Note that the tools described herein can be used to change the material in any of the routes supplied with RailWorks. RailSimulator.com Limited will not be able to provide support for these elements of the product if you have changed it from the version initially supplied.

This guide can only cover some of the features of the tools. We are continually developing the tools and adding to the documentation available for the product. Check www.railsimulator.com for the latest revisions to this manual and for additional guidance material. Before contacting us for help, we recommend that you check the website for:

• Updated manuals
• Fixes to known problems in the product ("patches")
• Lists of Frequently Asked Questions (FAQs)

Be aware that you need a high degree of specialist knowledge of railway systems, computer simulation and programming to fully use these tools.

To use the tools described, your system must have the recommended specifications. Increasing your system’s RAM, processor speed, sound cards, graphics cards and hard disk space, plus obtaining the latest hardware drivers, will further enhance the performance of the tools.

Notes
This documentation is © Copyright RailSimulator.com Limited 2009. Use of the information in this manual and the tools provided in RailWork is subject to the terms of the End User Licence Agreement ("EULA") which is displayed when the product is installed.

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1 Introduction

This manual helps you create your own virtual railway world with Rail Simulator 2: RailWorks. Using the tools described here, you will be able to create your own routes and scenarios, then create a package for distribution to other RailWorks users.

This manual serves as an introduction to creating your own virtual world. There are some things that are beyond the scope of this book and which are better described in the on-line reference material. Before you start exploring those areas, it is a good idea to fully understand the basics of route and Scenario creation in RailWorks. Note that, in particular, this manual does not explain the Asset Editor (nor the Blueprint Editor that is embedded in it). These tools require extensive knowledge of railway systems and software development tools and allow you to create your own rolling-stock, in-game assets, signalling systems etc.

1.1 The Tools Included with RailWorks

RailWorks contains a number of tools for creating new content. The main tools are:

The World Editor
This lets you create new routes and edit existing routes. Using the World Editor, you can create models of terrain, lay tracks, add stations, incorporate new elements of scenery, and add animated objects.

The Scenario Editor (part of the World Editor)
This provides a powerful tool that allows you to create your own Scenarios (missions or of the World challenges that define the train driver’s objectives).

The Packager
This lets you ‘package’ your own creations for easy sharing.

The Asset Editor
This allows new objects to be imported into RailWorks. Not described in this manual.

The Blueprint Editor
Allows the characteristics of assets to be specified in great detail. Not described in this manual.

1.2 General Tips

Creating a route to a high degree of realism can be a very exacting process. The following tips outline good working practices when modelling in earnest:

- Examine how the supplied routes are constructed to learn useful tips.
- Try modifying the supplied routes and Scenarios before you start your own route.
- First try practising with a small section of your chosen route.
- Save your route often.
- Make regular backups of your RailWorks installation to ensure you do not lose routes you’ve created. It is a good idea to copy all of the installation files regularly. By default these are located at \ProgramFiles\Steam\steamapps\common\railworks\Content\Routes
- If you change something in the supplied routes that makes RailWorks stop working, restore the game from a backup or reinstall the software. This is nearly always quicker than trying to diagnose the fault.
- Switch on the Infrastructure Lock (see note below) to prevent accidental amendments to key Scenario data.

Please note that if you change any of the routes supplied with RailWorks, RailSimulator.com Limited will not be able to provide support for the product.

1.3 Learning More

This Manual will give you an introduction to the basics of creating your own railway, and it will give an overview of the many creative possibilities offered by RailWorks. There are many more tools that allow you to create your own rolling-stock, scenery, signalling systems and more. Some of these tools (such as the Asset Editor) require extensive knowledge of railway systems and software development tools.
For more information about these tools and other advanced development topics please visit the RailWorks web site at [www.railsimulator.com](http://www.railsimulator.com)

Here you will find:

- *The RailWorks Reference Manual wiki* (a copy of which is also supplied with your game). This is continually being updated with new features.
- **Tutorial Videos.** A set of demonstration videos is supplied with your game, but see the web site for more.
- **Forums.** Register on the online forums to exchange tips and advice with other RailWorks users.
- **Online Support and FAQs.**

## 2 World Editor

The World Editor allows you to create new routes or modify existing routes. This section introduces key World Editor tools and how to use them for simple route creation.

### 2.1 Getting started

The quickest way to create a new route is to base it on an existing route:

1. From the **Routes** Screen select the **New Route** option.
2. You will then see a list of route templates. Select a route template to use as a basis for your route.
3. Click on the **Create** link, and enter a name for your new route.

Your new route will load and you will be placed in the World Editor. If you exit the World Editor you will notice that your new route appears in the list of available routes in the **Routes** screen. To subsequently edit your route:

1. From the **Routes** screen, select the route you just created.
2. Click on the **Free Play** link.
3. Once the route has loaded, move the mouse to the bottom of the screen to bring up the Main menu.
4. From the Main menu, click on the **World Editor** icon to open your editing tools.

You can also access the World Editor at any time you are in the game and driving a train (during Free Roam Driving or when running a Scenario) by bringing up this menu and clicking on the **World Editor** icon.
Once you have entered the World Editor, you can use the following keyboard commands to move the camera (your point of view) freely around the route:

- **Up/down/left/right arrow keys**
  - Move the camera forwards, backwards and sideways.

- **<CTRL> + up and down arrow keys**
  - Move the camera up and down in the y axis

- **Hold the right mouse button and move the mouse**
  - Pivot the camera view

- **<SHIFT> + arrow keys**
  - Speed up camera movements

**Saving**
Press the **<F2>** key at any time to save your route. You are also prompted to save:

- When you switch from the World Editor back to driving mode.
- When you open or close the Scenario toolbox.

**Exiting**
Press the Mode Switch button at the bottom right of the screen to return to the simulation.

### 2.2 World Editor Menus

The World Editor has many information and menu panels (tabs), but to preserve screen space they are partially hidden. To display a menu, move the mouse over the edge of the screen where the menu resides, as shown in the image below. To keep a tab permanently displayed, click on the pin icon at the upper right corner of each tab.

The numbers in the image above show you the position of the following tabs:

1. Toolbox tab
2. Browser tab
3. Options tab
4. Navigation tab
5. Properties tab
6. Status bar
7. Tool Tip
8. Mode Select/Lock tab

Each of these is described in detail in the sections that follow.

