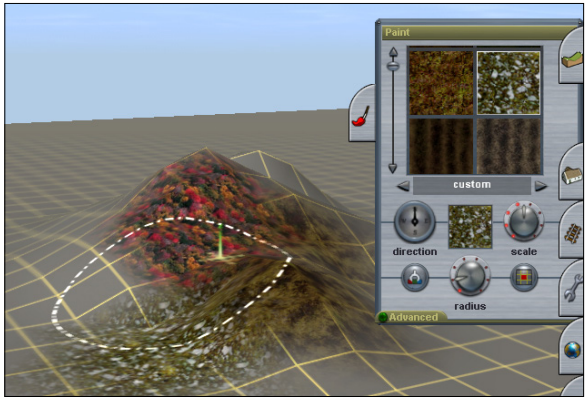

For now select the Height Up tool (each tool has a label which pops up when you move the cursor over the tool) with a Click LMB. Then Click LMB+H on the Radius tool and drag it around until its dial is in the 12 o'clock position. Do the same with the Sensitivity dial. When you move the mouse cursor back onto the Surveyor map it has changed to a dotted circle.

Place the circle around the center of your square baseboard and Click LMB+H. the longer you hold the LMB the higher and bigger the hill becomes. Move the mouse around while LMB+H and you can create various peaks and ridges as shown above. Don't go overboard here as you'll want to leave some room for trackwork…not that mountain ranges have ever stopped a track laying engineer.



### 10.4.3 Ground Texturing

When you are happy with your hill Click LMB on the Painting Tab from the tabs at the right of the screen (it's the second one down).




The Topology menu disappears to be replaced by the painting menu. Scroll down the texture palette until you find a texture you like. Again select the radius of the texture effect by Click LMB+H on the Radius dial and moving it until you are happy with the size of the painting circle. Then Click LMB to apply the texture to the terrain.

Select a couple of different textures and play with blending them (overlapping), rotating them using the Direction tool or the "[" or "]" keys. Select a Texture with a directional pattern in it. Click LMB+H on a spot on your route and then press the "[" or "]" keys repeatedly to see how this works.

Change the size of the pattern (the scale of the texture) by using the Scale tool. Change the size of the area covered (the white circle) using the Radius tool or the "+" or "-" keys.

You can get some very artistic and realistic effects. Keep playing until you are happy with the result.

Now make sure that you are back to having only the mountain, nicely textured in the center of the route. Use the Undo function to undo any extra texturing that you may have been playing with.

### 10.4.4 Coal for Industry

Now let's place a couple of linked industries. First select the Object tab from the tab panel and select the Coal Mine object.

You will find this under Object Type "Industrial". Make sure you are in the Add Object mode by Click LMB on the Add Object button. Then move the view to one side of your board and Click LMB on the map to place the Coal Mine. You can move and rotate the object by Click LMB on the Move and Rotate buttons respectively. To do this, Click LMB+H on the mine in the view window and then move the mouse accordingly. Position the Coal Mine as shown below.


Next set the coal mine's properties by first Clicking LMB on the Edit Properties button (highlighted in bright green in the screen above) and then Click LMB on the Coal Mine. First let's give it a name. Type in "Lignite Coal Co" in the name box. We will set the rate of coal production to 200. Do this by Clicking LMB on the underlined default production rate and entering 200 in the pop up window. Similarly we will change the diesel consumption to a value of 0. Set the Start Amount for each to 0. Click LMB on the tick and we have defined our active Coal Mine.




### 10.4.5 Give me Power

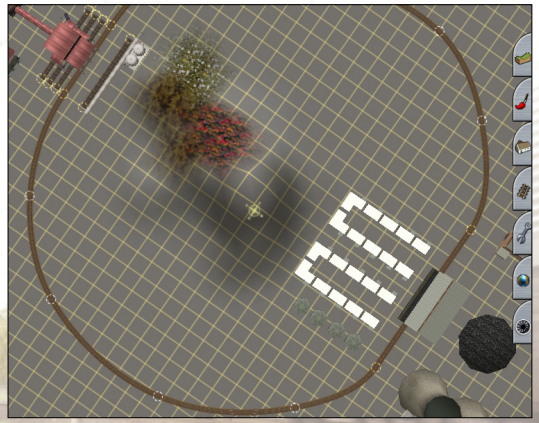
Next we'll set up a coal-fired power station. As we did for the Coal Mine, select the Power Station. It is in the same list as you found the Coal Mine. Place it on the other side of the baseboard (and the mountain). Move and rotate the power station as required to line up the tracks as shown below. Set its properties which in this case is only to name it to "Kinetic Power Co".

### 10.4.6 Lay your Tracks

Now we will link up these two industries via a simple oval loop. The goal is to link up the Coal Mine's loading track to the oval and run it around to the Power Station's coal unloading track. Go to the tab panel and select the Track tab.

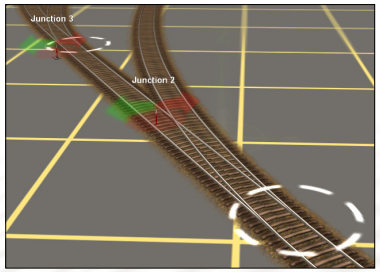

Choose the type of single track you want to use. Make sure you are in the Add Track mode (the large green button above is lit when you are in that mode). Start laying track by Click LMB on the board where you want to start the track. You will notice a white circle associated with the track wherever you Click LMB on the board. These are called Spline Control Points. We will manipulate these points later to move the track either horizontally or vertically. These Spline Control Points are also attachment points for bridges, tunnels and other spline enabled objects.

The track is drawn between consecutive spline points. Click LMB on the map to add another spline point and the track smoothes itself out between the two points, a very useful feature. However, there are limits!



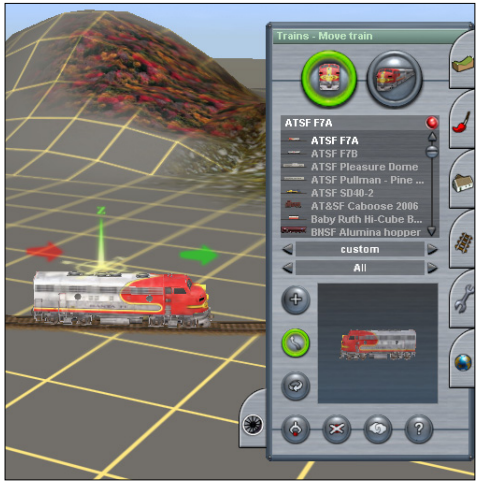
Attach one end of the track to one of the coal mine loading tracks (there are four) and the other end to the power station track by Clicking LMB one new end point onto the track as shown in the screen shot above. Do the same on the other side so you have a continuous loop. You can also smooth out your track laying efforts by Click LMB the Move mode button in the track menu and then Click LMB+H on any of the track spline points in the view window. Move the mouse to move the spline points and watch as the track follows. Play with this until you are happy with your loop of track.

Just for fun, let's add a siding. Click LMB on the Add Track Button and click on your existing loop of track. A new spline point appears and you can now Click LMB again, away from the loop and create a siding.

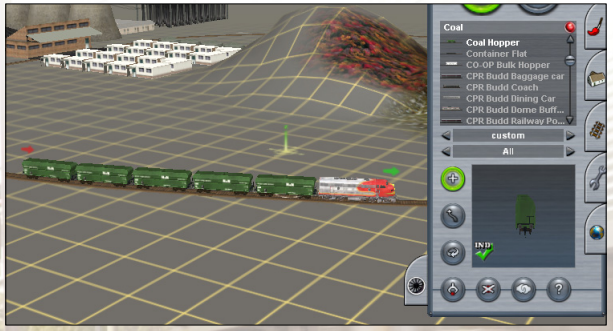



### 10.4.7 Locomotives, Rolling Stock and Trains

We will now place a train of a locomotive and rolling stock on the track. Select the Trains Tab from the Tab Panel. Then scroll down and select a locomotive from the list of available items. Let's choose a ATSF F7A unit. Once it is selected, Click LMB on any spot on the track you laid in the view screen to place the locomotive. The locomotive will appear on the track with arrows above it defining the ends of the consist and which direction will be forward when you drive it.




Next, select the green coal car (called "coal hopper") from your list of engines and rolling stock. Click LMB on the placed locomotive towards the back of the loco and the coal car will appear behind the locomotive. Keep on Click LMB on the last car in the consist to add more coal cars. Stop when you have added 5 coal cars. You will now see a consist on the track.




Let's name our consist by first Clicking LMB on the Properties button (lighted in green below at the bottom of the tab). Then Click LMB on the locomotive in the view panel. In the pop-up window type, click on the existing name (ATSF F7A 2 in the screen shot below) and type in "Coal Train" to replace it. Give it a running number of 10 by clicking on the underlined "running number" text and typing "10".

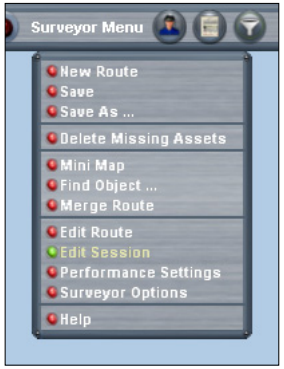

### 10.4.8 Assign a Driver

Our next challenge is to assign a driver to the Consist.

**Tip:** This is optional as you may wish to drive your own trains in your route. But using Drivers adds a whole new dimension to TRS2006 so we will do that next.

**Tip:** If you save a session without entering any Rules, a default set of Rules is applied for you.

Move the mouse to the top of the screen to bring down the top menu and Click LMB on the word "Surveyor" in the menu to pull down the Surveyor menu. We will explain all of these options later in this document.




For now, Click LMB on the Edit Session option. A pop-up window named "Edit Session" appears.


This window is where the rules that define a session's behavior are added and configured. As this is a new empty session, three default rules are already included and configured so some minimal functionality is already available and the session can be run.



Click LMB on 2nd rule named "Driver Set Up Rule" such that it is highlighted in blue. Then Click LMB on the Edit button to open the properties window for that rule.


**Tip:** In any of these windows if you decide not to go through with the change, click on the red "X" to cancel your selections.

The Driver Setup Rule is responsible for assigning driver characters to trains for the session. It will automatically try to find every loco and have a driver character assigned to it already. In this case, you will see how a driver character has been assigned to the ATSF F7A locomotive.

As this is a simple session without the need for complex driver arrangements, the automatic assignment done by the rule is sufficient, but for the sake of configuring a rule, click on the driver character icon to bring up a list of drivers.


Choose any driver from the pop-up list and click on the green check (tick) to return back to the Driver Setup rule properties window. You will notice that the driver character icon has changed and that the driver you chose is now assigned to the locomotive.

Close the Driver Setup rule properties window by clicking LMB on the green check mark at the bottom right. Then close the Edit Session window with changes saved by clicking LMB on green check near the bottom right corner.

Sessions and the rules used to define them are looked at in more detail in sections 11.13.7 and 11.4 of this manual.

### 10.4.9 Save and Drive

Once again move the mouse to the top menu and Click LMB on the word Surveyor to pull down the Surveyor menu. Click LMB on the Save option to save your creation and make it available in the Driver module.

**Tip:** Save your work in Surveyor regularly to ensure you don't lose your work should the unforeseen happen. You can also use the Save As option in the menu to save different versions of your route.



Ideally, you will have previously learned to use Driver mode either through the previous chapter of this manual and the tutorial sessions. If not, this is a good time to do so. Once you have learned how, you can load "My First Layout" into Driver and experience the thrill of driving on a route that you have built from scratch!!!

**Tip:** In TRS2006 you can try out your new route and session simply by hitting "Ctrl-F2". This will transfer you directly into Driver. When you leave Driver mode, you will automatically return to Surveyor so that you can continue to work on your route having tried it out.

Well done! You have created your first Railroad by going through the steps of building the terrain, texturing it, placing objects, laying track, putting down consists and assigning drivers. This has been a quick peek into the powerful capabilities of Surveyor, feel free to experiment within Surveyor and discover its flexibility.

## 10.5 Becoming a Master Railroad Empire Builder

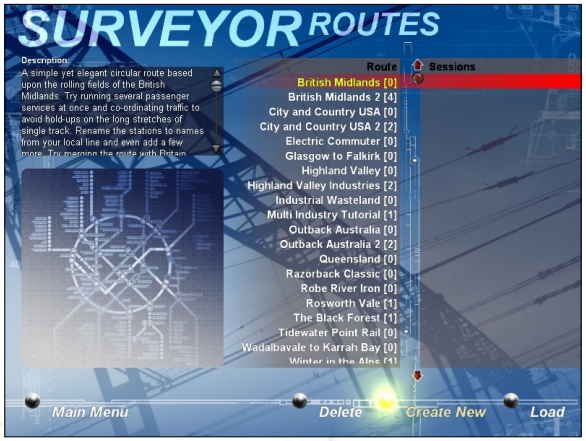
The preceding "quick start" tutorial has shown you how simple it is to get going with Surveyor to build your railway empire. In the following section you will learn how to further develop your routes and sessions into vast railway empires.

# 11 - Surveyor In Depth

## 11.1 The Surveyor Main Menu in Detail

Let's go back to the Main Surveyor screen as shown below and explore it. At the left in the description field will be a description of the route if the author of the route has included one.

To create a new route from scratch, Click LMB on the Create New button as you did in the tutorial we just described above.




On the right of the screen, you will see a list of Routes. For each route, there may be one or more sessions. If the route does not have a session, that means the route has been built but:

- No rules have been set to govern operations on that route.
- No consist has been developed and placed on that route.

In order to operate trains on the route (using Driver mode) you need to add at least one train to that route. You may of course optionally add rules as well. How to do this will all be described below.



In the list above the routes and sessions that do not have a "c" beside them are those that have come prepackaged with the TRS2006 software. They cannot be deleted or removed nor can they be changed and replaced. But you can load them up and then change them and save them with a new name if you wish.

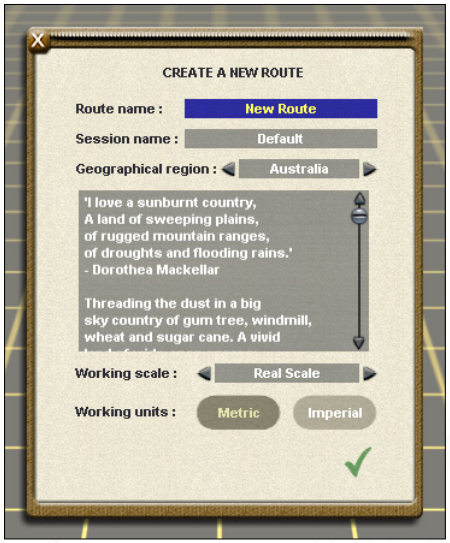
The route and sessions with "c" beside them are ones that you have created or that have been created by others and which you have downloaded from the Internet. These may be changed by you and replaced or saved with a new name. In the above example, there is one route (Ontario Northland Railway) which is created by others and it has two session stored with it - the Capuskasing Freight and the Polar Bear Express session.

If you wish to work with a route or session in this list, Click LMB on that route and then Click LMB to load it into Surveyor.

**Tip:** Changing objects that are part of the "world" such as ground, buildings, track, signals etc means that you're are changing the Route. Altering the dynamic components such as locos, rolling stock, industry parameters and Rules, means that you are changing the Session that belongs to the Route.

### 11.2 Create a New Route

Here we will assume that you have clicked on Create New from the Surveyor Main Menu to build a new route and associated sessions from scratch. This is the first screen that you will see.




How to complete this screen is section 11.13.1 of this manual.

### 11.3 Testing Your New Route in Driver (CTRL-F2)

Before we explain how you can start to build a new route in Surveyor, let us alert you to a handy new feature which is very useful during route construction.

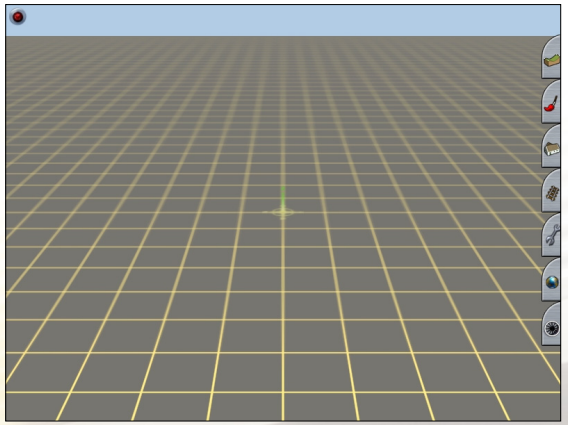
In TRS2006 you can now try out your new route and session simply by hitting "Ctrl-F2" while you are in Surveyor mode. This will transfer you directly into Driver. When you leave Driver mode, you will automatically return to Surveyor so that you can continue to work on your route having tried it out. This avoids your having to save your session and then sign out of Surveyor and then load your session into Driver.



Please note that on your way back from Driver, you will be asked if you wish to save your Driver session for reloading in future just as you might do in a regular driver session.

### 11.4 The Baseboard and the Surveyor Tabs

Once you have completed the New Route setup, you will see this screen. It in effect is the "table" up on which you build your route. The baseboard you see here is 720 meters by 720 meters square and each grid square is 10 meters by 10 meters in size. If you chose Imperial measures instead of metric the grid squares still remain that size. As described later, you can use the Extend function in Surveyor to add more baseboards and the Merge function to merge routes.



**Surveyor Tool Tabs**

Down the right hand side of the Surveyor main screen are seven menu tabs representing all the tools you need to know about to successfully make your own route and session in Surveyor.

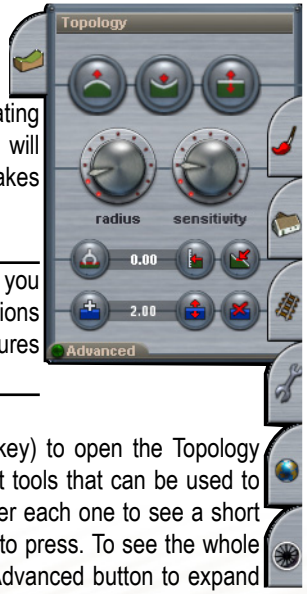
Leave your mouse cursor hovering over the first tab and you will notice a yellow text box appear saying Topology 'F1'. This message is a ToolTip and gives you information about the function of that icon. You will also notice the

"Hotkey" information ('F1') telling you which keystroke you can press as an alternative to clicking on the icon. Most functions in Surveyor have a ToolTip and Hotkey associated with them.

If you are in doubt as to what a particular icon will do, simply hold your mouse over it and the ToolTip will tell you what action that icon performs. Hotkeys in this document are shown in brackets after the tool description.



## 11.5 Topology Menu (F1)




### 11.5.1 Basic Topology Functions

The Topology Menu provides the tools for creating various types of terrain. In this section you will learn how to make hills, valleys, mountains, lakes and rivers.

> **Tip:** You will learn these features faster if you first start a new route per the instructions earlier in the tutorial before trying the features to be described now.

Click on the Topology Tab (or press the F1 key) to open the Topology Menu. Here you will see a number of different tools that can be used to shape the terrain. Hold your mouse cursor over each one to see a short description as well as the appropriate Hotkey to press. To see the whole menu as in the diagram above, click on the Advanced button to expand the menu.

**Height Up (U)**

Click on the Height Up (U) and notice that the Mode changes to Height Up. Click on Height Down (D) and Adjust Height (A) to see how each time a tool is selected, the Mode changes.

Click on the Height Up icon once again to select the Height Up tool, and notice that your mouse cursor changes to a circle. This circle is the "area of influence" for your cursor when using the land shaping tools.

Click LMB once near the center of your baseboard. Notice that the terrain is stretched upwards. Next, Click LMB+H, and the terrain continues to rise up as long as you hold the LMB down. Notice how the hill becomes very steep and the base of the hill is the approximate size of the cursor circle.

Click LMB on the Radius Tool ("+") to enlarge the circle of influence to its

maximum size. Click LMB and hold near the compass icon once more. The hill this time is a lot wider and flatter. Click LMB on the Radius Tool ("-") to reduce the size of the circle of influence.

**Tip:** The "+" and "-" are the keyboard keys between the "0" and "backspace" keys on your keyboard. They are not the keys on the number pad at the right of your keyboard.

Zoom Out (Page Down) so that you can see the whole circle. In Surveyor, you will often need to zoom in and out and use the arrow keys to rotate your camera to get the best view of what is happening. Whilst holding the LMB, move the mouse around the terrain and the hill "follows" your cursor. Zoom In (Page Up) for a closer view.

Next, increase the sensitivity by moving the Sensitivity Dial ("]" and "[") to the maximum setting and Click LMB. Now the hill grows a lot faster. You may need to zoom out again (Page Down) to see the whole hill.

As you make hills, you will find you need to Click RMB to move your camera position and also orient the camera in the direction you wish to face by using your arrow keys. A little practice makes hill creation a breeze.

**Height Down (D)**

Height Down works the same as Height Up tool. Firstly move to a flat area then make an indentation by Clicking LMB where you want the terrain to be lowered. Again, notice that size of the cursor circle determines the amount of land that is lowered and the sensitivity determines how quickly it lowers.

**Adjust Height (A)**

Adjust Height (A) allows finer control of the up and down movement. Click LMB and hold then push your mouse away from you to raise the terrain. Click LMB and hold then pull the mouse towards you to lower the terrain.



Combined with the zoom function (Page Up, Page Down), spinning the camera (arrow or cursor keys), and adjustment of the radius and sensitivity dials, you can now make a wide variety of different hills and valleys. Practice this until you are comfortable to move on.

**Get Height (G)**

Select Get Height (G), then Click RMB on the side of a hill. Notice that the number in the Height Value field changes. You have captured the height of the spot you clicked on. This is useful when you want to then go to another spot and set the spot to the same height.

Watch the Height Value field change as you Click RMB on different parts of the terrain.

**Use Height (H)**

Click on Use Height (H) Then Click LMB to apply the selected Height Value to the terrain. The Use Height tool creates a plateau at your selected height and the radius of your cursor circle determines the amount of land that is leveled at one time.

Click LMB+H then move your mouse around the terrain to plateau a broader section.

**Plateau (P)**

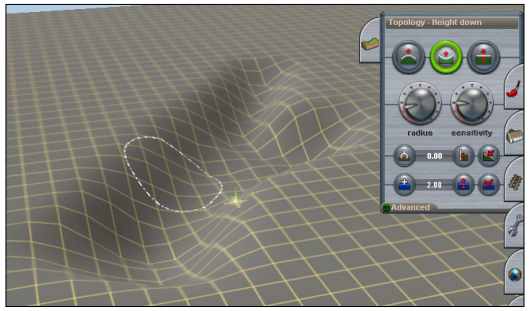
Plateau (P) works in a similar fashion, and simply creates a plateau at the current height of the compass. Click LMB on the side of a hill to create a plateau at that level by raising or lowering the terrain.

As an alternative to Get Height to select a Height Value, you can also enter specific height in the Height Value field. You can enter positive or negative values. Negative values allow you to depress the terrain.

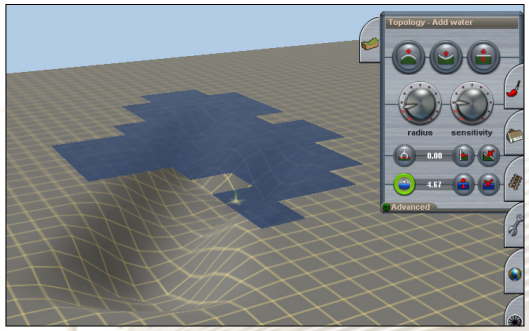
**Add Water (W)**

To create a "riverbed", make your circle radius as small as possible. Next, enter -10 in the Height Value field. Then click on Use Height. Now

make your riverbed by Click LMB+H, then "painting" the new height along the terrain creating your riverbed as shown below.

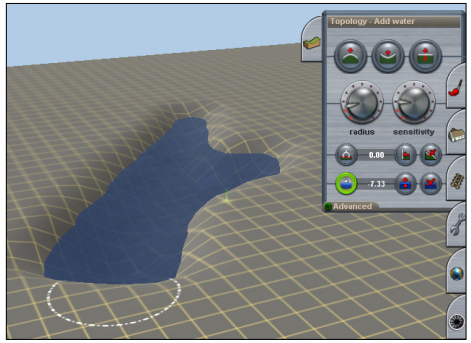



Now Click LMB on Add Water (W) and paint the water texture along the riverbed by Clicking LMB and moving your mouse around. The radius of the cursor circle determines the texture panel size. You results will look like that shown below where we have partially completed the "water painting" job. Paint enough squares so that they will cover the area of your riverbed.




**Adjust Water Height (E)**

At first as you see above, the water "floats" above the terrain. Adjust Water Height (E) works like the Adjust Height tool. Select the Adjust Water Height tool and Click LMB and hold (on the water texture) then drag your mouse forward and back, adjusting the water texture height until it is the appropriate height. Note how it properly fills the riverbed as you move the water downward.




**Remove Water (Q)**

Click LMB on Remove Water (Q) and you then delete the water texture one panel at a time by Clicking LMB on each water panel.

### 11.5.2 Advanced Topology Functions (Shift-F1)

The Advanced features menu can be opened and closed by using Shift-F1 or clicking on the Advanced Tab.


**Extend Section (X)**

Navigate to the edge of a baseboard by Clicking RMB to move the compass. Then select the Extend Section (X) tool. Click LMB in the void just off the edge of the baseboard to add another baseboard in that direction.

Bring up the Surveyor Main Menu by clicking on the word Surveyor on the top menu which drops down if you move your cursor to the top of the screen.

Select Mini Map (Ctrl-M). You will see a mini map showing 2 baseboards. Zoom in and out by clicking on the "+" and "-" icons.

> **Tip:** The "+" and "-" are the keyboard keys between the "0" and "backspace" keys on your keyboard. They are not the keys on the number pad at the right of your keyboard.

Close the mini map by clicking on the Red Light (Ctrl-M) to toggle back to the full screen view.

Navigate to another edge and add two more baseboards then press Ctrl-M to view the mini map once more. Navigate around the mini map by Clicking RMB. Notice the main map also moves. This is very useful for navigating on large maps. Use Ctrl-M to close the mini map once more.

**Delete Section**

Click LMB on the Delete Section button. Then Click LMB on any baseboard section to delete it.

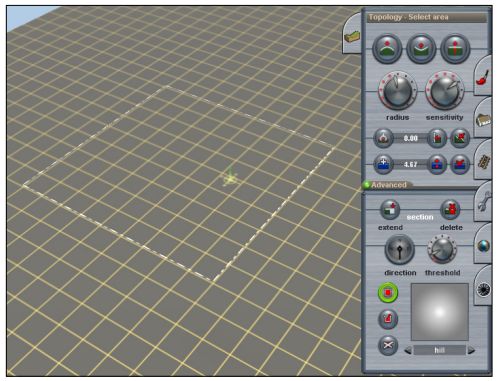
**Displacement Maps**

The final group of Topology tools relates to using a displacement map. A displacement map is a grayscale image used to create an instant height map.

**Select Area (B)**

Click on Select Area (B). Click LMB and drag the mouse to make a large square as shown below. The size of the square (or it can be a rectangle) determines the area that will be affected by the next operation.

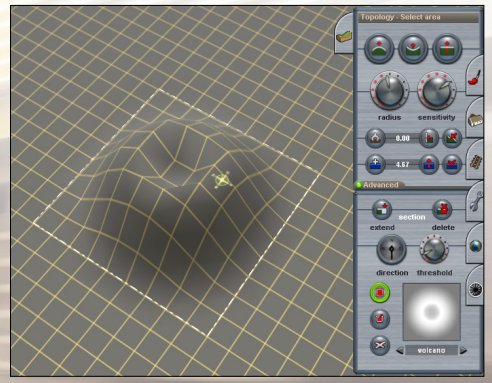





**Fill Area (F)**

Scroll through the Displacement Maps (by clicking on the left and right arrows) until you find one called the Volcano, then click on Fill Area (F). The terrain is instantly transformed into the shape determined by the grayscale images of the displacement map chosen. In this case, we have our volcano.

> **Note:** If you can't Click LMB on this button, it is probably due to your not having used Select Area (B) to select an area to fill.



Click Undo to remove the volcano.

Repeat the process using the Valley gray scale map to build a valley. Then move the Direction dial and increase the Threshold dial. Click LMB on Fill Area once more. This time the valley is bigger and faces a different direction. By holding Shift whilst selecting your area, larger areas are selected at one time.

**Cancel Selection (D)**

Click LMB on Cancel Selection (D) to cancel the selection.

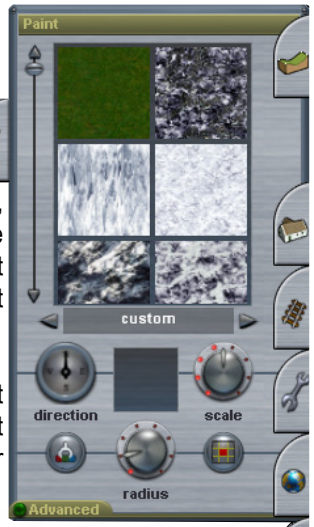
**Making Your Own Displacement Maps**

You can also make your own displacement maps using a simple paint program (e.g. MS Paint) and then drop them into the \World\Custom\Displacements folder in your TRS2006 directory to make them accessible.



## 11.6 Paint Menu (F2)

### 11.6.1 Basic Paint Functions




The Paint Menu provides access to a wide variety of ground textures. Textures in Surveyor are "bitmaps" which are created to look like various ground types such as sand, grass, rocks or gravel. You can even create your own textures using a simple paint program or a digital camera. (The resultant .bmp file must be 128x128 pixels)

Click on the Paint Tab (F2) to open the Paint Menu. You will see a number of default textures, grouped by region. Use the slider button to scroll through the list.

Click the left and right arrows to view textures from the different regions.

Click on one of the textures, and you will see a copy of it appear in the small current texture window. Click LMB on the terrain and use your mouse as a paintbrush to paint on the texture.

Scroll through the textures until you find a striped texture. Paint a section of terrain. You can see that a complex texture pattern makes easy work of creating stunning ground textures.

Rotate the Direction Dial 90 degrees. Apply the texture again. Notice how the texture direction has changed.

Hold down the "[" key and apply the texture once more. Notice the direction dial is spinning and the texture is being applied in various directions. This tool helps to eliminate repetitive patterns in your textures when you don't want them.

Now move the Scale dial to the minimum setting and apply the texture, then move the scale dial to the maximum setting and notice the difference when you apply the texture this time. You can avoid repetitive texture patterns and create ultra-realistic effects by using the scale and direction tools along with choosing the right textures.

**Get Texture (G)**

Click on the Get Texture (G) tool then Click LMB on a texture already painted onto your terrain. Notice the current texture window changes to show the newly selected texture. This is a useful way to find a texture that you have already used without scrolling through all the textures to find it again.

The Radius Dial ("+" or "-") changes the area of influence of your cursor circle. Use the larger radius for quicker painting and the smallest radius for more accurate and detailed work.

> **Tip:** The "+' and "-" are the keyboard keys between the "0" and "backspace" keys on your keyboard. They are not the keys on the number pad at the right of your keyboard.

**Fill Grid (L)**

The Fill Grid (L) will fill all unpainted areas of an entire baseboard with one texture. This is useful for finishing off an area where fine texturing is not required.



### 11.6.2 Advanced Paint Functions (Shift-F2)


The Advanced Tab (Shift-F2) has a "favorites" texture palette. Drag and drop textures from the top palette into the box in the advanced menu area to build up a set of your favorite textures for ease of access. Just Click LMB+H upon a texture and drag it to the box below. To remove a textures from the favorites box, just Click LMB+H on the texture and drag it out of the box and then stop holding the LMB.

**Select Area (B)**

You can also texture a rectangular area by clicking on the Select Area (B) and using the mouse to drag a rectangle of any size.

**Fill Area (F)**

Then Click LMB on a texture in the favorites box and use the Fill Area (F) tool to texture the whole rectangle. If you do not select an area first, Clicking LMB on Fill Area (F) and Surveyor will fill all areas on which there are no textures with the selected texture.

> **Note:** If you can't Click LMB on this button, it is probably due to your not having any textures in the favorites box.

**Cancel Selection (D)**

Click LMB on Cancel Selection (D) to cancel the selected area.

## 11.7 Objects Menu (F3)

### 11.7.1 Object Management Functions



There are a huge number of objects in TRS2006 that you can place onto the terrain. There are two different types of objects - objects and splines. We'll explain spline objects later. For now we will concentrate on single objects.

Open the Objects Menu by clicking on the Objects Tab (F3). The default mode is Add Objects

Begin by scrolling through the list of objects by clicking on the left and right arrows of the object list. The selected object shows as a rotating 3D object in the viewer window.

**Note:** You can control what is shown in your list by selecting specific Object Regions (such as USA) and Object Types (such as Trackside).

**Add Object (A)**


Check that you are in Add Object mode, or Click LMB on Add Object (A) to select this mode. Click LMB on the terrain and the selected object is placed wherever you click. You can repeat this several times quickly adding a number of trees or buildings.

**Tip:** It is easy to click twice and get multiple copies of your object. Just use Undo to delete the unwanted copies of the objects.

**Tip:** If there is a green checkmark with the letters "IND" shown in the lower left corner of the Viewer window, this is an indication that this is an "interactive" piece of industry capable of participating with "interactive" rolling stock.

**Move Object (M)**


Click on the Move Object (M) and Click LMB+H on any object and then drag the object around the terrain to new positions.

**Rotate Object (R)**


Now click on the Rotate Object (R) and Click LMB+H and move the mouse left and right to rotate the objects. Note that a display shows you the number of degrees of rotation.

You can use the move and rotate tools to create rows of trees or to align houses next to a road. You can set objects to "randomly rotate" or not by choosing the Randomly Rotate option in the Surveyor Options menu in the Surveyor Main Menu.

To find a particular object in the list of objects, click on the Object Selection text box, and then type the first few letters of the object name. Type in "tree" and the list automatically positions alphabetically at "tree". Click on the Up and Down arrows (or use the "+" or "-" keys) to scroll up and down the list.

**Tip:** The "+" and "-" are the keyboard keys between the "0" and "backspace" keys on your keyboard. They are not the keys on the number pad at the right of your keyboard.

Above the Object Viewer Window are the Object Region and Object Type lists. Scroll through and select either a region or an object type or both in order to shorten the selection list.

**Get Object (G)**

Click on the Get Object (G) tool and then Click LMB on an object already placed on the terrain. Notice that the object selected now appears in the selection window.

Change the mode to Add Object (A) and Click LMB again on the terrain where you wish to place another copy of the newly selected object.

**Adjust Height (H)**

When placed on a route, Objects are placed at ground level at that point in the route. If the ground is raised the object follows it. But you can place an object at a relative height to the ground at any point.

Click LMB on Height Adjust (H) to enable the adjustment of the height of any Object. Note that only objects which have been designed to be height adjustable will allow you to adjust their height. So if you cannot adjust the height of an object, the likely reason is that it wasn't designed to do so.

While in the flight of fancy shown below, we have height adjusted a station to make it defy gravity (only in TRS2006!!!), this function is very useful. For example, you can place objects on top of each other such as a building on a platform.


**Delete Object (D)**

Select Delete Object (D) then Click LMB to delete an object. Continue Clicking LMB to delete a number of objects. If you click on the wrong object, click on Undo (Ctrl-Z) to undo the last action and replace the last deleted object.

**Edit Properties (N)**

Click LMB on Edit Properties (N). Then Click LMB on any object in your route. A menu will then open up allowing you to edit the properties of the object. For wimple objects, this usually involves naming the object if you wish.

For more complex operating industries, you are given the opportunity to change production and consumption rates for resources and other properties as we experienced in the earlier tutorial with the power plan and the coal plant objects.

### 11.7.2 Special Object Types

As well as the regular objects that are static and exist primarily for cosmetic purposes, there are also a range of interactive and special object types with unique features. These objects usually have track included that can be linked to the track on your main route.

**Industries**

An industry is a scenery item with track that also produces and consumes products. Train vehicles can load and unload products at an industry allowing real world railroad activity (i.e. the transportation of goods) to be simulated. The products produced and consumed by an industry can be viewed and tweaked by using the Edit Properties button as mentioned above.

Section 10.4.4 of this manual has a simple example showing how to place and integrate an industry into a route.

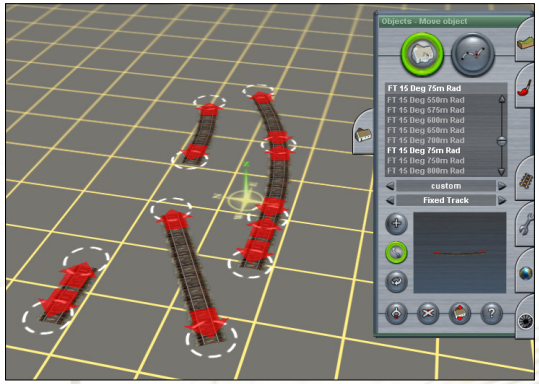
**Tip:** Industries can be easily found in the scenery object list by selecting the "Industry" category.

**Note:** To be of any use, an industry's track must be connected up to your railroad and to load/unload, the vehicles used must be capable of carrying that particular product.

**Fixed Track**

Fixed track scenery items are fixed, non-flexible segments of track and can be thought of as the Trainz equivalent to the sectional track model train manufacturers have.

A piece of fixed track can be placed like any ordinary scenery object and then connected to normal track splines. It is also possible for fixed track pieces to snap together when one piece is moved in close proximity to an end point of another.




The end points of a fixed track are identified by the red arrow seen hovering above the track.

When rotating a piece of fixed track, other pieces of fixed track attached to it will also be rotated resulting in the track pattern being maintained during rotation. The same also applies for moving connected pieces of fixed track.



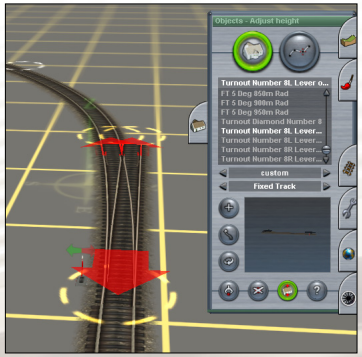
**Tip:** Fixed track pieces can be easily found in the scenery object list by selecting the "Fixed Track" category.

**Note:** Gradients are not really supported with fixed track. It is advisable to use fixed track for flat areas only.

**Animated Junctions**

New to TRS2006 are animated junctions. These junctions differ from normal junctions in that they are pre-defined fixed track pieces and have animated components. As an animated junction is a pre-defined fixed track piece, extra detail like guide rails can also be present in an animated junction.

Animated junctions are added and manipulated on the Surveyor baseboard in the same way fixed track pieces are.




**Note:** You will find the animated junctions in the "Fixed Track" category. The names of all animated junctions included with TS2006 are prefixed with "Turnout".

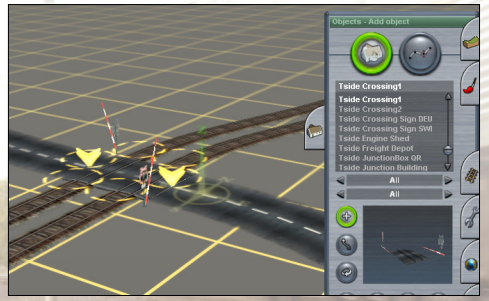
## Turntables

Turntables are scenery objects with multiple incoming pieces of track where a special traverser track segment (usually rotating) can move around to offer access to all track pieces. Simply placing a turntable object on the baseboard and connecting the tracks is all that is required to have it functioning.


**Tip:** The names of all turntables included with TS2006 are prefixed with "Tside Turntable". There is no turntable object category.

## Crossings

A crossing is a scenery object that allows rail track and a road to cross each other. As well as being a scenery object that can be connected to the route's track, a crossing can also be linked up to road splines (see section 17.7.3 for details on road splines), as the screenshot below shows.




Crossings support animated gates that are automatically activated as a train enters and leaves a proximity region surrounding the crossing.