#### 2.2.1 Toolbox Tab (panel 1)

Click on one of the icons at the top to display that toolbox’s features. The four toolboxes are:

- Objects (house icon)
- Linear Objects (track icon)
- Painting (brush icon)
- Scenarios (train icon)
Which icon you have selected dictates the contents of the Browser tab underneath it. See next section below.

2.2.2 Browser Tab (panel 2)

The Browser tab contains the objects that can be placed into the world when the Objects or Linear Objects toolboxes are selected in the Toolbox tab, and has three areas. At the top area is a set of icons representing available objects by category. The middle area contains a scrolled list of ‘assets’ or objects you can use in your world.

The bottom area shows the asset that is currently selected.

2.2.3 Options Tab (panel 3)

This Options tab shows the available options for each tool from the Toolbox tab, and changes as you select different tools. Also on this tab are radio buttons to toggle on/off the 1024m tiles boundary lines; series and point markers (if any have been set up for the route) and controls for the grid system overlay.

2.2.4 Navigation Tab (panel 4)

The Navigation tab shows information on direction and orientation and consists of the following:

- **Compass**: Shows the direction you are looking in.
- **Longitude and Latitude Display**: Shows your current longitude and latitude. To jump to a different location, enter new coordinates into these fields, and press on the white arrow button.
- **2D Map**: Toggles the 2D map on and off.
- **Route Marker button**: Clicking on this icon opens a set of user-defined flags, or route markers, in the Properties panel. Use a route marker for quickly moving to certain parts of the route.

2.2.5 Properties Tab (panel 5)

The Properties tab allows you to change the properties of certain objects. The Properties tab opens automatically whenever you have performed an action that permits property editing.

2.2.6 Status Bar (panel 6)

The information displayed on the status bar depends on the toolbox currently selected on the toolbox panel.

2.2.7 Tool Tip (panel 7)

Some objects in the simulation display information in the form of a tool tip, which hovers when the mouse is held over the object. Track information is displayed in the form of a tool tip.

2.2.8 Mode Select / Lock (panel 8)

The panel at the bottom right of the screen provides two functions. The lock icon allows you to lock certain functionality to prevent you accidentally changing items in a route that will prevent the functioning of pre-existing Scenarios. To unlock the route, click the lock. To re-engage it, click the lock again.

The **Mode Switch** icon takes you back to driving mode. If you are editing a route in Free Play mode and have not selected a train then the camera will remain detached when you return to driving mode, allowing you to fly...
around the route and view it with the correct lighting and effects. If you entered the World Editor from a Scenario, or had already selected a train in Free Roam Driving, you will be returned to the locomotive when switching to drive mode.

2.3 Tools common to all Toolbox activities
There are seven standard tools that are always displayed in the Toolbox Tab:

- **Copy**
  
  Copy all selected objects into the clipboard. You can also press `<CTRL-C>`.

- **Paste**
  
  Make objects on the clipboard available for pasting. Left click the mouse to place the objects. When objects are copied to the clipboard as a group, they behave as one object. You can also press `<CTRL-V>`.

- **Display**
  
  Open a list of editor guides in the properties panel. Turn these on and off to change the guides displayed in both the 3D world and the 2D map.

- **Delete**
  
  Delete all selected objects. You can also press the `<DELETE>` key.

- **Measure**
  
  Measure distances across the simulated world. Select the tool, left click and hold on the terrain. As you move the mouse around, the distance from the point where you first clicked is displayed on the status panel.

- **Undo**
  
  Undo your last action. You can undo a maximum of 30 actions. You can also press `<CTRL-Z>`.

- **Redo**
  
  Redo your last action after an Undo operation. You can redo a maximum of 30 actions. You can also press `<CTRL-Y>`.

2.4 Manipulating Objects using the World Editor

The Object Tools in the Toolbox tab allow you to place objects in the 3D world. You can also re-size, re-orientate the object and delete the object.

2.4.1 Object Placement

To place an object, select a Toolbox (Objects, Linear Objects or Scenario) from the top of the Toolbox tab and then select from the resulting specific object list in the Browser tab. Move over the 3D world and the object appears on the cursor ready for placement. Left click to place the object. Left click and drag to rotate the object before it’s placed. Once placed, another object of the same type becomes available on the cursor for repetitive placement. Right click to exit object placement.

2.4.2 Object Selection

To manipulate an object in the 3D world, hold the mouse cursor over the object to highlight it, and left click on it to select it.

2.4.3 Object Movement

A transform gizmo appears above a selected object, enabling detailed movement of the object:
- Left click and hold on the red arrow to move the object in the z axis.
- The green arrow moves it in the x axis.
- The blue arrow moves it in the y axis.
- The circular arrow rotates the object.
- The yellow ball allows you to free pivot the object. Double click the yellow ball to reset the object to its default orientation.

Additional movement controls are from the keyboard. These tend to move the object more slowly offering finer control than using the transform gizmo:

<table>
<thead>
<tr>
<th>Key</th>
<th>Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>V and B</td>
<td>Moves the object up and down.</td>
</tr>
<tr>
<td>G and F</td>
<td>Rotates the selected object clockwise and anticlockwise.</td>
</tr>
<tr>
<td>N and C</td>
<td>Moves the object along the terrain towards and away from the camera.</td>
</tr>
<tr>
<td>J</td>
<td>Snaps the object from its original height to the terrain height.</td>
</tr>
</tbody>
</table>

2.4.4 Selecting Multiple Objects

Holding the left mouse button and dragging the cursor over the terrain makes a circular lasso appear and widen. Release the left mouse button to select all objects within the lasso.
To select multiple objects with more precision, hold the **<CTRL>** key and left click on the individual objects.

Whichever method you use to select multiple objects, a single transform gizmo is displayed that controls all of the selected objects.

### 2.4.5 General Object Properties
Double left click on an object to open the Properties tab for that object.

### 2.4.6 Specific Object Types
Some objects in the Objects toolbox have unique methods of placement, selection and movement:

**Track-Linked Objects**
Track-linked objects are objects/assets that have a specific connection with a point or area of a track, but which are not actually part of the track, such as a water tower. To place a track-linked object:

1. Select the Objects toolbox to display a list of specific Objects in the Browser tab.
2. Select a track-linked object from this list.
3. Left click to place the object near the track, then move the mouse cursor towards the track.
4. A track link appears on the track. Left click to place this link.

For objects which can span multiple tracks, such as mileposts, left click and hold, then drag across parallel tracks. A link appears on each track you move the mouse cursor over.

Some signals have multiple links, which need to be placed at various places on the track network. Left click as many times as required on the relevant tracks to place all the track links.

**Track Markers**
Track markers are placed along the track for navigation in Scenarios.

1. Select the Object toolbox.
2. Select a linear marker from the available Objects in the Browser tab. Left click to place the start point.
3. Move the mouse and left click to mark the end point.

4. Select an area marker from the Browser tab and left click to place it.

When placed markers are selected, transform gizmos become visible along the edges.

**Water Tile/Decal Placement**
Select a water or decal tile (such as a tunnel hole decal) from the Browser tab and left click to place it. When water or decals are selected, transform gizmos become visible along the edges.

**Ambient Sounds**
Localised and ambient sounds are placed in the same way as normal objects. In the World Editor you can hear each sound as you move the camera close to it. There is also a sphere indicating the audible range of the sound.

### 2.5 Linear Objects Toolbox
The linear objects tools allow you to place linear objects such as tracks and roads.

#### 2.5.1 Linear Object Placement

1. Select the Linear Objects toolbox.
2. Select a linear object from the Browser tab
3. Choose the position in your route where you wish the Linear Object to be placed. An indicator appears on the terrain to show the start location and direction of the linear object.
4. **Hold down** Left click and drag the mouse to change the start direction of the linear object.
5. **Release** Left click to start placement

As you move the mouse over the terrain, an outline shows where your linear object will be placed. Left click again to place the linear object following the outline. When the outline is yellow, you are following a straight line.

Another indicator of the same type appears at the end of the previously placed linear object for continuation. Right click once to cancel continuous linear object placement, right click twice to cancel linear object placement completely.
2.5.2 Linear Object Selection
You can only select linear objects when the Object or Linear Object Toolbox is open. Select linear objects in the same way as other objects.

2.5.3 Linear Object Movement
When you select a linear object, a transform gizmo appears as it does with other objects but without the yellow bail for orientation as linear objects cannot be tilted in this way. Some linear objects (mainly linear water objects) can be widened using the extra transform gizmo that appears.

2.5.4 Linear Object Properties
Double left click on a linear object to open the Properties panel.

**Linear Object Tools**

- **Select Tool**
  Changes the properties of specific areas of linear objects (where available). Select the tool, left click on the linear object once to start the selection then drag the mouse along the linear object. Once the required length is selected left click again to finish and view the properties for that section.

- **Split Tool**
  Splits linear objects into sections. Select the tool and place the cursor above a linear object to see a marker showing where the split will occur. Left click to complete the split.
  To split linear objects of multiple widths, such as four parallel tracks, place the cursor above the outer linear object. Hold the left mouse button and drag the mouse cursor perpendicular to the linear object so it spans the other linear objects. A series of indications appear of where the splits will occur. Left click again to complete the splits.

- **Join Tool**
  Joins sections of linear objects of the same type together. Select the tool, left click on one of the linear objects you want to join, then click on the other object.

- **Offset Tool**
  Runs a linear object parallel to another linear object. After selecting a section of linear object using the select tool, select the offset tool and then select a type of linear object from the browser list. Left click on the end indicator of the yellow offset lines on the side you want the offset to occur.

- **Weld Tool**
  Welds valid junctions on track linear objects. When you select the Weld tool, a grey box indicator appears above all junctions that can be welded. Left click an indicator box to weld that junction automatically.

**Important Note:** You must weld any separate sections of track to form a continuous line. A train will derail if it runs over unwelded tracks.

- **Cross Over Tool**
  Creates cross over junctions on track linear objects. Select the tool then select a track linear object from the Browser tab and move over to a section of multiple tracks. An indicator appears representing the start of the cross over junction. Left click on a track and move the mouse over to a parallel track. An indicator appears, showing where the cross over will be placed. Left click again to complete the cross over. Click on the indicator above the cross over to create a symmetrical double cross over.

  Edits the gradient of a linear object. Select the tool and move the mouse cursor over a linear object. A gradient point appears under the cursor, along with any existing gradient points on the linear object. Click on the left mouse button to place a new gradient point; left click on an existing gradient point to select it ready for editing. Drag the mouse to alter the gradient point's vertical setting. Drag over to parallel linear objects to create multiple perpendicular gradient points.

  To delete a gradient point, left click on it and press the `<DELETE>` key. To snap a gradient point to the terrain, select it and press L.

- **Blend Tool**
  Creates a blend of texture between two different types of track that are joined together. Select the tool, left click on the two tracks objects and they are blended together automatically.

2.5.5 Track Views
To view a track's properties, press the `<SPACE>` key to toggle between the following track properties:

- Fully rendered track (as it will appear in the game)
- Line type
- Line direction
- Line speed
- Track sounds
- Track-linked objects view
2.6 Creating Terrain
The Painting Tools in the Terrain Toolbox allow you to alter the appearance of the terrain.

**Height Tool**
 Raises or lowers areas of terrain. Select the tool, hold the left mouse button over a point on the terrain and drag the cursor up or down.

**Increase Height Tool**
 Incrementally increases the height of an area of terrain. Select the tool, click and hold the left mouse button and move the cursor over the area of terrain you want to raise.

**Decrease Height Tool**
 Incrementally decreases the height of an area of terrain. Select the tool, click and hold the left mouse button and move the cursor over the area of terrain you want to lower.

**Smooth Tool**
 Smooths the edges of terrain. Select the tool, click and hold the left mouse button and move the cursor over the area of terrain you want to smooth down.

**Level Tool**
 Levels off the terrain. Select the tool, click and hold the left mouse button over the area of terrain you want to level off.

**Noise Tool**
 Creates undulations in the terrain. Select the tool, click and hold the left mouse button and move the cursor over the area of terrain where you want to create undulations.

**Snap Tool**
 Snaps the terrain to linear objects. Select the tool, click and hold the left mouse button and move the cursor over a linear object to snap the terrain to that object.

**Paint Terrain Tool**
 Paints the terrain with different textures. Select the tool, select a texture from the browser list then click and hold the left mouse button and move the cursor over the area of terrain you want to paint.

**Terrain Extraction Feature**
To allow you to create representative landscapes, RailWorks provides the ability to import publicly available mapping data. The facility is only available when the Object or Linear Object toolboxes are open and it allows you to insert an area of SRTM (Shuttle Radar Topography Mission) data. To automatically create nine tiles of realworld terrain data underneath the camera’s current location, press T. When using this tool, you may find the camera is underground after the terrain extraction is complete.