The operation of crossings is automated and even the Carz will stop when the gates are lowered for a train to pass through.

**Tip:** The names of all crossings included with TS2006 are prefixed with "Tside Crossing". There is no crossing object category.

## Backdrops

Backdrops are a new object type introduced with TRS2006 that are rendered regardless of the view distance settings. This means they will always be visible and won't disappear like other distant scenery items, thus making them suitable for scenic backdrops.


**Tip:** The names of all backdrops included with TS2006 are prefixed with "Backdrop". There is no backdrop object category.

### 11.7.3 Spline Management Functions

The next mode to explore is Spline Mode. Splines are generally long thin objects such as roads, power lines, fences and rows of trees. They consist of two or more "spline points" denoted by white circles. These spline points can be placed any distance apart and the spline object is then "stretched" between the spline points as you place them on the route.


**Spline Mode (S)**

To enter Object Spline mode, Click LMB on the large Spline Mode (S) button at the top left of the tab menu.

**Add Spline (A)**

When you Click LMB on Spline Mode (S), the default selection will be Add Spline (A).

Click LMB on the terrain to anchor the first spline point, and Click LMB again some distance away to place the second spline point. You will see white circles at each end of the spline. These spline points determine the points of a spline that may be selected or moved. For example, in the picture below, we have paced the "Powerline B" spline on the route.

To extend the spline further, Click LMB again on the last spline point, then Click LMB once more nearby to extend the spline.

You can simplify this process by holding down the Ctrl key then placing several spline points. Release the Ctrl Key and place your final spline point to anchor the spline in place.


**Move Spline (M)**

You can move any spline point by selecting the Move Spline (M) tool and then Click LMB+H and dragging the spline point to a new position.

Sometimes when you place a spline point, the spline "snaps" to a nearby spline point and creates a curved spline. To avoid this happening, hold the Shift key down when placing the spline points. This "forces" the spline point to go where ever you tell it to go.

You can also use Shift-Click LMB to a spline to be placed on top of another. This is useful to create a right angle turnout such as a fence.

**Get Spline (G)**

Click LMB on the Get Spline (G) tool and then Click LMB on a spline object already placed on the terrain. Notice that the spline object selected now appears in the selection window. This is a quick way of finding the spline you want in case you wish to place additional ones into your route.

Change the mode to Add Spline (A) and Click LMB again on the terrain where you wish to place the newly selected spline object.

**Delete Spline (D)**

Click LMB on Delete Spline (O) then click on a section of spline between two adjacent white circles to remove unwanted spline sections. If you delete a section that is not an end section of a spline, the spline will be split into two splines.

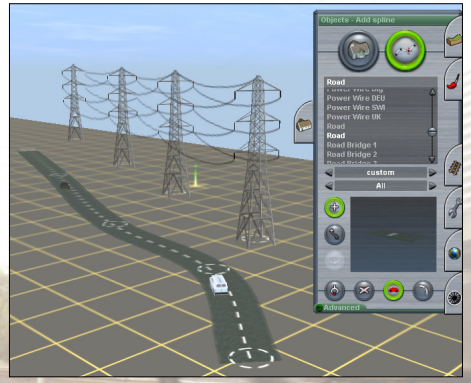
**Split Spline (Q)**

If a spline is already curved, you can split it into two sections by using the Split Spline (Q) tool. Simply Click LMB on the middle spline (or any non-end spline point) and you now have two separate splines.

**Toggle Traffic**

Many of the roads (which are splines) that you will be placing on your route will have vehicles (affectionately known as "Carz") traveling on them automatically. You will see them moving in Surveyor after placing the roads. Clicking LMB on Toggle Traffic turns all traffic off on these types of roads. Clicking LMB on the button again will have traffic resume. If the Toggle Traffic mode is ON, the button will be lit up in a bright green color. Please note that when you toggle traffic on and off, it affect all spline roads on your route.

Roads are placed as splines as shown below.






### 11.7.4 Advanced Spline Management Functions (Shift F3)

Click LMB on the Advanced Menu (Shift F3) to access even more tools. A drop down menu is then revealed as shown at the bottom of the tool tab above. This provides you with the following tools.


**Spline Height (H)**

The Spline Height (H) tool can be used to raise or lower the height of certain types of splines (for example catenaries or road bridges). Click LMB on Spline Height then Click LMB+H on a spline point (the white circle) and drag the mouse forward or backwards.

**Delete Spline Point (X)**

Click LMB on Delete Spline Point (X) and then Click LMB on a white spline circle to remove unwanted spline points. You cannot delete an end spline point, but you can delete the whole section using the Delete Spline (D) tool.

**Insert Spline Point (I)**

Click LMB on Insert Spline Point (I) then Click LMB between two existing spline points. Notice that a new spline point is created. You may need to zoom in closer in order to insert a new spline point.

**Note:** Don't overuse spline points as each one will add load onto your graphics card and may noticeably degrade performance.

**Smooth Spline (S)**

Lay a road spline down on level ground on your route using at least four spline points. Use Spline Height (H) to pull up two spline points in the middle of the road. The road now floats above the ground.

Click LMB on Smooth Spline (S). Now Click LMB on the raised spline section and the spline is instantly raised up to meet the road. To make a few minor adjustments, click LMB again on the road a few more times. Sometimes it

takes a few passes to get the road just right.

Find another level untouched area of your baseboard. Next, make and texture a small hill using the Topology tools.

Lay a single section of road spline over the top of hill with a single pair of spline points at either end. Note that it clings to the surface of the hill. Now Click LMB on Smooth Spline (S) and then Click LMB on the road. As shown below, this will level the terrain between the two spline points, thereby creating a cutting through the hill to flatten the road.

Smooth Spline (S) levels the track between two spline points, bringing the land up or down to match the leveled spline.


**Tip:** Turntables and railroad crossings are actually standard objects rather than track objects but they both have spline points so that you can attach spline objects such as roads and track to them.



**Tip:** Place a rail crossing as you would do a normal object and then connect track segments to the track spline points. Next, connect road splines to the road spline points. If you have laid the crossing correctly, when you load the map into Driver, road traffic will stop and allow your trains to run through the crossing.

**Tip:** To get your catenaries to match your track in an electric route, it is generally best to place the spline points directly on top of the track spline points. This ensures that the curvature matches that of the track and makes it easier to match the height of the track also. Whilst laying your catenaries, press Alt-O to show the track spline points then hold the shift key to allow placement of the catenary spline on top of the track spline.

**Get Vertex Height**

Click LMB on the Get Vertex Height and Click LMB on the highest spline point on your spline. The height is displayed in the Height Value box.

**Apply Vertex Height**

Click LMB on Apply Vertex Height then Click LMB on another spline point. The spline point is raised to the same height as you first vertex. This is useful for ensuring level spline segments.

**Remove Gradient**

Click LMB on Remove Gradient and then Click LMB on a spline section to remove the gradient between two spline points.

## 11.8 Track Menu (F4)

### 11.8.1 Track Mode Tools


Learning how to lay track, place signals and create turnouts can be the key to running a successful TRS2006 Driver session. Track sections in TRS2006 are made up of flexible length track pieces created by placing 2 spline points. We call this "flexi-track" and it makes laying any lengths of track extremely simple. Select the Track Menu (F4) and the default selection will be Track Mode (T).

**Add Track (A)**

The Add Track (A) tool should already be highlighted, so you are ready to lay your first length of flexi-track. Click on the left or right arrows of the track selection dialogue to select the type of track you wish to lay, then Click LMB on the baseboard where you want to anchor your starting point. (We suggest you start with Single Track).

Click LMB again a short distance away to place another spline point. A straight section of track has now been laid between the two spline points.

To extend the track further, Click LMB again on the last spline point (the white circle), then Click LMB once more nearby to extend the track. Unless all three spline points are exactly in a straight line, you will notice that the track is now curved. To connect two sections of track, just drag the end spline point of one on top of the end spline point of another and they will automatically connect.

**Move Track (M)**

To bend the track in any direction, select the Move Track (M) tool and then Click LMB and hold on one of the white spline point circles. Drag your mouse around the terrain and notice how the track bends. The shape of the curve is also affected by how close the spline point you are pulling is to the next spline points.

**Straighten Track (B)**

Click on Straighten Track (B) and then Click LMB on a bent section of laid track. Notice that the section of track straightens between the two spline points and the next track segment is also affected.

**Note:** Double track cannot be straightened.

Click again on the straightened track and it returns to a curved track. This tool is especially useful when creating turnouts and yards and tidying up messy track sections.

Choose a different type of track by clicking on either the Track Region or Track Type dialogue box and scrolling down the list until you find a bridge. Lay a short section of bridge on the flat ground just as you did for the single track.

**Get Track (G)**

Click on Get Track (G) and then Click LMB on your original track. The bridge showing in the selection window is replaced by the track. Press "A" to change the mode to Add Track and you are ready to lay another section of track.

**Delete Track (D)**

Click on Delete Track (D) then click on the bridge section to delete it. (Note: any trackside objects you place on a track segment will also be deleted when the track is deleted).

**Split Spline (Q)**

Click on the Split Spline tool (Q) and click on a middle spline point (white circle) in the track. The track breaks in two at that point.

**Creating a Turnout**

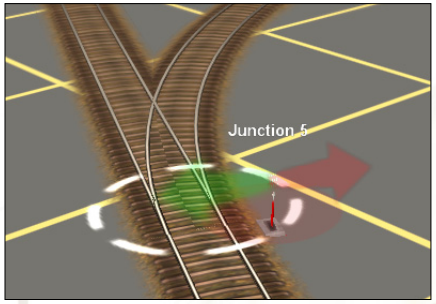
Depending on which part of the world you live in, there are different names for where one section of track branches off from another. Sometimes these are called turnouts, junctions, points or switches. We call them turnouts in this document.

This section will teach you the basics of creating turnouts.

To create a wye turnout, begin by laying two spline points.

Next, Click LMB to the left of your first section of track and drag the new section towards the existing track.

Click LMB about half way along the first track and the track bends to the shape of a turnout. You have just created your first turnout.




To tidy up the turnout and make it look a little better, select the Straighten Track (B) tool then click on the lead out track to straighten the section leading into your new turnout.

Add a new spline point to your turnout by going to the Advanced Menu (Shift F4) and selecting the Insert Spline (I). Click on the left-most track to add the new point.



Use Move Track (M) to grab the new spline point and move it around until you are happy with the shape of the turnout. You now have a perfectly created wye turnout

Note that a turnout lever has automatically been added to the Turnout. The Red and Green arrows indicate which way the turnout will be set when you begin to operate your new route. To change the turnout's set direction, either Click LMB on the turnout in Mini-Map mode or use the "Junction Direction" tool as discussed in section 11.8.5.

The Switch lever can be deleted using the Trackside Object Delete function. But you must replace it with another of your choice if the Turnout is to function properly.

Later we will show you how to change turnout levers and add signals to complete the job.

**Tip:** If you are trying to move or delete a piece of track and it won't move or delete, you will receive an audible beep. This means that the track is attached to a non-movable item such as an interactive industry object, rail crossing or perhaps even a loco or item of rolling stock. In the case of vehicles, they need to be moved at least 2 spline points away from the section of track you wish to edit.

**Animated Junctions**

Animated junctions are supported in TRS2006 but cannot be created as track splines. Instead, you need to place an animated junction object on the baseboard. See section 11.7.2 for details.

### 11.8.2 Advanced Track Mode Tools (Shift-F4)

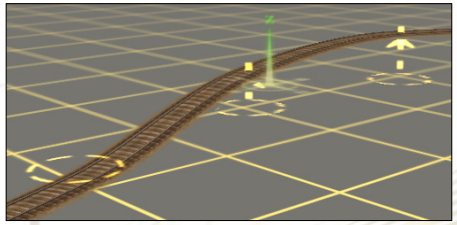
In TRS2006, there are two ways you can lay track. Either lay the track and bring the land up to meet it, or create the land, then lay your track over it. We'll show you both ways using Advanced Track Menu (Shift F4).


Click LMB on the Advanced button to drop down the Advanced Track Menu.

**Adjust Spline Height (H)**

Begin by laying a short section of curved track using 4 or 5 spline points. Click LMB the Adjust Spline Height (H) and Click LMB and hold on a track spline point. Drag your mouse forward and back to raise and lower the spline point. Raise the track off the ground, and then bring the camera down close to the ground to get a better view.

As you can see below, the track spline points will have arrows attached to them showing you the height of the track above the ground.



**Smooth Spline Height (S)**

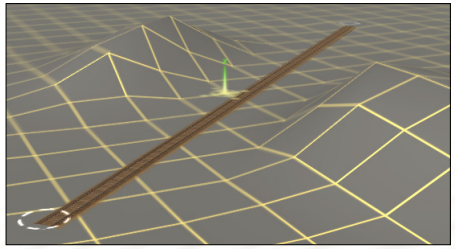
Select the Smooth Spline Height (S). Click on the raised track section and the ground is instantly raised up to meet the track. To make a few minor adjustments, click again on the track a few more times between each pair of spline points. Sometimes it takes a few passes to get the track just right.



Find a level untouched area of your baseboard. Next, make a small hill using the Topology tools.

Lay a single section of track over the top of hill with a single pair of spline points at either end. Note that it clings to the surface of the hill. Now Click LMB on Smooth Spline Height (S) and then Click LMB on the track. As shown below, this will level the terrain between the two spline points, thereby creating a cutting through the hill to flatten the track.

Smooth Spline (S) levels the track between two spline points, bringing the land up or down to match the leveled track.



**Delete Spline Point (X)**

Click LMB on the Delete Spline Point (X) and Click LMB on a track spline point (not a spline end point as they cannot be deleted). Notice that the spline point is removed and the curvature is also affected.

**Insert Spline Point (I)**

Click on Insert Spline Point (I) to add a new spline point. Once again the track curvature is affected. Careful placement of spline points is one of the secrets to good track laying. But be careful not to put in too many as the more you have the greater the complexity of the route and the harder your computer has to work to give you smooth operations.

**.Get Gradient (J)**


Next, select the Get Gradient (J) and Click LMB on your raised track section between two track spline points. The gradient between those points is shown in the Gradient Value box as a percentage slope. The value 2 means 2% or 1 in 50.

**Apply Gradient (K)**


Enter in a new gradient value in the Gradient Value text box, then Click LMB on Apply Gradient (K). Click LMB on the track near your first spline point to raise the track.

Now Click LMB on Undo (Ctrl-Z) and then Click LMB near the 2nd spline point. Notice that the gradient has now been applied in reverse. The rule is that the gradient is always applied "away" from the spline point closest to where you click.

**Remove Gradient**


Click LMB on remove Gradient and then Click on a track section to remove the gradient between two track points.

**Get Vertex Height**


Click LMB on the Get Vertex Height and Click LMB on the highest spline point on your track. The height is displayed in the Height Value box.

**Apply Vertex Height**


Click on Apply Vertex Height then Click LMB on another spline point. The spline point is raised to the same height as you first vertex. This is useful for ensuring level track segments.

**Show Curve Radius**


Next, click on Show Curve Radius then move your mouse along a track segment. The curve radius is shown next to your mouse cursor. The number is the radius measured in meters so a low number means a tight curve and a high number means a straighter track.



Track in TRS2006 usually tries to "average" a curve so you can use Straighten Track to "end" a curve. This stops the track trying to bend back in the other direction.

Even using Show Curve Radius, creating a nice curve can be a little tricky at first. Here are some tips. Move your camera vertically above the track and zoom out. Lay down five spline points in a gentle 90-degree curve. The curve is probably a little wobbly.

Use Move Track (M) to straighten the ends then use the Straighten Track (B) to straighten the two end sections. You now have a nice consistent curve through 90 degrees.

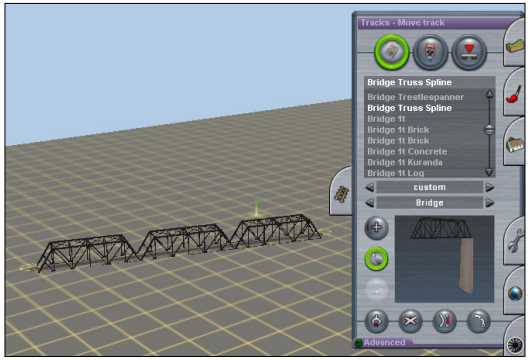
### 11.8.3 Building Bridges

Bridges and tunnels work much the same way as for normal track but can be a little harder to lay due to the type of terrain involved. It is sometimes easier to make the bridges and tunnels on flat ground then move them into place.

Select the Track Type "Bridges" by clicking on the Track Type arrow keys, then scroll through the list of bridges until you find the bridge type you are looking for.

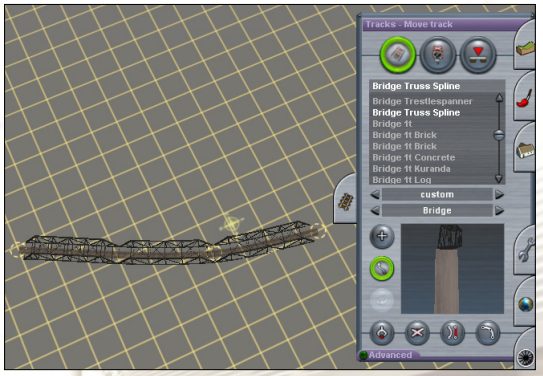
To place the bridge, select the Add Track (A) tool and lay the bridge just like you did for the track by clicking to place spline points. It is best to lay bridges between two hills although you can lay the bridge and then remove the terrain beneath it.

Below we have placed the bridge called "Bridge Truss Spline" on some flat terrain.



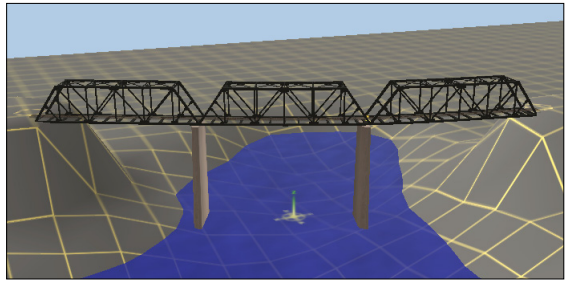

You can insert a spline point in the middle of the bridge using Insert Spline Point (I) and then Clicking LMB on the bridge section to insert the new point.

Click on Move Track (M) and Click LMB and drag the middle spline point. This allows you to bend the bridge. Don't bend it too far or it will "break". Below we have inserted a spline point into the middle of the bridge and curved it.




When you depress the ground under the bridge, the bridge piers will reveal themselves as shown below. Note that we have painted the ground and added water as well.



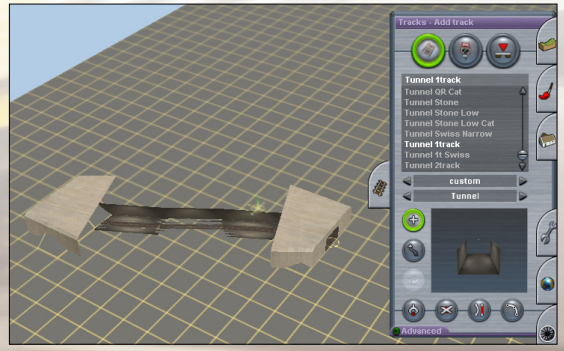


To create a bridge that is level, you can use the Get Vertex Height tool. Click on the spline point at one end of the bridge and you will notice the Height Value is entered into the Spline Height dialogue box.

Click on the Apply Height tool then click on the other two spline points. This applies the same height to each of those spline points.

### 11.8.4 Building Tunnels

Tunnels work in the same way as bridges. Repeat the steps above but firstly select a tunnel rather than a bridge. For your first tunnel, lay it on a flat section of ground so that the hills don't interfere with the operation. (You can always add the hill afterwards). Here is an example of the double track "Tunnel Stone" placed on flat terrain.



Once you have 3 spline points in a tunnel, select Move Track (M) and Click LMB and drag the middle spline point to create a bend in the tunnel. Notice that in TRS2006, the tunnel exits "snap" to the terrain at 45-degree increments. You may need to re-route your track to align it correctly to the tunnel entrance and exit.

Ensure that you hide the tunnel exit properly by using the terrain Height Adjust tools and the track Smooth Spline tool to tidy up the entrance.

To join track to bridges or tunnels you should always use single track (even for a double track, bridge or tunnel). Lay the spline point away from the bridge first and then move the track towards the end spline. The track will snap to the bridge object. Use Smooth Spline to tidy up the terrain.



### 11.8.5 Trackside Object Management


**Trackside Mode (Y)**

The second mode in the Track Menu is Trackside Mode. Click LMB on Trackside Mode (Y) to change the Track Tab menu to the Trackside Mode menu.

**Add Object (A)**

To add a trackside object Click LMB on the Add Object (A) button. The select the object you wish to place from the list. Click LMB at one or the other side at some point of the track. Your object will be placed beside the track and will be "attached" to it. So if you move the track it will move with it.

**Tip:** Some of the most important Trackside objects are the AI Direction Markers. These are used by the Drivers for navigating (pathfinding) around your route. A Driver under AI control will not enter a track segment against the direction of the AI Direction Marker. Therefore these are useful for controlling Northbound or Southbound traffic etc, but, used incorrectly, they can also provide barriers stopping Drivers getting to where you want them to go.

**Move Object (M)**

Click LMB on Move Object (M). Then Click LMB+H on a Trackside Object on your track. Drag your mouse along the track to move the object to a different position.

**Rotate Object (R)**

To change the side of the track for a trackside object, click on the Rotate tool (R) and Click LMB on the object. It will switch sides of the track and rotate 180 degrees. The direction that a trackside object faces is controlled by

the selection of Geographic region for the route.

**Get Object (G)**

Click on the Get Object (G) tool and then Click LMB on an object already placed at the trackside. Notice that the object selected now appears in the selection window.

Change the mode to Add Object (A) and Click LMB again at another point on the track where you wish to place another copy of the newly selected object.

**Delete Object (D)**

Select Delete Object (D) then Click LMB to delete a trackside object. Continue Clicking LMB to delete a number of objects. If you click on the wrong object, click on Undo (Ctrl-Z) to undo the last action and replace the last deleted object.

**Junction Direction (J)**

If you have a turnouts placed on your route, each should have a switch lever attached to it. The switch lever at a turnout has a green and red arrow. To change the default direction of travel (for when you drive on this track in the Driver module), Click LMB on the Junction Direction (J) tool and then Click LMB once on the green and red arrows. The direction is now changed (green denoting the default direction of travel).

You can also make 3-way turnouts by simply adding a third track to the turnout. There are now three direction arrows.

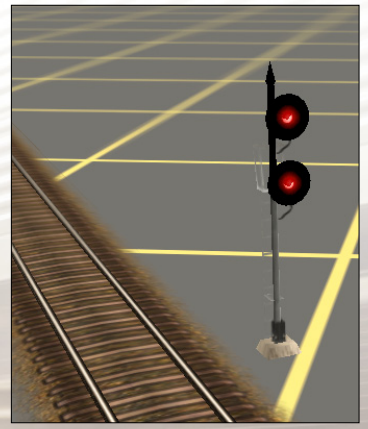
**Define Name (N)**

Next, select the Define Name (N) tool and click again on the turnout. A dialogue box opens allowing you to type a name for the turnout in the box. Click the Check (proceed) icon to save the name and proceed.




### 11.8.6 Signaling Systems

You can place signals on your route by choosing them from the Trackside menu. They may be moved and rotated in the same fashion as other trackside structures, and like other objects, they are categorized by Region.



Australian & UK signals appear on the left of the track, USA signals appear on the right. European signals vary depending on the track.

Careful placement of signals will allow you to operate complex operations involving several moving consists without incident. It is important to consider that the signals are there to protect the trains from each other, and any situation where their paths may cross should be protected by a signal.

Extended sections of single line should be relieved by sections of double track or "crossing loops" that enable trains to either pass or cross each other. At the entrance to a section of single line there can be two signals protecting the same block, i.e. one on each track to enable faster trains to pass slower ones.

Keep in mind that once your train passes a signal, any following train will not be permitted to pass until your train reaches the next signal, so if traffic is going to be heavy, don't place them too far apart.

To protect AI trains from over running terminating track, a rail end marker or buffer must be used.

**Note:** At the time of writing, TRS2006 signals are not capable of detecting a train crossing a block via a diamond crossing. If you wish to operate a fully automated system, diamond crossings should not be used in the path of AI trains. However it is possible through the use of Trainz script to develop a signaled crossing which does control intersecting trains properly. It is recommended that you place at least one signal per track segment (i.e. between each junction).



### 11.8.7 Trackmark and Trigger Management Tools

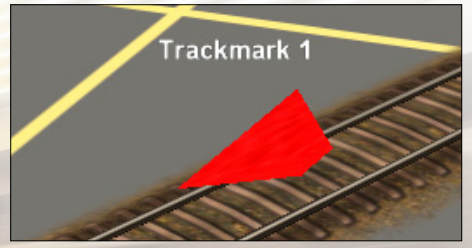
**Trackmark Mode (V)**

The third mode in the Track Menu is Trackmark Mode. Trackmark mode is used for the management of Trackmarks and Triggers. These are used to assist in setting up the rules for a session, which allows you to design operations for your route.


Click LMB on the Trackmark Mode (V) to change the Track Tab menu to the Trackmark Mode menu.

**Trackmarks**

Trackmarks mark specific points out on the track in a route. They are named and then used in Rule building. For example, they can be used to guide Drivers to take their trains to specific points on the route. They are also used to program scenarios such as those in the tutorials described in the Engineer's Guide.




Add a red Trackmark by Clicking LMB on the center of the track where you would like a Trackmark to be placed.

**Add Trackmark (A)**

To add a Trackmark, Click LMB on the Add Trackmark (A) button. Click LMB at a point on the track. A trackmark will be placed on the track and will be "attached" to it. So if you move the track it will move with it. Note that the trackmarks will not be visible when you are operating your route.

**Move Trackmark (M)**

Click LMB on Move Trackmark (M). Then Click LMB+H on a Trackmark Object on your track. Drag your mouse along the track to move the object to a different position.

**Rotate Trackmark (R)**

Select Rotate Trackmark (R) and the default direction of the Trackmark is reversed.

**Get Trackmark (G)**

Click on the Get Trackmark (G) tool and then Click LMB on a trackmark already placed at the track. Notice that a trackmark now appears in the selection window.

Change the mode to Add Object (A) and Click LMB again at another point on the track where you wish to place another copy of the trackmark.

**Delete Trackmark (D)**

Select Delete Trackmark (D) then Click LMB on a trackmark to delete it.

**Define Name (N)**

To name your trackmarks so that you can find them again later on and use them in rules, Click LMB on Define Name (N). Then click on the trackmark and a dialogue box comes up where you can name the trackmark.



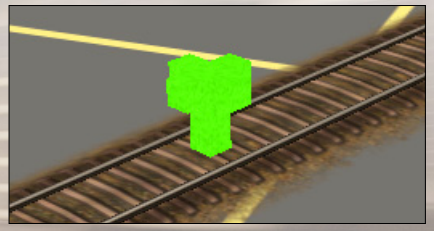

**Finding a Trackmark**

To find the trackmark, use the Find Object (using the Type: Trackside to shorten the list if you wish) or Ctrl-F and select the trackmark from the list. The trackmark is located, and the screen is re-centered. This is useful for finding your way around the map.

**Triggers**

Similarly, you can also place Triggers, which are used when creating Rules or TRS2006Scripts. A trigger is point that can trigger an event such as a train starting off or sounding a horn. The can detect specific train passing a certain point and will then trigger other rules to be executed when that happens. See the section on Rules for more information.

Simply Click LMB on trigger instead of trackmark in the selection list and then use exactly the same commands as for trackmarks to place your triggers as shown below.



A trigger's scope is defined by its radius which extends outwards from the trigger along the track. The default trigger radius is 20 meters and in most cases, this is sufficient. If needed, this can be altered and the advanced trigger tools in section 11.8.8 explains this further.

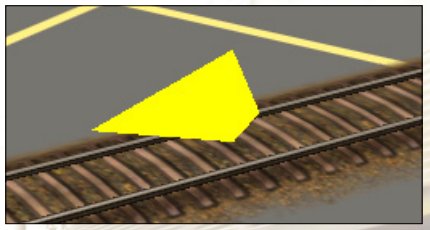
For a train to be visible to a trigger, the train must be within range of the trigger's radius and there must be no obstructions such as a junction which can block the trigger's view. Therefore caution is advised when placing triggers near junctions.

Once placed, triggers will most likely be used in session rules. Several rules such as Trigger Check can monitor and react to trigger so it is possible to use this to initiate other events whenever a train enters a trigger for example. Sessions are examined in section 11.14 later on in this chapter.

**Direction Trackmarks**

Direction trackmarks look exactly like regular trackmarks except they are yellow in color. They are used to indicate to the AI driver what direction is allowed on a section of track.

Only the placement of the directional trackmarks is required. The AI drivers will automatically take the trackmarks into account. By placing direction trackmarks carefully, the AI trains can be restricted and coerced to take certain paths.



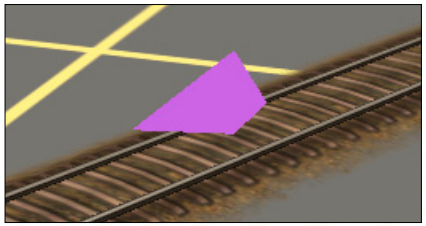
**Note:** An AI driver will not go against a direction marker, so be careful where you place them, otherwise you could be blocking out a potential path that is needed to travel somewhere on your route.



**Priority Trackmarks**

Priority trackmarks look exactly like regular trackmarks except they are purple in color. They are used to indicate to the AI driver the priority level of a section of track.

All trains and track sections have a priority value in the range of [1 - 3] with the default value being 2. This priority value does not indicate a numerical scale of precedence, but rather is used for matching by the AI driver. This means the driver will try and take the train along track sections that have a priority equal to that of the train.



The priority trackmark is the mechanism used to give a track section a priority value. Editing the properties of a train as shown in section 11.11.1 is how the train priority is adjusted.

The AI driver will automatically take into account priority values so nothing else further is needed apart from setting up priority values on trains and track as needed.

**Note:** The priority system is not an explicit path setting mechanism as a driver will still go over tracks of differing priorities if it can't find a path along track with matching priority settings.

### 11.8.8 Advanced Trigger Management Tools

The advanced settings of the Trackmark tools menu are used to set the radius of triggers. The radius defines the scope of the trigger and is explained in the previous section (11.8.7).


**Get Radius**

Click on the Get Radius tool and then Click LMB on a trigger. The trigger's radius will now be in the text field adjacent to the button. Note that triggers have a default radius of 20 meters so this may not appear to have changed.

**Set Radius**

Click on Apply Radius then Click LMB on a trigger to apply the value in the radius field to that trigger.

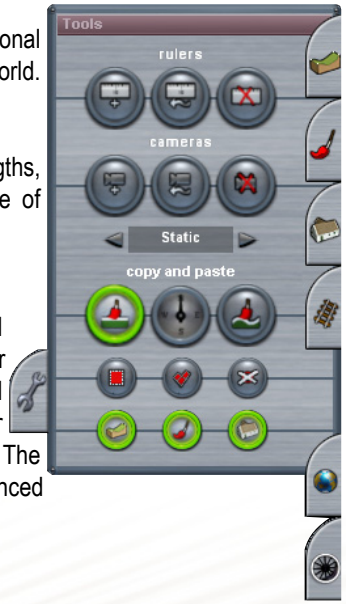
**Adjust Radius**

Click on Edit Radius then Click LMB on a trigger and drag the mouse with the LMB still being held down to chage the trigger radius. There is no visual indication of the radius as you drag it however. Use Get Radius to find out the new radius of that trigger.



### 11.9 Tools Menu (F5)

The Tools Menu (F5) offers some additional tools for helping to create your TRS2006 world.




### 11.9.1 Ruler Management Tools

The ruler tool is used to measure track lengths, radius when laying curves, even the size of your basement or garage.

**Add Ruler (R)**

To add a ruler, Click LMB on Add Ruler (R), then Click LMB at your chosen point in your terrain and drag the mouse to the other end point for the ruler and release the mouse button. The ruler stretches out just like you experienced with spline objects.

**Changing the Scale of the Ruler**

To change the scale of the ruler, go into the Surveyor Main Menu and choose Edit Route. Change the units to real Scale, HO, OO or whatever scale you prefer.

**Move Ruler (T)**

To move the ruler, Click LMB on Move Ruler (T) and then Click LMB+H on either end of a ruler and then drag it to move that end of the ruler.

**Delete Rule (Y)**

Use Delete Ruler (Y) to delete the ruler. Leaving a large number of rulers on your route can cause severe slowdowns, so make sure you delete them when they are no longer necessary.

### 11.9.2 Camera Management Tools

Cameras are used in Driver to follow where your trains are going. You can

place static cameras, which focus on a section of track until the whole train passes by, or tracking cameras, which pan across following the train movement. To select which camera to work with, Click LMB on either of the arrows in the middle of the tool list to switch between Static and Tracking camera mode.

**Place Camera (A)**

Before placing a camera, maneuver your normal viewpoint as close as possible to where you want to place the camera. Click on Place Camera (A), then Click LMB exactly where your Compass meets the ground. This places the camera in 3D space, and puts you automatically into Move Camera (M) mode. A Green box and a flashing green light appear.

**Move Camera (M)**

Use your zoom keys, and cursor keys to position the camera exactly as you want it placed, then Click LMB again to lock the camera in place. (Note that you stay in move mode until you choose to add another camera). Zoom out a little and you will see the 3D camera object. A red camera means it is a static camera, and green is a tracking camera. Below we see the camera view and a Red static camera.


**Delete Camera (D)**

To delete an unwanted camera, select Delete Camera (D) and Click LMB on a 3D camera object. Cameras have a "range" in Driver of 150-200 meters so careful placement is required.



### 11.9.3 Copying and Pasting Tools

Another very useful tool is the copy and paste function.

**Select Area (B)**

Click LMB on Select Area (B) and Click LMB and drag to create a rectangle around the area you wish to copy. The white box shows the area that will be copied.

**Paste Mode (P)**

Click LMB on Paste Mode (P) and Click RMB to navigate around your terrain to the new location. Click LMB where you want the selection copied.

**Cancel Selection (X)**

Click LMB on Cancel Selection (X) to cancel the selection.

**Paste Height, Textures or Paste Objects**

You can control what is and is not copied and pasted. You can copy height, textures, objects or any combination by selecting and deselecting the appropriate icons. These are "toggle" switches. Whilst in Paste Mode, click on Paste Height, Paste Textures or Paste Objects to include or exclude those elements from your paste function. The buttons will remain highlighted in bright green if toggled "on".

**Paste Rotation ("[" or "]")**

You can also rotate your selection using Paste Rotation ("[" or "]").

**Relative Height (L) or Absolute Height (S)**

You can paste either relative or absolute heights by Clicking LMB on either icon to toggle between them. The default is absolute height.

## 11.10 World Menu (F6)

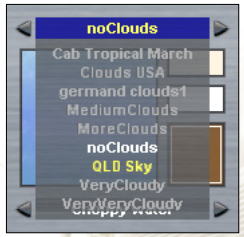
The final menu for Surveyor is the World Menu. Here you can see what your route looks like in various weather conditions and you can also set the clouds and lighting conditions for your Driver sessions.


### 11.10.1 Weather Management Tools

#### Weather Control ("[" or "]")

The Weather Control ("[" or "]") dial shows what your route will look like in rain (move the dial left) or snow (move the dial right).

The Clouds text box determines which clouds will appear on this route. Change the clouds by scrolling through the list until your find the clouds you would like to use. Or, as in the illustration below, Click LMB on the current selection and a drop down list appears from which we have selected the QLD Sky.





The Water text box works in the same manner, identifying the default water texture.



#### Mastering the Lighting

The main feature of the World Menu is the lighting clock and associated tools. With these tools you can set different lighting conditions for different times of day, creating varying moods and ambient tones.

#### RGB Color Controls

By controlling the mix of Red, Green and Blue in a color, you can create any color. These controls are used to set the color of the selected item. They will brightly colored when an item has been selected which can be colored. If no item is selected, they will be much darker in color and the dials will not be moveable.

#### Time of Day ("+" or "-")

The main clock is a 24-hour clock and the small red lights around the outside determine what the colors will look like at that particular time of day. Click on the 12 o'clock light and it will highlight and the three-color RGB dials will also be highlighted allowing you to adjust the color at that time of day.

To choose the time of day, Click LMB+H and drag your moue or use the "+" or "-" keys. Note that the lighting in your route changes as you do so that you can see the effect of your choice on your route.

**Tip:** The "+" and "-" are the keyboard keys between the "0" and "backspace" keys on your keyboard. They are not the keys on the number pad at the right of your keyboard.

#### Clouds Window

In the Clouds window a white line appears at the bottom of the window. Click in the center of the Clouds window, and the white line moves to the center. Click at the top of the window and it moves to the top. These are the three-color bands in the sky that you can adjust using the RGB dials.

**Note:** You must have one of the red buttons on the clock selected to be able to select a band in the sky.

Let's begin with the lower band. Click on the bottom of the clouds display window (make sure you have one of the red lights around the clock selected). Now move the three RGB color dials and notice the sky colors change. Repeat this for the middle and upper bands.

There are three other colors that we can change and they are ambient, sun and water.

**Note:** Remember to repeat the processes that follow for all the red lights around the clock.

**Ambient Color Preview**
Click LMB on the top Ambient Color Preview box and adjust the RGB values to set the directional lighting primarily changing the color hue of buildings and other objects

**Sun Color Preview**
Click LMB on the middle Sun Color Preview box and adjust the RGB values. This alters the ambient lighting, primarily affecting the terrain.

**Water Color Preview**
Click LMB on the lower Water Color Preview box and adjust the RGB values. This alters the color of areas of water.

**Add Clock (A)**

To add new red lights, select the Add Clock (A) tool and Click LMB on the outer rim of the clock to add new "lights" as required.

**Move Clock (M)**

You can also select Move Clock (M) to move the lights to a new time slot by dragging them around the clock.

**Delete Clock (D)**

Click LMB on Delete Clock (D) to delete the red lights by Clicking LMB on them.

**Reset Colors**

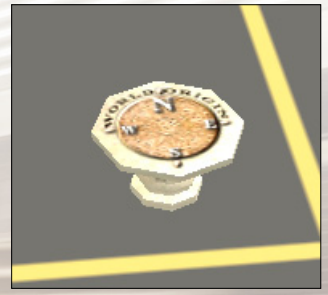
If you wish to reset the RGB colors to the defaults used by TRS2006, Click LMB on the Reset Colors button.

**Diurnal Cycle**

To run the full 24hour cycle and see the effects, click on the Diurnal Cycle button. This runs the full day in around 30 seconds. Click on it again to stop the cycle at any time. You can also Click LMB and drag the hour hand to see how the colors blend over time.

### 11.10.2 World Origin Management Tools

The World Origin is a marker that you place anywhere on your route to set the latitude, longitude and altitude of the Origin Marker.



You can then place Trig Stations (found in the Objects Menu) anywhere on your route to identify the exact lat/long and altitude of the Trig Station. Zoom

in close to a Trig Station and rotate to see the digital readout of lat and long.


**Tip:** Use the '?' icon to name the Trig Station using the format "xx xxx.xxx N/S xxx xx.xxx W/E" and then use Ctrl F to bring up a list of all named objects. Click on the lat/long you are looking for from the list and you effectively have an unlimited number of bookmarks.

The placing of a World Origin marker adjusts the sun position (the higher the latitude, the lower the sun position). We don't currently model seasons, so the sun position is approximated for a typical 12-hour length daylight cycle.