You can obtain SRTM data from ftp://e0srp01u.ecs.nasa.gov/srtm/version2 in the form of .hgt files. Place the .hgt files into this directory: ...\Program Files\Steam\steamapps\common\railworks\DEM\SRTM.

You will need to create this folder if it is not already present. Note that RailSimulator.com Limited cannot guarantee future access to this site.

2.7 Options
This section describes the options that appear in the Options tab when each toolbox is open.

2.7.1 Common Options
The following options are available for all toolboxes.

**Tile Boundaries**
This allows you to switch on and off the display of tile boundaries in the 3D world. The tile the camera is currently above is highlighted with a white border and its number is displayed on the status panel.

**Route Markers**
This allows you to switch on and off the display of route marker lines and flags.

**Grid**
This allows you to toggle an overlay grid on and off. When switched on, a grid appears underneath the camera and objects in the world will then snap to a corner of the grid when moved. In the field next to this button you can enter a new value to modify the grid spacing (measured in metres).

2.7.2 Linear Object Toolbox Options
When using the Linear Object toolbox the following additional options are available:

**Parallel**
This allows you to define the number of parallel linear objects that can be placed.

**Easement**
This allows the smooth transition from straight track to curved track.
2.7.3 Painting Toolbox Options

When using the painting toolbox, the following additional options are available.

**Brush Shape**
- This allows you to choose between a square or circular brush for use with the paint tools.

**Brush Size**
- This allows you to change the brush size (measured in metres) to suit your current paint tool.

**Brush Falloff**
- This allows you to change how the edges appear when using painting tools. A low fall off value creates a harsh edge; a high fall off value creates a soft edge.

**Strength**
- This changes the transparency of the tool, making a stronger or weaker brush stroke.

**Speed**
- This increases the speed of the smooth and noise tools. Higher values are faster.

**Follow**
- This allows you to decide whether the camera moves to the end of recently placed linear objects.

**Gradient**
- This allows you to set the gradient of the linear object you are placing.

**Snap to Terrain**
- This determines whether linear objects snap into each other. When it’s on and a snap is possible, a pink outline appears around the relevant section of track. Left click to accept that location and place the linear object.

**Snap to Track**
- This switch determines the type of junction you place. When it is switched on, any junction you create or weld is placed as a manual junction. When this option is off all junctions are placed as automatic junctions. Note that you can (and frequently must!) switch manual junctions while you are driving a train. Automatic junctions can only be switched by the player during Free Play mode. When playing a Scenario, they are automatically controlled.

2.7.4 Scenario Editor Options

When using the Scenario Editor, the following additional option is available.

**Consist Select**
- Enabling this allows you to select whole consists by clicking a single part of rolling stock within that consist.

For more information about creating Scenarios, see *Creating and Editing Scenarios*.

2.8 Properties Tab

This section describes the properties displayed when the Properties tab is open and you double click on an item in the world. You can change the properties as described below.
2.8.1 Standard and Linear Objects
All standard and linear objects have the following properties:

- **X,Y,Z Position**: Enter new coordinates and press the <ENTER> key to change an object's position on the terrain.
- **Height Above Terrain**: Enter a distance and press the <ENTER> key to change the height an object appears above the terrain.
- **Detail level**: This sets whether an object is visible when the simulation is run in low detail. Enter a new value and press the <ENTER> key.
- **Object Name**: This displays an object’s location and source file name.

2.8.2 Track Linked Objects
These also have some of the following properties, depending on the particular object:

- **Milepost**: This allows you to specify the number that appears on a milepost.
- **Speed Signs**: This displays the speed limit which appears on a speed sign based on the properties of the track on which it is placed.
- **Marker Name**: Track markers contain a name field which allows you to enter an individual name for each siding, platform, and destination you place. These names must be unique and are used as navigation points in Scenarios.
- **Transfer Points**: This allows you to enter an individual name for each transfer point, such as diesel refuel points, water towers or container cranes. These unique names are used as reference during Scenario creation.

2.8.3 Track Properties
For trains to run over the whole network effectively, the following track properties need to be set up correctly:

- **Track Type**: This allows you to choose which track type you laid. Select track for placement and then change the track type in the Properties tab before laying track.
- **Primary Speed Limit**: This allows you to change the primary speed limit to the correct speed limit for a specific area of track. Select track for placement and then change the track primary speed in the Properties tab before laying track.
- **Secondary Speed Limit**: This allows you to change the secondary speed limit to the correct speed limit for a specific area of track. Select track for placement and then change the track secondary speed in the Properties tab before laying track.
- **Line Type**: This allows you to change the line type. There are four predefined line types to choose from:
  - Main Line
  - Yard
  - Passenger
  - Freight
Select track for placement and then change the track line type in the Properties tab before laying track.

- **Line Direction**: This allows you to change the line direction. There are two predefined line directions to choose from:
  - Both
  - Up / Down Toggle
Select track for placement and then change the track direction in the Properties tab before laying track.

- **Electrification**: This allows you to change the electrification. There are four predefined electrification types to choose from:
  - None
  - Overhead Wires
  - Third Rail
  - Fourth Rail
Select track for placement and then change the track electrification in the Properties tab before laying track.

When you select the overhead wires property, overhead wires are visibly added to the track. However, when you add third and fourth rails, these elements are not currently represented visually.

- **Track Sound**: This allows you to change the track bed rumble, assigning a specific sound to the track. Select track for placement and then change the track bed rumble in the Properties tab before laying track.
3 Advanced World Editor Topics

3.1 Overview of the Terrain Grid System

Terrain editing is performed in the World Editor by clicking the Painting Tools icon in the Toolbox tab (which resembles a paintbrush).

The terrain system in RailWorks uses a grid of approximately 8x8 metres. Every 8 metres is a point where the terrain can be raised or lowered. Using the Height tool with the brush size set to 10, you can grab a single point on the terrain and drag it up and down.

3.2 Using the Snap tool to Snap your terrain to your track

The Snap Tool is used to deform the terrain so it snaps to the height of the track, or any other linear object within the tool’s radius. The Snap tool is accessed from the Toolbox tab, having first selected Linear Tools.

The Snap tool has several settings which you can adjust. See the following image for an example of its use.

The image to the left shows where the base width (the “flat area”) (2) before the cutting (1) and embankment (3) values are applied. The cutting angle (affecting any terrain above track height) and embankment angle (affecting any value below track height takes effect) are applied depending on the value entered in those fields. The brush size is simply the size of the area affected by the settings.