### Add/Move World Origin

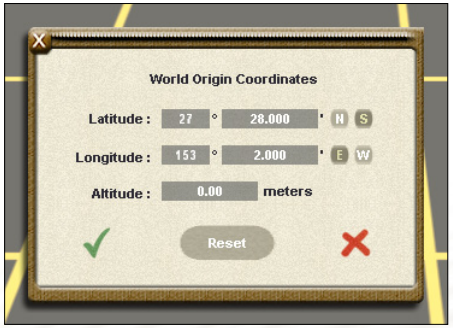

To add a World Origin and then move it if you wish, Click LMB on Add/Move World Origin (O) and then Click LMB anywhere on your world to add the World Origin or Click LMB+H to move it around. Having added the World Origin, the next two commands below will become available to you as well.

### Find World Origin


To find the World Origin in your world, Click on Find World Origin (F) and the view will be centered on the World Origin.

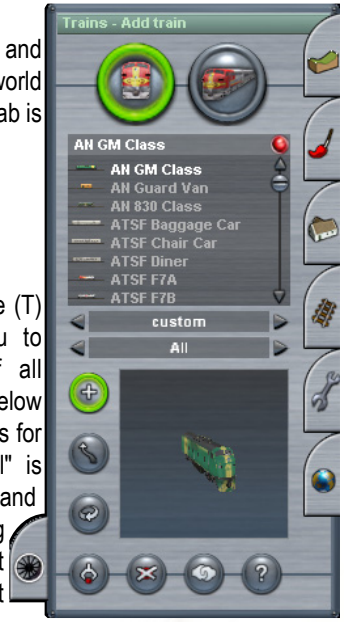
### Edit World Origin


To edit the properties of the World Origin, Click LMB on Edit World Origin (E) and you can set up the latitude (setting it north or south of the equator), longitude (setting it East or West of the Greenwich Mean Time line), and altitude.



### 11.11 Trains Menu (F7)

In TRS2006, you may assemble consists and place them on track anywhere within the world you have created in Surveyor. The Trains tab is used for this purpose.




#### 11.11.1 Building and Placing Trains

**Train Mode (T)**

Clicking LMB on the Train Mode (T) button in this tab allows you to assemble consists. A list of all engines and rolling stock is displayed below this button. Below the list are selection lists for Train Origin and Train Company. If "All" is selected in both of these lists, all consists and rolling stock will be displayed. By selecting a region or company in these lists the list displayed can be restricted to just that company or just that region or both.

**Add Train (A)**

Click on Add Train (A) to enable the building of a consist. Click LMB on the engine or rolling stock asset in the list that you would like to place on the route. Note that a picture of the asset appears in the Train Viewer window in the bottom of the tab. If you Click LMB on the asset in the Train Viewer window, the picture will rotate to show you different views of the selected item. Click RMB+H on the item in the picture and move your mouse forward and back to increase and decrease the size of the item in the Train Viewer window.

Click on a location on a track in your route and your item will be placed at that point.



**Tip:** If there is a green checkmark with the letters "IND" shown in the lower left corner of the Viewer window, this is an indication that this is an "interactive" piece of rolling stock capable of participating with "interactive" industries.

**Tip:** There is a little red button at the top right of the list labeled the Favorites Toggle. If you click on this button, it turns Green and the list will display only those engine and rolling stock assets that you flagged as a Favorite using the Railyard module (described in the Engineers Guide). This allows you to eliminate those assets in which you have no interest making asset selection easier. Click LMB on the Favorites Toggle button once more to view all assets.

Continue to select items to be added to your consist, Clicking LMB on one end of the consist or the other to add engines or rolling stock. The Red and Green arrows adjust to mark the ends of the consist. Note that if you Click LMB too far away from the end of the consist, your addition will begin a new consist. The Green arrow indicates in which direction the consist will move when moved forward when operated in Driver.

**Tip:** If you want to move the consist that you are building to another point on the track, use the Move Consist function available by switching to Consist Mode (described below)

**Rotate Train (R)**

Click LMB on Rotate Train (R) to enable rotation of the engine or cars in a consist. Once enabled, Click LMB on any engine or car in a consist to change the direction in which it is facing.

**Get Train (G)**

Click LMB on Get Train (G) to enable you to quickly find a copy of an engine or car already placed on the track. Once Get Train (G) is selected, Click LMB on any car in any consist on the route and that car will be

selected from the list in the Trains tab and displayed in the Train Viewer window. This makes it easy to find any engine or car if you wish to add more of them to the route.

**Delete Train (D)**

Click LMB on Delete Train (D) to enable you to delete any engine or car already placed on the track. Once Delete Train (D) is selected, Click LMB on any engine or car in a consist on the route and that engine or car will be deleted. The consist will shorten if necessary to close the space taken by the car or engine and keep the consist intact.

**Decouple Carriage (X)**

Click LMB on Decouple Carriage (X) and then move the cursor to a point near the connection between two items in a consist until an image (colored Red) of a coupler appears. Click LMB on the coupler and it will be seen to open. Additional Green and Red arrows will appear above the point of uncoupling to mark off the two consists that have now been made from the one original consist.

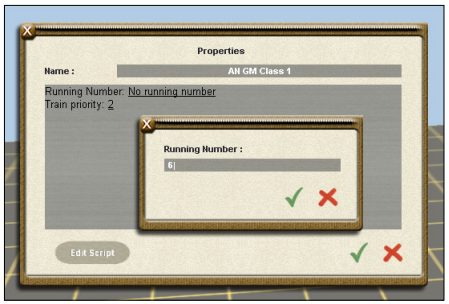
---

**Note:** To re-couple these consists or any two trains, use the Move Train (M) button described a bit later.

---

**Edit Properties (P)**

Each engine or car in TRS2006 can be assigned properties. Click LMB on Edit Properties (P) to enable the setting of properties for engines and vehicles. Click LMB on an engine or car in a consist on the route and a new Properties window opens up.



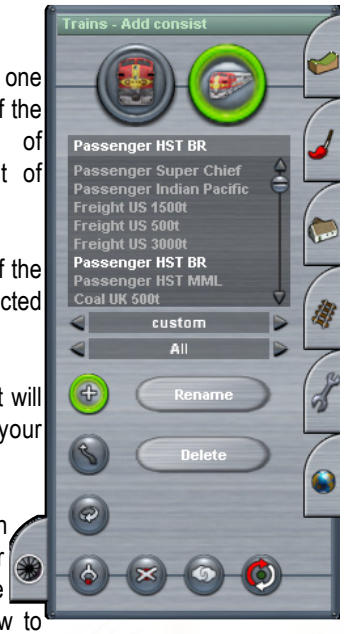

A name will be assigned to the engine or car by adding a number to its name as found in the list of locos and cars. You may change the name to any unique name that you wish. Names for locos and rolling stock persist only for this particular session.

You may also change the running number for an engine or car by Clicking LMB on the underlined text after the words Running Number. A new window opens in which you may enter the number of your choice. If the engine or car has been designed with a number that is changeable, the number will change to match your selection.

### 11.11.2 Train Management Tools

**Consist Mode (C)**

Click LMB on Consist Mode (C), one of two large buttons at the top of the tab, to enable the placing of complete consists available in the list of consists below the button.




A consist window appears at the bottom of the screen which display the currently selected consist in the list at the top of the tab.

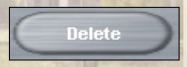
Click LMB on any consist in the list and it will appear in the consist window for your reference.

You can Click LMB on any of the vehicles in the consist window to change their direction. Click LMB and hold on a vehicle and drag it outside of the consist window to remove it from the consist.

**Rename Consist Template**


Click LMB on the Rename Consist Template (large gray colored button labeled "Rename" under the consist list) button to rename the consist currently selected in the list. A window will open up in which you may do the renaming.

**Delete Consist Template**




Click LMB on the Delete Consist Template (large grey colored button labeled Delete under the consist list) button to delete the consist currently selected in the list. A window will open up in which you will click on the Yes or No button to confirm or deny the deletion.

**Add Consist (A)**

Click LMB on Add Consist (A) to add one of your chosen consist to your choice of points on the route. Click LMB at any point on the track to place the complete consist there.

**Move Consist (M)**

Click LMB on Move Consist (M) to enable you to move any consist on your route along the track to adjust its starting position. Click LMB+H on any consist to move it back and forth along the track.

To join two separate consists together, move one consist along the track until it touches the other consist then release LMB. The two sets of associated Red and Green arrows that marked out the will then combine into one set for the new consist.

**Rotate Consist (R)**

Click LMB on Rotate Consist (R) to enable the rotation of any consist so that it is pointed in the other direction. Click LMB on the consist to change its direction. The Red and Green arrows will also switch positions to reflect the rotation.

**Get Consist (G)**

Click LMB on Get Consist (G) to enable the addition of newly built consist to the consist list as well as the quick selection of copies of consist already on the track from the list of consists. Then Click LMB on any consist on the track.

If the consist is already in the consist list, it will be selected in that list so that it is easy for you to add a copy of that consist to the route.

If the consist is not in the list (likely because you have assembled and placed it previously in Train Mode, you may now give it a name in the window that

opened up and the consist will be added to your list for future use. This is a great way to build up a list of your favorite consists for use on many different routes.

**Tip:** When you name a consist, that name persists in the consist inventory across other routes and sessions where it is used.

**Delete Consist (D)**

Click LMB on the Delete Consist (D) button (not to be confused with the big gray colored Delete Train Template button in the middle of the Tab) to enable the deletion of consist placed on the track. Then Click LMB on any consist to remove it

**Decouple Vehicle (X)**

Click LMB on the Decouple Carriage (X) button to enable the decoupling of parts of a consist to break them up into smaller consists. Then Click LMB on the coupler icon that will appear when you move the cursor between cars or engines in a consist. You will see that the red and Green arrows will show that you now have two consists. Use Move Consist (M) to move them apart if you wish.

**Change Heading (H)**

Click LMB on the Change Heading (H) button to enable the changing of the heading of a consist. Then Click LMB on any consist and the Green and Red arrows will move to opposite ends of the consist setting the direction that will be forward when the consist is started in Driver mode.



## 11.12 Surveyor Title Bar

The Title Bar appears at the top of the Surveyor screen and has several tools, plus the Main Menu drop-down box.


The Title Bar is set to hide by default. Moving your mouse to the top of the screen will display the Title Bar.

**Quit (Esc)**

The Quit button is not really part of the Title Bar as it is always there regardless of whether the Title Bar is visible. However when visible, the Quit button sits on top of the Title Bar.

**Surveyor Main Menu**


Clicking on the word Surveyor on the title bar opens up the Main Menu drop-down box. Full details on these menu options are listed in section 11.13.

**Quick Drive (Ctrl-F2)**

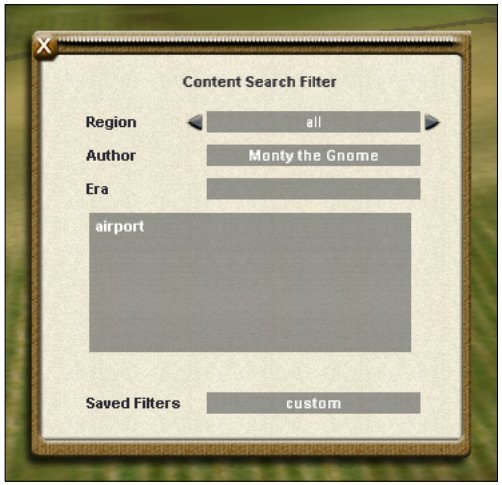
The Quick Driver button is shortcut that you can use to run the current session in Driver. This can be handy for session creators who can jump quickly into their session and test it without having to quit Surveyor.

**Edit Session Rules**

This button opens up the Edit Session window where the rules that define a session are added and configured. See sections 11.13.7 and 11.14 for further details on this window.

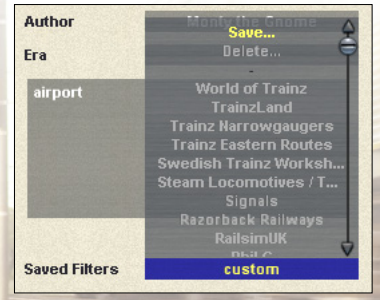
**Content Search Filter**

Clicking on this button opens the Content Search Filter window which you can use to define you own filters for use in the asset lists found across the various tool menus such as Objects, Track and Trains.




To create a new search filter, select a Region and enter the Author and an Era if desired (1980s, 1990s etc.). The main text field is keywords for the filter to use when finding assets.

For the sake of an example, just enter the word "airport". To save this custom filter, Click LMB on the text field next to the "Search Filters" field at the bottom of the window. Scroll to the top of the pop-up list and Click LMB on the "Save..." item.




When the name entry box appears, enter in a name for the filter and Click LMB on the check icon. Close the Content Search Filter window be clicking on the "X" in the top left corner and return to the main Surveyor screen. Open up the Objects menu (F3) and select your filter. Click LMB to select your category and note how the only assets in the object list are airport assets.

**Undo (Ctrl-Z) and Redo (Ctrl-Y)**


Undo and Redo are very useful functions for clearing up mistakes and recovering deleted objects etc. The number of levels you can undo or redo is determined by your computer memory. To use, just click on the appropriate Icon and your last step is Undone or Redone. If you have done a number of things quickly, such as painting a number of textures, be aware that these may all be become undone in one click.

**Bookmarks**

Bookmarks are used to set a location on your map that you want to return to later. To set a Bookmark, right click on the first Bookmark icon and notice that it changes to a green color. This sets that bookmark at the point where the compass is located.

Navigate to a new area on the map and Click RMB on the second bookmark to set it to that location. To recall the first bookmark, Click LMB on the first green icon. The map is re-centered to the original location.

You can also set and recall Bookmarks using Ctrl-1 through Ctrl-0 to set the bookmarks and use keys "1" to "0" to recall them.

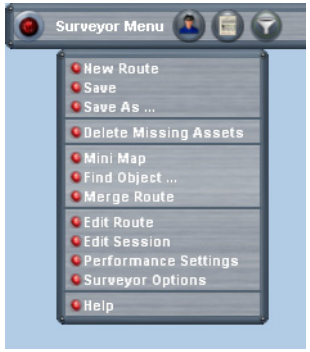
**Wireframe View (F9)**

The Wireframe View button (F9) replaces the textured terrain with a see-through wireframe. This mode is useful for seeing what lies beneath the ground such as under hills when placing and moving tunnels. Use F9 again to return to the regular view.

### Lock Menubar (F10)

You can lock the Menubar by toggling the Lock Menubar icon in the upper left corner of the screen. If it is locked, the Menubar will always be there for easy access. To hide the Menubar again, click again on the Lock Menubar icon and move your mouse to the bottom of the screen and it will disappear shortly.

## 11.13 Surveyor Main Menu

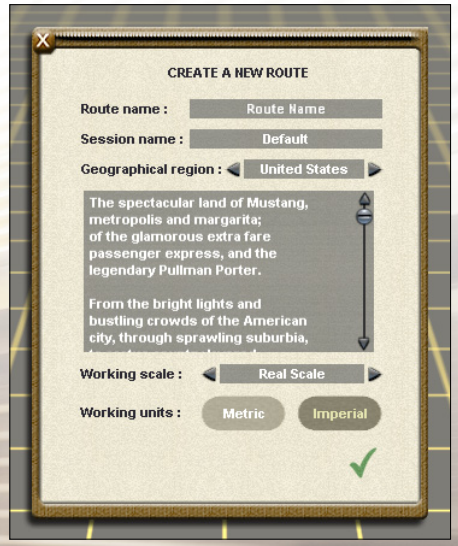



There are additional functions in Surveyor that are located in the Surveyor Main Menu at the top of the screen. To open the Surveyor Main Menu, Click LMB on the word Surveyor on the main Title Bar. (If the Title Bar isn't visible, move your mouse cursor to the top of the screen and it will drop down).

### 11.13.1 Creating and Saving Routes & Sessions

**New Route**

Click LMB on New Route to replace your existing route with a totally new route. You will be asked to Save if you have made changes to the route that you were working on. In the Create a New Route window that next opens up, enter or select the following information:



Give the new route a Route Name (replacing the name New Route and give this instance of the route a Session Name as well. This allows you to have a single route with multiple instances of it available. For example, you may have different sets of trains in different sessions. The options are endless.

Select a Geographical Region from the list for your route. One impact of selecting a region is that the cars will drive on the appropriate side of the road for your region. It will also affect the default latitude and longitude settings for the World Origin, the placing of Trackside objects and the default selection of Metric or Imperial measures.

Set the Working Scale to Real Scale if you wish to develop a virtual railroad rather than a scale model one. This setting affects the markings on rulers that you can use to size things up on a route as you build it. If you select HO scale instead for example, the rulers will measure distance in actual inches or meters in HO scale. If you are developing a virtual version of a model railway select the appropriate scale.

Set Working Units to metric or imperial measures as you wish. This will affect the measurements used when displaying the operating conditions in the engines as you are operating them.

**Save and Save As**

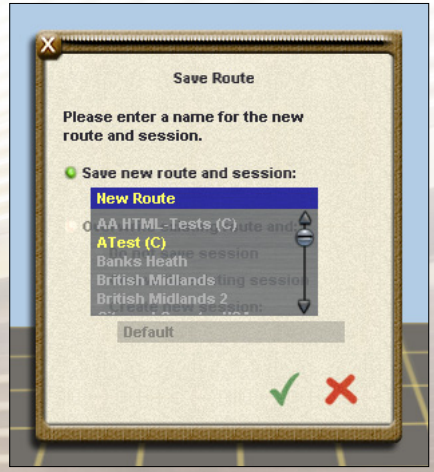
Use Save if you simply want to save the route and session that your are working on with the same names that you saved them with last time.

Use Save As if you wish to save either the route or the session you have created with new names.

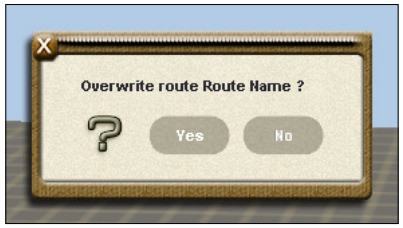
In either case you will see one or more of the following menus appear depending on where you are in the route and session building process. Note that the buttons that the items that you select have green buttons. If you cannot click on a red button to turn it green, it is because that option is not available to you at this time.




If you wish to save it with a new name, click on the name New Route and a drop down menu appears as follows.



You may now either type a name of your choice on top of the New Route name or you can click on any of the names in the list below if they have a (c) beside them. The (c) beside the name means that this is a route that has been created earlier by yourself or is a downloaded route created by someone else. The Names in dark black type such as "British Midlands" are routes that came with the TRS2006 product and cannot be overwritten. So you have the option of clicking on any of the routes with a (c) beside them if you wish to overwrite them with the route you are working on now. If you do choose to overwrite a route, you will see the following menu:

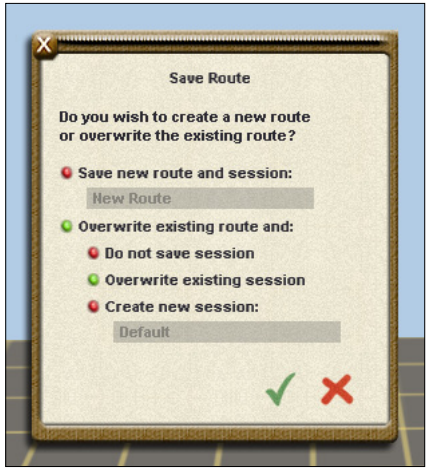



Click LMB on Yes or No depending on which choice you would like to make.

**Tip:** Be careful when overwriting a route as the route being overwritten is erased forever. Some route builders chose to store successive versions of a route with a different name or with a version number so that they can recover a prior version if they wish.

**WARNING: If you Save As and use the same name for the Route you have just edited and Click LMB on the green tick you will get a dialogue box appearing that asks if it is OK to overwrite the route, If you Click LMB be aware that all dependent Sessions for that Route will be lost. If you don't want to be in danger of losing Sessions choose a different name for the Route. As the Routes that come with TRS2006 cannot be overwritten, this warning does not apply to Sessions dependent on these Routes.**






If this variation of the menu appears, you now must decide if you are going to override the route and the session information or just the route information. Click LMB on one of the buttons to the left of the following three options.

**Do Not Save Session**
This will save the route as you now have developed it but will not replace the session information such as the trains placed on the route and the information you have modified using the Edit Session menu item described below. This allows you to save just the route that you are working on with the same name as you loaded it with.

**Overwrite Existing Session**
This will save the route as you now have developed it and it will also replace the session information such as the trains placed on the route and the information you have modified using the Edit Session menu item described below. The existing session information will be overwritten.

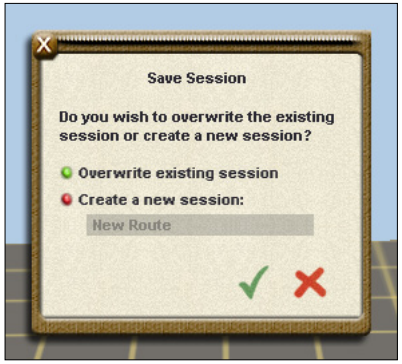
**Create New Session**
This will save route as you now have developed it. It will also create a new

session with information such as the trains placed on the route and the information you have modified using the Edit Session menu item described below. So now you will have a route with more than one session saved for it as the Session you loaded the route with will continue to be saved as well with the old name.

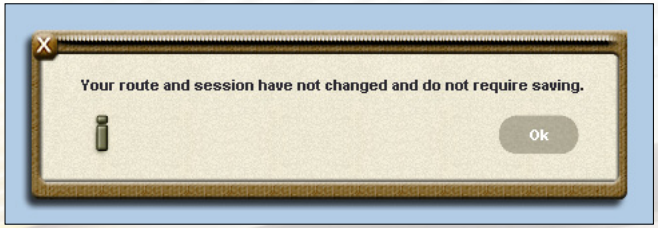
If you choose this option, enter a new name for your session in the field provided.

**Tip:** One of the great features of TRS2006 is that you can save many different operations session setups with a given route. E.g. an early morning passenger run or a midnight freight haul.


If this menu appears, you may save the new route and session with the current route name (New Route) or you can click on the field and enter a new name for the route. The existing session (Default) will be stored with the new route.




When this menu appears, you have the option of overwriting the existing session information or creating a new session. Click LMB on the red button to the left of Create a new session and enter a new session name by Clicking LMB on the field below it and entering a new name. Note that a drop down list of existing sessions appears. You may select one of these for overwriting if you wish.




If you select Save or Save As and there have been no changes since the last save operation, this message will appear. Click LMB on OK to return to Surveyor.

### 11.13.2 Delete Missing Assets

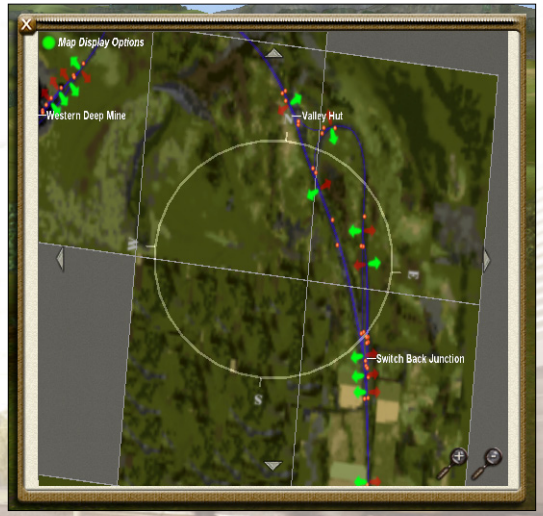
Delete Missing Assets will remove any links to missing objects. This may have occurred if you have downloaded a new map and don't have all the custom

content installed, or have older content that is not compatible with your version of TRS2006.


This menu will appear asking you to confirm or deny the action.

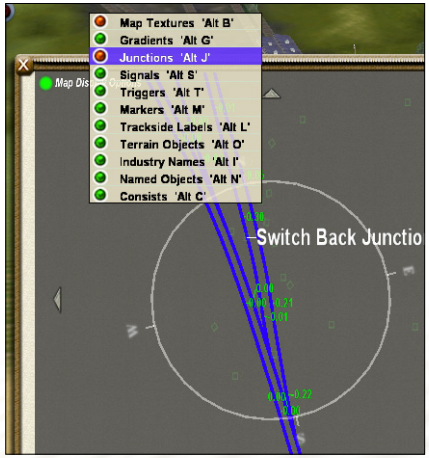
### 11.13.3 Mini-Map (Ctrl-M)

Click on Mini-Map to bring up an overview of your current map. Ctrl-M is a quicker way of bringing up this map. You can also toggle the Mini-Map on and off using Ctrl-M.




Whilst in mini-map mode, you can navigate around the terrain quickly by zooming out and Clicking RMB to move the baseboards around the screen.

There is also the ability to show/hide certain types of items in the Mini-Map view. Click LMB on the "Map Display Options" text in the top left corner of the Mini-Map window and select/deselect the items you want to show/hide as desired.




Click on the "X" in the upper left corner of the Mini-Map to close this window.

### 11.13.4 Find Object (Ctrl-F)

Find Object (Ctrl-F) brings up a dialogue box that lets you type in the name of an object. The map will be re-centered if any "named object" with that name is found. An error is displayed if there is no object by that name.


Only certain objects can be named such as turnouts, signs and stations. By selecting a type other than "All" you can narrow down your search.


### 11.13.5 Merge Route

Merge Route is an important tool for joining one saved route to another. Select Merge Route and a list of all your saved maps are displayed.


Choose which map you would like to join to the current map from the list and click on the Check Mark. You will see the baseboards from both maps and red shading on the baseboards where the current map and the new map overlap.

Use the four small arrows at the bottom of the box to move the map to be merged left, right, up or down and use the four white arrows on the mini-map to navigate around the mini map. Click LMB on Proceed once you have uncovered all the red overlapping sections.

> **Tip:** You cannot rotate a new map but you can join to it on any side. Large maps will take some time to merge. Before merging, rotate the camera so that you are facing North. This helps you understand which side of your existing route you want to join to.

Once you have merged two maps, you will have to edit the joins to smooth out different level terrain, and also to join track from the old section to the new.

You can change the map name, scale or measurement units using the Edit Project dialogue box.

### 11.13.6 Edit Route

Click LMB on Edit Route and a window opens in which you can modify the properties associated with a route. This is the same screen that appears when you clicked on Create New on the Surveyor main menu.


You may now change the Route name, add a Description, change the Working scale and the Working Units (which were discussed above in section 11.13.1).

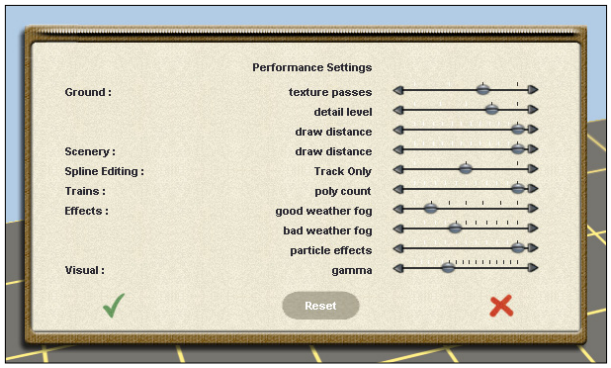
### 11.13.7 Edit Session

Click LMB on the Edit Session item to open up the Edit Session window. This window is where sessions are constructed and configured using with rules. A default minimal session with several basic rules is already provided.


Further details about this window and how it is used to construct a session can be found in section 11.14 of this manual.

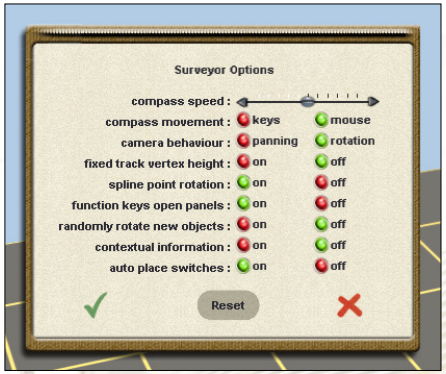
### 11.13.8 Performance Tuning Options (Ctrl-T)

One of the most important menu options in the Main Menu is the Performance Tuning option (Ctrl-P). Here you can see how to adjust the settings to improve performance depending on your PC specifications. In general, if your frame rate is too slow then adjust the sliders towards the left. These setting are discussed in more detail section 7.3 of this manual.




### 11.13.9 Surveyor Options (Ctrl-O)

The Surveyor Options menu (Ctrl-O) provides different default behaviors for the TRS2006 interface. You can adjust the mouse scrolling speed and alter the way the keys work.




If the mouse is moving too fast for you when you hold down the RMB, adjust the Compass Speed slider to the left.

Select the keys option for Compass Movement to use the cursor keys for moving the compass. The mouse will then move the camera.



Select Panning as the default Camera Behavior and the map slides left or right when you navigate around the terrain. Rotation means that the map will rotate slightly as you navigate.

Fixed Track Vertex Height if set to On ensures that as you lay track, the spline points are "fixed" at that height so that when you adjust the terrain height, the track doesn't move. You can then use Smooth Spline to adjust the terrain and Adjust Spline Height to move the spline points up or down.

With Spline Point Rotation set to Off you can turn the white circles from spinning to static.

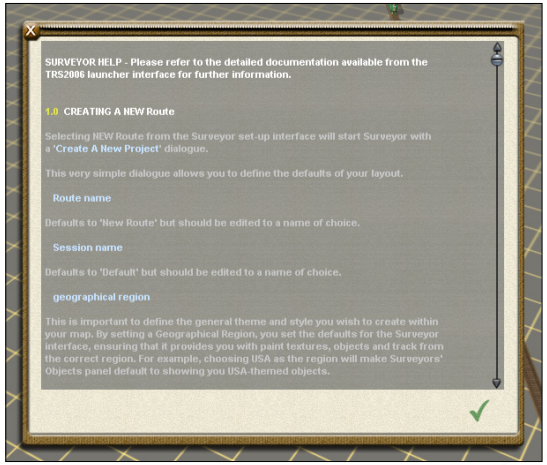
You can set the Function Keys Open Panels so that the Function Keys (F1, etc) open the panels by turning this option On. If you set this option to OFF, the Function Keys will enable that panel but will not open the panel. Once you know all the hotkeys, this function can speed up your map making.

Use Randomly Rotate New Objects when you are placing forests etc. You may want to switch it to Off when laying rows of houses.

Contextual Information determines the level of help graphics that displays in Surveyor. Set it to Off and only the current Menu graphics are displayed. (e.g. Track spline points won't display whilst the Texture Menu is open).

### 11.13.10 Help System

There is also a Help option in the Main Menu. The Help text menu that appears describes the various functions of each of the keys in Surveyor.






## 11.14 Session and Rules Management

### 11.14.1 Introduction

One of the powerful features of TRS2006 is the ability to apply Rules to a Session. TRS2006 ships with some standard Rules to get you started, but like other assets, new Rules will become available for download enabling you to expand the possibilities.

What can rules do? Well they can set basic parameters in a Session including which driver is in each Train, the weather state, control method, set up industry dependencies, what Driver Commands are available in the Driver Module and set the time and time rate.

They can also be combined, so that when a particular train hits a trigger the weather may change or a sound may be played.
Then there is the ability to pull HTML pages and sound files into the game. On top of that the Rules can be arranged to occur in a particular order.

All of this adds up to an open-ended system to manipulate the Driver experience, even for someone who has no real programming experience. We expect Rules to be one of the strongest features of TRS2006 as there really is no limit to what can be done using Rules.

> **Note:** If you don't want to have anything to do with Rules (Keep It Simple) then fear not, a default set of rules including assigning Drivers to Trains is automatically saved when you save a Session in Surveyor.

In this section we will describe how to use the Edit Session interface to add, delete and edit rules. The rule themselves are a large complex topic with their own document known as the "Session and Rules Guide" which is available from the Trainz website.

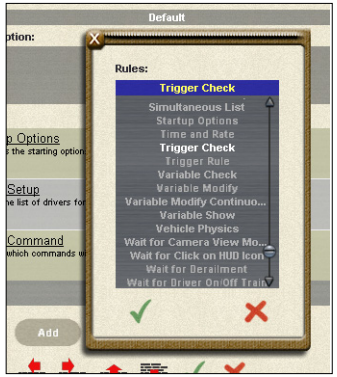
### 11.14.2 Edit Session

Recall that a Session is different from a route as it may include for example different trains. Click LMB on Edit Session on the Surveyor Menu and a window opens in which you can modify the properties associated with a Session. From here, you may change the Session Name, add a Description, and the operating Rules to be used in this session.


### 11.14.3 Adding Rules

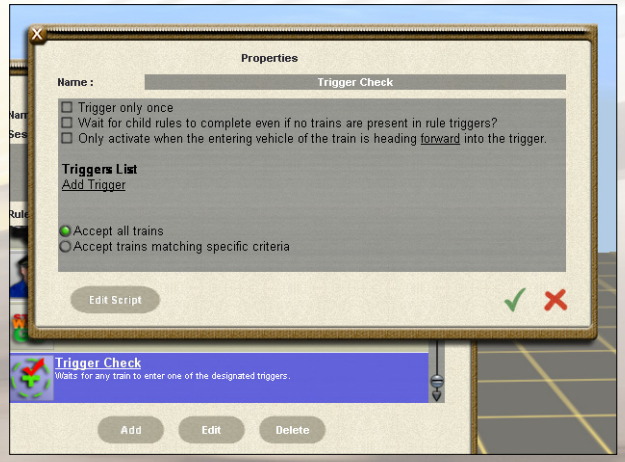
Click LMB on the Add Rule button (labeled "Add") to add a new rule to the session. A window opens up with the set of rules that you can choose from. Click on any one of the rules to add it to the list of rules to be included in this session.

Once you have added the rules you want, it is time to edit them to make them specific to your needs. See the individual descriptions of the major rules below for guidelines on editing them.




### 11.14.4 Editing Rules

Each rule may have a number of parameters associated with it that need configuring in order to modify it to your requirements. Highlight the Rule in the list that you wish to modify and Click LMB on the "Edit" button to bring up the Rule's Properties Window. All editable parameters are made available to configure in this window. By clicking on the available hyperlinks, you can edit the rule's parameter.



You can also edit the name of any Rule by Click LMB on it's text descriptor and typing in its new name. This can help identify a particular Rule in a complex Rule arrangement. Note that it is possible to have multiple rules of the same type in a session where each rule instance has its own configuration.

### 11.14.5 Managing the Rules

The Rules in your Rules List can be further manipulated by the four command buttons at the bottom of the Edit Session window.

The Outdent, Indent, Promote and Demote commands are used to order the Rules in a Hierarchical and Ordered fashion.

Some rules (like the Trigger Check Rule) require indented child rules immediately below them. This determines what happens when the Trigger Check Rule is activated. Other rules, like the Ordered List Rule also use child rules below them to fulfill its purpose. The child rules below the Ordered List Rule can be re-ordered by using the "Promote" and "Demote" buttons to alter the order in which they are executed.

As you can imagine the combinations are limitless.

You can also Delete Rules altogether by selecting the Rule with a Click LMB and then Click LMB on the "Delete" button.

**Outdent (Rule)**


To Outdent a Rule by one level select the Rule by Click LMB to highlight it and then Click LMB on the "Outdent" button. This removes the Rule from dependency upon the Rule it was Indented under.

**Note:** Be careful here as Rules subsequent to the Outdented Rule that are Indented will now only be executed if the Outdented Rule conditions are met. Use the "Promote" and "Demote" buttons to re-order the Rule List if this is not the desired outcome.



**Note:** The top level of the Rule Hierarchy is reached when the Rule is lined up as far left as it can get (Further presses of the Outdent button have no effect).

**Indent (Rule)**


To Indent a Rule by one level select the Rule by Click LMB to highlight it and then Click LMB on the "Indent" button. This makes the selected Rule dependent on the next higher Outdented Rule above it. The indented Rule will not be executed unless the Rule next up in the Hierarchy is activated.

**Promote (Rule)**


To Promote a Rule up the Rule List select the Rule by Click LMB to highlight it and then Click LMB on the "Promote" button. Once the Rule has reached the top of the Rule list it can no longer be Promoted.

**Demote (Rule)**


To Demote a Rule down the Rule List select the Rule by Click LMB to highlight it and then Click LMB on the "Promote" button. Once the Rule has reached the bottom of the Rule list it can no longer be Demoted.

**Delete (Rule)**

If you want to remove a Rule from the list select it by Click LMB on it and then Click LMB the "Delete" button. A dialogue box pops up confirming the deletion. Click LMB the "Yes" button to confirm the deletion or Click LMB the "No" button to cancel.

# 12 - Engineer's Guide

## 12.1 Introduction to the Driver Module

Driver is a lot more than just a driving simulation. First, you get to explore the tracks from behind the throttle, from trackside as trains come thundering past, from a bird's eye view tracking along with the trains or from a free-roaming camera.

Then you can switch to an overview map and control all the junctions and monitor signals and traffic flows. Running multiple consists, you can control each train yourself, letting the computer AI system control the trains as you control the switches.

You may also operate in accordance with the waybill system. This system issues waybills for resources that need to be delivered to and from various interactive industries in order to maintain the operation of these industries and the railroad.

## 12.2 Entering Driver Directly from Surveyor (Ctrl-F2)

Before we explain how you normally launch a driver session in TRS2006, let us alert you to a handy feature for those of you who will be building your new or modified routes and sessions in Surveyor.

In the middle of your Surveyor construction session, you can now try out your new route and session simply by hitting "Ctrl-F2". This will transfer you directly into Driver. When you leave Driver mode, you will automatically return to Surveyor so that you can continue to work on your route having tried it out. This avoids your having to save your session and then exit Surveyor to load your session into Driver.

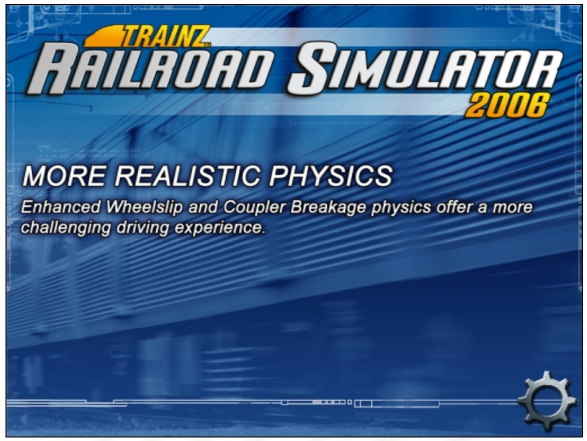
Please note that on your way back from Driver, you will be asked if you wish to save your session for reloading in future just as you might do in a regular driver session.

Now, let's get on with the normal approach to launching into driving trains.



## 12.3 Launching the Driver Module

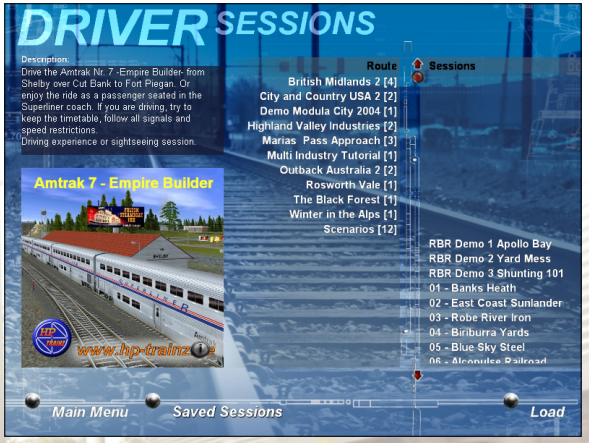
Click LMB on the TRS2006 icon on your desktop or start the TRS2006 program from the Start Programs function in Windows. You will then see the loading screen with a randomly chosen TRS2006 hint and a rotating gear in the bottom right corner that keeps rotating as Trainz loads.



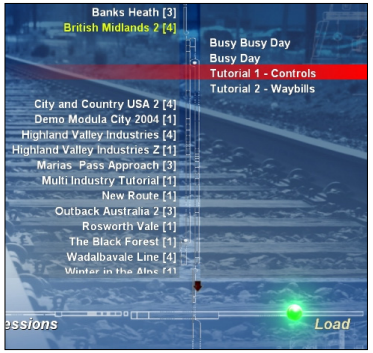

**Tip:** The loading time will vary with the amount of custom content that you download into the system. It will also take longer after you have added custom content as TRS2006 then rebuilds its "cache" files to include the new content.

The TRS2006 Main Menu then appears as shown below. There are four modules to choose from: Surveyor, Driver, Railyard and Trainz Exchange.


Click LMB on the button to the left of Driver to launch Driver (or press the "D" key). The following Driver Main Menu now appears:




On the Driver main menu you will see a list of available Routes and Sessions. When you Click LMB on a Session you can view the information (if any) contained in the Description window. Choose the Session you want to load into Driver by clicking LMB on it, then Click LMB on the "Load" button at the bottom of the screen.




To load a saved Driver session, Click LMB on the "Saved Session" button and a screen loads which lists all of your saved Driver sessions. Click LMB on the one you want to load to highlight it and then Click LMB the "Load" button at the bottom of the Screen.

Click LMB on the Routes button to return back to the Driver Main Menu screen with the route/session selection. Expand the list of sessions for the "British Midlands 2" route. Select one of the two tutorials and then Click LMB on the Load button on the bottom right corner of the screen. Trainz will load the session for the chosen tutorial and you will find yourself outside a coal train with an instructions window to guide you through the tutorial.

### 12.4 Tutorials + Manual = Fun

To help you get into the various activities available to you in the Driver mode we have included six tutorials. They are:

- Tutorial 1 - Controls (British Midlands 2)
- Tutorial 2 - Waybills (British Midlands 2)
- Tutorial 3 - Diesel Cab (City and Country USA 2)
- Tutorial 4 - Steam (Outback Australia 2)
- Tutorial 5 - Drivers (Highland Valley Industries)
- Tutorial 6 - Commodities (City and Country USA 2)

**Note:** The tutorial sessions take place on several different routes and won't appear in order on the Driver Main Menu. To get to a tutorial, find its corresponding route in the above list and expand that route in the Driver Main Menu.

We will refer to each of these tutorials in the relevant section. You can use the tutorials to get an "in-sim" handle on how to control your railroad, whether you are driving a steam locomotive across the American Midwest, climbing the Alps in a powerful electric locomotive or acting as a yardmaster in a busy industrial belt route.

This section of the manual complements the tutorials by giving you "blow-by-blow" descriptions of the controls and information you have at your command while in the Driver module.

First though we will go through the common interface items to all Driver sessions.

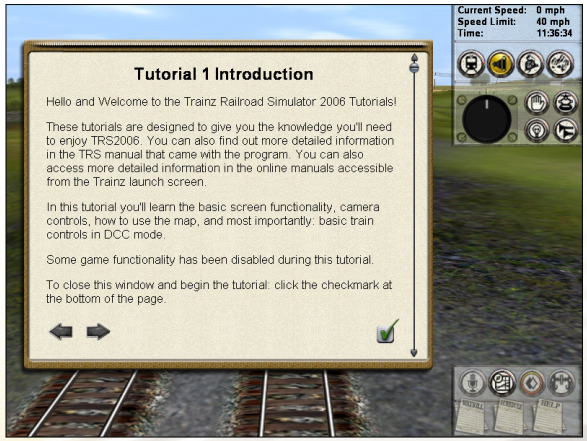


### 12.5 Anatomy of the Driver Screen

#### 12.5.1 Introduction

Let's take a look at the Driver Screen and where you can find the information and controls you need. We're going to select one of the tutorials and use it to demonstrate the common features of the Driver Screen.

At the Driver Main Menu select the "Tutorial 1 - Controls" session from the "British Midlands 2" route. Load it by Clicking LMB on the "Load" button at the bottom of the screen and it will begin to load the session.




The Tutorial 1 session does not have any train driving in it, but rather it is a guided tour of the Driver module's key interface components.

#### 12.5.2 Driver Menu

At the top left of the screen is a drop down menu known as the Top Menu. It only appears when the mouse pointer approaches the top left of the screen.

### 12.5.3 HUD Panels

At the top right of the screen are the Heads Up Display Panels. Depending on whether you are in DCC or Cabin control mode it displays different information relating to the currently selected train. It is also where you will find the camera control panel, the train's current speed and the speed limit for the section of track the train is on.


### 12.5.4 Driver Selection Panel

On the bottom left is the Driver Selection Panel. The picture at the bottom is your currently selected Driver.

By clicking on the Driver's picture, you can see a list other available drivers (up to seven).

### 12.5.5 Tool Panel

Finally on the bottom right is the Tool Panel. Here you'll find the waybill, loading, uncoupling and map buttons.


### 12.5.6 Hiding the Interface (F5)

You can remove all the interface displays and panels from the view screen by pressing the "F5" key. Pressing the "F5" key again re-displays the interface.

### 12.5.7 Screenshots ("Print Screen" or "PrtScr")

Want to do some virtual railroad photography? To take a "shot" of the screen press the "Print Screen" key ("PrtSc" on some keyboards). The picture is saved as a .TGA graphics file to your TRS2006 directory in the Screenshots folder. Screenshots are stored in sequential order starting with the filename "Screen_001.tga". The next screenshot will be saved as "Screen_002.tga" and so on.

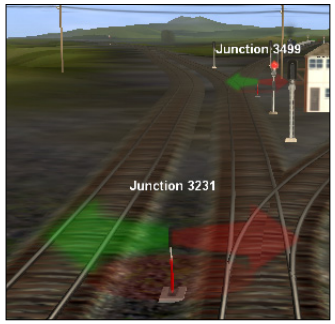
Use a graphics utility program to convert the TGA file to other file formats as you require.

**Tip:** You can use the Hide the Interface (F5) toggle to maximize your view of the action when taking screenshots.

### 12.5.8 Throwing Switches to Set Turnouts

Turnouts determine the direction your train will take. You can identify turnout control switches by a transparent green/red arrow hovering over a red circle. The green arrow indicates the direction the turnout is set to.

If you have On Screen Help activated then the switch names and the turnout direction will be visible at all times. If not you will need to move the mouse over the turnout control switch to see its name and the turnout direction. The switch controlling the turnout may be set back a little from the actual place where the track meets, but will always be on the side where the two (or three) tracks combine to form one track.




To change the turnout's direction all you need to do is Click LMB on the green circle below the green/red arrow. The switch throws the turnout and the green/red arrows change to reflect the turnout direction.

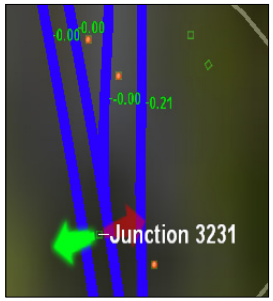
**Note:** If you are in the Cab View, hold the Ctrl key when you Click LMB on the turnout switch.

There may also be three-way turnouts. In this case there are three arrows. Two will be red and one will be green indicating the direction the turnout is set to. Each Click LMB on the turnout controlling switch cycles through the three directions: left, right or straight on.

You can also change the turnout direction of the next and previous turnout relative to the currently selected Consist. Press the "J" key to switch the next turnout or press "Ctrl J" to switch the previous turnout.



In the Map View (see sections 9.3.5 and 12.8.4) you can also see the turnout names and the directions they are set to.




You can Click LMB on them to change their direction. Signal states immediately respond to reflect the change in turnout direction. This is very useful for planning your train's movements as you can also observe the location/movements of other consists and the location of industries.

### 12.5.9 Operating Turntables

Turntables are functional in TRS2006. To operate a turntable Click LMB on one of the red curved arrows either side of the turntable platform to rotate the turntable in that direction and line up with the next available track. The curved red arrow turns green to indicate the turntable is moving.

**Note:** The turntable platform will line up with the next available track at either end of the turntable platform.

### 12.5.10 Signaling System

The standard TRS2006 signaling system is based on an elementary controlled block principle. The network is divided into blocks in both directions, all of which are protected by signals.


Indications are as follows:

**Green - Line Clear**
The next signal is either green or yellow, proceed at normal speed.

**Yellow - Caution**
The next signal is red, proceed at low (half) speed.

**Red - Stop**
The block is occupied, terminates, or is closed.

All of the signals are red unless a train is approaching one, when it will turn green to allow passage of the train. There are several reasons why a signal may not be showing green in the presence of a train:

1. The line may terminate or be closed, meaning a set of points or turnout within the block it protects is set against it;
2. A part of a train may be occupying a part of the block it protects, the signal shows red preventing any further traffic from entering the block; or
3. A part of a train may be occupying a part of the adjacent block when the signal will display Caution to indicate that the next signal is at Stop

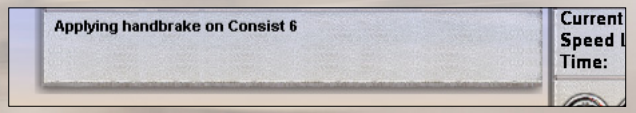
When a train encounters a green light, it is permissible to pass the signal at normal speed. The signal will stay green until the rear of the train enters the block, at which time it will change to red. Once the train leaves the block, i.e. passes the next signal, the first signal will turn yellow, meaning it is safe to proceed as far as the next signal which is now at stop.

During Driver sessions, any of the circumstances that result in a red or yellow signal can be revealed. Move the mouse pointer over the signal lamp, and a message will display the status of the block. Clicking on the signal lamp will transport you to the obstacle whether it be a junction that needs switching, a terminating line or another train.

Alternatively, your path can be cleared using the Map Screen overview, using a simple dispatch simulation style display.

### 12.5.11 The Radio Message Box

The Radio Message box can be shown at the top of the Driver screen to alert you to in game messages that may be of interest. To open the message box, click LMB on the "Toggle new message" microphone icon located at the top left of the Button Bar located in the bottom right corner of the screen. Click LMB on the button again to close the Radio Message box.



## 12.6 The Driver Menu Bar

### 12.6.1 Introduction

The Driver Menu Bar is a drop down menu that appears when you move the mouse cursor to the top left of the screen. When it has fully appeared the buttons on it become active.

**Exit Driver (Esc)**

Click LMB on this button or press the "Esc" key to exit this Driver Session. A window pops up giving you the option to "Save" your current Session in its current state, "Exit" without saving or you can "Cancel" your exit command.

Saved Driver Sessions are available to resume at a later time. Select "Saved Sessions" when entering the Driver Module to see a list of saved session. Click LMB on the required saved session and then Click LMB on the "Load" button to resume where you left off.

**Pause Session (P)**

Click LMB on this button or press the 'P' key to pause your current session. The "Pause" button will be highlighted indicating the session is paused. The session will resume and the "Pause" button loses its highlight when you Click LMB on the "Pause" button or press the 'P' key a second time.

**Save Session (Ctrl-S)**

Click LMB on this button or press the 'Ctrl S' keys. A window pops up giving you the option to save your current Session in its current state under a name of your choice. If you don't want to save the session, cancel by Click LMB the red cross. Clicking on the green tick will save the session. If that name already exists you will be given the option to overwrite the existing file or cancel the save.



Saved Driver Sessions are available to resume at a later time. Select "Saved Sessions" when entering the Driver Module to see a list of saved sessions. Click LMB on the required saved session and then Click LMB on the "Load" button to resume where you left off.

**Performance Settings (Ctrl-T)**

Click LMB on this button or press the "Ctrl T" keys to bring up the Performance Settings dialogue box. The sliders here adjust the performance settings and gamma levels of the Driver module for this and future sessions.


You can accept your changes by Click LMB on the green tick. To reset to the default settings Click LMB on the "Reset" button or close the dialogue without applying any changes to the performance settings by Click LMB on the red cross.

See section 7.3 of this manual for descriptions of what the various performance settings do.

**Metric or Imperial Units (G)**

Click LMB on this button or press the "G" key to toggle between metric (speed in kph, pressure in kpa) and imperial (speed in mph, pressure in psi). The default units are set in the Surveyor Module when saving the

Session. If you are not happy with the default units, go into the Surveyor module, change the units and save the session.

**Find Object (Ctrl-F)**

Click LMB on this button or press the "Ctrl-F" keys to open up the Find Object window.


To filter the objects listed in the "Objects" list Click LMB on either of the buttons at the end of the displayed line labeled "Type" to select which class of object to show in the "Object" list. Selecting "All" will show all of the available objects (this is default). You can also select the object type by Click LMB on the "Type" text box to see a drop down list of all object types and then Click LMB on the object type of interest.




Click on the name of the object in the "Object" list that you wish to view. Use the scroll bar at the right of the "Object" list if it spans more than can be viewed in the list window.

Click LMB on the red "X" to cancel what you are doing or Click LMB on the Green Check Mark to move the camera focus to the highlighted Object. You will automatically be in the Free-Roaming Camera mode.

**On Screen Help (Ctrl-H)**

Click LMB on this button or press the "Ctrl H" keys to toggle between activating/deactivating the On Screen Help. The "On Screen Help" button will be highlighted if this option is active.

When active, On Screen Help will show the names and direction of all turnout control switches. You can identify turnout control switches in the view screen by a transparent green/red arrow hovering over a red circle. The green arrow shows the direction the turnout control switch is set to.

When On Screen Help is deactivated you need to move your mouse cursor over a turnout control switch to see its name and the direction the turnout is set to.

**Note:** In Cab View (internal) the mouse over trick doesn't work when the On Screen Help is de-activated. If you want to check the status of an up-coming turnout control switch, activate the On Screen Help (button or "Ctrl H").

## 12.7 View the World - The Camera

### 12.7.1 Introduction to Looking Around

Let's take a look at the various views that are available to you whilst in the Driver module. Get a clear view of the Driver Screen. Then you will be ready to try out the various camera views available to you. Take a moment to get familiar with these view controls, some time spent doing this will maximize your enjoyment in Driver.

The camera views are also reviewed during the DCC tutorial.

There are four camera views in TRS2006 and the Map view. You are free to move between them at any time to make the most of your Driver experience, although there will be times when it's advantageous to focus on a view to accomplish a particular action.

The four Camera Mode buttons are on panel on the HUD at the top right of the screen.

We suggest you also review the Map View topic under the Tool Menu section as the Map View is also an integral part of viewing, controlling and getting around your railroad.

### 12.7.2 Cab View - The Internal Camera (1)

To go inside the Cab, click on Cab View button on the Camera Mode Panel or press "1".

> **Note:** If you do not end up inside the cab, you have probably not selected the locomotive. Click LMB on the locomotive and try again. Look around the internal view by clicking RMB+H and moving your mouse or pressing the cursor keys on the keyboard. The left, right, up and down movements emulates the movement of your head pivoting on your neck.

You can also move to different internal cameras by using the "[" and "]" keys. Depending on the locomotive the view may move around inside the cab, onto the running boards or even outside the locomotive. These keys will move you smoothly through the available camera views each time you press them. Holding down the Ctrl key whilst using "[" and "]" will snap the camera to the next position.



To zoom in and out use the mouse wheel or the "Page Up" or "Page Down" keys.

When in Cab View in Cabin Control mode you can manipulate the train controls directly with the mouse, or watch them move as you use the keyboard. There may also be secondary animations…things like a window you can open/close or a seat you can raise and lower. Why not explore a little with the mouse and see what you can manipulate?

> **Note:** Some locomotives use "generic" cabs so in Cab View their cabs and control layouts appear the same. However, many locomotives have unique cabs and hence different control layouts.

In Dual Cab locos, pressing the "Alt-C" keys will change the camera to the other cab.

> **Note:** Some rolling stock have had internal views activated. Choose the rolling stock of interest by Click LMB on it and then select the internal camera. In some cases you can also press the "[" and "]" keys to different viewpoints inside/outside the rolling stock.

### 12.7.3 The External View Camera (2)

The External View Camera mode is selected by default when you enter Driver with the focus point of the camera on the front car or loco of the selected consist. You can select External View Camera by clicking on the External View button on the Camera Panel or by pressing the "Keypad-2" key.

To look at your focus point from different angles, Click RMB+H and moving your mouse or press the cursor keys on the keyboard.

If you want to zoom in and out use the mouse wheel or the "Page Up" or "Page Down" keys.

To change the focus point Click LMB on any of the cars or move the view from car to car sequentially by pressing the "-" and "+" keys.

You can also change your focus point to another consist by Clicking LMB on it directly, via the MiniMap view (see Section 12.8.4) or by selecting a different train from the Driver Selection Panel (see Section 12.5.4).

### 12.7.4 The Tracking View Camera (3)

The Tracking View Camera Mode is selected by clicking on Tracking View on the Camera Panel or by pressing the "3" key.

**Note:** If you don't move to tracking view that is because there is no tracking camera nearby as described below.

This view requires the placement of cameras within the layout itself (using the camera tools in the Surveyor module as described in section 11.9.2). In the Driver module, when you select Tracking View, the camera view switches to the nearest camera to the currently selected train if and only if there is a camera in range of the train. These cameras are stationary fixtures in the route you have selected. Upon detecting your locomotive approaching, they become active. The Tracking Camera turns or pans appropriately to follow your consist as it passes and until the consist is out of range, whereupon the default External View Camera is automatically activated if another Tracking Camera can not pick it up. Not all layouts will be partially or completely equipped with Tracking Cameras but you can if you wish add them in the Surveyor module to an existing layout as well as a new one.

### 12.7.5 The Free-Roaming Camera (4)

The Free Roaming Camera is not connected to any given train it works like the view controls in the Surveyor Module. Click LMB on the Free Roaming Camera button or press the "4" key to enter this camera mode.

Click RMB and the scene will move smoothly to centre on the cursor. By Click RMB+H and then moving the mouse the view will track the cursor. The further the cursor is pushed to the edges of the screen the faster the scene travels to catch up. By moving the cursor while Click RMB+H to the corners of the screen the view will rotate to follow. You may also use the cursor keys in conjunction with the mouse control of the view to frame the scene as you see fit. Don't forget you can also use the mouse wheel or the "Page Up" or "Page Down" keys to zoom in and out.

### 12.7.6 Finding and Viewing any Object (Ctrl-F)

To take the Free-Roaming Camera to a specific object, move your cursor to the top left of the screen causing the Top Menu to appear. The second button from the right of this menu is a "Find Object" button. Click LMB on "Find Object" to open up the Find Object menu. Click LMB on either of the button at the end of the displayed line labeled "Type" to select which class of object to show in the list. Selecting "All" will show all of the available objects. Click on the object in the list that you wish to view using the scroll bar at the right of the list if it spans more than can be viewed in the list window.

Click LMB on the red "X" to cancel what you are doing or Click LMB on the Green Check Mark to move the camera focus to the highlighted Object. Once there, you may use the free-roaming camera to roam the area at will.

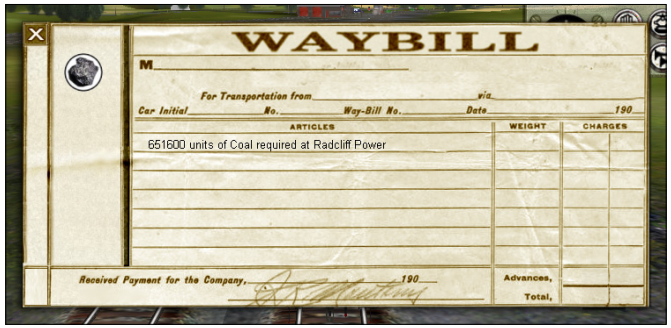
Use of the find functionality is discussed further in section 12.6.1.

## 12.8 The Tool Panel

The Tool Panel is located in the bottom right corner of the Driver screen and contains several buttons that provide access to various miscellaneous tools in Driver and are discussed in the sections that follow.

### 12.8.1 Waybills - Who Needs What?


Waybills are automatically created by the active industries on the session you have selected. In the session "Tutorial 2 - Waybills", the Radcliff Power Plant has generated a waybill for coal.




Click LMB on the Waybill button on the Tool Panel in the bottom left of the screen to bring up the Waybill window in which outstanding waybills governing the operation of the session are listed.

The icons of the industries with active Waybills that need filling are listed on the left of the Waybill window. If there are lots of them you may need to scroll using the scrollbar. Click LMB on the industry icon to bring up its waybill on the right panel of the Waybill window.

As you fulfill the listed industry's waybill by moving the relevant product to that industry they are removed from the Waybill window…job done!

Of course industries continually consume resources so as they run low on resources they will generate new waybills…so keep an eye on the Waybill window for new jobs to appear.

To close the Waybill Window Click LMB on the "X" button at the upper left of the Waybill Window. Clicking the Waybill Icon



### 12.8.2 Commodities Panel - Which Carries What?

The Commodities Panel is accessed by clicking on this button. The Commodities Panel is used to assign commodities to specific rolling stock.

**Assigning Commodities to Vehicles**

A list of available commodities for this route is depicted as icons on the panel. Click LMB on the required commodity and then Click LMB on the piece of rolling stock in the view screen you want to carry that particular commodity. The rolling stock selected must be capable of carrying the commodity you have selected. You will know this is the case as when you move the cursor over the rolling stock the commodity icon will appear. Click LMB to assign that commodity to the car.

You can move the commodity panel by LMB+H and dragging it around and dropping it so it gives you a clearer view of the available rolling stock.

Some cars may carry a variety of commodities. For example the "Oily Rag" tank car can be assigned to carry only diesel, petroleum or crude oil. The variety of commodities that a car is capable of carrying is determined by the content creator when they create the asset. The commodities available to be assigned to a valid piece of rolling stock are determined by the industries that are placed on the route for the session you have selected.

**Note:** Only rolling stock that is "active" may be assigned to a commodity. Some older pieces of "non-active" content are not capable of carrying commodities.

There are two other icons that appear on the Commodity Panel.

**Stop Icon**

The first icon is the "Stop" icon. By selecting this icon with a Click LMB and then Click LMB on a piece of rolling stock it makes the selected car inactive. It will not load or unload any commodities even if presented to a valid load or unloading track and issued a Load or Unload command.

**Default Icon**

The second is the "Default" icon. By selecting this icon with a Click LMB and then Click LMB on a piece of rolling stock you are returning it to its default state. The default state allows the car to pick up any compatible commodity. Going back to the "Oily Rag" tank car, if it is set as default it can pick up and carry any liquid commodity (petroleum, crude oil or diesel). However it still would not be able to pick up and carry a 20ft container or lumber for example as these are not valid loads for this car.

When you have finished assigning commodities to rolling stock, you can close the Commodities Panel by Click LMB on the "X" at the top left of the panel.

---

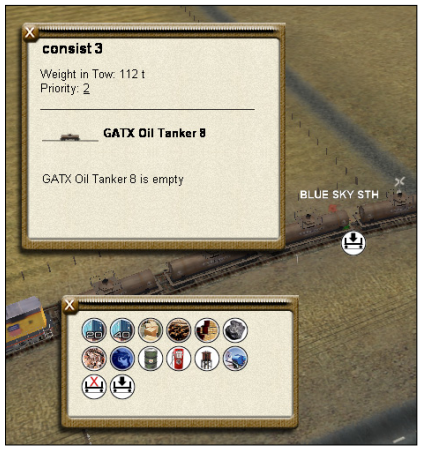
**Note:** All rolling stock starts off in the "Default" state for the purpose of carrying commodities.

---

**Commodity Levels in a Vehicle**

To check a car's current state Click RMB on the car and select View Details from the pop up menu with a Click LMB. An information dialogue box will pop up describing the list of commodities the car can carry and how much (if any) of each commodity is loaded. Click LMB on the "X" at the top left of the window to close.






**Commodities Tutorial**

Before you run the tutorial that looks at Commodities we suggest you complete and are familiar with the DCC and Driver Commands portions of this manual.

To go through an in-game tutorial on the aspects of commodities discussed above go to the Driver main menu and Click LMB on the "5 Commodity Tutorial" Session for the City and Country USA 2 Route. Then click LMB on the Green Light labeled "Load" in the lower right hand corner of the screen. The program loads in the route and session information for the tutorial and the session will start.

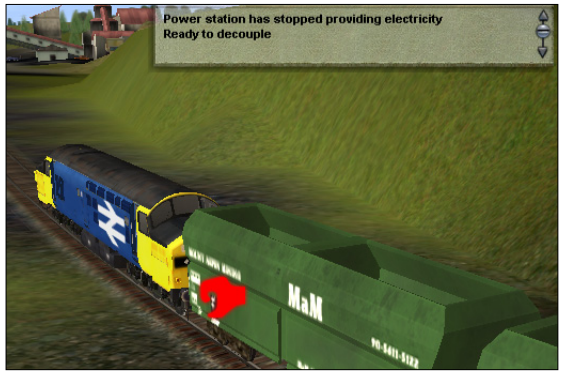
### 12.8.3 Decoupling

Being able to make up and break up consists is a classic operational feature of the world of railroading. Decoupling is key to this.

**Decouple Mode (Ctrl-D)**

Click LMB on the Decouple button or press the "Ctrl D" key to activate decouple mode. The button will light up to indicate that you are in this mode. A Radio Message window pops up indicating you

are in decouple mode. Now move your cursor over the couplers between train cars you want to decouple until you see a red decouple icon.




When the red decouple icon appears, Click LMB to decouple the consist at this point. When you have successfully performed the decouple operation, the red coupler icon "opens" and the Radio Message updates to announce a successful uncoupling.

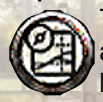
The act of decoupling creates a new consist and your camera remains focused on the same car or locomotive as before the decoupling operation.

To re-couple, ensure that you are operating at speeds below 5mph (8kph). Experiment with different camera positions to make this task easier.

### 12.8.4 Breaking Out the Maps - Where are We?

Without a map, it is easy to get lost. TRS2006 provides maps of each and every route to help us find our way.

**Map Screen (M)**



The second icon on the Tool panel at the bottom right of the screen activates the Map Screen (M). Click LMB on the Map button to the left of the de-couple button to switch to a full screen Map View of the current terrain. The map shows the position, length and driver (if present) of each consist, signal states, the direction of each turnout (green/red arrows) and important names such as industries, turnouts, trigger points and stations. Zoom in and out using the "Page Up" and "Page Down" keys, the mouse wheel or by LMB on the zoom in and zoom out magnifying glass icons above the Tool Panel at the bottom right of the screen.


The map follows the movement of the currently selected consist. The currently selected consist shows as green and all other consists show as gray on the map. Click LMB on one of the gray consists to select that consist, centering the map view on that consist in the process. The map will then move to follow it.

Click RMB any point in the map to center the map view to a new location. You will lose focus on the current consist. The map is now stationary (it stops following the selected consist) and under your control. You can Click LMB on the up, down, left and right arrows to scroll the map. Click LMB on any consist to have the map resume following it.

You can also throw the switch levers on turnouts by Click LMB on the turnout (green/red arrows). The green/red arrows will toggle and any changes to

signal states will also occur on the map. This is very useful for planning your train's movements as you can also observe the location/movements of other consists and the location of industries.

Exit the map screen by Clicking LMB again on the Map Screen button, or press the 'M' key.

### 12.9 The Driver Selection Panel

By default the Driver Selection Panel shows a picture of the Driver of the currently selected Train along with a miniature icon of the locomotive they are driving. If a Driverless train is selected a white box with a "?" is shown in the picture frame.

To the right of the Driver picture are the sequence of Driver Command icons assigned to that Driver by Click RMB on the Driver's picture you can add more Driver Commands (see Section 12.12 on Driver Commands for more information).


**Note:** If a Driver is not currently assigned to a locomotive there will not be a locomotive icon under their portrait. This means this Driver is available to be assigned to an available locomotive (see Section 9.4 on Driver Commands for how to do this).

You may select other Drivers by Clicking LMB on the handle above the selected Driver picture. A complete iconized list of the Drivers available (a Session can have up to seven Drivers). Along with the Driver's picture you will also see their assigned locomotive and active Driver Command icon. Click LMB on the Driver you want to select from the list and that Driver and his Train are shown in the Driver screen and their picture moves to the currently selected Driver slot.

You can also select a Driver from the keyboard moving them to the currently selected Driver slot and making their train the focus of the Driver screen slot by pressing the "Ctrl-#" keys where the # is the number of the Driver.

While the Driver List is visible you can Click RMB on their icon to bring up the Driver Command Menu for that Driver. You can then select what you want that Driver to do from the list of Driver Commands (see Section 12.12 for more information on Driver Commands). You can do this without changing the currently selected Driver/Train.

To close the Driver list Click LMB on the handle at the top of the list and it will slide down and disappear.

Now you know the basics of the Driver Screen layout and how to view your world you can start on a tutorial to actually do something in Driver.

## 12.10 DCC Diesel / Electric / Steam Mode

### 12.10.1 Introduction

We've grouped all the locomotive types (diesel, electric and steam) together, because in DCC Mode the control mechanisms are the same for all of them. Think of DCC Mode as equivalent to a high cost Digital Command Controller with momentum and braking effects. It's easy to use and quickly gets you moving your train(s) around the route. As in most places in TRS2006 you can use the mouse and/or keyboard commands to control the simulation.

### 12.10.2 The DCC tutorial

Go to the Driver Main Menu and Click LMB on the "Tutorial 2 - Waybills" Session for the British Midlands 2 Route. Then click LMB on the Green Light labeled "Load" in the lower right hand corner of the screen. The program loads in the route and session information for the tutorial and the session will start.

An introduction to the tutorial comes up as a window and describes what you will be doing in this tutorial - other windows will pop-up along the way to explain aspects of the tutorial and help you achieve the tutorial goals. Click LMB on the checkmark in the lower right corner of these windows to proceed.

Once you have read through the introductory screens you will see a stationary British Railway Class 37 diesel locomotive hitched up to an empty car coal consist. You are ready to roll…

Go through the tutorial to get a feel for the DCC mode. If you are not already familar with the basic controls, play through the first tutorial "Tutorial 1 - Controls" before attempting this one.

Below we look at each of the aspects of the DCC mode of operation, so use it as a reference if you get lost during the tutorial.

### 12.10.3 DCC Control and Driver HUD

The information displayed in the HUD (Head Up Display) is dependent on the Driving Mode selected in the Driver Settings menu. When in DCC mode, the DCC Panel as shown below appears at the right side of the screen.

The DCC Panel consists of a throttle knob and four buttons which are discussed in the sections that follow.

**Note:** If the currently selected train has Driver Commands in progress the DCC Control Panel on the HUD is no longer visible and the train is not manually controllable. To regain manual control Click RMB on the driver and select "Abandon Schedule" or "Stop Train" from the pop-up Driver Command Menu. See Section 12.12 for more information on Driver Commands.

**Tip:** The DCC Control Panel and the Camera Panel can be shown/hidden by pressing the "F9" key. This can also be a reason why the DCC Panel is not visible.

**DCC Throttle Control (W/X/S)**

In DCC mode, a simple rotary dial controller is available below the Camera Selection Panel on the HUD. This dial controls the movement of the currently selected train and is analogous to a model railroad DCC controller knob. Click LMB+H on the dial and drag it clockwise to move forward. The top central position of the dial is the stopped location. Dragging the dial anti-clockwise will make it move in reverse.

**Stop (S)**

To quickly reset the dial and bring the current consist to a halt, click on the "Stop" button or press "S".

You can also use the "W" and "X" keys for reverse or forward controls and "S" key for stop. If you are using the keyboard to control the throttle you can refer to the position of the rotary dial on the HUD to see your current throttle setting.

**Handbrake (A)**

The "A" key can be used as a handbrake to rapidly stop the train or to stop loose wagons from rolling away.

**Lights (L)**

Activate the headlights by clicking on the "Light" button to the right of the throttle control or pressing the "L" key.

**Horn (H)**

Press 'H' to operate the horn or click on the "Horn" button to the right of the throttle control in the HUD. For long blasts of the horn, simply hold the 'H' key down or Click LMB+H on the "Horn" button. Some multi-tone horns only have a single blast pattern.

**Bell (B)**

Toggle the Bell on or off by pressing the 'B' key.

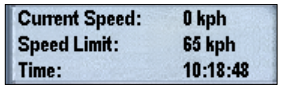


**Pantographs (Keypad 1)**

Lastly, if your locomotive has pantographs, click on the "Pantograph" button on the right of the throttle control to raise and lower them or press the "Keypad 1" key. If the locomotive has multiple pantographs subsequent key/button presses will raise them individually or together before cycling back to all down.

**Speed Limit and Current Speed**

Your current speed and the track speed limits are shown at the top of the HUD above the Camera selection panel. You can toggle the units between metric and imperial by either selecting the "Units" button on the drop down Top Menu or pressing the "G" key.




You will need to check your current speed regularly against the track speed limit and signal indications to make sure you operate the train safely.

## 12.11 Driver Commands and Working with Industries

### 12.11.1 Introduction

Driver Commands add a whole new world to TRS2006, allowing you to control a railroad, not just a train. When coupled with Interactive Industries, active rolling stock and Waybills this aspect of the Driver Module really will bring your railroad to life.

### 12.11.2 Operations, Industry and Driver Commands Tutorial

Go to the Driver main menu and Click LMB on the "Tutorial 5 - Drivers" session for the Highland Valley Industries route. Then click LMB on the Green Light labeled "Load" in the lower right hand corner of the screen. The program loads in the route and session information for the tutorial and the session will start.

An introduction to the tutorial comes up as a window and describes what you

will be doing in this tutorial - other windows will pop-up along the way to explain aspects of the tutorial and help you achieve the tutorial goals. Click LMB on the green checkmark at the bottom right corner of these pop-up window to proceed. The red arrows in the bottom left allow you to navigate back to pages you have already seen if needed.

Once you have read through the introductory screens you will see a stationary CN diesel locomotive. You are ready to roll…

Go through the tutorial to get a feel for bringing your railroad to life working with interactive industries, operating turntables, coupling/de-coupling and utilizing the power of Driver Commands.

Below we look at each of the aspects of the Driver Commands so use it as a reference if you get lost during the tutorial.

### 12.11.3 Interactive Industries

Interactive Industries are scenery objects that produce/consume commodities that are transported by rail. Your job is to get the right train with the right rolling stock to the right industry for loading and then to move the commodities to the right industry that consumes it.

Sound easy? Read on!



**Commodities**

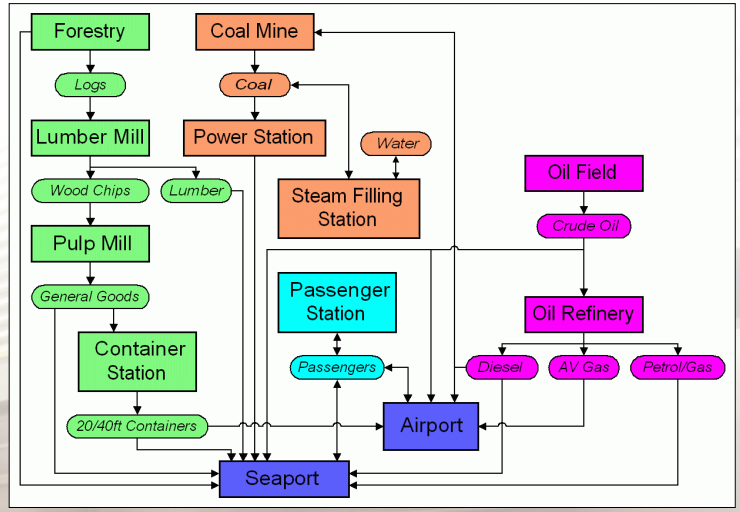
An Interactive Industry can produce commodities, it can consume them or it can do both.

An example of an Interactive Industry that only consumes commodities is the Power Station. It consumes Coal.

An example of an Interactive Industry that only produces a commodity is the Forestry industry. It produces Logs

An example of an Interactive Industry that both consumes and produces is the Lumber Mill. It consumes Logs and produces Lumber and Wood Chips.

Below is a flow chart of the Interactive Industries (in rectangular boxes) and the Commodities (in rounded boxes) included in TRS2006.




**Tip:** Further industries and commodities are available form 3rd Party Content Creators via the Download Station.

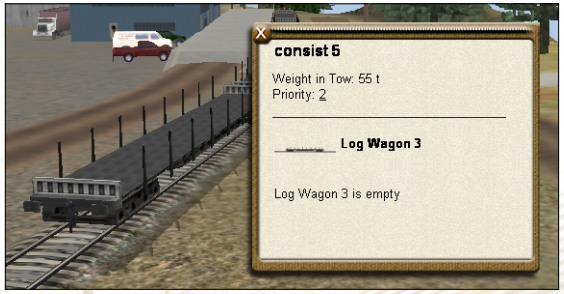
### Active Rolling Stock

You also need to use the right rolling stock to move commodities around the railroad. Older rolling stock, including some of the rolling stock included with TRS2006 is not able to carry commodities, let's call them non-active rolling stock. Of course TRS2006 also includes examples of rolling stock that are capable of transporting Commodities, we'll call these active rolling stock.

**Note:** In the Surveyor Module active rolling stock and Interactive Industries are denoted by a "Tick" in their 3D preview window. See Chapter 11 - Sureveyor In Depth for details.

Active rolling stock may also have animations associated with them, so you will see the wood chips being loaded or the panels on the hoppers open as the coal is unloaded.

To find out the status of a piece of active rolling stock Click RMB on the rolling stock and select View Details from the pop up menu.




See section 12.8.2 on Assigning Commodities to learn more about the flexibility of the new active rolling stock and how to assign the match active rolling stock to the appropriate commodity.

**Note:** As new content is developed by the community we expect new Commodities, Interactive Industries and Active Rolling Stock to become available. The possibilities are endless with the open architecture we have implemented in TRS2006. If you are interested in creating your own Interactive Industry, Commodity or Active Rolling Stock, please refer to the User Asset Creation Guide available from the Trainz Launcher menu under Manuals.

### Waybills

To help you out we've put in a waybill system that will tell you which Interactive Industry requires what quantity of which Commodity. See section 12.8.1 on Waybills to learn more about the Waybill system in TRS2006.

### Industry Details

You can also get the details of what Commodity each Interactive Industry is producing and how much so you'll know where to source Commodities to complete your railroad's Waybill requirements. Click RMB on an Interactive Industry to bring up a pop up menu. Click LMB on View Details to bring up a window which describes the details of the type and quantity of each commodity produced by that Industry.

Some Interactive Industries also have one or more visual cues as to their Commodity status. For example, the Coal Mine has piles of Coal that rise and fall depending on production and Train loading respectively.

**Note:** The Power Station Industry details also indicate if the Power Station is operating. This is important to know as a Power Station Rule may be operating (see the World Builder Guide for more information on Rules) which means other Interactive Industries are dependent on the Power Station for electricity. No electricity, no production!

**Loading and Unloading**

Each Interactive Industry will have loading and/or unloading tracks depending on whether it is a Commodity consumer, producer or both. These track locations vary depending on industry, they are usually obvious or they may be sign-posted. Some industries may load/unload different Commodities on specific tracks, others use the same track for everything.

**Note:** Some Interactive Industries have loading/unloading animation.

To successfully load/unload you will need to be at the right track, with the right piece of active rolling stock and traveling at the right speed.




**Note:** Some load/unload tracks may require the train to be fully stationary for a length of time (eg: container car) while others will allow loading/unloading "on the fly" (eg: coal car).

**Special Industry - The Steam Filling Station**

Because of their fuel capacity diesel locomotive fuel consumption is not modeled in TRS2006. Similarly electric locomotives are also considered to have infinite fuel (unless someone scripts a Rule that makes them dependent on the Power Station operating!).

However the same cannot be said for Steam locomotives. From time to time they will need to have their coal/oil and water replenished. Included with TRS2006 is a Steam Filling Station that provides a steam locomotive with its coal/oil and water requirements.

Treat the steam locomotive like a mini-industry that consumes coal/oil and water. Check on its current stockpile of these Commodities by Click RMB on the locomotive tender (or the locomotive if it does not have a tender) and Click LMB on View Details. If they are running low you'll need to get the locomotive to the Steam Filling Station to top up.

**Note:** Steam locomotives use coal/oil and water in both the DCC and Cabin control modes.

If a steam locomotive runs out of either coal or water it will no longer be able to move. How embarrassing!

### 12.12 Driver Command Explanations

Not only can you issue orders to several Drivers at once (up to seven), you can also give Drivers orders to accomplish tasks based on the Waybill list of industry requirements at the same time. Once your orders are allocated, watch as your railroad comes to life around you.