In the context of cuttings and embankments, brush falloff has little effect (you will notice the effect of falloff when raising or lowering large areas with a large brush size). Similarly, the choice of a square or round brush is largely irrelevant.

3.2.1 Using the Height Tool to Improve Terrain Models

The Snap Tool described above is the main choice when creating cuttings and embankments but there will almost always be a need to make minor adjustments after the terrain has been modelled to get better results, especially when jagged, saw-toothed edges are inadvertently created.

The Height Tool is the best and most accurate tool for fixing such areas. It allows you to raise and lower terrain by moving the mouse up and down. Select the Height tool from the Toolbox tab, having first selected the Painting toolbox.
For especially fine results, set the brush size to 10. Left click and hold a point on the terrain and move the mouse to raise or lower the jagged edges of the terrain to create a smooth embankment.

After tweaking with the Height Tool set to 10 the embankment is smooth and there are no jagged edges.

### 3.3 Using the Display Filter

On a complete route, there may be a lot of information displayed when you enter the World Editor. The Display button on the Toolbox tab lets you filter the infrastructure which is being displayed in the editor. Clicking the Display button opens a list of checkboxes in the Properties tab. Moving your mouse over an icon next to a check box brings up a tool tip showing the name of the icon.

By default, most of the options are checked. You can un-check individual items or click on the icon at the top right to clear all boxes at once.

### 3.4 Using the Detail Level Slider

Using the Detail Level Slider allows you to control the level of graphical detail displayed for each object. Players can determine the number of objects that are drawn on their simulations. Lowering this number can improve performance on lower specification PCs.

1. Double-left-click an object in the world to show its properties.
2. Use the orange Detail Level Slider to change the current detail to a value between 1 and 10.

The detail level is worked from the highest level of detail backwards. A value of 10 means that the object will be displayed on all 10 settings of the slider. A value of 1 is the lowest, meaning it will only display the shape for 1 detail level (or only at the highest detail level). For example setting a detail level of 3 on a building will mean it draws on the top 3 highest settings on the slider and will not be displayed for the other 7.

### 3.5 Gradient Editing for Linear Objects

It is often necessary to change the gradient of linear objects after they have been first laid. There are a number of ways of achieving this. This section details one recommended method.

When you click on the Gradient icon in the Linear Object toolbox, all current gradient points are displayed and new gradient points can be inserted.

To raise or lower an existing gradient point, select that point, and hold down the left mouse button while dragging the mouse up and down.

Moving the gradient point in this way will then alter the gradient of the track all the way from the select gradient point to the next one in each direction, overwriting any previous gradient information.

This can produce undesired results if you have previously laid track using set gradients. To have finer control and minimise any risk of overwriting gradients in areas outside of the direct area you wish to edit then you should insert additional gradient markers.

Placing a gradient marker each side of the point you are editing to define the area which is being altered offers better control.
4 Creating and Editing Scenarios

Scenarios are activities that encourage players to explore routes by setting interesting challenges or objectives.

These objectives might include running a passenger service, loading of freight or fuel, adherence to a strict timetable, or organising wagons scattered around a yard.

This section explains the basic principals to allow you to create and modify your own Scenarios.

4.1 Overview of Scenario Creation
Before describing the details of Scenario creation, it is important to understand the overall process.

1. Choose route
First you must decide the route on which to base your Scenario. Tip: It is highly advisable to delay Scenario creation until you have fully completed your route. Otherwise you risk making Scenarios that will not work because changes to the track or signalling are subsequently made.

2. Choose start point
Navigate in the simulated world to the point where you wish the Scenario to start. At this point you can choose the time of day, season, and weather for your Scenario.

3. Choose train
Select the train you wish the player to drive, then add any passenger or freight vehicles you wish to be present at the start.

4. Set ultimate destination
By adding a driver to the train, you provide the specification of the final destination for your Scenario. By adding a driver to you train you can specify an ultimate destination where your scenario will complete. Once you have specified a start and an end you can set intermediate goals.

5. Set intermediate goals
Intermediate goals can include: stopping; waiting; picking up passengers, loading freight or fuel; or attaching or delivering individual wagons. These intermediate goals break the Scenario into manageable chunks and provide additional challenges for the player.

6. Perform a basic test
Before going any further, fully test the Scenario with just one train. Ensure you are happy with all aspects of the Scenario before you add other trains.

7. Add AI (RailWorks controlled) trains
To make your Scenario more realistic, add AI trains that run without user intervention. This creates additional challenges for the player.

8. Perform a full test
Now test your scenario.

4.2 Getting Started
Scenarios are associated with a specific route and are listed in the Scenario screen. In the World Editor, Scenarios appear as Scenario marker icons.

There are two types of scenarios:

Free Roam Scenarios
These provide a simple framework for exploring routes under different conditions. They provide a starting point, a time of day, a season and weather, but do not need to have any specific objective. Any train in a Free Roam Scenario can be driven by first clicking on it. There are no computer controlled (AI) trains in a Free Roam Scenario.

Standard Scenarios
In addition to setting environmental parameters, Standard Scenarios have a set of detailed objectives for the player to achieve. Only one train can be driven, with any other trains controlled by RailWorks.

Free Roam and Standard Scenarios are represented by different Scenario markers.
4.2.1 Creating a New Scenario
If you are not already in the World Editor, go to the Routes screen and select a route on which to base your Scenario. Click on the Scenario link to go the Scenario screen. Choose any Scenario for that route, and then click on the Edit link.

Once you are in the World Editor,
1. Click on the Scenario icon in the ToolBox Tab.
2. Select the type of Scenario marker (Free Roam or Standard) you require in the Browser Tab.
3. Choose where on the route you wish to place the start point for the Scenario. Tip: In Free Roam Scenarios, the marker will be used to determine the initial camera position, so it is a good idea to set it about 20 metres from where you expect to place your train.
4. Click the left mouse button to place the Scenario marker.
5. Click the right mouse button to prevent further Scenario markers being placed.
6. Double Click the scenario marker to open and edit the Scenario properties.
7. Set up the Scenario properties – see section Editing Scenario Properties below.
8. Save the Scenario by pressing the <F2> key.

4.2.2 Editing an Existing Scenario
If you are not using the World Editor, first select a route on which to base your Scenario, then click on the Scenario you wish to change and then press Edit. The simulation will load directly into Scenario Editor. Simply double click on the Scenario marker to change its properties.

If you are already using the World Editor, first click on the Scenario icon in the Toolbox, then find the Scenario marker you wish to edit and double click on it.

4.2.3 Editing Scenario Properties
To edit the Scenario properties, double left click the Scenario marker. This will reveal the Properties tab, detailing the properties of the Scenario.

The image on the left shows the new scenario marker showing default properties.

Important note: Make sure you click on the correct Scenario marker. Markers for other Scenarios on the route may be visible. If you accidentally double click a different Scenario marker you will switch to editing that Scenario.

A Scenario has the following properties:

- **Scenario Name**: This is the name which is displayed in the Scenario list for the route.
- **Description**: The description that appears in the Scenario screen when a Scenario is selected.
- **Briefing**: Once the Scenario has been selected and has loaded, the text in this field is the first thing a player will see, and will also appear when the player uses the Assignment Assistant. This can contain more technical information than the Description.
- **Date**: This is the date of the Scenario in form dd/mm/yyyy, and is displayed in the Scenario. The numbers entered here will not determine the season or weather and are purely for information purposes.
- **Rating**: This value will indicate to a player the relative difficulty of the Scenario, where 1 is easy and 3 is hard. This information is provided as a guide and has no other impact on the Scenario.
- **Duration**: This is an estimate, in minutes, of the approximate duration of the Scenario. This information is provided as a guide for people wanting to play the Scenario and has no other impact on the Scenario.
- **Start Time**: This is the start time of the Scenario, based on the 24 hour clock. The values entered here will determine the look of the route generated by RailWorks. Hint: Make sure you set the start time before placing any trains because changing this value afterwards will mean you have to update the start times of the trains too.
- **Weather**: There are a variety of pre-defined weather patterns to choose from.
- **Season**: Selecting a season will affect the textures on the route as well as dawn and dusk times and general lighting, but will not affect the weather.
To save the Scenario, either press the `<F2>` key or start playing the Scenario by pressing the large Play button on the Mode Select/Lock tab at the bottom right of the screen.

If you start driving, RailWorks will switch to the time of day and the season that the new Scenario specifies.

4.2.4 Deleting a Scenario

You can not delete Scenarios from within the World Editor. Return to the Scenario screen, highlight the Scenario you want to remove and press the <DELETE> key.

4.3 Placing a Player Train

Having created a Scenario, you now need to choose which train to drive and where you want your locomotives to start.

Click the Engines and Tenders icon on the Browser tab. You will be presented with a list of all available engines and tenders.

Select a locomotive from the list, then drag the mouse onto the main screen and over the tracks. Click to confirm the placement. Right click to stop any further placement.

Note that if you have selected a steam locomotive, you may also need to add a tender.

Use the same procedure to add passenger or freight wagons by clicking on the Rolling Stock icon in the Browser tab.

To change the direction in which the train is facing, click the part of the train you want to flip. You will notice an orange arrow above the train.

The large end of the arrow shows the direction the train is facing. Click the arrow to flip the selected rolling stock to the opposite direction.

If you have a combination of locomotive and tender or additional rolling stock, you can reverse the whole consist by holding down the `<Ctrl>` key, then clicking on each element you wish to reverse, then clicking on the orange arrow.

4.4 Adding a Driver

Once a train has been placed you need to add a driver. The properties of the driver are used to determine where the train will go and how the train will be controlled.

Drivers are either player-controlled or RailWorks controlled (known as AI-Trains). In a standard Scenario, there can only be one player-controlled train, the remainder must be AI trains.

The available Driver properties are:

**Driver Name**

This is the name which is displayed above the train, and is an identifier for the train. This name should be unique.

**Player Consist**

This is used to determine whether the train is controlled by the player or RailWorks. Checking the box means it is the player train. Leaving the box empty means the train is controlled by RailWorks (AI train).

**Destination**

This field is used to set the final destination for the train. See Destination Property below.

**Start Time**

This is the time the train begins its operation based on other Scenario instructions. A time earlier than the Start Time of the Scenario (as set in the scenario marker) is not valid. For a player train the start time should be the same as the Scenario start time and so the field is filled in automatically. For AI trains you may want to stagger the start times by simply entering a later start time.
Service Class

Select the service class of the train. This is Class used by the RailWorks to prioritise the AI trains. An Express Passenger train has priority over a Standard Freight, and a Special train has priority over all.

Destination Property

To set the destination:
1. Click the Set Destination icon in Scenario properties.
2. Select a valid destination in the World Editor. A valid destination can be a platform marker, a siding marker, a destination marker or a portal.

Alternatively you can open the 2D map by pressing 9, pressing the Set Destination icon and selecting a location on the 2D map. If the train is a player train, the destination should be the same as the destination on the final instruction specified on the Scenario marker.

AI Trains

If the train is controlled by RailWorks then simply set the destination of where you want the train to go. The train will then set off at the time specified and try to find a path to its destination.

Note: If there is no valid way of reaching the destination, perhaps due to signalling or the directionality of tracks, the AI train will get stuck. Change the destination or create intermediate goals to avoid this.

Once an AI train has reached the destination it will stop.

4.5 Adding Intermediate Goals

RailWorks provides you with the ability to make your Scenarios more interesting by setting additional goals.

Types of Intermediate Goals

These goals are built up into sequences which can subsequently be refined and amended. Some intermediate goals are:
- Stop at Destination (adds an intermediate stop)
- Pick up Passengers
- Fuel/Freight pickup
- Assemble consists from individual items of rolling-stock
- Drop off rolling stock at specific destinations

This section describes information that is common to all intermediate goals. Features specific to one type of goal will be considered separately.

4.5.1 Adding and Changing Intermediate Goals

To add intermediate goals to your Scenario:
1. Select the desired instruction from the Scenario Tools in the Toolbox tab.
2. Click on the player locomotive.

You will see the instruction icon placed behind the driver icon at the front of the locomotive. Further instructions will stack in the order in which they are placed. Instructions are carried out in order from front to back. If you want to change the order of the instructions, left click and drag it along to a new position.

To delete an intermediate goal, select it and press the <DELETE> key or use the Delete icon.

4.5.2 Sequences of Similar Goals

Particular commands, such as "pick up passengers", may be repeated many times, so there is a shorthand way of achieving this by adding multiple instructions. See Multiple Destinations in One Instruction below.