**Note:** You can only give Driver Commands to Drivers, you can't give a Driver Command to a Driverless consist, whether it has a locomotive attached or not.

#### 12.12.1 Assigning Driver Commands

Click RMB on the picture of the Driver that you want to issue Driver commands to or on his icon in the Driver list (see Section 12.5.4 for more information on the Driver Selection panel). Click LMB on the Driver Command that you want to add from the list that appears in the pop up menu.

If the Driver Command has sub-menus (eg: Load) indicated by a ">" to the right of the Driver Command move the mouse cursor over the Driver Command to make the sub menu appear. You may need to do this again if there is a further sub-menu below this (eg: Load > Coal Mine > Loading Track #1) before you Click LMB on the option you want.




**Note:** The Driver Commands available to a Driver are updated continuously depending on the current activity the Driver is performing and the Driver Commands activated for this Session (set in the Surveyor Module).

Driver Commands are listed in the order they will be performed as icons along the bottom of the screen to the right of the currently selected Driver. This sequence of Driver Commands is known as a Schedule. As each command is completed it is removed from the Schedule and the next command is executed.

**Note:** If the Repeat Schedule command is added to the Schedule the commands are no longer removed from the Schedule after they are completed. Once the train has completed the last command before the Repeat command it begins with the first (leftmost) command in the Schedule again.

If the Driver list is visible, then to the right of the Driver icons will be an icon which indicates which Driver Command they are currently performing.

**Note:** No icon, no Driver Command.

#### 12.12.2 Driver Commands Guide

Now let's examine each of the Driver Commands included in TRS2006 and what it does.

**Note:** Due to the open nature of the TRS2006's scripting and Rules it is inevitable that new Driver Commands will be created by our talented content creation community. If you are using 3rd Party generated Driver Commands please refer to the documentation accompanying them to determine their effect and operation.

**Drive**
The Drive command is a default command and is only available if the train is stationary.

It immediately moves the train in its current forward direction as rapidly as signals and speed limits allow. The manual DCC or Cab controls are disabled and the Info Panel relating to them disappears from the HUD.

**Note:** Forward default forward direction of a consist is defined in Surveyor. See section 11.11.2 for details.

**Stop Train**
The Stop Train command is a default command and is only available if the Train is moving.

As its name suggests it will stop the train by applying maximum braking effort. Once the train stops the manual DCC or Cab controls are enabled and the Info Panel relating to them re-appears.

**Change Direction**
The Change Direction command is a default command and is only available if the train is moving.

It stops the train by applying maximum braking effort and then starts it moving in the opposite direction as rapidly as signals and speed limits allow.

**Move To Train**
The Move to Train command is a default command. This command is used to order a Driver to get off his current train and move to another train or to assign an unassigned Driver to a train. Once selected the mouse cursor will change to a cross hair. Click LMB on another locomotive to move the Driver to his new train.



**Note:** If there was another Driver in the locomotive you have selected the Driver to move to they will be bumped off the train as if they had been given a Get Off Train command.

Both the driver's original train and his new train will stop by applying maximum braking effort. All schedules are also cancelled as if each train had been given an Adandon Schedule command.

**Get Off Train**
The Get off Train command is a default command. This command is used to order a Driver to get off his current train immediately.

The train the Driver has just got off will stop by applying maximum braking effort. The Driver will now be unassigned and available to be assigned to a new train using the Move to Train command.

**Notify**

When the Notify command is activated, a message is added to the Radio Message box. See section 12.5.11 for details on how to access the Radio Message box.

**Note:** Use the Notify command when you want to be reminded that you need to pay attention to the originating train. For example this may be to give it some new commands or to switch some turnouts for the next stage of its journey.

**Couple**

The Couple command has a sub-menu that lists all the available rolling stock and locomotives on the Route that have an available coupler that you can couple to. Click LMB on the locomotive or item of rolling stock you want to couple to and the train will immediately try to find a path to the selected item.

If it can't find a valid path to the item a Radio Message box will pop up indicating the problem. Click LMB on white microphone button as described in section 12.5.11 to open the Radio Message box

If it can find a valid path the train will move to the selected item as rapidly as signals and speed limits allow and couple to the item.

The train will then stop if there are no further commands.

> **Note:** When searching for a valid path the AI will automatically switch turnouts that have not been blocked by AI direction markers (see the World Builder Guide for more information). When acting on a valid path the AI will switch turnouts accordingly.

**Decouple**

The Decouple command has a sub-menu that lists all the locomotives and rolling stock in the order they are arranged behind the locomotive with the Driver. Click LMB on the locomotive or item of rolling stock you want to decouple and the train will decouple such that the selected item is now at the head of a new consist. Upon decoupling a Radio Message box will pop up announcing that consist X has successfully decoupled from consist Y.

> **Note:** If the train was moving either under the Drive command or manual control when you issue the Decouple order the train will first come to a stop before it acts upon the Decouple command.

**Drive To**

The Drive To command has a 2 levels of sub-menus. The first sub-menu lists the industries and stations that are available to Drive To on the Route. The second sub-menu under the industry you select lists the loading/unloading tracks for the chosen industry/station. Click LMB on the loading/unloading track item for the industry/station and the train will immediately try to find a path to the selected item.



If it can't find a valid path to the item a Radio Message box will pop up indicating the problem. Click LMB on the green radio tower button in the Radio Message box or press the "Enter" key to close the Radio Message box.

If it can find a valid path the train will move to the selected item as rapidly as signals and speed limits allow. The train will then stop if there are no further commands.

> **Note:** When searching for a valid path the AI will automatically switch turnouts that have not been blocked by AI direction markers (see the World Builder Guide for more information). When acting on a valid path the AI will switch turnouts accordingly.

**Drive To Trackmark**

The Drive To Trackmark command has a sub-menu that lists all the names of all Trackmarks on the Route. Click LMB on the name of the Trackmark you want to move the train to and the train will immediately try to find a path to the selected item.

If it can't find a valid path to the item a Radio Message box will pop up indicating the problem.

If it can find a valid path the train will move to the selected Trackmark as rapidly as signals and speed limits allow. The train will then stop if there are no further commands.

> **Note:** When searching for a valid path the AI will automatically switch turnouts that have not been blocked by AI direction markers (see the World Builder Guide for more information). When acting on a valid path the AI will switch turnouts accordingly.

**Load**

The Load command is usually given in schedule after a Drive To command is issued to move the train to an industry loading track.

The train will follow normal loading procedures, either a slow drive by or halting to take on the Commodity. If there are multiple items of rolling stock to fill the train will fill all of them before completing the Load command.

If there are no further commands in the schedule the train will come to a stop after loading.

If the Load command is given and the train is not at a valid loading track (ie: Matched industry loading track commodity with empty active rolling stock suitable for carrying the commodity) a Radio Message box will pop up indicating the problem.

**Note:** If the industry doesn't have enough of the commodity to fill all of your cars the train will load as much as it can before moving on to the next command.

**Unload**

The Unload command is usually given in schedule after a Drive To command is issued to move the train to an industry unloading track.

The train will follow normal unloading procedures, either a slow drive by or halting to drop off the Commodity. If there are multiple items of rolling stock to unload the train will unload all of them before completing the Unload command.

If there are no further commands in the schedule the train will come to a stop after unloading.

If the Unload command is given and the train is not at a valid unloading track (ie: Matched industry unloading track commodity with active rolling stock laden



with suitable commodity) a Radio Message box will pop up indicating the problem.

**Note:** If the industry doesn't have enough capacity to unload all of the commodity from the cars of the train it will unload as much as it can before moving on to the next command.

**Wait For**

The Wait For command has a sub-menu listing a range of times from 5 seconds to 1 hour. Click LMB on the required time you wish to wait for before executing the next command in the schedule.

If you want the train to wait for a time not listed or for more than an hour you can add more Wait For commands to achieve the desired delay.

**Note:** The time selected to wait for is in game time. This means that if you have your game clock running at 60X normal time a 1 hour Wait For command will take 1 minute of real time before it moves on to the next command in the schedule.

**Abandon Schedule**

The Abandon Schedule command immediately deletes the current schedule of commands and stops the train as if you had also given a Stop Train command.

**Resume Schedule**

The Resume Schedule command is used if the train has come to a halt for whatever reason and still has commands to execute in its schedule that you want it to resume.

**Note:** If the reason the train was halted has not been removed (eg: a red signal) the train will not resume its schedule when given the Resume Schedule command.

**Repeat**
The Repeat command is used to cycle the current schedule of commands from start to finish over and over.

For example you may need to get a coal train to run continuously between a Coal Mine and a Power Station to keep it operating. To your coal train you can issue a Drive To > Coal Mine > Loading Track #1 command, followed by a Load command, then a Drive To > Power Station > Coal Unload command, then an Unload command and finally a Repeat command.

**Note:** You can add more commands after issuing a Repeat command. These new commands will be inserted into the schedule immediately before the Repeat command.

**Cancel Repeat**
The Cancel Repeat command removes the Repeat command at the end of the schedule and thus the schedule will no longer be repeated. Commands will removed from the schedule as they are completed.

**Note:** The Cancel Repeat command only appears on the Driver Command list if there is a Repeat command in the schedule.



## 12.13 Driving in Diesel/Electric Cabin Mode

### 12.13.1 Introduction
Diesel and Electric locomotives are similar enough in this simulation to group together for the cab driving tutorial. Cabin Mode provides a more realistic driving experience than DCC with more real world physics being employed. For instance the simulation takes into account factors such as the different power levels at each throttle notch and the length of the train when applying the brakes. Each of the levers, switches and dials in the Cab View can be used to operate the locos or you can use the HotKeys to carry out the same function. (This lets you control the locos from outside the cab, even in Cabin Mode).

### 12.13.2 The Diesel / Electric Cab Mode Tutorial
Go to the Driver main menu and Click LMB on the "Tutorial 3 - Diesel Cab" Session for the route "City and Country USA 2". Then click LMB on the Green Light labeled "Load" in the lower right hand corner of the screen. The program loads in the route and session information for the tutorial and the session will start.

An introduction to the tutorial comes up as a window and describes what you will be doing in this tutorial - other windows will pop-up along the way to explain aspects of the tutorial and help you achieve the tutorial goals. Click LMB on the "X" in the top left of these pop-up windows to close them.

Once you have read through the introductory screens you will see a stationary F7 diesel locomotive hitched up to an empty car coal consist. You are ready to roll…

Go through the tutorial to get a feel for driving a train in Cabin mode.

### 12.13.3 The Driver HUD


The Current Speed and Speed Limit panel remains but you will notice that the DCC Control panel has been replaced by the Diesel Cab Info panel. This panel contains all the critical information for monitoring what the locomotive of your currently selected train is doing.

**Note:** If the currently selected train has Driver Commands in progress the Diesel Cab Info Panel on the HUD is no longer visible and the train is not manually controllable. To regain manual control Click RMB on the driver and select "Abandon Schedule", "Get off Train", "Move to Train" or "Stop Train" from the pop-up Driver Command Menu. See section 12.12.2 on Driver Commands for further information.

We will go through each of these items individually before looking at the individual commands for controlling a diesel/electric locomotive in the Cab Mode.

**Train Braking System Overview**

The Westinghouse or 'Automatic' airbrake is the standard braking system used by TRS2006. It was introduced in 1869, and has endured with essentially little modification to the present day.

TRS2006 currently considers all the vehicles in a consist to be fitted with Westinghouse equipment regardless of era or region. The system is based on a pressurized air pipe connected to reservoirs on all the vehicles in the train.

Simply put a pressure reduction in the pipe results in airbrake application. When the brake pipe is pressurized or "charged", the Westinghouse is considered a "failsafe" system. This means that a brake application can be actuated by anything from an emergency application on a loco, passenger car or guard's van, a burst hose, a derailment or an otherwise parted train.



**Flow - Brake Pipe Flow**

The Flow field displays the movement of air in the train Brake Pipe. It should return to zero before attempting to move away from a standstill, as the presence of brake pipe flow indicates that the brakes have not released on all of the vehicles in the train. The time it takes to make a full service application is dependant on the length of the train. The brakes will release on the forward vehicles much more quickly than they will on vehicles at the rear. It may take several minutes to release the brakes on a very long train after a full service application. The Flow Gauge is the only true indication of system equilibrium when viewing from the cab, as Brake Pipe Pressure is measured at the locomotive.

If the flow gauge pointer is bouncing it means the brakes on the train are in the process of applying or releasing, avoid heavy acceleration during this time.

**Brake Pipe - Brake Pipe Pressure**

The Brake Pipe field displays the pressure in the Brake Pipes. Flexible hoses connect the Brake pipe or Train Pipe between vehicles along the length of the train. Pressure changes required to control the braking are relayed from vehicle to vehicle via this pipe. The Train Pipe is fed by the Main reservoir. The maximum pressure is generally prescribed by the Railway's administration and is maintained by a feed valve. Over use of the airbrakes over a long descent can deplete the air in each vehicle's auxiliary reservoir more rapidly than the brake pipe can recharge them resulting in runaways.

A fully pressurized brake pipe results in brake release.

**Brake Cylinder**

The Brake Cylinder field displays the pressure in the Brake Cylinders of the currently selected locomotive/car. Each car is fitted with one or more brake cylinders. A piston inside the cylinder moves as a result of pressure changes in the train pipe. The piston's force is transmitted via rigging to brake blocks or discs at the wheels. Since a pressurized cylinder results in brake application, a reading of 0 Brake Cylinder pressure indicates that the brakes are released on the locomotive. The Brake Pipe Flow Gauge and the Train Pipe Pressure

Gauge are the driver's means of estimating brake cylinder pressure at the rear of a train.

If there is any brake cylinder pressure showing on the gauge or HUD, the brakes have applied on the vehicle you have selected. By selecting a vehicle toward the rear of a long train, you can see how much longer it takes for the brakes to apply at the back of the train.

**Main Res - Main Reservoir**
The Main Res field displays the pressure in the Main Reservoir. This is a storage tank for compressed air used by the braking and some auxiliary systems. It is fed by a compressor.

**Equalizer - Equalizing Reservoir**
The Equalizer field displays the pressure in the Equalizing Reservoir. The Equalizing Reservoir overcomes the difficulty of setting the brakes to a desired level on a long train. Small changes in train pipe pressure made by the driver will not display correctly on the gauge until the pressure has stabilized along the length of the train, as brake pipe pressure is measured at the locomotive. When applying the brakes, air will vent from the Equalizing Reservoir and it's rate is not affected by the length of the train. A relay valve detects pressure reduction and discharges air from the brake pipe until it's pressure is the same as that of the equalizing reservoir. This serves as a guide for the driver as to the pressure the train pipe will settle at, and thus how hard the brakes will apply. Watch the equalizing reservoir when making a brake application to gauge how hard the brakes will be applied.

**Throttle - Notch Setting**
The Throttle field displays the current throttle notch setting which can range from 0 (no application of tractive effort) to 8 (maximum application of tractive effort).

**Reverser - Which Way**
The Reverser field displays the Reverser setting. The Diesel/Electric Reverser has 3 positions; Forward, Reverse and Neutral. As it suggests it determines the direction of travel.

**Brake - Stopping or Going**
The Brake field displays the current application of brakes. The train brake can have the following settings: Release, Lap, Application, Emergency and Handle Off.

### 12.13.4 Diesel Electric Cabin Mode Controls

To control a locomotive in Cab Mode you can either manipulate the various buttons, levers and dials in the Cab View (1) with the mouse or you can utilize the keyboard shortcuts. Because different trains may have unique cab layouts we will be focusing on the keyboard shortcuts.

If you want to operate the Cabin controls directly in Cab View you can do so by moving the mouse over the various controls and viewing the tooltip describing the control. Then Click LMB+H and move the control into the appropriate position. We will be noting the tooltip text so you can relate it to an explanation of the keyboard controls.

**Train Brakes (Q/Z/A/Pause Break)**
The tooltip text in the Cab View for the Train Brake is "trainbrakelap lever".

**Release (Q)**
Select the Release setting by moving the trainbrakelap lever into the "Release" position or by pressing the "Q" key.

In this position it connects the train pipe to the main reservoir, raising pressure in the pipe and thus releasing the brakes. While motoring it gently maintains brake pipe pressure to counteract any leaks in the system.

Leave the handle in the Run/Release position while motoring.

**Lap (Z)**
Select the Lap setting by moving the trainbrakelap lever into the "Lap" position or by pressing the "Z" key.

This shuts off the flow of air from the main reservoir into the train pipe, and closes the connection to the atmosphere that is made during a brake application. It can be used to make a partial application, and TRS2006 also permits a partial release both on Freight and Passenger trains.

Watch the equalizing reservoir when making a service, and when its pressure has decreased by 10-30 psi, move the handle to the lap position.

Modern locomotives are fitted with self-lapping brake systems, which shut off the flow of air automatically when a reduction is made. To make an application on self-lapping systems, simply move the handle into the initial service position, the brakes will be held at that level until they are released. Greater braking effort can be achieved by moving the handle further into the braking range.

On self-lapping systems, simply move the handle to the initial service position and leave it there. If braking is insufficient, move the handle further into the braking range.



**Application (A)**
Select the Application setting by moving the trainbrakelap lever into the "Application" position or by pressing the "Z" key.

This shuts off main reservoir connection and opens the train pipe to the atmosphere. The resulting reduction in train pipe pressure causes the brakes to apply. A full application or "equalization of pressures" occurs at 64-psi for a 90-psi train pipe such as that in use on the F7 diesel.

Air vents out of the equalizing reservoir, and its gauge provides a guide as to the amount of reduction being made. The flow of air must be lapped off at the desired pressure by moving the brake handle to the lap position.

Gradually the Brake Pipe pressure will stabilize at the same pressure as the equalizing reservoir. A heavy freight train can generally be slowed by a Brake Pipe reduction of 10-psi, a fast moving passenger train can require heavier reductions of up to 30-psi.

The brakes of a long train will take more time to react, as changes in pressure must be transmitted by the train pipe to every vehicle in the consist. The brakes will be held at this level until the handle is moved to the release/run position, when air will flow from the main reservoir into the brake pipe and the brakes will gradually release. The flow gauge serves as a guide to air movement within the Brake Pipe, a reading above zero indicates that the brakes are either in the process of application or release or are otherwise venting air somewhere in the consist.

**Note:** Use the 'A' key to apply handbrakes to consists without locomotives to prevent them from rolling away.

**Emergency Brake (Pause Break)**
Select the Emergency setting by moving the trainbrakelap lever into the "Emergency" position or by pressing the "PauseBreak" key.

Like the service position, this allows air to escape into the atmosphere, though

the air is vented from the system more rapidly so the train will stop more quickly.

**Independent Brake (E/D)**
The Independent Brake as the name suggests is independent of the main train braking system. It is used to apply braking force only on the selected locomotive.

> **Note:** Not all locomotives have an independent braking system. The tooltip text in the Cab View for the Independent Brake is "independentbrake lever".

**Independent Brake (E)**
In Cab View the independent brake lever has a continuous range from fully off (red range) to fully on (green range). Set the Independent Brake by moving the independentbrake lever across this range.

In keyboard control mode the Independent Brake is set by pressing the "E" key. However, this only toggles the Independent Brake between being fully on or fully off.

Application of the Independent brake takes some pressure away from the Main Reservoir and the Brake Cylinder pressure will rise. Remember this only applies to the locomotive and not the rest of the train.

**Independent Brake Bail (D)**
The Independent Brake Bail can only be operated from the keyboard by pressing the "D" key. It immediately vents only the locomotive brake cylinder without affecting the braking effort on the rest of the train.

If the Train Brake or the Independent Brake is applied when you use the Independent Brake Bail the locomotive Brake Cylinder will fill again with air and rise in pressure.

This is mainly used to "stretch" the train by allowing the locomotive to "run away" from the rest of the train. This stretches the train to the limits of the couplers and reduces strain.

**Reverser (F/R/V)**
The tooltip text in the Cab View for the Reverser is "reverser lever". The Reverser has three settings: Forward, Reverse and Neutral. You select the Forward setting by moving the reverser lever into the Forward position or by press the "F" key. Select the Reverse setting by moving the reverser lever into the Reverse position or by pressing the "R" key. The Neutral setting is selected by moving the reverser lever into the Neutral position or by pressing the "V" key.

As the settings indicate, the Reverser position determines the direction the train will travel relative to the cab with the driver. This is important to remember in dual cab locomotives.

The Neutral position disengages any tractive effort regardless of throttle setting. The locomotive should always be stopped before changing the reverser setting to the opposite direction.

> **Note:** You cannot change the position of the Reverser unless the Throttle is at the idle position.

**Throttle (W/S/X)**
The tooltip text in the Cab View for the Throttle is "throttle lever". In Cab View select the required Throttle setting by moving the throttle lever to the required notch position (0 = no tractive effort, 8 = maximum tractive effort).

When using the keyboard press the "W" key to increase the Throttle one notch position, while the "X" key to reduces the Throttle one notch position and the "S" key immediately sets the Throttle notch position to zero.

Correct use of the throttle depends on various factors such as the type of locomotive, the weight and length of the train, the severity of grades and weather conditions. The variety of operating conditions cannot be discussed

in the context of this manual, and generalized operating instructions are therefore provided.

For each throttle position, a definite maximum load current and corresponding tractive effort may be developed. The increase as the throttle is moved from one position to the next is immediate. Since the total tractive effort of the locomotive is divided into eight steps available at the eight throttle notches, it is necessary to advance all the way into the last notch in order to develop full tractive power. Further, since the current is controlled, it is perfectly safe to do so, in fact it is often necessary under certain conditions.

The load indicating meter or Ammeter provides the best guide for throttle handling when accelerating a train. By observing this meter, it will be noted that the pointer moves to the right (increased amperage) as the throttle is advanced. Thus for maximum acceleration without slipping, the throttle should be advanced one notch each time the pointer begins moving back toward the left, until full power is reached in notch 8.

It is well understood that the worst treatment that can be given to a traction motor is to allow it to stand at "stall" for any appreciable length of time with load current applied to it. It is therefore most important, having given due care to ensure that the brakes are released, and that the train slack is out, to start the locomotive to move as quickly as possible, accelerating to a speed that will bring the load meter pointer down in a minimum of time.

When starting off, it is good practice to advance the throttle promptly to a notch that will start the train moving. If after starting, acceleration is too fast, you can back off the throttle once all the slack is out, in order to maintain desired speed. Once the slack has run out, the throttle may be advanced as desired to suit operating conditions and the needs of the schedule. It is good practice to hesitate at each notch position, to allow the engine to come up to the new run speed, and to prevent slipping.

When decelerating, it is also important to consider the action of slack running in and out on the train. Always avoid reducing the throttle from high power to idle before allowing traction motor voltage to decay. Pressing the "S" key returns the throttle to 0, but it is only intended for emergency use, as such sudden changes in power propagate a wave motion throughout the train. This kind of surge increases the risk of drawbar or coupler failure, along with possible damage to loads or a very uncomfortable ride for your passengers.

Avoid heavy handed use of the throttle, sudden changes in force send surges along the train.

**Dynamic Brake (C)**

The tooltip text in the Cab View for the Dynamic Brake is "dynamicbrake lever". To activate the Dynamic Brake, ensure the Throttle is set to the Neutral position, then move the dynamicbrake lever fully into the green range or press the 'C' key. The throttle lever and corresponding keys are now used to control braking effort.

To deactivate the Dynamic Brake move the throttle lever to the 0 notch setting or press the 'S' key. Then move the dynamicbrake lever fully into the red range or press the 'C' key. The Dynamic brake is now inactive and the Throttle will once more control tractive effort.

The Dynamic Brake is a means of reducing locomotive speed by an electrical system, which converts the traction motors into generators. The operation and effect of this system applies braking power only to the locomotive(s). Power required to rotate the generators through gearing on the wheels and axles, retards the locomotive's travel. Current generated by the traction motors is dissipated in resistance grids located in the engine hood of the locomotive. The grids are cooled by motor driven fans that are powered by a portion of the current generated.

Although similar in effect to an independent air-brake application, Dynamic Brake is fully electrical; it does not produce friction between brake shoes and tires, thus avoiding heat and wear on these parts. The load indicating meter shows the current generated by the traction motors and may be compared in effect, with a brake-cylinder pressure gauge.

Dynamic braking is valuable in many phases of locomotive operation. It is particularly valuable when descending grades, though it can effectively be used to retard train speed while coming to a halt if desired (10 mph minimum), reducing the necessity for air brake.

Advance cautiously through the braking range until desired braking effort has been reached. The amount of braking strength available varies with train speed, and with the throttle in notch 8 continues to rise, as the speed decreases until reaching its maximum value at around 20 mph. It is permissible to start from a standstill on a downgrade with Dynamic Brake applied.

When braking a heavy train on a severe grade, the maximum available braking effort may not be sufficient to maintain desired speed. An application of the Train Brake may be used in addition to the Dynamic Brake, in order to maintain permissible track speed.

**Lights (L)**
The tooltip text in the Cab View for the Lights is "light switch". Toggle the headlights on or off by moving the light switch or by pressing the "L" key.

**Horn (H)**
The tooltip text in the Cab View for the Horn is "horn lever". To operate the horn move the horn lever or press the "H" key to operate the horn. For long blasts of the horn, simply hold the horn lever or 'H' key down. Some multi-tone horns only have a single blast pattern.

**Bell (B)**
The tooltip text in the Cab View for the bell is "bell switch". Toggle the Bell on or off by moving the bell switch or by pressing the "B" key.

**Pantographs (Keypad 1)**
The tooltip text in the Cab View for the Pantographs is "pantograph switch". Activate the Pantographs on your locomotive by moving the pantograph switch to its various positions or press the "Keypad 1" key. If the locomotive has multiple pantographs subsequent key presses will raise them individually or together before cycling back to all down.



**Note:** Only electrical locomotives will have pantographs and hence pantograph switches.

### 12.13.5 General Diesel/Electric Train Operating Principles

**Grades**
When starting to climb a hill, the locomotive and train will slow down, and the increased load will be indicated by the load meter pointer moving toward the right.

When traveling down a hill, due care may be required to keep your train under control. When making a long descent, keep in mind that several successive brake applications and releases can result in depletion of the system, and it's therefore sometimes necessary to plan your approach to braking. It may be necessary to set a constant partial application to control your speed.

Many locomotives are fitted with dynamic brake, which may be used in conjunction with the train brake to control speed when descending a grade. When descending a long grade, try to estimate how much braking is required to keep the train moving under controlled speed. It's safer to make an application that may initially slow the train more than desired, than it is to make several successive applications and releases.

**Operating Over Crossings**
The severe mechanical shocks encountered by the traction motors when passing over crossings and station yards, may cause the brushes to bounce and flashover the motors.

At speeds above 40 mph, reduce the throttle to fifth notch position or below while all units are passing over the crossing. This is not necessary at low speeds. It is also recommended during dynamic braking at high speeds for the same reason. This procedure will ensure decay of motor and generator

voltage to a safe level before the shock occurs.

**Running Through Water**
Under ABSOLUTELY NO CIRCUMSTANCES should any locomotive be operated through water deep enough to contact the bottom of the traction motors.

Water any deeper than 3 inches above rail level is likely to cause damage to the traction motors. Every precaution should be exercised under circumstances of water over track, and speed should not exceed 2 mph in such conditions.

Auran cannot accept responsibility for damage caused by attempting to operate your Trainz in sub-marine environments.

## 12.14 Up to Another Challenge? - Driving in Steam Cabin Mode

### 12.14.1 Introduction
So you want to get one of the steam-powered behemoths from yesteryear moving? Controlling a steam engine is quite different from a diesel or electric engine. Forget about dynamic brakes and "notch" throttle settings, these machines use steam regulation as the method of control. Of course you still have the train brake, but the regulator/reverser are the combined throttle/power settings and balancing these and maintaining your steam is the art of steam engine driving.

### 12.14.2 The Steam Cab Mode Tutorial
Go to the Driver main menu and Click LMB on the "Tutorial 3 - Steam" session from the route "Outback Australia 2". Then Click LMB on the Green Light labeled "Load" in the lower right hand corner of the screen. The program loads in the route and session information for the tutorial and the session will start.

An introduction to the tutorial comes up as a window and describes what you will be doing in this tutorial - other windows will pop-up along the way to explain aspects of the tutorial and help you achieve the tutorial goals. Click LMB on the green checkmark in the bottom right corner of these pop-up windows to proceed.

Once you have read through the introductory screens you will see a stationary Queensland Railways PB15 steam locomotive ready to roll…

Go through the tutorial to get a feel for driving a train in Cabin mode.

Below we look at each of the aspects of the Cabin mode of operation, so use it as a reference if you get lost during the tutorial.

### 12.14.3 The Steam HUD



In some respects the Steam Cab HUD Panel is similar to the Diesel/Electric HUD Panel in terms of the fields that monitor Train Brake readings. You will of course note that there are no Throttle or Reverser fields, these have been replaced by the Regulator and Cutoff. In addition you have the Boiler and Water fields which monitor your current steam-making capacity.

**Note:** If the currently selected train has Driver Commands in progress the Steam Cab Info Panel on the HUD is no longer visible and the train is not manually controllable. To regain manual control Click RMB on the driver and select "Abandon Schedule" or "Stop Train" from the pop-up Driver Command Menu.

Let's go through each of these items individually before looking at the individual commands for controlling a steam locomotive in the Cab Mode.

**Note:** Only steam specific HUD items that differ from those of diesel/electric locos will be listed here. See section 12.13.3 for details on HUD items that are generic to both diesel/electric and steam locos.

**Boiler - Under Pressure**
The Boiler field measures the current steam pressure in the boiler.

The steam pressure in the boiler is dependent on a number of factors and maintaining a head of steam is one of the challenges in running a steam locomotive.

Of course driving the locomotive uses up steam and reduces the boiler pressure. See Section 12.15 on General Steam Driving Principles to learn how to drive a steam locomotive with an eye to maintaining your head of steam.

When the nominal boiler pressure is exceeded, Safety Valves lift to vent excess pressure to the atmosphere. A good crew will avoid this waste of steam and fuel by striking a good balance between the temperature of the fire, the pressure in the boiler, and the conditions of the road ahead. When approaching a heavy ascent for example, a hot fire will be required to maintain adequate steam pressure. Conversely when approaching an easy section with a hot fire, the rate of pressure increase in the boiler can be eased to prevent lifting safety valves by adding more water to the boiler, or indeed more coal if there is hard work to do up ahead.

**Note:** Nominal Boiler Pressure is different for each locomotive type.

**Note:** Take care not to add excessive coal, as this will lower the temperature of the fire for a time. A great rule of thumb is "a little coal often", try between 2-4 shovels every kilometer (that's 3-6 shovels every mile).

**Regulator - Give Me Steam!**
The Regulator field displays the current position of your regulator the range of values is expressed as a percentage (0-100%).

The Regulator in conjunction with the Reverser setting determines how much and at what portion of the piston stroke that steam is sent to the cylinder. Together the Reverser (or Cutoff setting) and the Regulator act as the Train's throttle.

**Cutoff - How Much Steam?**
The Cutoff field displays the percent cutoff as dictated by the position of the Reverser lever (sometimes known as a Johnson Bar) is expressed as a percentage (minus 75% to plus 75%). Negative values indicate the valve gear has been set to move the locomotive in reverse.

The higher the Cutoff value the greater the duration of steam application to each piston stroke.

Long cutoff, represented by higher percentage values (40 to 75%) for the cutoff, maximize the tractive effort applied to the locomotive wheels. This is mainly used to get the locomotive moving from a standstill or when tackling an ascent.

Short cutoff, represented by lower percentage values (less than 40%) for the cutoff, are used to maximize the speed attainable by the locomotive during easy sections of the route and where speed restrictions permit.

**Water - Nearly Steam**
The Water field displays the percentage of the boiler filled with water. The water level should be maintained at around 66% as a hot fire without much water is a potentially catastrophic situation. The steam pressure in the boiler may rise faster than the safety valves can cope and…well you just don't want to go there!

The injectors allow water to move from the tender (or engine mounted water tank) to the boiler. Moving the water into the boiler can also be used to reduce the rate of pressure increase in the boiler as the thermal energy of the fire is now being used to heat the incoming cool water.

### 12.14.4 Steam Cab Controls

To control a locomotive in Cab Mode you can either manipulate the various buttons, levers and dials in the Cab View (1) with the mouse or you can utilize the keyboard shortcuts. Because different locomotives may have unique cab layouts we will be focusing on the keyboard shortcuts.

If you want to operate the Cabin controls directly in Cab View you can do so by moving the mouse over the various controls and viewing the tooltip describing the control. Then Click LMB+H and move the control into the appropriate position. We will be noting the tooltip text so you can relate it to an explanation of the keyboard controls.

**Note:** If you are operating a multi-steam locomotive consist you will need to control each locomotive individually in Cab Control mode. Try a triple header and see if you can keep up with the task!

**Note:** Only steam specific controls that differ from diesel/electric locos will be listed here. See section 12.13.4 for details on cab controls that are generic to both diesel/electric and steam locos.

**Reverser (F/R)**

The tooltip text in the Cab View for the Reverser is "reverser lever". The reverser determines the steam Cutoff and has a range of -75% to +75%. Negative values indicate the valve gear has been set to select reverse movement, conversely positive values set the valve gear to select forward movement. The neutral or mid-gear position (0% cutoff) prevents any tractive effort being applied to the locomotive wheels.

You adjust the reverser setting by moving the reverser lever either forwards/backwards or by pressing the 'F'/'R' keys. The Neutral setting is selected by moving the reverser lever into the Neutral position.

**Note:** The Reverser is sometimes known as the Johnson Bar.



See Section 12.15 on General Steam Train Operating Principles for more information.

**Regulator (W/X)**

The tooltip text in the Cab View for the Regulator is "regulator lever". In Cab View select the required Regulator setting by moving the regulator lever to the required position (0 to 100%) or pressing the "W" key to increase or "X" to decrese.

**Fireman (Space)**

To maintain your steam you need to ensure you have a fire in the firebox sufficient to maintain boiler pressure. As the fire burns it consumes fuel (coal or oil). To stoke the fire by adding fuel, press the 'Space' key. In some locomotives you will see an animated fireman actually shoveling coal - make sure you have opened the firebox door with your mouse in Cab View or your fireman will not go to work. As the fire is stoked it burns hotter (red is a cool fire, white is a hot fire) and starts to raise the boiler pressure.

**Lights (L)**

The tooltip text in the Cab View for the Lights is "light switch". Toggle the headlights on or off by moving the light switch or by pressing the "L" key.

**Whistle (H)**

The tooltip text in the Cab View for the Whistle is "whistle lever". To operate the whistle move the whistle lever or press the "H" key to operate the whistle. For long blasts of the whistle, simply hold the whistle lever or "H" key down. Some multi-tone whistles only have a single blast pattern.

**Bell (B)**

The tooltip text in the Cab View for the bell is "bell switch". Toggle the Bell on or off by moving the bell switch or by pressing the "B" key.

## 12.15 General Steam Train Operating Principles

### 12.15.1 Making Steam - Fire & Water

**Note:** Not all of these functions are currently implemented so that they may be controlled on steam engines in TRS2006.

A Steam Engine needs a full head of steam to operate effectively. To generate the steam you build a fire in the firebox by shoveling coal through the firebox door found in the middle of the backhead. The backhead is that part of the boiler that makes up most of the front of the cab of the locomotive.

You must also have the boiler filled up appropriately with water. A hot fire and an empty boiler is a catastrophic situation. Maintaining the water level in the boiler is of great concern. The water glass in the engine shows you the level of water in the boiler. Try and keep it at about 2/3 of the way up the glass.

When the session begins the light-up crew has already got your boiler up to pressure and your water levels will be good to go.

While standing in the station or otherwise stopped, you may use the steam available in the boiler to add more water to the boiler. To do this, you adjust the valve on the backhead that controls the provision of steam into the Steam Injector. The Steam Injector is a precision piece of equipment which uses a venturi system to use high pressure steam to push water form the tender into the boiler under pressure through a check valve which only allows water into the boiler if the pressure behind the water exceeds the pressure in the boiler. Use the Steam Injector to bring the water level up to the right level and then turn it off.

Once the train is moving, the Steam Injector can be set carefully to just the right setting so that the amount of water entering the boiler matches that being used up as the steam is used to drive the train. If you have equilibrium here, the water level will be maintained at a given level. But as an engineer, you must continually adjust the flow of water as steam will be used up at different rates depending on the speed of the engine and how hard it is working which can vary dramatically with grades.

A second system is often available on engines for pumping water into the boiler. These are axle driven water pumps. They pump at a rate governed by how fast the axles are turning which in turn is governed by the speed of the train. Obviously they are no help when you are stopped. But when you are running they can be used to continually feed water into the boiler. How do you adjust the feed rate when you cannot adjust the speed of an axle driven pump? The Bypass Valve is adjusted for this purpose. This valve adjusts how much of the water from the axle pumps is simply bypassed back into the tender and how much goes to the boiler. So the bypass valve also needs attention as you are driving.

On some locomotives, there are steam driven water pumps that provide yet another way of pumping water into the boiler.

Another key control valve on the backhead is the Blower Valve. The Blower Valve is used to control a jet of steam that is blown up the middle of the chimney in the smoke box at the front of the steam engine. It accelerates the flow of air through the chimney pulling a strong draft through the firebox to keep the fires burning strongly. When the engine is moving the exhausting of the steam used in the cylinders that drive the train provide a good draft. But when the train is stopped or if you fire is not burning as hot as you would like, it is wise to open up the blower to maintain this draft through the fire.

### 12.15.2 Reverser & Regulator

The Steam Reverser Handle (also called a Johnson Bar or Steam Cutoff) has multiple positions and adjusts the steam locomotive's valve gear in such a way that the pistons drive the driving wheels in the appropriate directions. In the center or neutral position, no tractive effort will be developed by opening the throttle.

When first starting a steam engine, place the Reverser Handle in the full forward position. Once the consist is moving forward at a constant speed,

bring the Reverser Handle back towards the short cutoff position, thus adjusting the valve gear appropriately for most efficient operation to preserve your use of coal and water. Move the Reverser Handle forward into the high cutoff range when accelerating or climbing grades.

The Reverser is used with the Regulator to control a combination of speed and tractive effort.

Correct use of the Regulator depends on various factors such as the type of locomotive, the weight and length of the train, the severity of grades and weather conditions. The variety of operating conditions cannot be discussed in the context of this manual, and generalized operating instructions are therefore provided.

Opening the Regulator on a steam engine delivers steam to the valves which govern the distribution of the steam to the main cylinders which in turn drive the driving wheels through the main rods on each side of the engine.

When starting off, it is good practice to advance the Regulator very gently. The finest of steam era engineers started their trains so smoothly that passengers hardly noticed that they were moving. It is also important to pick up the slack in all of the couplers in along train. Once the slack has run out, the Regulator may be advanced as desired to suit operating conditions and the needs of the schedule. Steam engines are notorious for the ease with which you can get wheel slippage, which is quite a spectacular site to watch. To avoid slippage, start gently and do use the sanders if conditions warrant. Sanders deposit sand just in front of the driving wheels to improve traction.

When decelerating, it is also important to consider the action of slack running in and out on the train. Always avoid reducing the Regulator quickly. Sudden changes in power propagate a wave motion throughout the train. This kind of surge increases the risk of drawbar or coupler failure, along with possible damage to loads or a very uncomfortable ride for your passengers.



### 12.15.3 Cylinder Cocks

When first starting up an engine with cold cylinders, water condenses quickly in the cylinder as steam is introduced. Excess water in the cylinders is not compressible and the cylinders can be badly damaged. Relief valves called Cylinder Cocks are provided on the cylinders to let the water escape easily. Always start an engine with the cylinder cocks open using the Cylinder Cock Valve on the backhead. After the engine has traveled a short distance, close the valve to cease the release of steam through these valves.

When a steam engine is brought to a stop, the valves should be open once more before resuming the above cycle.

### 12.15.4 Grades

Naturally gradients also affect the train so keep an eye on your speed and adjust the Cutoff/Regulator accordingly. On a positive gradient (uphill) you will begin to lose momentum, so you might need to lengthen the cutoff to say 40%. This is where it is important to maintain your boiler pressure as a longer cutoff consumes more of your steam.

If you are on a negative gradient (downhill) you may want to coast by reducing the Regulator to 0%, leaving the Cutoff at 20% and then touching the brakes to keep to the speed limit.

**Note:** When traveling down a hill, due care may be required to keep your train under control. When making a long descent, keep in mind that several successive brake applications and releases can result in depletion of the system, and it's therefore sometimes necessary to plan your approach to braking. It may be necessary to set a constant partial application to control your speed.

**Note:** When descending a long grade, try to estimate how much braking is required to keep the train moving under controlled speed. It's safer to make an application that may initially slow the train more than desired, than it is to make several successive applications and releases.

### 12.15.5 Wheelslip

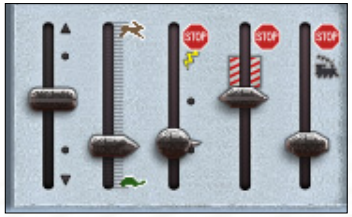
For various reasons, the locomotive may break traction which may occur during motoring or braking. Possible causes of wheel-slip are many, ranging from bad weather, to leaves on the rails.

Sand is used to control wheelslip. It is poured onto the track via pipes which open ahead of the driving wheels increasing the friction between the steel wheels and the steel rails. It will often be necessary to reduce power in order to regain traction once wheel-slip has begun. This sanding system can be activated by moving the appropriate lever in the cab View or can be toggled on and off by pressing "V" . If the wheel slip is light reduce the Regulator, apply sand and advance the Regulator again.

### 12.16 Cab Controls HUD

A new feature to TRS2006 is an on screen graphical representation of the Raildriver Cab Controller. By no means a replacement for the real thing, it allows you to drive a train under cab controls without having to remember all the keyboard controls.

The Cab Controls HUD is accessible through the Cab Controls HUD rule. For the HUD to appear, the rule must be added to the session and configured to "Show" the HUD. When the session starts and runs the rule, the Cab Controls HUD appears below the Cabin Controls at the right side of the screen and has has five vertical levers.




From left to right the five levers are Reverser, Throttle/Regulator, Dynamic Brake, Brake and Indendent Brake. See sections 12.13 and 12.14 for details on how these settings affect diesels/electrics and steam locomotives respectively.

**Note:** The Cab Controls HUD will not appear unless your session is in Cabin Control Mode.

# 13 - Railyard

## 13.1 Introduction

Railyard allows you to examine each of the engines and rolling stock assets in your collection in detail and discover the background and specifications of each item.


From the TRS2006 main menu Click LMB on the button next to "Railyard" or by pressing the "R" key and the Railyard screen will load.

The Railyard screen is where you can find out more about your locomotive and rolling stock assets. Your collection appears in a list on the right hand side of the screen and includes any custom content that you have downloaded.


## 13.2 Playing With Rollingstock

Click LMB on any entry and the selected engine or rollingstock item appears. Click LMB, RMB+H and roll you mouse forward or back to zoom in or out. Click RMB+H and roll it from side to side to rotate the camera around the asset to see all sides of it.

### Rotating

You can Click LMB+H on either of the circular arrows in the lower right hand corner to have the asset rotate without you moving the mouse.

### Zooming

Click LMB+H on either the "+" or "-" in the lower left corner to zoom in or out.

### Horn/Whistle

If the asset you are viewing is a locomotive you can hear its horn/whistle by Click LMB on the "Horn" icon. Alternatively, press the "H" key.

### Light

The light is toggled by Click LMB on the "Lights" icon. Alternatively, press the "L" key to toggle the light.

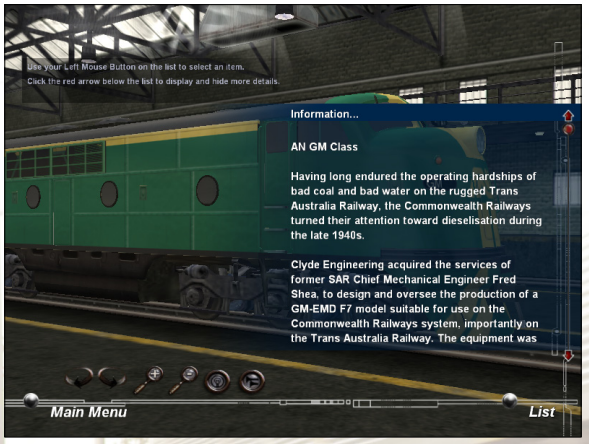
### Pantographs

If the asset you are viewing is an electric locmotive with pantographs, you can activate the pantograph animation by Click LMB on the "Pantograph" button. Alternatively, press the "P" key to animate the pantographs.

### Navigating the Collection

Click LMB on the areas above or below the red ball on the vertical bar at the right of the screen to move the list up or down.

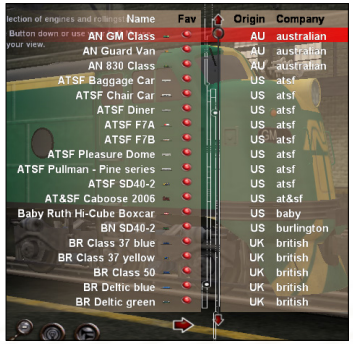
Click LMB on the Info button to replace the list of assets with a display of information about the requested item.




Click on the List button to return to the list.

Click on the Toggle Info Red Arrow in the lower right to shift the list to the left revealing more information about each item in the list. Click LMB again on the "Info" button to make the info panel disappear and be replaced by the asset list.

**Note:** Some assets have no information, in that case the Info panel will be blank.




Beside each item in the list is a red button. Click LMB on the red button to flag that the selected item should be in a list of your favorites. Click LMB on a few more. Then Click LMB on the Favorites button to sort the list with your favorites at the top. By developing a Favorites list here, you will be able to use the Favorites list instead of the longer list when you assign locos and items of rolling stock to consists later in Surveyor.

To see more categories for your assets, Click LMB the left pointing red arrowhead at the bottom of the asset list. The asset list moves to the left exposing the extra categories which are Origin and Company.

Origin is usually a country like UK, USA or AUS. Company is the Railroad Company that the asset belongs to. You can sort your assets alphabetically by Origin or Company by Click LMB on the heading.

**Note:** If you have the "Favorites" button selected you can still sort your favourite assets by Name, Origin or Company.

To hide the extra categories Click LMB on the right pointing arrowhead at the bottom of the asset list.

To leave the Railyard, Click LMB on the "Main Menu" button at the bottom left of the screen.

**Tip:** Your selection of favorites can be displayed in Surveyor in the Trainz Menu. Click on the Red Light to toggle between the full list and your favorites selection.

## 14 - Trainz Exchange


This is the Trainz mini-browser designed to showcase the latest content, events and updates in the world of Trainz.

By registering with Planet Auran and logging on to the Internet, you will find tons of new information uploaded here on a regular basis. What is in the box is really only the beginning of your enjoyment with Trainz.

Content and information displayed in this window is updated and varies.

You can even download the latest assets directly from links in Trainz Exchange wihtout have to exit Trainz.

**Note:** Details on registering with Planet Auran can be found in section 7.1 of this manual.

# 15 - iTrainz

TRS2006 introduces new online support features that allow interaction between Trainz users over the internet through Planet Auran.

There are two modules in TRS2006 that make use of the online interaction capabilities, iTrainz Chat and iPortal. What these modules do and how to use them is examined in the sub sections that follow.

**Note:** To use the iTrainz features such as iChat, you must be registered with Planet Auran and have your TRS2006 installation setup with your Planet Auran account. Chapter 7 of this manual describes how to do this.

**Note:** Although interaction with other online Trainz users is indeed possible, this is not to be mistaken for being a multi-player shared-world gaming environment.

## 15.1 iTrainz Chat

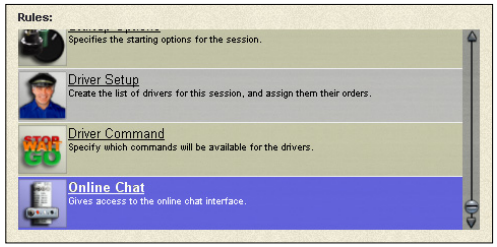
iTrainz Chat is a module that allows you to exchange instant messages with other online Trainz users when in a Driver session. As well as being able to exchange instant messages with other online TRS2006 users, you can manage your contacts list and see when your contacts are online.

**Note:** You can only exchange iTrainz Chat messages in a Driver session. iTrainz Chat messaging is not available in Surveyor or any other Trainz module.

### 15.1.1 Online Chat Rule

To access the iTrainz Chat features you must be in a Driver session that has the Online Chat rule included in the session's configuration.

The Online Chat rule itself is very simple to use and does not have any configuration requirements of its own to deal with. Simply having the rule present in the rules list (as shown in the screenshot below) is all that is required to have iTrainz Chat available when running that session.




Remember that to work correctly, iTrainz Chat does require that TRS2006 is configured with your Planet Auran account.

**Tip:** When configuring a session to have iTrainz Chat, make sure the Online Chat rule is flush against the left hand side of the rules list so that iTrainz Chat will be available throughout the session. Having Online Chat nested as a child rule may mean that iTrainz Chat is not initially available when the session first starts.

**Tip:** If an existing session created by someone else does not have the Online Chat rule included, you can easily create your own iTrainz Chat capable version of that session by adding the rule and using the Save As option on the Surveyor Menu Bar. See section 11.13.1 for further details on saving sessions.

### 15.1.2 Interface

When a session with the Online Chat rule is started, the Chat HUD panel will appear at the right hand side of the screen along with the other Driver interface HUD panels.

Located at the left side of the Chat HUD panel is the status button. This button is used to indicate the current state of the iTrainz Chat connection to Planet Auran as well as being clickable to open access to iTrainz Chat features. There are three possible states that the status button can be in:

**Idle**

Currently connected to iTrainz Chat on Planet Auran but there are no new messages. This button can be clicked to open the Contact List window.

**Not Connected**

Indicates that you are not currently connected to Planet Auran. There can be several reasons why this is the case that will be examined later in this chapter.

**New Message**

There are new messages or invites (an invitation) to chat groups for you to look at. Clicking on the new message/invite clears the New Message state and changes it back to Idle state.

Adjacent to the status button there are three head icons colored red, white and black. Each of these icons has a number value. These icons represent three different categories of fellow Planet Auran users as defined by you:

- Red - Friends
- White - Acquaintances
- Black - Offline users

The number indicates how many users from that particular category are also connected to Planet Auran with TRS2006 iTrainz Chat. If you are not connected, all user groups will be 0.

You manage which users belong to which category through the Contact List that can be opened by clicking on the Status button (which is examined in the next section).



### 15.1.3 Contact List

The Contact List is where you manage your contacts, check on the status of a contact, initiate chat windows and send/receive invites (invitations to chat).

A contact is simply a Planet Auran/Trainz community member you have designated as being on your contact list. You can either list that user as a friend or ignore them.

To open the contact List window, click on the Status Button on the Chat HUD Panel. Note that you must be online and connected to Planet Auran to open the Contact List window.


If you have never used iTrainz Chat before, your list will be empty but that doesn't mean you don't have friends. It just means you haven't built your list of contacts yet.

---

**Tip:** The Trainz forum is a great place to meet new friends. Go to http://www.auran.com/TRS2006/ and follow the Forum links to make some new friends.

---

For the sake of an example and further explanation, this manual will assume that from now on, you have some assorted contacts (both friends and users you want to ignore).

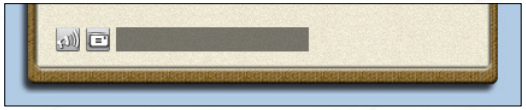
Across the top of the Contact List window there are 4 check boxes with adjacent icons. These checkboxes determine which contacts from your list will be visible.

- Friends - Only show friends (either online or offline)
- Online - Only show users currently online (friends and acquaintances)
- Invites - Show invitations and sent invitations.
- Ignored - Show ignored users.

By default all of these checkboxes are enabled. Once you start un-checking these boxes, users in your contact list may disappear according to circumstances. Before hunting for a lost friend, ensure the checkboxes are appropriately set.

**Sending Invites and Broadcasting**

At the bottom of the Contact List window is a section containing the send broadcast button, invite button and an associated text input box.



Clicking either icon results in the entered text being used for that icon's purpose.

**Invitations - Adding New Friends**

Other users are added to your Contact List by inviting them. The invited user need not be online for an invitation to be issued as the invite is held on the Planet Auran server system until it can be pushed to the invitee when they next come online.

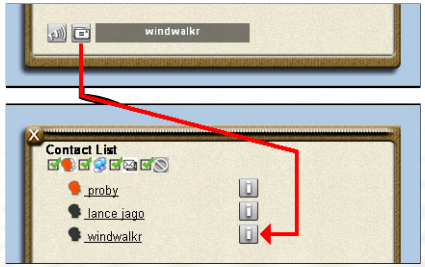
To add another user on your contact list, enter their Planet Auran name in the text entry box and then click on the Send Invite icon.



As this user is an invitee, their name only appears on the contact list if the Invites checkbox at the top of the window is enabled.

**Note:** The username must be the EXACT Planet Auran/Trainz forum username of the user you wish to add to your contact list. Usernames are not case sensitive and there is a 20 character limit. Be careful of underscore characters - spaces are not allowed in Planet Auran usernames.

Once invited, that invitee's name will appear on your list with a head icon adjacent to it. Depending on whether that user is connected or not, the head will either be red (online) or black (offline).




If the username entered is not valid, the name may flash briefly on the contact list and disappear straight away. Regardless of the flash or not, the invalid username won't be added to the list.

The list of contacts you add is global to all sessions with iTrainz Chat enabled so what contacts you add/remove on one session will affect all other sessions. The Contact List is not specific to any one session.

**Note:** iTrainz Chat is only supported in TRS2006 and not every registered Planet Auran member is a TRS2006 user who will be able to join you for iTrainz Chat.

**Broadcasting**

Clicking on the Broadcast icon in the lower left corner of the Contact List opens up the Broadcast window.


In the text entry box at the top of the Broadcast window, enter in your broadcast message and press "Enter" to send the message to all of your online friends. Note that only friends that have a chat window with you already opened will see the broadcast message.

**Contact List Members - Your Friends**

At the center of the Contact List window is your list of buddies which are listed in the order that you added them.


Next to the left side of each name, there is an icon indicating that user's status.

**Online Friend**

An Online Friend is someone who is in a session with the iTrainz Chat rule, online and who you have opted to flag as a friend.

**Offline Friend**

A friend who is not currently connected with iTrainz Chat.

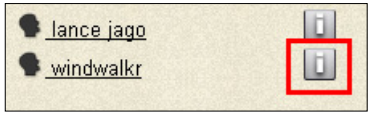
**Ignore**

A user on your list that you have opted to ignore. You cannot receive invites or messages from someone you have chosen to ignore.

Clicking on the contact's name opens a chat window with them, while clicking on the information icon to the right of that name opens the Buddy Info window for that contact. See the next two sections for further discussion of these features.

### 15.1.4 Buddy Info

To the far right of the usernames in the Contact List window is the information icon:




Clicking on this icon opens up the Buddy Info window for that user, where you can choose whether to make a contact a friend, ignore them, or delete them entirely from your list.


To set the buddy as being a friend or someone to ignore, select the appropriate radio button. Close the window to return back to the Contact List which will now be updated to reflect that buddy's new status.

**Note:** Now that the status of a buddy has been changed, that buddy may not be visible anymore in the Contact List because of how the checkbox settings at the top of the window are currently set.

Clicking on the Remove Buddy link closes the Buddy Info window and returns back to the Contact List with that buddy removed.

### 15.1.5 Chat Window

The Chat Window is where the user can exchange text messages with a specific contact. A chat window with someone in your list is opened by either clicking on their name or the icon to the left of their name in the Contact List window.


Messages can be sent to the other user that the Chat Window was opened with by clicking on the text entry box at the bottom of the window, typing the message and pressing "Enter" to send. Your typed messages will be shown in the Chat Window along those from your friend.

The Chat Window can be closed by clicking on the 'X' in the top left corner of the window. Each time the chat window is closed and re-opened the chat history is restored with the selected contact for the current session.



## 15.2 iPortal

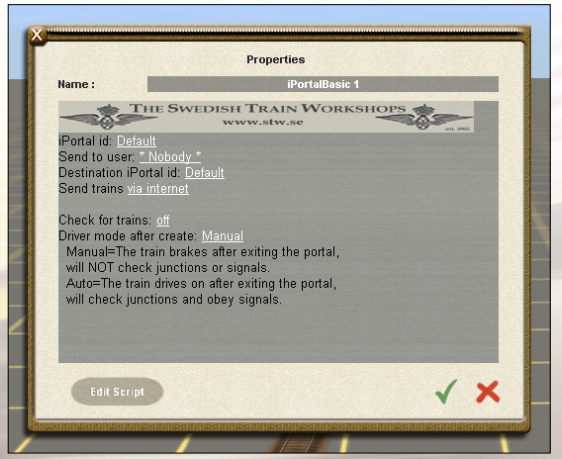
The iPortals is a special type of portal asset that allows train consists to be transferred between your Driver session and that of another online TRS2006 user.

This however does not mean Trainz has multiplayer game functionality. The iPortals allow a train to be moved between two separate sessions. Otherwise the sessions are still independent and have no other links or synchronization.

### 15.2.1 Placing and Configuring an iPortal

An iPortal is a scenery object with track and is placed and linked into your route in the same way an industry is as described in section 11.7.2. The two iPortal assets can be easily found in the scenery items list as they both start with "iPortal".

To function in the Driver session, the iPortal needs to be configured. There are no rules needed, just open the properties window for an iPortal placed on your route.




To get the iPortal working, not only must your TRS2006 installation be configured to work with your Planet Auran account, but the iPortal itself also

has several parameters that need setting as well.

**iPortal id**
Unique ID name that this portal is to be identified by.

**Send to user**
Name of the remote TRS2006 user that you wish to exchange train consists with. This setting isn't needed if you are just transfering trains to other iPortals on your own route.

**Destination iPortal id**
Unique ID name of the destination iPortal that this iPortal is to exchange trains with. This can either be remotely located on another user's system or from your own route.

**Send Trains**
Specifies whether trains are sent over the internet and exchanged with another user or just transferred locally to another iPortal.

**Check for trains**
Enable this option if you want the iPortal to wait for trains that another iPortal may send to it.

**Driver mode after create**
Determines how trains emitted from the iPortal will be controlled on your route once they have exited the iPortal.

Trains transferred through an iPortal will retain their vehicle loads so one potential fun activity is to operate your route such that it requires an incoming loaded train from someone else through the iPortal.

Don't forget to use iTrainz Chat so you can communicate with your friend and arrange iPortal exchanges. iTrainz Chat will also let you know if your friend is online.



# 16 - Content & Assets

Content broadly describes anything that you can add to your TRS2006 software that will expand the collection of objects available to you within the game. This includes locomotives, rolling stock, track, vehicles, people, buildings, bridges, tunnels, routes, rules, sessions, scenarios etc. Content is created by community members just like you and is available from many places on the Internet. The major source of content is a huge library of over 30,000 objects that can be accessed using Content Manager. This section of the manual will tell you a little more about identifying and utilizing new content for TRS2006.

## 16.1 The KUID System

Whilst you should not need to know much about the KUID (or Koolthingz Unique IDentifier) system, it is a term you will come across if you start delving into the world of custom content. A KUID is simply a way of identifying content for your TRS2006 software. Here is an example:

**<KUID:43750:12345:02>**

The first part of the KUID (43750 in this example) identifies the content creator, so all content from any particular author will have the same first set of digits. When you register at Planet Auran, you will be given a unique content creator I.D. that you can find in your User Profile.

The second set of digits is the unique identifier for a specific asset from the author.

There is also a third number. This is the item's version number and is used to allow Content Creators to update their creations without having to introduce a new KUID.

# 17 - Content Manager Plus

## 17.1 Introduction

Content Manager Plus (CMP) has a number of functions rolled into one integrated package giving you control and access to the many thousands of assets available for Trainz. The main functions that CMP offers are:

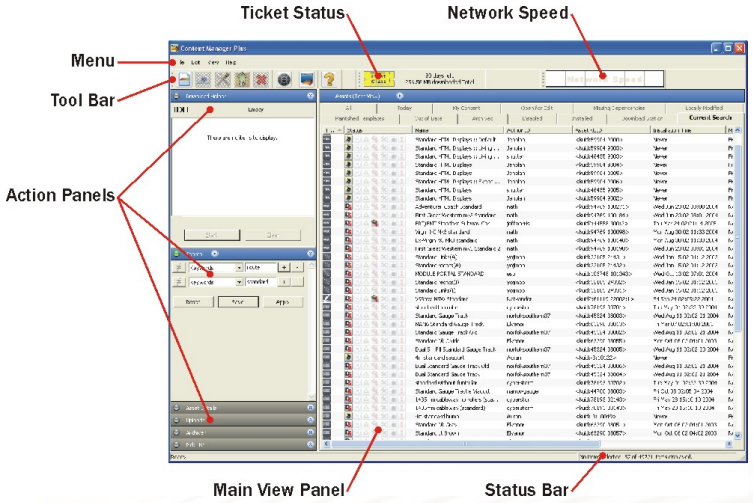
- Download Station Index
- Downloading Content
- Content Management
- Archiving/Backup
- Uploading Content
- Creating/Editing/Verifying Content
- Paintshed

We will examine each of these functions in the sections below.

**Note:** Content Manager Plus can only be used with TRS2006, it cannot be used with previous versions of Trainz.

## 17.2 Getting Started and Customizing CMP

First let's take a look at the layout of CMP.




### 17.2.1 Menus

The menu items generally duplicate in-game functions. Many menu actions have keyboard shortcuts which are shown to the right of the action listed in the menu.

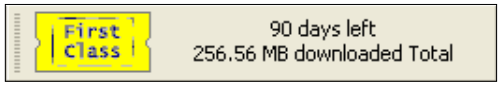
### 17.2.2 Bars

There are four bars that you can use to monitor and control various CMP functions. The Status Bar is fixed, however the other bars are floating and dockable which allows you to arrange the appearance of CMP as you see fit. The visibility of each bar can be toggled in the View menu.

**Tool Bar**

A bar of buttons that allow the user to quickly access commonly used functions like New Asset, Clone Asset, Open for Edit, Disable/Enable Toggle, Delete, Launch Trainz and Help.

**Ticket Status**
If you have a First Class Ticket (FCT) it shows how many days are left on the FCT and your total downloads (right-click to reset this). If you don't have a FCT it shows your daily download total and the limit (currently 100MB)…click on the ticket to open a browser window which allows you to upgrade to a FCT.




**Status Bar**
Displays warning/error messages in red/orange/yellow as well as a running total of items displayed out of the total items available including those on the download station.

**Network Speed**
A panel that displays your relative download speed in a graphical form when you are downloading. Note that it dynamically adjusts the Y axis to keep the graph on screen.


### 17.2.3 Main View Panel

The Main View panel can show assets in text or thumbnail mode. Click LMB on the button on the title bar to select one or the other.

The thumbnail view shows assets with a thumbnail picture of the asset as uploaded to the Download Station. Thumbnails are downloaded from the DS as required, so they may take some time to appear.



The text view is more like a spreadsheet with columns containing various information on each asset. You can elect to view more or less columns by right-clicking on the header and selecting the columns to show or hide. The column width can be adjusted by dragging the vertical dividers in the header. The order of the columns can be changed by dragging and dropping the column header to a new location.

Just under the title bar are a number of tabs. Clicking on these tabs immediately shows a filtered view of the assets in the Main View panel which correspond to search filters as described in the Sorting, Searching and Organizing Content section.

### 17.2.4 Action Panels

The width of the panels can be adjusted by dragging the vertical divider to the right of the Action panels. There is a minimum width.

You can view/hide the Action panels by toggling with the TAB key or from the View menu.

Each of the Action panels can be opened and closed by clicking on the icon in the Action panel's header bar. The action panels are:

**Download Helper**
Used to download files from the Download Station. See section on the Download Station and Downloading for details.

**Search**
Used to find assets. See section on Sorting, Searching and Organizing Content.

**Asset Details**
Drag an asset(s) from the Main View panel onto this panel to see the asset in more detail, including a thumbnail picture. Use the < and > navigation buttons to scroll through multiple assets. You can rate an asset by clicking on the star rating (1 to 5 stars), alter its name and description as well as view license

information.

**Uploads**
Used to upload assets to the Download Station. See section on Uploading for details

**Archiver**
Used to archive/backup assets. See section on Archiving for details.

**Pick List**
This is used as a "clipboard" for assets. Drag and drop an asset(s) from the Main View onto the Pick List panel to add it. You can remove an asset by clicking on the "-" button to the right of the asset name or remove all assets by clicking on the Clear button. To view the Pick List assets in the Main View panel, click on the View In Main List button.

### 17.2.5 Icons

Throughout CMP there are a number of icons with specific meanings which help you quickly identify an asset's attributes. All icons have tool tips so if you're not sure what the icon represents hover over it with the mouse cursor to show its tool tip.

**Category**
These icons denote the category of the asset, be it a train, route or other component of the Trainz world.

**Status**
These icons give you information on the Location, Archive, Modification, Version, Editing, Origin and Error status of the assets.

**Ratings**
A zero to five star rating for an asset. Adjust the rating by selecting the number of stars for an asset in the Asset Details action panel.



### 17.3 Settings

You can bring up the Settings window by either clicking on the Settings button in the Tool Bar or using the File -> Settings menu option. The settings are divided between four tabs:

**Archives**
Lists all the archives of which CMP is aware. You can Add, Remove or Update archives. Note that removing an archive only removes it from the list, it does not remove the archive file.

**Filters**
Lists all the search filters including the default ones. You can remove individual search filters (default or custom) and restore the default filters. Warning! Restoring the default filters will also remove any custom filters.

**Internet**
Enter your Planet Auran username and password and your internet connection type to get access to the Download Station while on-line. Don't have a Planet Auran account yet? Then click on the Register Now! link to register and get access to the Download Station and Community Forums…it's easy and free!

**Miscellaneous**
Here you can enter your user ID (available once registered with Planet Auran). You must have a user ID to make content for TRS2006 and to find your content using the "My Content" search filter.

You can also choose Main View settings, icon sizes, sound settings and delete confirmation choices.

Then there is the option to remove assets from the Download Helper pane automatically once downloaded, what to do with assets that are open for edit when launching TRS2006, ability to choose a custom script editor and whether you want search filter parameters to be applied automatically or require the use of the Apply button.

### 17.3.1 First Class Ticket and Overcoming Download Limits

All registered users of TRS2006 gain free access to the Download Station. However, we limit your daily downloads to 100 MB and a maximum speed of 4 kilobytes per second.

You have the option of upgrading your Download Station access with a First Class Ticket (FCT). The FCT gives you unlimited downloading from the Download Station. What is more, the downloads are at broadband speeds so you get what you want faster. You can get a FCT from our website…in fact clicking on a non-FCT in CMP will open a browser window at our web shop.

## 17.4 Sorting, Searching and Organizing Content

### 17.4.1 Sorting

You can sort on a column by clicking on the column's heading. Subsequent clicks toggle the direction of sort, ascending or descending order.

### 17.4.2 Searching

The Search panel allows you to put in one or more search parameters to find the content you are looking for quickly. Results of the search are immediately shown in the Main View panel unless the Settings for CMP have been selected so that the user needs to click on the Apply button to perform the search.

### 17.4.3 Default Search Filters

A number of default Search Filters are defined for the most common searches. These are listed in the form of Tabs in the Main View panel. Clicking on the tab immediately applies the named search filter.

Note that you can modify a default Search Filter by adding or removing search parameters. Let's say you select the "All" Default Search filter and add an extra search parameter in the Search panel (see below). When you do this, the Search Filter tab changes to "Current Search" to indicate that the assets being viewed no longer reflect the Default Search filter.



### 17.4.5 Adding a Search Parameter

The default Search panel has a search parameter of "Name" with no value entered.

To change the search parameter click on the drop down list and select the required parameter from the list. If the parameter allows a value to search on, then click on the value input box immediately to the right of the parameter and select or enter the required value.

To add another search parameter click on the "+" button to the right of an existing search parameter and a new search parameter line appears with the default "Name" parameter with no value set.

Each new parameter and value must be satisfied for items to show in the Main Panel view, in other words all search parameter lines are "AND".

There is also a "?" button to the left of the parameter name. If this is enabled, you can click on it to add a logical operator of "does not equal" to the parameter e.g. "does not equal" Built-In will show only those items that are not Built-In to TRS2006.

**Tip:** when searching on Author ID, put in the author's UserID (#nnnnnn) rather than their username. Once the items have been found, CMP downloads further information about the asset including the author's username. Thereafter you can also search using the author's username.

### 17.4.6 Removing a Search Parameter

To remove a search parameter, click on the "-" button to the right of the search parameter.

To remove all the search parameters click on the Reset button. This returns the Search panel to its default of "Name" parameter with no value entered.

**Current Search and Saving Search Filters**
As soon as you modify an existing search filter your search is displayed on the Current Search tab.

You can also save your own custom searches and they will appear as one of the tabbed Search Filters in the main view. Here is how…

Once you are happy with the parameters you have selected for your custom search, click on the Save button to bring up a Save Filter dialogue. Enter a name for the search filter and click on the Save button.

The search filter is now added to the tabs in the Main View panel. You can manage your Search Filters in the Settings dialogue (see Settings).

### 17.4.7 Keywords

You can use keywords to enhance the description of assets and make them easier to find. By default all assets have their name text as keywords. Content Creators can also add keywords to their content when they create assets to assist in finding them amongst the thousands available.

You can also add your own keywords to content by right clicking on one or more selected assets and clicking on Edit Keywords in the context menu. Enter the desired keyword and click on the Add button. You can continue adding keywords in this way to the selected content.

Once the keywords have been added, in the future you can use the Keyword search parameter to find the relevant items quickly and easily.

### 17.4.8 Disabling, Enabling and Deleting Assets

Once an asset is installed on your computer it is available within Trainz for use in Surveyor. TRS2006 comes with about 7,000+ items of built-in assets which are also available in-game.

**Note:** Some built-in content is not available for use in Surveyor. This is determined by the content creator who contributed the item.



For some, this large quantity of assets can be overwhelming and you may want to limit what you see in Trainz, or perhaps you have no interest in a particular countries' locomotives and rolling stock.

To reduce the number of assets visible in-game you can use the Disable or Delete function in CMP.

**Note:** When disabling or deleting items you may be "breaking" assets that are dependant on that item. To check if the item you are about to disable/delete is a dependency, select the item, right-click and choose View Dependant Assets. This brings up a dialogue box listing the assets that are dependant on that item. Do you still want to disable/delete it?

Disabling an asset means that it is still present on your computer, but not available within Trainz. To disable an asset, select it (one or more) and click on the Enable/Disable button on the tool bar. To make a disabled asset available in Trainz, select it (one or more) and click on the Enable/Disable button on the tool bar.

Deleting an asset removes the asset completely from your computer. Of course this makes it unavailable in Trainz. If it was a Download Station item it will still be listed in CMP, but you will have to re-download it to make it active in the game. To delete an asset, select it (one or more) and click on the Delete button on the tool bar.

**WARNING: Make sure you back up your custom (non-DS) assets. Once they have been deleted there is no way to recover them.**

**Note:** Built-in assets cannot be Deleted, but they can be Disabled. Installed, non-built-in assets can be Disabled or Deleted.

**Tip:** Want to just quickly see an asset in Trainz from within CMP? Select the asset and right-click, from the context menu choose View In… and then the relevant Trainz module. After viewing the asset, return to CMP by quitting out of the Trainz module. Note that assets must be on your local machine to do this as you cannot view items you haven't downloaded.

### 17.5 The Download Station and Downloading

The Download Station, at time of writing, has nearly 40,000 assets available for you to download and add to your Trainz software. CMP maintains an index of assets on the Download Station which is constantly being updated via the internet as new assets are added.

Important! Before you start downloading from the Download Station, you must register your TRS2006 serial number with Auran and enter your username and password in the Internet tab of the Settings window.

Use the searching and sorting capability of CMP to browse through the assets and find what you are looking for; see the section on Sorting, Searching and Organising Content.

#### 17.5.1 Selecting Assets to Download

Downloading assets has never been simpler. Just select the items you want to download in the main view panel (you can select multiples by using the SHIFT and CTRL key modes), then drag and drop them on the Download Helper panel.

You can also add assets to the Download Helper panel by right clicking on them and selecting Download from the context menu.

#### 17.5.2 A Word About Dependencies

Some assets require other assets (dependencies) to make them complete, for example a locomotive needs bogies, engine sounds, engine specifications etc… CMP takes care of this automatically*. When you drop an item into the Download Helper panel, CMP checks the selected assets for dependencies and then adds them below the parent asset so the asset is complete. Assets with dependencies have a "?" icon to the left of the asset's name. Clicking on the arrow head will show the dependencies in the main screen display.

If you drag a lot of items onto the Download Helper, it may take some time to check all the assets for dependencies and add them.

If you already have the assets (parent or child) on the local machine the Download Helper will not download them again. If the asset is in a known Archive (see Importing Content and CDPs Archiving), when you start the download process CMP will get the required assets from the archive.

To view dependencies for a local asset, select it and right-click then choose View Dependencies from the context menu. A dialogue opens up listing the dependencies for the asset. You can view the dependencies in the main list by clicking on the button.

**Tip:** After viewing the dependencies in the main view you can return to your previous view by clicking on the "Click here to resume your previous search" text in the Search panel.

* This is true of assets that have been correctly created and they and their dependencies are on the Download Station

#### 17.5.3 Managing Your Download Helper List

As you add assets to the list and their dependencies are found, the total size in MB of the selected assets are shown at the top of the Download Helper panel.

You can remove individual items from the list by clicking on the "-" button to the right of the asset's name. Removing an asset removes its dependencies too. Removing a dependency just removes it, although the parent asset may not work properly if the removed dependency was critical.

You can remove all the items in the list by clicking on the Clear button.

Assets are downloaded in the order they are arranged in the Download Helper panel list. To change the order of the list, just drag and drop the assets until they are in the order you desire. Note that dependencies can only be arranged beneath the dependency's parent asset.

To keep an item in the Download Helper list, but not download it immediately, uncheck the checkbox to the far left of the asset. Use this feature to manage your download quota if you don't have a First Class Ticket.

### 17.5.4 Starting and Stopping a Download

Once you have selected the assets for download and arranged your download list you can begin the download by clicking on the Start button. CMP contacts the DS and begins downloading assets. As each asset is downloaded a blue bar shows the download progress for the asset and the DS icon to the right of the asset's name is replaced by a Local icon to indicate success in downloading/installing the asset.

The speed of the download is graphed in the Network Speed toolbar if it has been selected as visible.

Once the download has started you can stop it by clicking on the Stop button. Assets not yet, or partially downloaded, remain in the Download Helper list ready for download. To resume the download, just click on the Start button again.

Once the downloads are complete you can clear the list by clicking on the Clear button, or this can be done automatically by checking the Remove Downloaded Items from the List Automatically checkbox on the Miscellaneous tab in Settings.

## 17.6 Importing Content and CDPs

To import existing content, either in folder form, or as a CDP there are two options available in the File menu.



Import Content allows you to specify a folder containing the content and on confirmation CMP will import all the content it finds in the selected folder and its sub-folders. A dialogue box appears listing the items that have been imported…you can view the items in the main list by clicking on the button in the dialogue box.

Import CDPs allows you to select one or more CDP files in an open file dialogue. CMP imports the asset(s) in the CDP file(s) and a dialogue box appears listing the items that have been imported…you can view the items in the main list by clicking on the button in the dialogue box.

## 17.7 Archiving

The Archive function in CMP allows you to "back up" your downloaded or custom content. It is not designed as a way of distributing content to others, use the CDP method instead.

Why not use CDP's to archive your content? You could, but the advantage of archives is that CMP knows about what you have put in your archives. Every time you create an archive, CMP records what assets are in the archive and where the archive has been saved.

Then, when you need the asset (if you have deleted it), instead of downloading the asset again needlessly, it takes the asset from the archive. If you have moved the archive, say to a CD-R, then a dialog box appears requesting you select the location of the archive. CMP then updates the location of that archive for use next time.

Some points about Archives beyond what has already been mentioned above:

1. When an asset is archived it is flagged with an archive status icon ( ).
2. Built-in assets cannot be archived.
3. If an asset is already installed and an archive containing that asset is installed the already installed assets are marked as "open for edit".

4. You can use the Archive Settings (select Settings) to add or remove archives as well as update their location.

### 17.7.1 Creating Archives

Simply select the assets you want to archive and drag them onto the Archiver panel. If the asset(s) have dependencies you will be prompted to select which item's dependencies you want to include in the archive. Note that you cannot archive built-in assets.

Another method is to select the asset(s) you want to archive in the main list, then right click and choose Archive from the context menu. The asset(s) are added to the Archiver panel.

Any unwanted asset(s) can be deleted from the archive list by clicking on the "-" button to the right of the asset's name.

When you are ready to create the archive, click on the Archive button in the Archiver panel and you will be prompted to name and save the archive to a location.

The named archive and its location are stored in CMP's archive list for future reference.

**Note:** Assets that are "open for edit" need to be committed before being able to be added to an archive.

### 17.7.2 Installing Assets in Archives

There are a number of ways of installing/restoring assets in an archive.

1. In CMP, select the archive from a list which appears when clicking on the "?" button in the Archiver panel header.
2. Double-click on an archive (.cmpa) file in Explorer.
3. Drag and drop an archive onto CMP.

In each case the action loads the selected archive into the Archiver panel and a dialogue box appears asking if you want all of the assets installed. You can select the "all" option in the dialogue or you can bypass this dialogue and then select which assets to install in the Archiver panel…select the assets by highlighting them (you can use the Shift and Ctrl keys to select multiple) , then right-click and choose "Install". A dialogue box confirms the assets have been installed.

## 17.8 Creating and Editing Content

There are a number of ways to create and edit content in CMP.

First it is important to know how assets are stored for use in TRS2006. Rather than a mixture of Jet Archive and "open" custom folders as things were handled in the past, TRS2006 stores its assets in a database, the Trainz Asset Database (TAD).

To create new assets they must be developed and then committed to the TAD before they can be used in TRS2006.

Similarly, assets that you want to edit need to be "copied" out of the TAD (Open for Edit), edited and then committed back into the TAD before the changes can be seen in TRS2006.

To help create valid or "sane" content for TRS2006 we have developed Content Creator Plus (CCP) which checks content to make sure it meets our content creation guidelines before it is committed to the TAD. See the section on CCP for more information.

To Commit an asset to the TAD that is Open for Edit, select the asset(s) in the Main View and right-click, then choose Edit -> Commit from the context menu.

**Tip:** Keyboard shortcut to commit one or more selected assets is Ctrl-M.

An asset modified locally is flagged with a Modified status icon in the Main View.

### 17.8.1 Creating Content

Besides importing new content/CDPs you can create new content for TRS2006 in a number of ways.

**New**

Use this option to create an entirely new asset from scratch. Clicking on the New button in the tool bar or selecting File -> New from the menu will launch CCP and begin the creation process. See Chapter 19 of the manual for more details on CCP. Once the asset has been created it needs to be Committed to the TAD to become available in TRS2006.

**Create New Version**

Use this option to update an existing asset. Select an asset in the Main View and right-click, then choose Create New Version from the context menu. A new version of the asset is created which is Open for Edit and the KUID version for the new asset is incremented. You can now make the desired changes and then Commit the new version to the TAD. This new version will automatically obsolete the older version it was created from.