4.5.3 Setting and Changing Properties

Double-click the Instruction icon floating over the train to open the Properties tab. The following properties are common for all instructions:

Add Instruction

Intermediate goals are based on performing an action (or even arriving) at a particular location. This instruction and the associated field specify the goal location. Multiple locations may be specified. To add an instruction, click on the green plus sign, and then select the name of a valid destination. You can navigate using the World Editor or using the 2D map to find the location.

Delete Instruction

To delete one of the locations from the list, select the location you want to remove and then press the Delete icon.

Find

Click the magnifying glass icon to bring up a list of nearby destinations (use the 2D map for destinations that are further away).
Display message
The text entered into this field is displayed as a pop-up message in game when the destination has been reached and neither the successful nor unsuccessful message is activated.

Achievement Text Successful
This message is displayed if the instruction is completed successfully.

Achievement Text Unsuccessful
This message is displayed if the instruction is not completed successfully. If there are multiple destinations listed, failure to stop at any one of them will cause the unsuccessful message to be displayed.

The Consist Operation Instruction has a slightly different Properties tab.

The image left shows the Properties tab for the "Stop at Destination" intermediate goal:

4.5.4 Multiple Destinations in One Instruction
Using multiple destinations in one instruction is a useful shorthand and allows you to concatenate a number of similar instructions. In addition, the success, failure and completion messages apply to the whole sequence, so if you concatenated 5 passenger pickup instructions into one instruction, then no message would be displayed until the final destination is reached. If, rather than concatenating the destinations, you had specified these as individual steps, you would be able to issue messages after each destination.

4.5.5 Destination Specific Parameters
Each individual instruction destination type shows information on the Properties tab, depending on the type of instruction that it is. You can edit these properties further by clicking on the instruction.
The following properties are common to all instructions:

Handle Off Path
If selected, RailWorks calculates the best path for the train based on all the values contained in the Scenario and then measures the player against that. Deviating from this path for a player trains results in an error, which could cause the player to fail the Scenario.

Leaving the box unchecked means the path does not have to be adhered to, and no error will be given for leaving the path until the instruction is completed. This is useful in Scenarios where you want the player to leave the pre-calculated path, such as in yard activities, where the player should be free to use any path through the yard as long as the instruction gets completed.
The average expected performance is set to 75% by default. Adjusting this value higher will create a stricter timetable and changing the value lower will create a more relaxed timetable. If this value is edited the anticipated arrival and departure times on this and all subsequent instructions will be updated.

Editing this value is a good way to control the speeds of AI traffic on the route.

4.5.6 Viewing Intermediate Goals
By pressing the Play button you can check the Assignment Assistant and see the instructions as the end user would when playing the scenario.

The image left shows how a single Stop At Destination instruction appears in the Description tab.

The image right shows how the same instruction appears in the assignments tab. Notice the large red cross indicates that the instruction has not been completed yet.

4.6 Specific Intermediate Goals

4.6.1 Stop At Destination Instruction
The Stop At Destination instruction is used to specify that the player needs either to stop at a specific location or pass over a specific location.
A valid destination for this type of instruction can be a platform marker, a siding marker or a destination marker.

The Stop At Destination instruction would be treated as being unsuccessful if the player failed to stop at the required destination. If there are multiple destinations listed, failure to stop at any one of them will cause the unsuccessful message to be displayed.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
<th>Speed</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exeter</td>
<td>10:04:13</td>
<td>0mph</td>
<td>75%</td>
</tr>
</tbody>
</table>

A Stop At Destination instruction containing multiple elements shows the name of the individual destinations, the anticipated arrival time, the anticipated departure time, the average expected performance % and the speed needed to complete the instruction.

The following further options can be specified on individual elements of the Stop At Destination Instructions:

**Time-Tabled**

By default, instructions do not have to adhere to a strict timetable so the Time Table icon is covered with a red cross. If you wish the Scenario to fail if the calculated timetable is not met, click on the alarm clock icon to clear the cross. The player will fail the Scenario if the timetable target is not met.

**MPH**

This is the speed at which the player needs to be travelling to complete the instruction. The default speed is 0MPH which is stationary. However, this value can be changed when destination needs to be passed at a certain speed.

Using a Stop At Destination instruction with a speed of 1MPH is a good way to ensure the train takes a certain path. The train will be travelling at a speed of over 1MPH and thus will automatically complete the instruction and move to the next. This turns this instruction into a waypoint follower and is especially useful for controlling the exact paths of AI trains. You can use this mechanism to force the AI Train to follow a series of small steps and accurately control the timing of the steps.

Instructions set to a speed of over 0MPH will not show up in the Assignment Assistant. However, they do appear in the Driver’s Guide as a Next Destination.

If you try to add a destination that the train cannot access (this may be due to directionality of the track, or a break in the track) then the expected arrival and departure times are not displayed and are replaced with exclamation marks.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
<th>Speed</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exeter</td>
<td>!!!</td>
<td>0mph</td>
<td>75%</td>
</tr>
</tbody>
</table>

When this error happens, select another destination or carefully check the tracks between your train and the destination. Some reasons for this failure include: wrong track directionality; another train in the way; a gap in the track.

**4.6.2 Pick Up Passengers Instruction**

Use a Pick Up Passengers instruction to specify the player should stop to collect passengers. All destination elements in a Pick Up Passengers instruction should be platforms.

The player will fail the scenario if they fail to stop at the required destination or pull away before passenger boarding is complete.

The separate elements of each destination instruction in the list show the name of the location of the Passenger Pick Up, the predicted arrival time, the predicted departure time and the average expected performance %.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Templecombe</td>
<td>10:02:25</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>10:03:00</td>
<td></td>
</tr>
</tbody>
</table>

The predicted arrival and departure times are not enforced unless the Time Tabled option is enabled (by clicking the crossed out alarm clock). Once the instruction becomes a timetabled instruction, these times determine whether the instruction is assessed as being successfully complete.
In a timetabled instruction, the arrival time is based on the start of the passenger loading process. This means that even if the process of passenger loading (which lasts 20-30 seconds) completes after the scheduled time, the instruction will still count as successful as long as it starts by the specified time.

If you want to edit the arrival time (perhaps to make the Scenario harder or easier), you must alter the performance value, which is set to 75% by default. This is a value indicating how hard your train is expected to work. If your timetable is based on a lower value, such as 50%, then the time will increase, as RailWorks allows the player to take longer to reach the destination.

To make timetabled Scenarios tougher, increase the performance value to reduce the expected arrival time.