**Note:** You can only use this option with assets you have created.

**Clone**

Use this option to base a new asset on an existing asset. Select an asset in the Main View and either right-click then choose Clone from the context menu or click on the Clone button in the tool bar or choose the File -> Clone option in the menu. A new asset appears with a KUID based on your user ID and in Open for Edit mode. Notice the Clone status icon appears in the CMP main view. You can clone any local assets.

**Paintshed**

Refer to the Paintshed section of the manual for information on how to create assets from Paintshed templates and to create new Paintshed templates.



### 17.8.2 Editing Content

There are a range of options when it comes to editing content. Similar to creating content, once the content has been edited, it needs to be committed to the TAD before the changes are manifest in TRS2006.

**Open for Edit**

Use this if you want to extract the asset out of the TAD. To do this select an asset in the Main View and right-click, then choose Edit -> Open for Edit from the context menu. The asset is flagged with an Open for Edit status icon. Behind the scenes your TRS2006\Editing directory now has a copy of the asset sitting in a folder. If you want to automatically open the folder in Explorer use the next option "Edit in Explorer".

**Edit in Explorer**

This is the same as the Open for Edit option, but also opens up an Explorer window with the Open for Edit asset's folder showing. To do this select an asset in the Main View and right-click, then choose Edit -> Edit in Explorer from the context menu.

**Edit in Content Creator Plus**

This is the same as Open for Edit, but in addition loads the selected asset into CCP. To do this select an asset in the Main View and right-click, then choose Edit -> Edit in Content Creator Plus from the context menu.

**Edit Script**

This is the same as Open for Edit, but also opens the asset's script file ready for editing. The default script editor is Notepad, but you can also select a custom editor in Settings -> Miscellaneous. Select an asset in the Main View and right-click, then choose Edit -> Edit Script from the context menu. If the asset selected doesn't have a script associated with it you will get an error message and the asset will be left in the Open for Edit mode.

### 17.8.3 Reverting Content

When an asset is Open for Edit it can be returned to its previous state in the TAD by using the Revert option. This essentially deletes the asset's editing folder and turns off the Open for Edit flag. To Revert an asset select the asset in the Main View and right-click, then choose Edit -> Revert from the context menu.

Another Revert option, available only for built-in content, is to Revert to Original. In this case the modified asset is reverted back to its original state as supplied with TRS2006. Select a built-in asset in the Main View and right-click, then choose Edit -> Revert to Original from the context menu.

**WARNING: When reverting assets all changes made to the asset are lost. In the case of Revert to Original this means any and all changes, in the Revert case it means all those changes made since the asset was last committed to the TAD.**

### 17.9 Uploading

The uploading process has now been streamlined and is integrated with the Download Station and Planet Auran.

Important! Before you start uploading to the Download Station, you must register your TRS2006 serial number with Auran and enter your username and password in the Internet tab of the Settings window. Your User ID (in the Settings|Miscellaneous tab) is automatically entered based on your registration details.

Firstly select one or more assets that you want to upload in the Main View, then either drag and drop them to the open Uploads panel or right-click and choose Upload from the context menu.

The selected asset(s) will be moved to the Uploads panel. A dialogue box appears giving you the option to also include the selected asset's dependencies. Also if any of the assets are broken or are not your assets then these assets will be flagged in the dialogue box with appropriate error messages.

Similar to the Download Helper and Archive panels, you can remove assets from the Uploads panel by clicking on the "-" button to the right of the asset name.

Once you have your assets organized in the Uploads panel, click on the Upload button to begin the uploading process.

Firstly a Planet Auran license agreement appears. Once you have read the license and accept it click on the Accept button.

In CMP a dialogue box opens showing the success or failure of the upload. If successful, at the same time, CMP logs you onto Planet Auran and the secure website opens up in a browser window at the Your Content page.

In the Planet Auran browser window you can click on the "Unprocessed" button to confirm your asset has been received. It will have a generic name "upload.cdp" and will also have a time/date stamp so you can identify it.

You can still stop the upload process at this point, by clicking on the "Do not process" link.

Once a day at around GMT 11:30 unprocessed uploads are processed by the Download Station and the asset now is moved to the "Waiting for Approval" station. This is where the content is manually checked for any issues and if it passes the manual inspection the asset is marked as Approved and you will receive an email confirming its approval. Please note that as this is a manual process, the time between processing and approval can vary. We try and get this done quickly, but we also have weekends, public holidays, sick days, urgent matters and sometimes an overwhelming amount of content to approve, so we ask for your patience.

Once you receive an email that your asset(s) have been approved the asset is usually available on the Download Station within six hours.

# 18 - PaintShed

## 18.1 Introduction

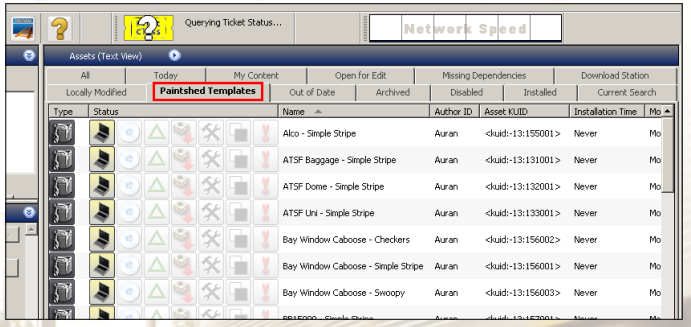
PaintShed is a utility included with TRS2006 that allows variations of existing rolling stock to be painted and labeled with an accessible and easy to use interface.

The aim of PaintShed is to allow novice and expert users alike to create customized locomotives and rolling stock to further enhance their Trainz experience.

Previously PaintShed was an extra application that had to be installed separately but for TRS2006 it is now integrated into the CMP suite of tools (see the previous chapter for an examination of CMP).

## 18.2 Starting PaintShed

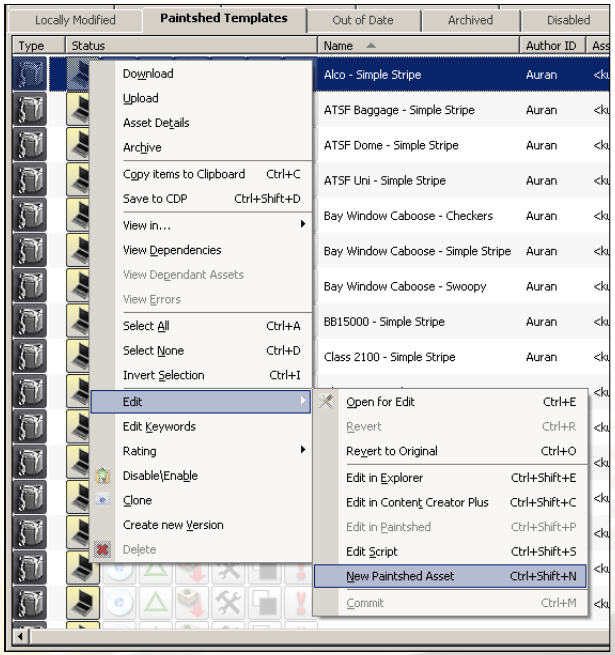
To get PaintShed running, first start up CMP and select the "PaintShed Templates" tab found near the top of the CMP interface. This will result in a list of template vehicles being displayed that can be used with PaintShed.




PaintShed requires a vehicle template asset to use as a foundation for you to paint on. This means you won't be able to use just any vehicle for your repaint but TRS2006 comes with a good variety of templates for you to work with.



Find the "Alco - Simple Stripe" template asset (it should be near the top when the list is sorted by name) and right click on it. A menu will appear with a list of options. Towards the bottom of this menu is Edit submenu. Open it and move LMB-click on the "New Paintshed Asset" item.




Once clicked, PaintShed will now be started with the Alco template loaded and ready to paint.

## 18.3 Interface

The PaintShed interface has 4 buttons across the top of window and 5 views of the vehicle you will be painting (front, rear, top, left and right). The tools offered by the buttons can be applied directly to any of the 5 available sides of the locomotive.

The 5 different side views of the vehicle shown make up what is known as the vehicle's skin. The skin constructed here will be applied to the 3D vehicle to create your own version of that vehicle.


From left to right, the PaintShed buttons are:

**Paint**

Allows different parts of the vehicle's skin to be filled with a particular color as defined by the template used.

**Text**

Allows a text label to be applied and moved around on the vehicle's skin.

**Logo**

Allows a logo (bitmapped image) to be applied and moved around on the vehicle's skin.

**Save**

Save the painted vehicle for export into Trainz or so you can come back and edit it later.

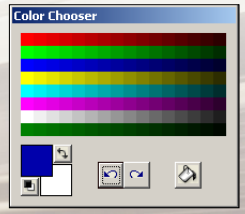
The exact use of these buttons and what they allow you to do is explained in the sections that follow.

### 18.4 Painting the Skin

Painting the skin involves filling areas of the skin with a chosen color. The different areas of the skin that can be filled will depend on the template asset used to create the currently open skin. You can see the fill areas of the template by pressing the spacebar key. Press spacebar again to toggle off the template display.

#### 18.4.1 Choosing Colors

To choose a color, click on the Paint button (1st of the 4 buttons at the top of the PaintShed window) to open the Color Chooser window. The Paint button serves as a toggle to show/hide this window.




Two paint colors can be assigned to help speed the painting process. These two colors are displayed in the Assigned Color display located in the lower left

corner of the Color Chooser window.

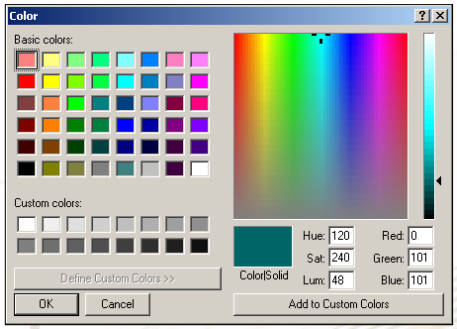
The palette of colors across the top of the window are ready to be selected for use. Click LMB on a palette color to assign it to the left mouse button. Click RMB on a palette color to assign it to the right mouse button.

Click LMB on the double-ended arrow ( ) located above the Assigned Color Display to switch the assigned colors between the mouse buttons.

Click LMB on the small black and white icon ( ) below the Assigned Color Display to reset the colors to black and white.

### 18.4.2 Custom Colors

To select a color that is not in the default palette, double LMB click on the relevant color in the Assigned Color Display area. This will display the Color Selector window.




Choosing a color from the Color Selector window can be done in one of four ways:

1. Click LMB on one of the Basic Colors displayed in the top left of the window.
2. Click LMB in the Color Palette section on the right of the window. Move the color bar to the right of the Color Palette section to select a lighter or darker shade of the chosen color.
3. Type a number between 0 and 255 for each of the Red, Gren and Blue values in the lower right of the window.
4. Type a number between 0 and 255 for each of the Hue, Saturation and Luminosity values in the lower right of the window.

Click LMB on the Add To Custom Colors button in the lower right of the window once satisfied with the chosen color. The chosen color is now displayed in the Custom Colors section in the lower left of the window. Click the OK button to return to back to the Color Chooser window and begin painting with that color.

Click LMB on the Cancel button to return to the Color Chooser window at any time.

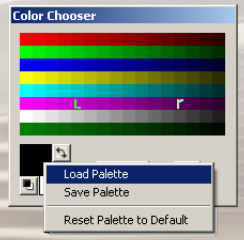
### 18.4.3 Customizing the Palette

As well as choosing a custom color for use in the Assigned Color Display, it is also possible to create a custom color for ready access on the Palette.

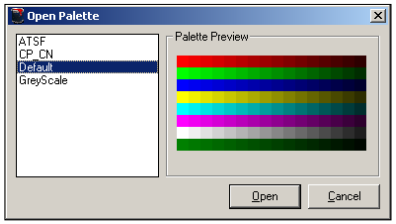
To do this, double Click LMB on a palette color to open the Color Selector window. This is the same window used to set a custom color as mentioned in the previous section and as such a custom palette color is created in exactly the same way.

### 18.4.4 Saving and Loading Custom Palettes

Custom palettes can be saved to disk and used later with other skins. Click RMB on the Assigned Color Display to show the custom palette menu.



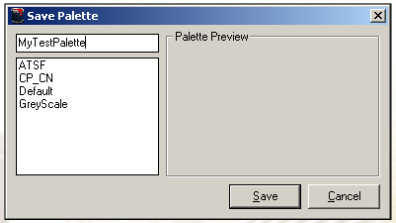
Click LMB on the Load Palette item to display the Open Palette window.




Click LMB on the different palettes in the list to the left of the window. The palette colors are displayed in the Palette Preview section to the right of the window. Click the Open button to load the palette for use in PaintShed.

Click LMB on the Cancel button to return to the Color Chooser screen at any time.

To save the current palette in the Assigned Color Display, Click LMB on the Save Palette item in the custom palette menu. This will display the Save Palette window.




Type a name for the palette into the text box at the top left of the window. Alternatively, click one of the palettes in the list to save over it. Click LMB on the Save button to save the palette for later use.

Click LMB on the Cancel button to return to the Color Chooser screen at any time.



### 18.4.5 Applying Colors

When the cursor is moved back into the skin windows, clicking LMB will fill in the clicked area of the skin with the designated left mouse click color while clicking RMB on the area uses the chosen right mouse click color.

When the cursor is above one of the 5 sides of the skin and it becomes a paintbrush ( ), this means that PaintShed is in the required mode to fill an area in with the currently chosen color.


**Tip:** Remember that if you are unsure what areas the skin template allows you to fill with color, press the spacebar to toggle the skin template's filling area display.

**Undo/Redo**

In the bottom center of the Color Chooser window, there is a pair of undo/redo buttons () that can step back or forward between fill

actions performed on the skin. The standard undo/redo keys of Ctrl-Z and Ctrl-Y are supported so you can still undo/redo even when the Color Chooser window is not visible.

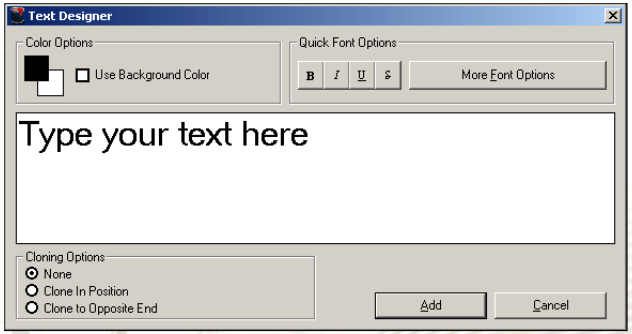
### Fill All

The fill button in the bottom right corner of Color Chooser window will apply the currently selected left mouse click color and apply it to the entire template. Be careful as this action cannot be undone.

**Note:** When filling in a section of the skin with color, a corresponding area on the opposing side may also be filled in the equivalent position.

## 18.5 Adding Text

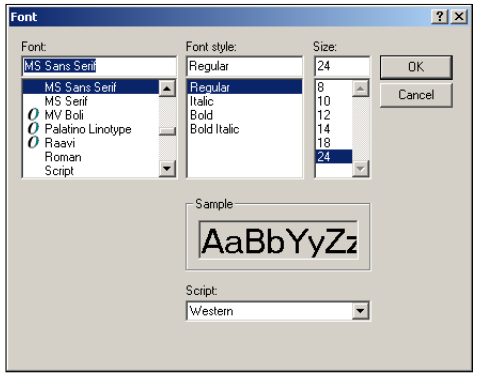
Text may be added to further customize a skin. To add text, click on the text button (2nd left button at the top of the PaintShed window) to open the Text Designer window.




Type some text into the text field found in the center of the window.

Click LMB on the black and white color swap in the top left corner of the window to select different foreground and background colors for the text. This will open a Color selection window for the text.

Click LMB on the More Font Options button to display the Font window.




Select the font type, style and size in the Font window and Click LMB on the OK button.

Back in the Text Designer window, check the appropriate boxes in the top right corner to underline or strikethrough the text. All changes to the text are replicated in the Preview section of the Text Designer window.

Click LMB on the Add button to add the text to the skin. To return to the main PaintShed screen without adding the text, click the Close button.

In the main PaintShed view, a dashed border surrounds the currently active text. Click and drag the text to move it to a different position on the skin. Use the arrow keys on the keyboard to move the text in smaller increments. Holding the Shift key down whilst using the arrow keys moves the text in larger increments.


**Note:** Text cannot be positioned on sections of the skin onto which you cannot paint - check the template by pressing the spacebar.

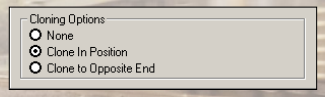
To move text to a different view of the vehicle, simply drag into that other view.

To edit the text, double Click LMB on it to display the Text Designer window again. Click LMB on Save once changes to the text have been made. Click LMB on Close to return to the main Paint Shed view without making changes to the text.

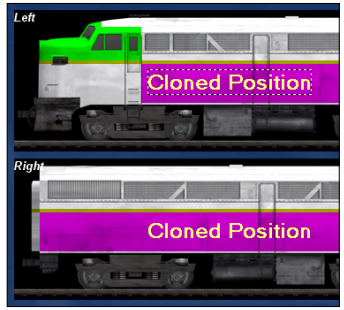
Even if the text is deselected to do other things, you can always re-select it to edit/move as desired.

### 18.5.1 Cloning Text

The Cloning Options are used if you want to have the same piece of text cloned on the opposite side of the skin that your text is placed on. This means text placed on the front side will be duplicated on the back side or text placed on the left side will be duplicated on the right side.




How the text is cloned depends on the cloning option chosen. If "Clone in Position" is selected, the cloned text will appear in the same location on the opposing skin.

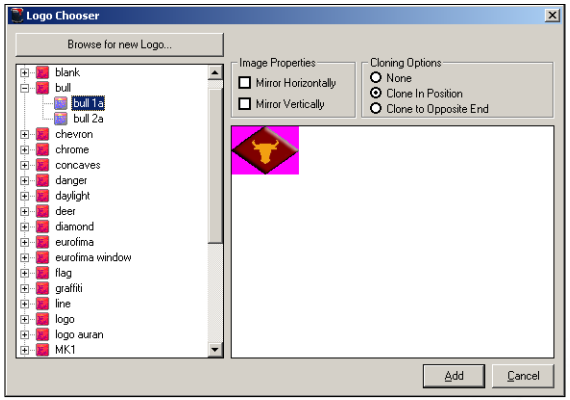



If "Clone to Opposite End" is selected, the duplicate text will be positioned at the opposite end on the opposing side.


Moving one piece of cloned text will result in the other cloned piece moving around on its skin segment in a synchronized way.

## 18.6 Adding a Logo

PaintShed provides a number of logos that can be added to the skin as well as the facilities to insert a user-provided bitmap image. To add a loco, click on the logo button (3rd left button at the tope of the PaintShed window) to open the Logo Chooser window.



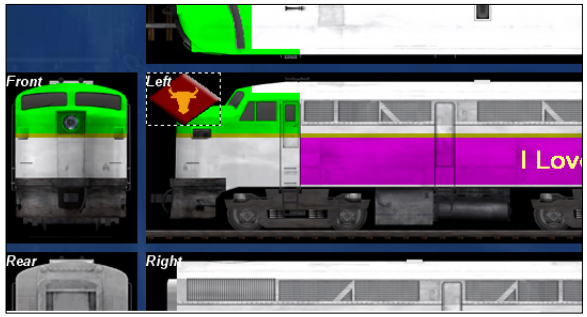

Choose one of the supplied logos or Click LMB on the Browse for New Logo button to search through your computer for one of your own.

**Note:** If you are going to browse for your own logo, you will need to have a bitmap (.bmp) file ready to find and add.

Note how the Image Properties section allows the logo to be mirror and flipped both horizontally and vertically. Also note how the Cloning Options seen in the Text Designer window are available for logos. The cloning options for logos work in exactly the same way as they do for text.

Click LMB on a logo name in the left of the Logo Chooser window to preview that logo in the right of the window.

Once selected, Click LMB on the Add button to return to the main PaintShed window and your chosen logo is added to the skin. To return to the main PaintShed screen without adding the logo, click the Cancel button.

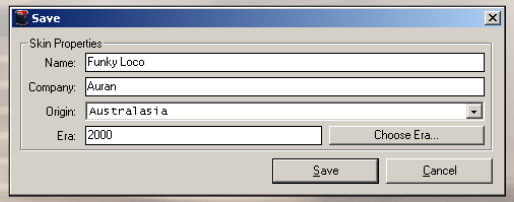



Click LMB+H and drag the logo into the desired position on the train. Use the arrow keys to move the logo in small increments. Holding the Shift key down whilst using the arrow keys moves the logo in larger increments.

The logo can be moved to any of the skin sections by simply selecting and dragging it in the same way you do with text. Note that logos cannot be positioned on sections of the skin onto which you cannot paint - check the template.

## 18.7 Saving the Skin

Saving a skin allows it to be used again and also exports the vehicle with the skin applied for use in Trainz. To save a skin, Click LMB on the Save button which is the right-most button at the top of the PaintShed interface. This will open the Save window.

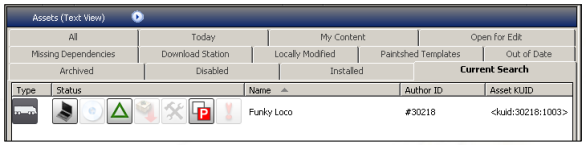


Type a suitable name for the skin into the text field at the top of the Save window. As this is actually going to be the name of your painted vehicle, use an appropriate name that you can remember so you can find your vehicle easily later on.

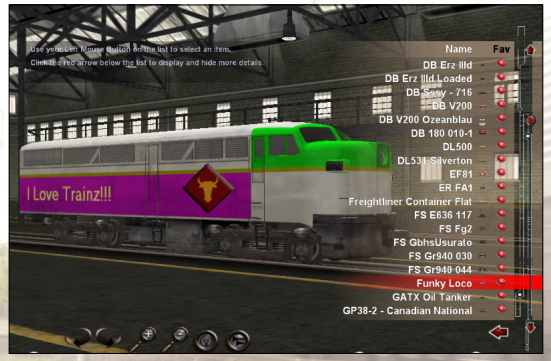
> **Note:** Trainz does not enforce unique names of assets but it is highly recommended that you do use a unique name.

Click the Save button to save the skin with the specified name. This will create a new vehicle asset with your paint scheme. PaintShed will spend a few moments creating the vehicle asset and once complete will return back into CMP.

The CMP view you are returned to will have the Current Search tab selected with the vehicle asset you just created listed.




Run Trainz, go to Railyard and see if you can find your new vehicle to admire!

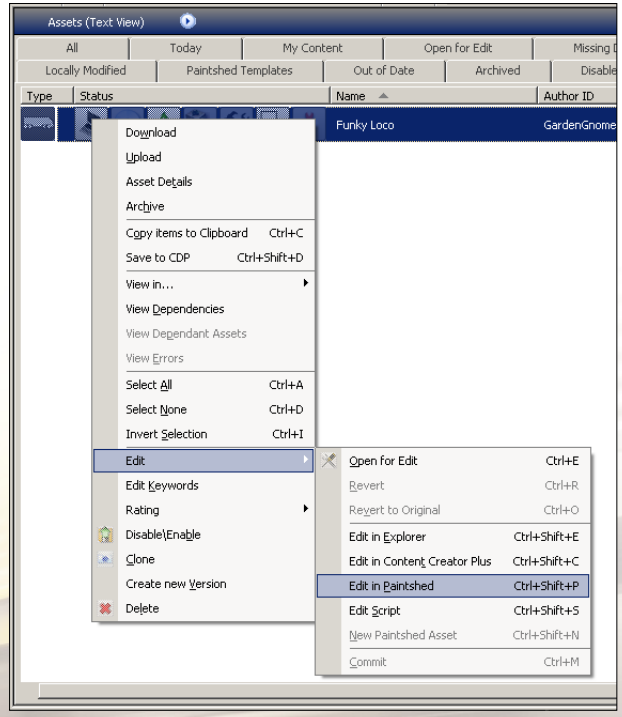





## 18.8 Opening an Existing Skin

It is possible to continue working on a previously created skin rather than creating a new one each time.

To open an existing skin, find the asset in CMP (see the previous chapter for details on using CMP). Click RMB on the asset listing and open the Edit sub-menu and Click LMB on "Edit in Paintshed".




This will open PaintShed with your vehicle skin ready to edit in the state it was when you last saved it.

# 19 - Content Creator Plus

## 19.1 Introduction

Content Creator Plus (CCP) is a program launched from within Content Manager Plus to generate a config.txt file for the different kinds of Trainz model assets, or to edit and amend existing config.txt files.

Trainz model assets are classified under different Kinds. Each Kind has particular data requirements to be entered using the appropriate input dialogue boxes. A data Container is a portion of the config.txt file that covers a particular function for the model, for example the model mesh files to be used, or the effects to be applied.

Within the Container the commands that Trainz recognizes are called Tags. Each Tag indicates data values to be used or a function to be implemented. Dialogue boxes and drop down menus are provided for the data entry and inbuilt error checking will indicate faulty data or entries. An error message display will assist in creating a correctly configured model.

Certain input fields are mandatory, while others are optional, required for more complicated models or additional model functions. The program can also load a previously created config.txt file, for validation, amendment, additions, or as the basis of a new model configuration file.

The program validates the config.txt file as acceptable for the Download Station prior to uploading a model or package.

The Content Creator's Guide (CCG) is separately available, for information on the tags that may be used for each Kind, their functionality, and the data values required.

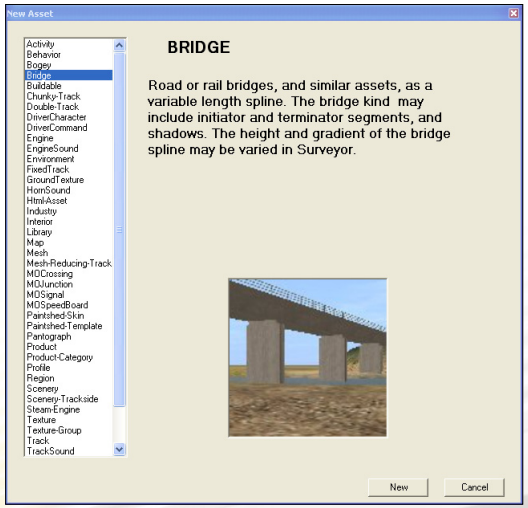


## 19.2 Getting Started

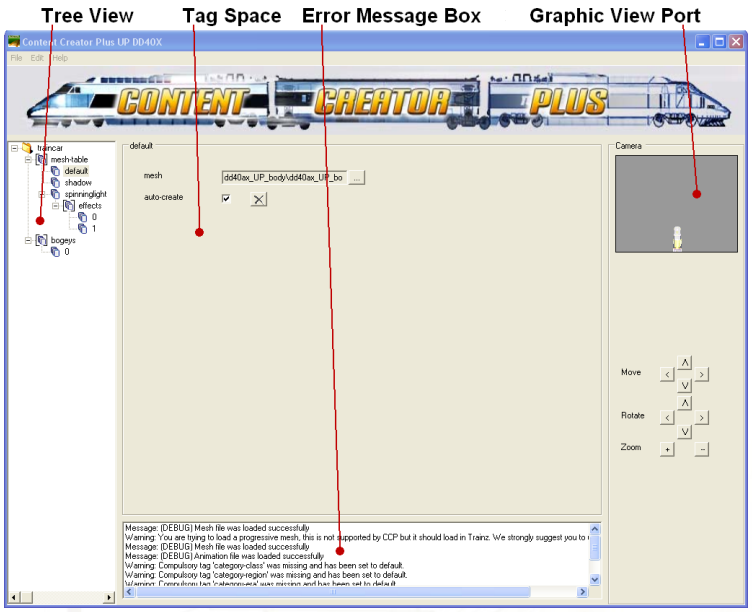
### 19.2.1 Starting a New Model Asset

From within Content Manager Plus launch Content Creator Plus using the File -> New option in the top menu.

A screen showing the different Kinds of assets that can be created will be displayed.



Choose the correct Kind for the model, and the main input screen will be displayed.




The main input screen is divided into a number of display areas:

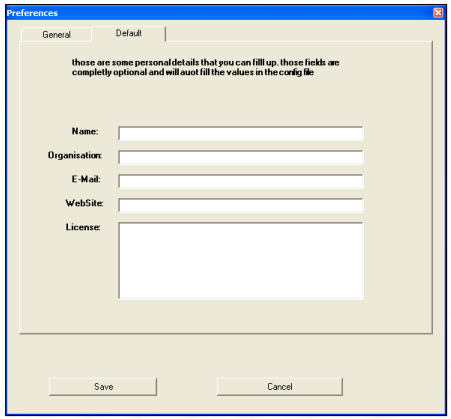
1. Tree view
2. Tag space
3. Graphic View Port (only displays when a mesh is selected)
4. Error Message Box

The screen sections of the program are fully resizable by dragging the frame edges.



### 19.2.2 Configuring the Program

The first step is to use the Preferences menu to enter your Personal Details, located in the top Menu under Edit -> Preference. These are optional personal details you may enter. The fields will auto fill the values in the config file, when the appropriate tags are chosen from the drop down menu.




Enter your name or forum name in the Name box.

The Organisation entry may be "My Trainz" for example.

The E-Mail address field is a contact address.

Enter your Website address in the Website box.

The License text entry will display the license details you would like to have included in the model. Typically include details of model usage, distribution, limitations, or modification approvals for your model, that you wish to apply.

When you have entered the details, use the Save option. These details will now be included in all config.txt files for models that you create, when you choose to place these tags in your asset.

### 19.2.3 Menus

**File -> Save**
Save the current config.txt file. Used to save and replace a previously saved file.

**File -> Exit**
To exit the program, you will be asked if you wish to save the config.txt file.

**Edit -> Cut, Copy, Paste**
To remove, copy or paste containers or multiple tags, useful for reproducing similar entries, such as multiple sound files, or attached track entries for example.

**Edit -> Refresh:**
To referesh the screen display.

**Edit -> Preferences**
To set the program preferences .

**Help**
The Help file and Details about the program.

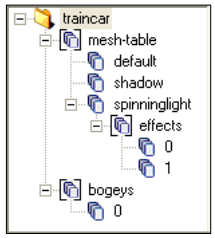
### 19.2.4 The Tree View

When an existing config file is loaded using the File -> Open menu, the program will "parse" the text file and gather two different kinds of information: the Containers and the Tags. The tags are values being assigned to a property, and a container is a section of the config.txt file that groups a number of tags or other containers.

With many possible tags and containers, the best way to manage the display of containers and tags is to load them in a hierarchy as a tree view (as for example, the tree view of Explorer). When starting a new model, the Tree view will be empty, and containers and tags will be added as required to build up the config.txt file for the model.



When opening an existing model config.txt file for editing, CCP will display all the entered containers in the tree view. The example diagram below is the tree view for a Kind Traincar model.

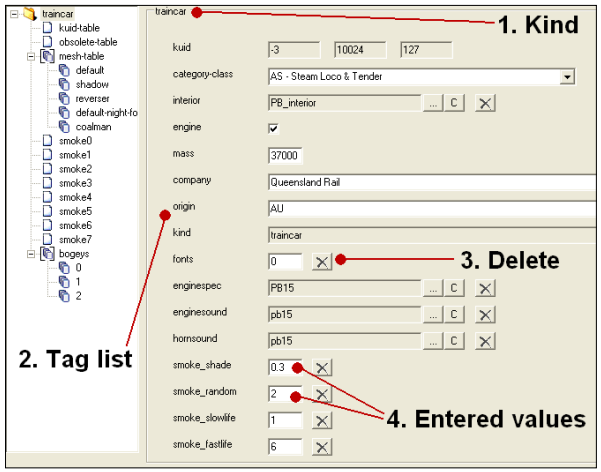



The top "node" or Kind is called traincar and is the main container for the complete config.txt file. Traincar is the name of the Kind that we are currently creating (when creating other Kinds, for example a bogey, the node would be called bogey). Under that container are other sub containers in the config file.

The tree may be freely expanded or collapsed (by clicking with the LMB on the plus or minus symbols). When you click on one of the nodes, it will show the tags that are included for that container in the tag space so you can add new entries or edit existing values.

While some containers may be renamed, others are required to retain a unique name. In this case, attempting to rename a container may give a warning message, for example "You cannot rename the container "mesh-table" because it is a unique type."

When you click RMB on one of the nodes a contextual menu will popup with five different sections.




**Section 1**

The first section is the available sub container section, and shows sub containers that may be added to the opened container (in this example, an Effects container has been added). Select a sub container by clicking LMB on it. Depending on the type of container added, a number of compulsory or mandatory entry dialogue boxes may appear in the tag space.

**Section 2**

The second section is the tag section. This shows the list of non compulsory tags. (A non compulsory tag is an optional tag for additional functionality). Clicking LMB on one of the choices will add the tag in the tag space that represents the container. Any non compulsory tags may also be deleted. Occasionally, some containers have no additional optional tags.

**Section 3**

These options allow the chosen entries to be removed or copied to the clipboard. To paste the item in another location, use the Paste function in the top menu bar.

**Section 4**

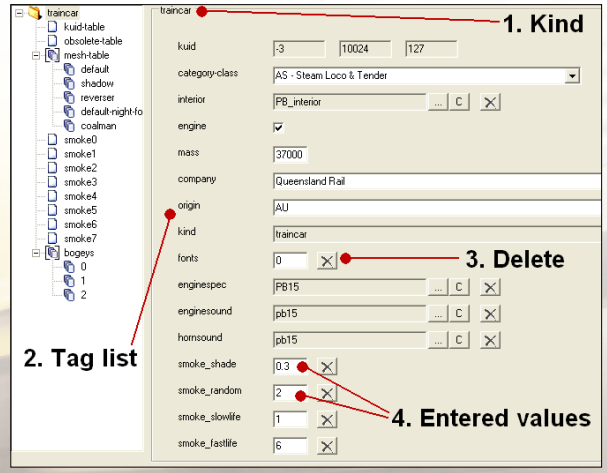
The rename option allows the container name to be changed. For example, all the meshes under the mesh table can have a unique custom name, but a container cannot be renamed using a name that already exists. The tree view will allow the name to be edited, by clicking RMB on the name, and using the rename option.

**Section 5**

The remove option allows deletion of unwanted container from the config.txt file, particularly useful if editing a config.txt file from an existing model asset to create a new model. Click RMB on a container name to open the options for the container, and select an item by clicking on LMB.

### 19.2.5 The Tag Space

This section of the program displays the content of a container. It dynamically changes as you either select different containers or add/delete tags.



**Section 1**
The Kind: This is the label or title of the container (the asset Kind): When clicking on a container, a new container display is loaded in the tag space. In this example, the main container "traincar" is selected, and the name of that container is set as the title, "Traincar".

**Section 2**
The tag list: The name of every mandatory and/or selected optional single tags will be displayed on the left hand side of the space. (On some occasions, it will be a text box, in which case the tag name may be changed).

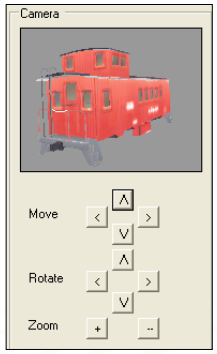
**Section 3**
The delete button: A tag that has a delete button is a non compulsory (optional) tag and clicking LMB on the delete button will remove the tag from the container (it will be placed back in the tree view menu, for possible re-selection).

**Section 4**
The list of values: For every tag, there is an associated value to be entered so that the program passes that value to the tag. There can be different ways of entering the value (combo box, text box, tick box, or several text boxes).



### 19.2.6 The Graphic View Port

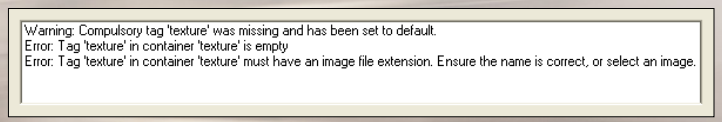
When a mesh is referenced for the model, the mesh file name needs to be specified, using the file browser. The mesh file name may be typed, with any local path, or browsed for the file name. The program will load the referenced mesh file and the view port will display the rendered image for viewing, to verify it is correctly selected, or to see the mesh shape or details.




Buttons below the view port allow the camera to be moved, and allows the mesh to be rotated or zoomed in and out. You may use the mouse within the image box to move or rotate the image.When you click LMB on a container that holds a mesh, the rendered mesh will change to the one you've selected. The mouse roll button may also be used for zooming.

### 19.2.7 The Error Box

When a config.txt file is loaded or saved, the program will validate the data input to make sure that everything is correct. The error box is used to output error/warning messages to the user to assist error checking if the model is not working in Trainz.

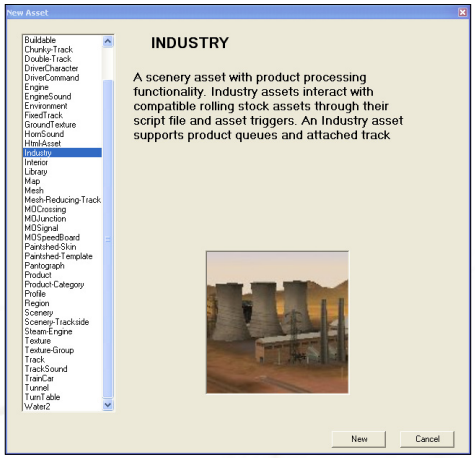


Clicking LMB on an error message will display the relevant tag in the program. Clicking RMB on a message or error line will display a contextual menu with the option to copy the message to the clipboard.

## 19.3 Using The Program

### 19.3.1 Creating a New Asset

In the file menu in Content Manager Plus, using the option File -> New will open a list, where the Kind for the new asset may be selected.




This form shows all the asset Kinds supported by the program. Select a kind and the program will generate the basic config.txt file structure for that kind, using the mandatory tags. Mandatory tags may not be sufficient to create a fully working asset. You may also add additional optional tags and containers to your config.txt file for a more complex model.

### 19.3.2 Opening an Existing Asset

In Content Manager Plus, select the existing model and use RMB to open a menu, choose Edit in Content Creator Plus and the program will load the config.txt file for examination or editing.



While loading the file, CCP will parse the file and show any warning and error messages based on missing or incorrect tags, or tags that should not be included in the file.

> **Note:** As soon as the file is opened with CCP, changes are made to the config.txt file, even if you exit the file without saving. For this reason, If you wish to retain the original config.txt for reference, you should open the asset in Explorer, and make a backup of the config,txt file, before you open it in CCP.

If you import an asset with a Trainz-build 2.4 or earlier, into CMP, any error messages will assist you in making the asset compatible with TRS2006. If you open that asset in CCP it will convert it to Trainz-build 2.5, and additional errors may be flagged, requiring fixing.

If you import an asset after entering a Trainz-build 2.5 tag in the config.txt file, CCP will NOT convert the file to Trainz-build 2.5 format. It will expect all relevant Trainz-build tags to have been entered prior to import. Error messages will assist in file correction.

### 19.3.3 Formats for Entering Tag Data

Tags require different types of entry, depending on the type of data required. Some will require a simple text string and others will require more complex data like a VectorX , a float list or a Boolean value. The program will generate different types of Graphic User Interface (GUI) for different data types.

**String, floating point or integer number**

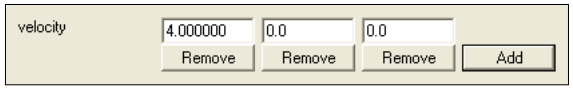
These three data types are simple text or numeric values. A string entry is text, a floating point number (or float) includes a decimal point, and an integer number has no decimal point. The value you type in an entry box will be directly associated with the tag.

**VectorX**

Vectors are a series of required values. The X represents the dimension of the vector (the number of input values required). For a Vector3, there will be three

text boxes requiring three floating point numbers (numbers which include a decimal point) to be entered.

**Float List Entry**
A float list for a tag will take a series of floating point number values.




The list above includes a series of four floats, each of which can be removed if required. Additional values may be added to the list by clicking on the add button to add a new float entry box.

**KUID Entry**
The KUID entry is made up of three different parts: The user ID, the content ID and the version ID

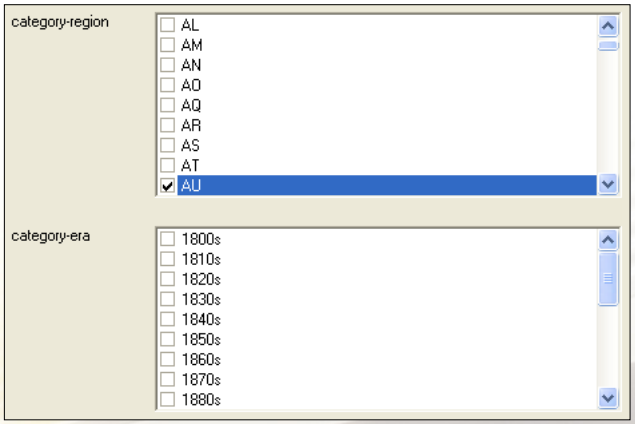

When the personal details option has been filled in, the first field will be filled automatically with your user ID. Otherwise, the program will default to a -1 user ID. The second entry is the content ID which represents the Identification number of the asset that you are currently creating. The third value is the version ID which is the version identification number of the content that you are currently creating or editing. The maximum value for the version ID is 127. If this limit is reached, a different Content ID is used for the model.

**Note:** When creating a new asset the KUID is assigned automatically, and is not editable by the user.

**Boolean Entry**
A Boolean entry is a simple true or false value. It is represented by a check box.


Clicking LMB in the box will toggle the tick mark on or off. A tick represents true and for an unchecked box, the entry is false.

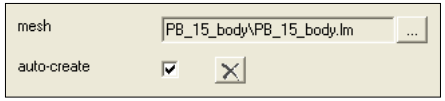
**Data Choices**
Where a large list of choices is offered, it is convenient to display the available selections in a combo box.




Open the box and select a value by clicking LMB on that value. A check mark is shown in the box. Multiple choices may be selected by ticking additional boxes in the list.

## File Browser

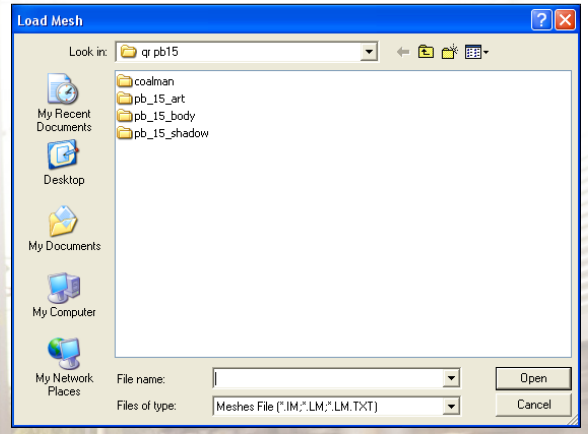
A file browser GUI is used to locate data stored on the computer hard drive, a mesh file name and local path for instance, a script file, an animation file or a texture file.




Clicking on the small browse button (...) with LMB will open a file browser.

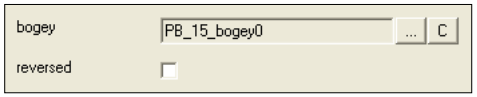
Once the file is located click LMB on the OK symbol and the field will be filled with the file name and path name.

The file type selections in the browser will reflect the types that are required to fill the dialogue box. In the following browser opened from the mesh dialogue box, the correct available mesh extensions are offered (*.IM, *.LM, *.LM.TXT). From a script dialogue box, the file types will be of the *.gs or *.gse types. A texture search will offer the *.bmp, *.jpg and *.tga file types.

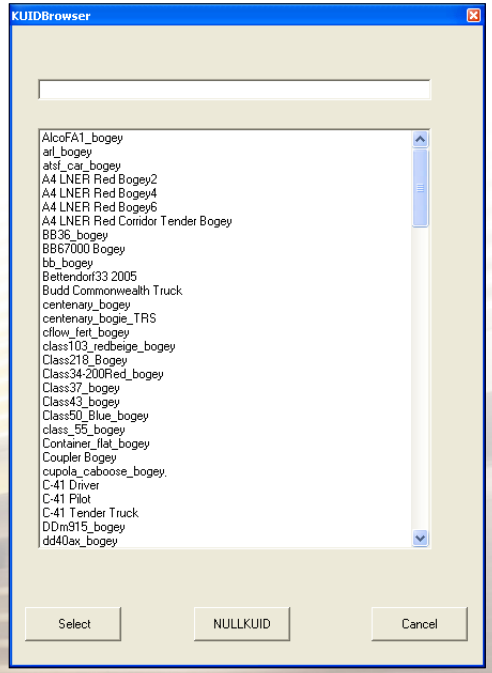



## Asset Browser

This kind of GUI is a KUID entry but for simplicity, a list of installed assets by name, instead of kuid, is presented in the browser. It is used to retrieve dependencies of the model, such as an interior, bogey or horn sound for a traincar.




Click LMB on the small browse button (...) and this browse form will pop up. Some browsers will filter the file types so a valid file is offered for selection.



Browse through the list of installed assets, or type in a partial name in the top box to locate the asset required, select the asset from the list, and then click LMB on the Select button. This will internally store the asset KUID in CMP. A null KUID may also alternatively be selected, where that option is required by the original asset.

Some files shown may have similar names, and you will need to determine the correct file. If you know a kuid for the required asset to be selected, you can locate that kuid in CMP, note the name of the asset and then locate it by name in this browser. It is advisable to give all assets relevant and distinctive names.

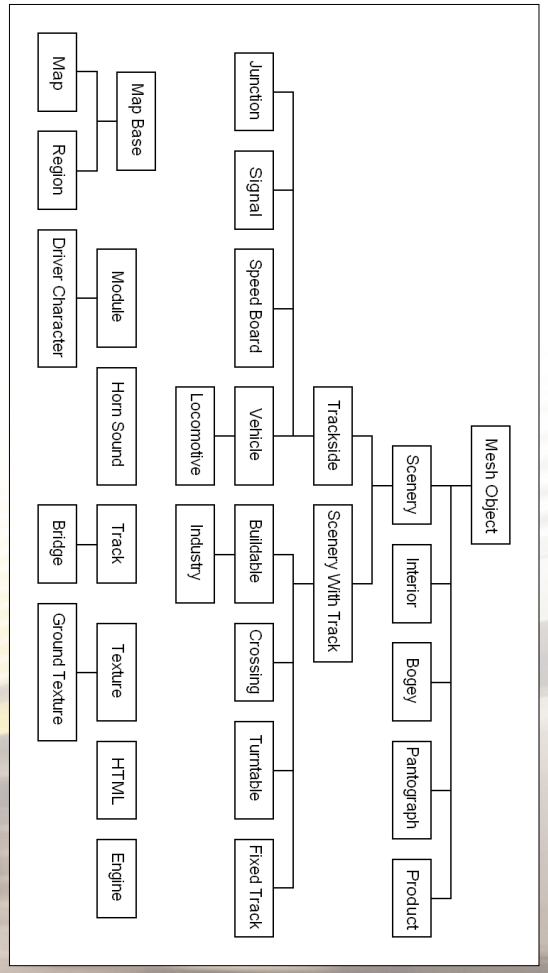
After an asset is loaded with the browser, LMB clicking on the small "C" content button ([C]) will take you to that asset in CMP. You can then verify that it is the correct asset, or check details.

### 19.3.4 Saving the config.txt File

Use the file menu option Save to save the config.txt file. You do not need to specify a location, CCP will automatically save the file correctly.

### 19.3.5 Inheritance Template

The model asset Kinds have a certain relationship to each other. The following chart shows how these are related, the way the classes are inherited in the game.



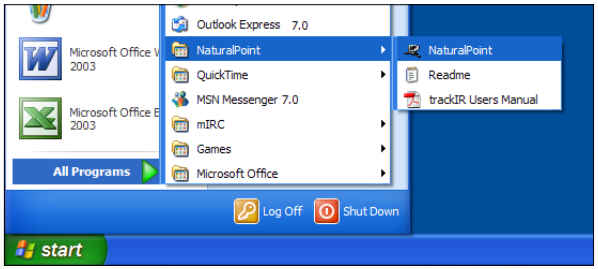
# 20 - Track IR

TRS2006 supports the use of Track IR by NaturalPoint software. This means you can use infrared tracking of head movement to control the camera in driver - effectively allowing you to "look around" in the Trainz world.

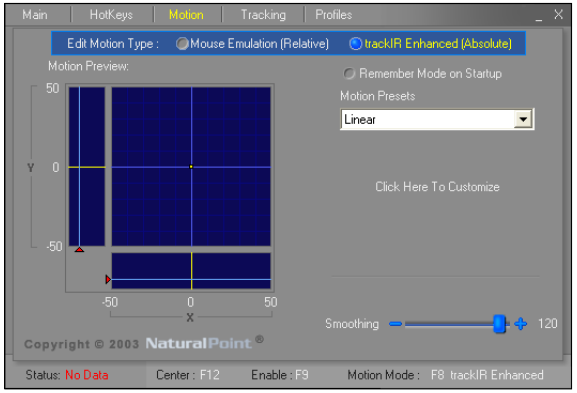
**Note:** It is assumed that you already have the NaturalPoint software and infrared camera system setup

## 20.1 Getting NaturalPoint Ready

To use Track IR in TRS2006, the Natural Point software needs to be started. Open it by going to it on the Windows Start Menu




Once launched, click on the Motion tab near the top center of the NaturalPoint application. In the blue box labeled "Edit Motion Type", ensure that the "trackIR Enhanced (Absolute)" radio button is selected.




Leave the NaturalPoint application running (you can minimize it to the System Tray though) and start TRS2006.

## 20.2 Using Track IR in TRS2006

TRS2006 supports Track IR in the Internal (Cabin) and Roaming camera view modes when in Driver. When in either of those modes, activate Track IR camera view control by pressing Ctrl-H. Press Ctrl-H to toggle back to normal camera control of mouse & keyboard.

**Note:** You may find that re-centering of the Track IR is necessary to access a full range of viewing angles. By default this is the F12 keys. Hotkeys for Track IR can be set under the "Hotkeys" tab of the NaturalPoint application.

# 21 - gMax

gMax is a powerful subset of 3Dmax, one of the leading commercial packages for developing 3D Models and Animations. 3Dmax is produced by Discreet Technologies. gMax was created to provide owners of sophisticated games systems such as TRS2006 with the ability to develop their own animated 3D Models for use in the game. Auran Technologies has licensed the right to include gMax interfaces into its product. GMax itself is available to you as a free download as an owner of TRS2006.

The use of gMax is thoroughly described in the help files and tutorials that come with it as well as in two books that are available commercially. Learning how to use gMax is a much longer process than to learn everything else in TRS2006. It can be quite complex. But the good news is that lots of help is available from other TRS2006 users on the TRS2006 Community forum. Also there is a list of excellent tutorials available on the TRS2006 website covering many of the aspects of designing and building objects. gMax itself comes with an excellent set of tutorials to help you learn how to build 3D models and animate them. In this section we will provide a very high level overview of how new assets are developed using gMax to provide an insight into what is involved.

To build a 3D, you manipulate a variety of different 3D shapes such as lines, planes, cylinders and spheres to develop the shapes you need to represent the parts in, say, a locomotive. These can be made as simple or as complex as you wish. But prudent designer try to keep their designs as simple as possible while achieving the effect they want in order to keep the "polygon count" low.

What is a "polygon count"? 3D models in the end consist of many small patches of surface. For example a cube has six faces and a polygon count of 6 (surfaces). More complex shapes such as the nose of an F7 diesel will have higher polygon counts.

To keep polygon counts low, designers often resort to putting the details of a surface into a two-dimension painting which they then lay on the surface of a polygon or set of polygons to give the illusion of detail or texture. In fact, in the world of 3D Modeling, these painting are called "textures". Creating complex detailed textures is a bit of an art form. But the good news is that you can often uses textures provided by other. Or you can use a digital camera to take a picture of something in the real world that gives you the texture you want. Textures can, for example, be developed from pictures of real logos on trains and then used on our 3D models.

TRS2006 does not include a "paint" program but software such as Microsoft Paint which is likely already on your machine can be used. Another popular tool used by website developers is Paint Shop Pro by Jasc Software. The premiere product commercially is Adobe PhotoShop but it is significantly more expensive.

Once you have built and admired your 3D model of say, a boxcar, you then add several key points to the model and label them properly. The are points such as the centers of the bogeys (trucks) and the centre point of the couplers.

Now you go through a procedure of exporting the 3D model to TRS2006. This process turns the model into a file which TRS2006 recognizes and then is willing to add to your roster of rolling stock. The model is then run through the Trainz Exporter Verification Tool before you're able to see it appear in the game.

# 22 - Keyboard Controls Summary

**Note:** KP = Keypad

## 22.1 Trainz Main Menus

**Trainz Main Menu (Trainz Entry Screen)**

| | |
|---|---|
| Driver Main Menu | D |
| Surveyor Main Menu | S |
| Railyard | R |
| Trainz Exchange | X |
| Quit/Exit Trainz | Escape, Q |

**Surveyor Main Menu**

| | |
|---|---|
| Exit to Trainz Main Menu | Escape, M |
| New route | N |
| Delete route/session | D |
| Open selected route/session | Enter |

**Driver Main Menu**

| | |
|---|---|
| Exit to Trainz Main Menu | Escape, M |
| Session Save/Load Panel | Tab |
| Delete selected session | D |
| Start selected session | Enter |

**Railyard Screen**

| | |
|---|---|
| Exit to Trainz Main Menu | Escape, M |
| Favorites | F |
| Info | Tab |
| Horn | H |
| Lights | L |
| Pantographs | P |
| Interface toggle | Ctrl-Space |
| Close | Ctrl-W, Ctrl-Q |



## 22.2 Driver

**General Driver Controls**

| | |
|---|---|
| Headlight | L |
| Pantograph | KP 1 |
| Horn | H, KP + (plus) |
| Sand toggle | V |
| Bell | B |
| Help toggle | Ctrl-H |
| Decouple toggle | Ctrl-D |
| Map | M |
| Pause | P |
| Driver 1 | Ctrl-1 |
| Driver 2 | Ctrl-2 |
| Driver 3 | Ctrl-3 |
| Driver 4 | Ctrl-4 |
| Driver 5 | Ctrl-5 |
| Driver 6 | Ctrl-6 |
| Driver 7 | Ctrl-7 |
| Find Object | Ctrl-F |

**HUD Panel Controls**

| | |
|---|---|
| HUD interface toggle | F5 |
| HUD driver bar toggle | F6 |
| HUD button bar toggle | F7 |
| HUD custom hud toggle | F8 |
| HUD controls toggle | F9 |

**DCC Mode Train Controls**

| | |
|---|---|
| Accelerate/forward | X |
| Decelerate/backward | W |

| | |
|---|---|
| Stop | S |
| Apply handbrake | A |

**Cabin Mode Train Controls**

| | |
|---|---|
| Release brakes | Q, KP9 |
| Brake lap | Z, KP6 |
| Apply brakes | A, KP3 |
| Emergency brakes | Pause/Break |
| Independent brake toggle | E, KP 4 |
| Independent brake bail | D, KP 0 |
| Increase throttle | W, KP8 |
| Decrease throttle | X, KP2 |
| Throttle 0 | S, KP5 |
| Reverser handle forward | F, KP Star (* = asterisk) |
| Reverser handle backward | R, KP Slash (/ = forward slash) |
| Dynamic brake toggle | C, KP7 |
| Shovel coal | Space |
| Fireman wave | Shift-Space |
| Cabin fans | Shift-F |
| Firebox door toggle | KP1 |
| Injector up | I |
| Injector down | O |
| Blower up | N |
| Blower down | Shift-N |

**Cameras**

Camera View Mode:

| | |
|---|---|
| Internal view | 1 |
| External view | 2 |
| Tracking view | 3 |
| Roaming view | 4 |

Camera Controls:

| | |
|---|---|
| Camera up | ↑ (up) |
| Camera down | ↓ (down) |
| Camera left | ← (left) |
| Camera right | → (right) |
| Zoom in | Page Up |
| Zoom out | Page Down |

Cabview Camera Controls:

| | |
|---|---|
| Previous cab view | [ (left bracket) |
| Next cab view | ] (right bracket) |
| Camera snap to previous view | Ctrl-[ (left bracket) |
| Camera snap to next view | Ctrl-] (right bracket) |

## 22.3 Surveyor

**General Surveyor Controls**

| | |
|---|---|
| New map | Ctrl-N |
| Save map | Ctrl-S |
| Edit map | Ctrl-E |
| Options | Ctrl-O |
| Performance options | Ctrl-T |
| Find object | Ctrl-F |
| Mini-map | Ctrl-M |
| Rules | Ctrl-R |
| Undo | Ctrl-Z |
| Redo | Ctrl-Y |
| Hide/display interface | Ctrl-Space |
| Quick drive | Ctrl-F2 |

**Bookmarks**

| | |
|---|---|
| Go to bookmark 1 | 1 |
| Go to bookmark 2 | 2 |
| 3,4,5,6,7,8,9... | |
| Go to bookmark 10 | 0 |
| | |
| Set bookmark 1 | Ctrl-1 |
| Set bookmark 2 | Ctrl-2 |
| 3,4,5,6,7,8,9... | |
| Set bookmark 10 | Ctrl-0 |
| | |
| Clear bookmark 1 | Ctrl-Shift-1 |
| Clear bookmark 2 | Ctrl-Shift-2 |
| 3,4,5,6,7,8,9... | |
| Clear bookmark 10 | Ctrl-Shift-0 |

**Topology Mode** **F1**

Topology Controls:

| | |
|---|---|
| Height up | U |
| Height down | D |
| Height adjust | A |
| Decrease cursor radius | – (minus) |
| Increase cursor radius | + (plus) |
| Decrease height sensitivity | [ (left bracket) |
| Increase height sensitivity | ] (right bracket) |
| Get height | G |
| Use height | H |
| Plateau | P |
| Add water | W |
| Delete water | Q |
| Adjust water height | E |
| Extend section | X |
| Rotate displacement anti-clockwise | Shift-[ (left bracket) |
| Rotate displacement clockwise | Shift-] (right bracket) |
| Decrease displacement scale | Ctrl-[ (left bracket) |
| Incease displacement scale | Ctrl-] (right bracket) |
| | |
| Selection box | B |
| Apply displacement | F |
| Cancel selection | D |

**Paint Mode** **F2**

Paint Controls:

| | |
|---|---|
| Rotate texture counter-clockwise | [ (left bracket) |
| Rotate texture clockwise | ] (right bracket) |
| Decrease texture scale | Ctrl-[ (left bracket) |
| Increase texture scale | Ctrl-] (right bracket) |
| Decrease cursor radius | – (minus) |
| Increase cursor radius | + (plus) |
| Get texture | G |
| Fill selected grid | L |
| Selection box | B |
| Selection fill | F |
| Cancel selection | D |

**Objects Mode** **F3**

Object Controls:

| | |
|---|---|
| Object mode | O |
| Spline mode | S |
| | |
| Previous object | – (minus) |
| Next object | + (plus) |
| Add object | A |
| Move object | M |
| Rotate object | R |

| | |
|---|---|
| Get object | G |
| Delete object | D |
| Name object | N |
| Adjust object height | H |
| Split spline | Q |
| Spline height | H |
| Remove spline point | X |
| Insert spline point | I |
| Smooth spline | S |

**Tracks Mode** **F4**

Track Controls:

| | |
|---|---|
| Spline mode | T |
| Object mode | Y |
| Trackmark mode | V |
| | |
| Previous selection | – (minus) |
| Next selection | + (plus) |
| Add track | A |
| Move track | M |
| Rotate object / trackmark | R |
| Get track | G |
| Delete track | S |
| Straighten track | B |
| Toggle junction direction | J |
| Define name | N |
| Split spline | Q |
| Spline height | H |
| Remove spline point | X |
| Insert spline point | I |
| Smooth spline | S |
| Get spline gradient | J |
| Apply spline gradient | K |
| Get curve radius | L |



**World Mode** **F6**

World Controls:

| | |
|---|---|
| Add clock | A |
| Move clock | M |
| Delete clock | D |
| | |
| Time of Day backward | – (minus) |
| Time of Day forward | + (plus) |
| Previous weather | [ (left bracket) |
| Next weather | ] (right bracket) |
| Previous environment | Ctrl-[ (left bracket) |
| Next environment | Ctrl-] (right bracket) |
| | |
| Add world origin | O |
| Find world origin | F |
| Edit world origin | E |

**Tools Mode** **F5**

Tool Controls:

| | |
|---|---|
| Place camera | A |
| Move camera | M |
| Delete camera | D |
| Place ruler | R |
| Move ruler | T |
| Delete ruler | Y |
| Absolute height | S |
| Paste rotation anti-clockwise | [ (left bracket) |
| Paste rotation clockwise | ] (right bracket) |
| Relative height | L |
| Select area | B |
| Paste area | P |
| Cancel selection | X |

| **Trains Mode** | **F7** |
|---|---|

Train Controls:

| | |
|---|---|
| Train mode | T |
| Consist mode | C |
| Previous selection | – (minus) |
| Next selection | + (plus) |
| Add train | A |
| Move train | M |
| Rotate train | R |
| Get train | G |
| Delete train | D |
| Train properties | P |
| Change train heading | H |
| Decouple train | X |

## 22.4 Mini-Map

Show/Hide Mini-Map Controls:

| | |
|---|---|
| Surveyor | Ctrl-M |
| Driver | M, Ctrl-M |

These controls apply to the Mini-Map in both Surveyor and Driver. They all toggle the visiblity of various objects by type.

| | |
|---|---|
| Background texture toggle | Alt-B |
| Gradients toggle | Alt-G |
| Junctions toggle | Alt-J |
| Signals toggle | Alt-S |
| Triggers toggle | Alt-T |
| Trackmarks toggle | Alt-M |
| Industries toggle | Alt-I |
| named objects toggle | Alt-N |
| Objects toggle | Alt-O |
| Train consists toggle | Alt-C |
| Trackside labels toggles | Alt-L |



## 22.5 Standard Dialog Controls

These controls are generic accross the various dialog boxes seen in both Surveyor and Driver.

| | |
|---|---|
| Save | S, Ctrl-S, Enter |
| Don't Save | D, Ctrl-D |
| No Save | Enter, E, Ctrl-e, D, Ctrl-D |
| Cancel | Escape |
| New | N, Ctrl-N |
| Load | Enter |
| OK | Enter, Space |
| Reset | R |
| Yes | Enter, Y |
| No | Escape, N |

## 23 - Credits

| | |
|---|---|
| Producer: | Scott Probin |
| Programming: | Christoph Bergmann, Cliff Cawley, Francois Coulombe |
| Art: | David Affran, Ian Manion, Vaughan Kidd, Jason Robson |
| Design: | Henk Plaggemars, Scott Probin, Christoph Bergmann, Cliff Cawley, Greg Lane |
| Original Concept: | Greg Lane |
| Scripting: | Cliff Cawley, David Walsh |
| Quality Assurance: | Adair Bricknell, Paul Byrom, Scott Cameron, Michael Dobele |
| Sound: | Ultrasonique Audio |
| Manual Writing: | Henk Plaggemars, Scott Probin, David Walsh, Scott Cameron |
| Marketing: | Paul Olsen, Graham Edelsten, Tony Hilliam |
| Localization: | Christoph Bergmann, Kain Whitehouse, Scott Probin, David Walsh |
| Community Support: | Lance Jago |
| 3rd Party Relations: | Lance Jago, Henk Plaggemars, Scott Probin |
| Web Team: | Lionel Thomas |
| Communications Director: | Dr. John Banks |
| Legal: | Andrew Edelsten, Graham Edelsten |
| Admin/HR Support: | Chris Green, Ann-Marie Hutson, Melissa Keam |
| Network Administrator: | Jeff Dunbar |

DVD Limited Edition Video Supplied by:

Main Line Motion Pictures - http://mainlinemotionpictures.com





## 24 - Beta Testers

TRS2006 has utilized many beta testers over the development period. Some of our testers have been consumed by the task of testing and others have squeezed in time when they could. No matter how great or small the commitment, each beta tester knows how valuable their individual contribution has been and we would like to thank them publicly here for their efforts. They not only help us find all the bugs and iron out the idiosyncrasies, but they continually keep us focused on what the customer wants. We don't always see eye to eye on issues, but the friendly discussions that take place are invaluable in bringing a product of this magnitude together. In the end, there is no doubt that a better product results from the efforts of the beta group.

Thanks once again to you all.

Trainz Railroad Simulator 2006 Beta Testers:

- Chuck Barkman - CeeBee
- Jeff Barr - Magicland
- John Bathols - John_SB
- Jim Birkhimer - Mr.Den
- Garry Cantle - Winnaa
- Simon Clough - Lost_Soul
- Anthony Connor - axe1970
- Wayne Cook - gandy-dancer
- Karsten Cornelsen - coerni
- Steve Cummins - magicentro
- Alastair Jacques Dussart - Beanpole
- Kenny Ericson - Rc1166
- AJ Fox - AJ_Fox
- Michael Fox - foxgraphix
- Rhian Geleick - weedfreak
- Richard Giberson - Rik81
- Ron Gutowski - aardvark1
- Martin Hammel - _mutton_
- Dave Hammer - dh2k3

- Chris Hucklebridge - psycho_aussie
- Tim Leach - leachy
- Roland Leloup - cernunos
- Errol Lynch - benny200
- Klaus Malorny - KlausM
- Ian Manion - vulcan
- James Moody - Bloodnok
- Wayne Padget - LocoGold
- Andre Peche - casey38
- Bob Rogers - bobrog
- Nicolas Romantzoff - nicroman
- Brian Round - Smileyman
- Joe Schlener - jschlen
- Otto Schneiter - Yethi
- Dave Smith - chuffchuff
- Branko Spoljaric - Barney
- Geoff Steele - stryker
- Tim Stoecker - zxt
- Peter Vawser - Peter8
- Bruce Vigurs - alby6
- Anthony Wain - Muliebuck
- Charles Whitedog - cwhitedog



## 25 - Third Party Content Creators

To all of you, and especially those of you who have contributed product for this Trainz release, we would like to congratulate you for a fantastic effort. Without you we simply couldn't have released TRS2006.

BSI - Pro Train Perfect Dresden-Nuernberg
- Richard Glod
- Matthias Gose
- Oliver Henn
- Rolf Steinberg

Cardiff Workshops - Wadalbavale
- David Owen - Davido
- Nathan & Amanda Van Der Meulen - Natvander

IBerTrainZ- Iberior Interior
- Luis Arakama - milcien
- Joseba Barrio - gerok
- Diego Lorenzo - didoz
- Alejandro Martín - ave_252
- Gonzalo Ojeda - gonzaojf
- Angel del Pozo - geloxo
- José Luis Ramírez - Pepelu
- Francisco Rodríguez - Rodgilfr
- Luis Rubio - Transiberiano
- Jordi Sacasas - tramsoller
- Emiliano Sordo - Gor
- Aritz Tusell - aritztg
- Alberto Zato - zatovisualworks

iPortal
- Kenny Ericson - RC1166
- Lars Ljungberg - LLJ

MagLev Project
- Craig Scott - beadyboy
- Lance Jago - prr001
- Ian Manion - vulcan

Marias Pass Approach
- Steffen Gross - sg1
- Lothar Hake - lotharhake
- David Hamann - Marinus
- Vilém Jánský - Bald
- Josef Pav - josefpav

Monorail
- Jack Emmerichs - JFE
- Russ Milland - rmilland
- Justin William Smith - LimeBye
- Jack Straessle - jjslll54

Rail-sim.co.uk - Hawes Junction
- Mike Banfield - Mike10
- Alex Barnard - Wulfruna
- David Dallaston - PikkaBird
- Stuart Downs - Deltic_Kid
- Steve Dark - Sdark
- Paul Franklin - Chileanllama
- Terry Franks - Tafweb
- Paul Hobbs - paulhobbs
- Andrew Howard - AndrewH
- James Moody - Bloodnok
- Don Woodman - Wulf9

Razorback Railways
- Greg Furlong - shutter
- Larry Lewis - jenolan
- Dave Reece-Pinchin - daverp



- Wayne Young - wayne65
- Terry Mcconnell - bl262000
- Charlie Lear - cjlear

Trainz Narrowgaugers
- Mark Baldwin - markb01
- Al Barten - abarten
- Rich Blake - slugsmasher
- David Drake - dmdrake
- Peter Hilton - pgh3
- Todd Hohlenakmp - prowler901
- Charlie Lear - cjlear
- Ben Neal - bdaneal
- Max Nelson - elvenor
- Peter Pardoe-Matthews - narrowgauge
- Robert Pearson - rpearson
- Shane Perriman - thecowboy
- Mike Sutton - sirgibby
- Linda Irene Tingvik - shortline2

TrainzLand
- Alan - Silversmith
- Roger Cabo - CAB
- Suhela Cabo - Suh
- Karsten Cornelsen - coernie
- Rainer Gahn - RFG
- David Hamann - Marinus
- Ralf Cruger
- Ujvari Gabor
- Guido Kriscar
- Andras Suranyi

TRHA Virtual Railway Simulations Group

- Jon Hull - austin316hockey
- Tom Landers - tlanders
- Jay Larkin - crazy_irishman
- Dave Lawrence - aradlaw
- Russ Milland - rmilland
- Terry Morris - Thor1
- Al Sharpe - skybear
- Martin van Kuilenburg - martinvk
- Derek Boles
- Ferd Mels

World of Trainz

- Philip Campbell - Phil_C



## EMD SD70 Locomotives

### World of Trainz


World of Trainz has been involved in creating content for Trainz for over two years. I have created many tutorials to aid in the creation of content for Trainz. World of Trainz has content available as both payware and freeware. The website is http://www.worldoftrainz.com.

The SD70 locomotive was the last US EMD locomotive to feature a Spartan Cab. They have 4000 horsepower, weigh 394,000 pounds and are 72 feet and 4 inches in length. The SD70's included with TRS2006 are built as close as possible to the prototypical locomotives. Like the real item they consume fuel based on the load and notch setting as do all locomotives available from World of Trainz.

The features of the SD70's include but are not limited to the following:

- Highly detailed and accurate texturing and modeling.
- Accurate custom physics (Engine Specs)
- In Cab Control Mode windscreen wipers turned on in interior mode stay on when viewing exterior of the locomotive. In DCC Control Mode windscreen wipers turn on and off depending on the weather conditions.
- Head up views for both the engineer and the conductor.
- All digital gauges work
- Door handle must be clicked on to open doors.
- Includes alpha numbers which allows customizable locomotive running numbers.

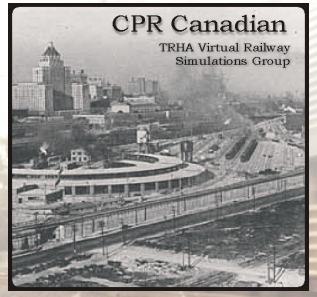
Future Plans and Products from World of Trainz: The next scheduled release from World of Trainz is the General Electric AC6000CW followed by many other GE locomotives. Also planned are several more EMD locomotives.

## TTR 54 The Toronto Rail Lands Simulation - 1954

Toronto is located in the Canadian province of Ontario. Established in the early 1800's and located on an excellent sheltered natural harbour on Lake Ontario, on eof the Great Lakes. It has grown into one of Canada's largest cities. As it grew, it also became a major railway centre with many railways being located there. In the 1930's many of these railways consolidated and by 1954, the Canadian National Railway (CNR) and the Canadian Pacific Railway (CPR) had become the two national railways in Canada. In 1954, both had major roundhouses, freight yards and servicing facilities in the downtown Toronto area which are now called the "rail lands".

TTR 54 is a faithful model and simulation of the Toronto Rail Lands in the mid-1950's at their peak. At that time the rail lands occupied most of what is now the downtown Toronto core area. We have included over 800 switches in this route in order to accurately model the whole area in order to bring the area back to life again.

The TTR 54 is a route built by a team who are the Railway Simulations Group of the Toronto Railway Historical Association (www.trha.ca). The TRHA was formed with the specific mission of establishing a world class railway museum in the heart of downtown Toronto in the CPR Roundhouse, the Roundhouse Park and the magnificent Union Station. Our group's long term goal is to develop multiple versions of the rail lands for different eras and then use them in planned full size museum simulators at this site.






## Iberia Interior

### IBerTrainZ

IBerTrainZ was founded three years ago in search of a way of gathering Spanish, Iberians and Latin-American users and creators of Trainz, who we named ibertrainzers. Joined up by a website and forum, www.ibertrainz.com, staff, collaborators and members (more than 1700 registered) share a common passion for localizing and supplying ibertrainzers with Trainz models, information and fellowship, all for free and fun.

Our route 'Iberia Interior' prototypically depicts a section of a RENFE electrified double–track line in Central Northern Spain, or Northern Castile. Long straight sections of track with gentle curves on a flat wheat and oat countryside, scattered with some industries and not very large towns and villages.

Locomotives and rolling stock in sessions represent the state of railway operations in Spain in the 1980's and early 90's, by using powerful diesels as the 333, a ficticious but possible electric 282, a shunter, different passenger coaches, goods wagons, hoppers, flatcars and tanks.

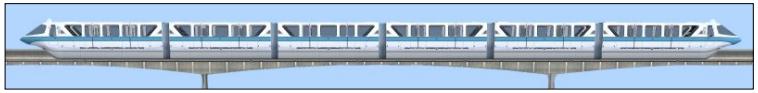
Sessions:

- Main Line - Basic exploration of the line with passenger and freight consists.
- Night Trip - Some railway operations on the early night hours.
- Command Post - Shunting operations following commands to assemble new consists.

We are keeping on creating all kinds of free objects and rolling stock for trainzers, even of interest for non Spanish ones, and continuing fostering our trainz fellowship at our website and forum, www.ibertrainz.com.


## Monorail

### The Trainz Monorail Project



The Trainz Monorail Project has implemented the most famous monorail system in the US for Trainz TRS2004 and, with some additional features, for TRS2006

The demonstration session includes examples of all the vehicles, all the components of the beamway, several different types of stations and even the waterfalls shown here.

Additional resorts and stations are planned along with some other surprises.

**Note:** This content is not included with TRS2006 and is available from the TRS2006 website www.auran.com/TRS2006.

## Wadalbavale Line
### Cardiff Workshops


Cardiff Workshops was formed by David Owen (Davido) and Nathan Van Der Meulen (Natvander), who teamed up to create quality scenery and rollingstock found in NSW, Australia.

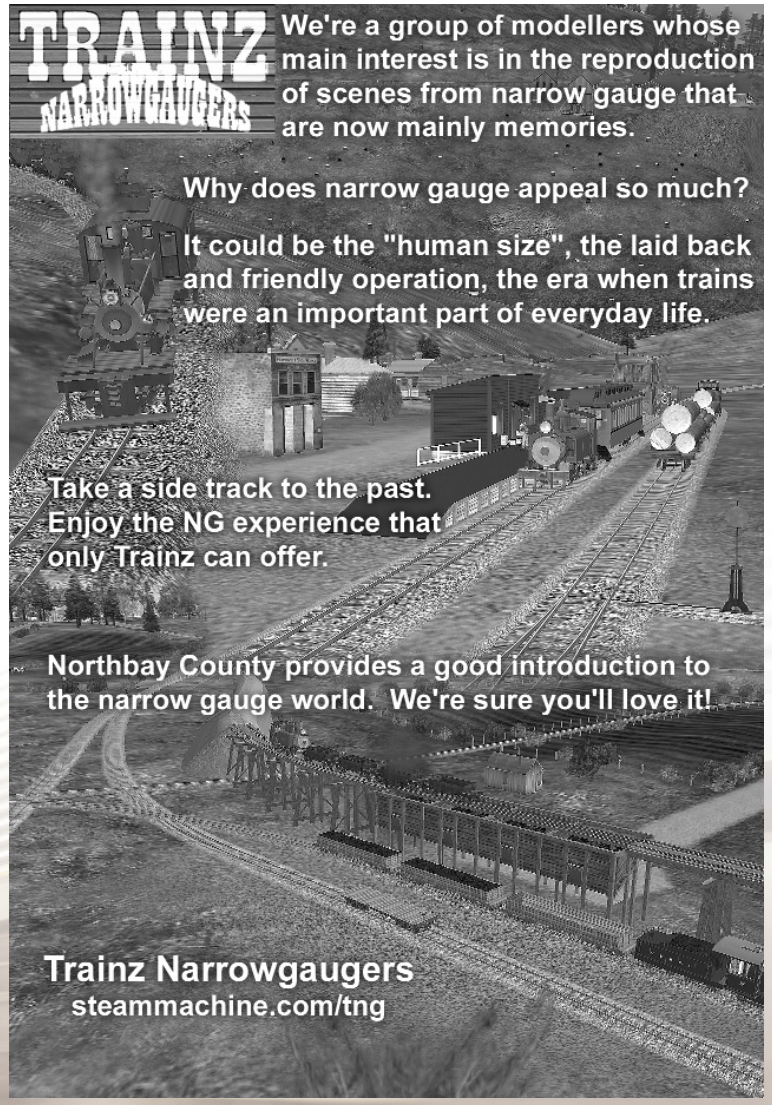
We have created a variety of content for TRS2006. The Wadalbavale Line is a fictional NSW branchline that meanders through scenic rural and coastal countryside. Also included in our collection are the 48 and 81 Class locos in a variety of liveries, the 400 Class railmotors and the Silver City Comet in two liveries, including as it appeared when retired. To support the layout, a variety of scenery assets including stations, goods sheds and signals have been added to the collection. This is just a small selection of what Cardiff Workshops will have to offer.

Sessions:

- 10:04 Passenger - An easy passenger run in a 400 Class railmotor.
- 474 Local Goods - Run a local goods train, shunting wagons along the way.

Cardiff Workshops is always working on more NSW Content, including passenger and freight rollingstock, a collection of stations and associated station buildings and scenery items and other railway related assets. There will also be further signals added to the collection included with TRS2006, along with a comprehensive "Safeworking and Signalling Guide for Trainz" document.





## Hawes Junction

**rail-sim.co.uk**

The group is formed from a selection of some of the most respected creators of content for the UK scene. For full details of the group members please see our website.

The route comprises the 6 miles of the branch from Garsdale to Hawes as well as 12 miles of the mainline of the Settle-Carlisle line. Included are a 4F and Class 37 locomotive as well as some relevant coaches and a selection of goods stock.

There are both Passive and Active versions of the sessions. Use the passive ones to learn the ropes or simply watch the action unfold and then take-over the controls in the active version.

It is the intention of the team to complete the construction of the entire Leeds-Settle-Carlisle route. Please check our website for updates on progress.





## Modula City

**TrainzLand**


TrainzLand was founded 2002 and provide high quality products for Trainz. High resolution skies, object management.

Modula City is a high level city simulation for streetcars and trams. A lot of details, funnies and surprises will make the city to one of your dreams. Modula City includes two streetcars already. No matter if you're managing a route, or enjoy the wide range of details while driving your tram. Navigate your tram on many miles through the city and further scenery. Push your tram to the limit on the coastal high-speed track.

Passengers wait for you at the stations. Don't disappoint them.

In Modula City 2004 you have the possibility to create Tram Routes. A Tram Route basically is a list of Stations and on of their Tracks. Modula City 2004 has two types of Stations. Stations that are placed on the ground are generally single track stations. High-Platform-Stations are generally double track stations. Signed in front of the name with a H-.

Trainzland is working on the new Metro City Add-On for Trainz. The new city ambience is breathtaking. New scenery shadowing, crystal clear textures and high frames will await you. Four trams with realistic driving experience and controlling included. Ride on elevated tracks or subway lines and feel the new breeze of Trainz.

www.Trainzland.com

## Blue Sky Interactive

http://www.bluesky-interactive.com/

## HP-Trainz

http://www.hp-trainz.de/

## Razorback Railways

http://www.razorbackrailway.com/