Departure times can be edited manually and are not based on the % performance value.

On the Assignment Assistant menu the instructions will display and behave differently depending on whether the instruction is timetabled or not.

A timetabled instruction lists both arrival and departure times. These times will remain fixed and not update. Non-timetabled instructions will periodically update the arrival and departure times based on current performance.

4.6.3 Fuel / Freight Pickup Instruction
The Fuel/Freight Pickup instruction is used in freight scenarios to collect and deliver goods or refuel.

To set a Fuel/Freight Pickup Instruction, click the green plus sign on the Properties tab, and select a valid Fuel/Freight Marker from the World Editor or from the 2D Map. The name of the marker will then appear in the list.

The player will fail a Fuel/Freight Pickup instruction if they fail to stop at the required destination or collect the fuel.

The separate Fuel / Freight instructions in the list show the name of the transfer point and the average expected performance %.

Setting Coal/Water/Diesel levels
You can display the fuel levels of a diesel locomotive by double clicking the locomotive itself. In the case of some steam trains, you must double click the tender. Electric trains have no such properties. Examples of the fuel level properties tab are shown below:

There is a sliding bar which you can use to set the start fuel level percentage for the locomotive in the scenario.

If your scenario involves refuelling or filling with water, you might want to consider reducing the initial levels at the start of the scenario to enforce early refuelling.

The number in the bottom field is the number displayed on the locomotive or tender and can also be edited from this properties tab.
Setting Wagon Load State
By double clicking each freight wagon you can display its properties window and set whether its initial state is loaded or unloaded. You cannot load freight, such as coal, onto an already loaded wagon nor unload freight from an empty wagon.

Viewing Fuel/freight Pickup Instructions
By pressing the Play button you can check the Assignment Assistant and see the instructions as the end user would when playing the Scenario.

How the instruction is worded is based on the type of transfer point that was selected:
- For a freight container crane the instruction displays as "Pick up a Freight Container from <transfer point name>"
- For fuel (coal / diesel / water) the instruction displays as "Pick up Fuel <fuel type> from <transfer point name>"; for example, "Pick up Fuel (Coal) from Bath Coaling Stage".

On the 2D map, water transfer points display as a water droplet, whereas diesel and freight transfer points display as a fuel pump, along with the name of the refuelling point being listed.

4.6.4 Placing a Consist Operation Instruction
Consist Operation instructions allow you to set goals that involve collection and delivery of rolling stock into yards.

Consist Operation Properties Tab
Consist Operation properties are different to other Intermediate goals. The properties for Consist Operations are as follows:

Add to front
Use this button to create an instruction where the player must add rolling stock to the front of the locomotive. Click this button then click each item of rolling stock you want to hook up. Then click the siding, platform or destination where this rolling stock currently resides. The instruction will then be created with the numbers of the rolling stock listed.

Add to Back
Use this button to create an instruction where the player must add rolling stock to the back of the locomotive.

Drop Off
This button creates an instruction where rolling stock must be dropped off at a certain location.

Operation Order
This is a check box that is on by default. With the box checked, the order in which the player completes the consist operation instructions is important. When it is unchecked the instructions can be completed in any order. Errors in the operation order are reported at the end of the Scenario.

Display message
A message typed here will display as a pop-up when the operation is complete if no success or failure message is present. Consist operations normally generally have clear pass or fail criteria so text should be entered in the success/failure fields instead.

Duration
This is the suggested duration of the instruction in minutes. Adjusting the length of time in this field will have an effect for the Arrive and Depart fields and the estimated timing of subsequent instructions. Exceeding this time will not fail the instruction; it is present as a guideline only.

Achievement Text
Successful
This message is displayed if the instruction is completed successfully.
Achievement

Text

Unsuccessful

This message is displayed if the instruction is not completed successfully. Examples of failure in this case would be if the player coupled to the wrong end of the engine, uncoupled the wrong wagons or dropped off the correct wagons in the wrong location.

Editing Individual Consist Operation Instructions

Each separate Consist Operation instruction you create will show the location of the consist operation, the suggested duration, and the rolling stock involved. If more than one instruction is listed then there is a scroll bar which is used to view additional instructions.

In this example, the first few wagon numbers (141203, 141205, etc) of the instruction are listed for reference, as well as the location (Cole Siding 3) where the consist operation will happen. Note that when the user is playing the scenario all of the wagon numbers will be displayed on the Assignment Assistant.

Once the elements of the Consist Operation have been inserted, the following toggle is displayed for each element’s individual properties

Train

Order

This is a toggled icon. When it is selected, the sequence in which the rolling stock is arranged is important. When it is off, the order of the rolling stock of the train can be in any order. Errors in the train order are reported to the user at the end of the Scenario.

5 Packager

5.1 Introduction

Routes, Scenarios and other assets (rolling stock etc) in RailWorks are made up of many individual elements, and so sharing material that you have created would be very laborious. The Packager provides the ability to aggregate large numbers of individual assets into “Packages” – a single file containing lots of assets.

Packages created with RailWorks have a *.rwp extension.

Important note: When creating a package you must respect the ownership of material created by other individuals or companies. Under the terms of your end user licence, the assets provided with RailWorks can be freely included in any package you create, but other assets supplied by RailSimulator.com Limited or third parties may not permit you to do this. RailWorks enforces this protection by preventing you from including assets in your package that were originally supplied to you with the protection flag set.

5.2 Creating a Package

Start the packager by clicking on the Packager tab from the main menu in the launch screen.

The left hand side of the Packager screen shows your current assets listed in a directory structure. Clicking on a plus symbol will expand the tree structure so that individual files of a route or asset can be viewed.

The right hand side shows the contents of the package you are creating. By default it is empty. You can build up a list of the required items that will be built into the package by checking the boxes next to the assets you wish to include in the package and click the right arrow button to include them.

If you include assets that you then decide you do not need, simply check the box next to them in the right hand window and then click the left arrow button which removes them from the list.
When you have assembled all your assets, enter a name in the **Author** field and decide whether you wish this package to be protected or unprotected. Unprotected packages can be shared freely and the contents of these packages can be used by other route creators. If the package is flagged as protected then other content creators cannot use the assets within their own new packages.

To finish the process, click the **Create Package** button where a dialogue will be displayed listing all assets within this package. Check the list and press OK if the list is correct.

A name and location for the package to be saved can now be selected. A progress bar will be displayed while the package is being created.