



ToolkitForTSW

Toolkit for TrainSimWorld

Users guide

Rudolf Heijink

Version 0.7 beta

Copyright © 2018/2021 Rudolf Heijink.



This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

You are free to:

- **Share** — copy and redistribute the material in any medium or format
- **Adapt** — remix, transform, and build upon the material

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:



Attribution — You must give [appropriate credit](#), provide a link to the license, and [indicate if changes were made](#). You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.



NonCommercial — You may not use the material for [commercial purposes](#).



ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the [same license](#) as the original.

No additional restrictions — You may not apply legal terms or [technological measures](#) that legally restrict others from doing anything the license permits.

Notices:

- You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable [exception or limitation](#).
- No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as [publicity, privacy, or moral rights](#) may limit how you use the material.

Preface

Introduction

The last years I created a number of manuals and tools for DTG TrainSimulator. Mike Simpson, the author of the world famous RWTools has been an important source of inspiration to me. I never tried to copy his work, but I found some niches specifically for scenario authors that are not covered by RWTools. Mike announced he will not create such a toolkit for TSW. So I decided I could claim the ToolkitForTSW name with a lot of respect and thankfulness to Mike. I cannot but admire his perseverance in reverse engineering undocumented features without any support from DTG.

Here it is, the third alpha edition of ToolkitForTSW. It's not doing much yet, but the start is there.

Acknowledgements

All anonymous members of the TSW community for sharing their experience and helpfulness.

A special thank you to **kalteVollmilch** (Jonas B.) for his contributions to the code. It is awesome to do this with a team now.

The creators of [Inno setup](#) for providing a free installer. The creators of SQLite for providing a “zero admin” database solution for free as well.

Thanks also to the StackOverflow team for contributing the Dapper library and their wonderful website full of answers to questions I did not even ask yet.

License agreement

The software and this guide are licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Details are provided in the license agreement you must sign before using the software.

Disclaimer

This guide is provided “as is”. The author is not liable for the consequences of the use of this guide or the LuaCreator application. The contents is the sole responsibility of the author.

Contact

Comments are welcome at trainsimulator@hollandhiking.nl.

But please be aware that I cannot provide you help with you scenario creating problems. If you have any questions, please use one of the regular community forums.

Front page image

One of my own screenshots made at the Sandpatch route al long time ago. It still has a “wow” effect on me seeing all the details.

Rudolf Heijink

Contents

Preface	3
1 Introduction	8
1.1 Source code	8
1.2 Donations	9
1.3 How to read this manual	9
1.4 Next version.....	11
1.5 New in this version	11
1.5.1 Version 0.7.....	11
1.5.2 Version 0.6.....	11
1.5.3 Version 0.51.....	11
2 Installation	12
2.1 Installation procedure	12
2.2 Folder structure.....	13
2.3 Database.....	13
3 User interface principles	14
3.1 Modal versus modeless windows.....	14
3.2 Impact of the window size.....	15
3.3 Controls	16
4 Main screen.....	20
5 Utilities.....	22
5.1 Options Dialog	22
5.2 Log viewer.....	26
5.3 Backup save area.....	26
5.4 View key bindings	28
6 Unpack and view	29
6.1 Scenario manager.....	29
6.1.1 General	29
6.1.2 Scenario Editor	31
6.1.3 Edit Scenario Identification part.....	32
6.1.4 Scenario part.....	32
6.1.5 Services part	33
6.2 Stop locations part	34
6.2.1 Publish scenario.....	35
6.3 Unpack game files.....	36
6.4 View unpacked files.....	38
6.5 Launch UModel	38
7 Tools	40
7.1 Game launcher	40
7.2 Railway Radio Stations	42
7.3 Edit TSW Settings.....	43
7.3.1 Introduction.....	43
7.3.2 Screen settings.....	45

7.3.3	Quality settings.....	45
7.3.4	Sound settings	46
7.3.5	HUD settings	47
7.3.6	Game play settings	47
7.3.7	User settings	48
7.3.8	Advanced settings.....	48
7.4	View screenshots.....	49
8	Working with Mods	51
8.1	Introduction.....	51
8.2	Pak installer	52
8.2.1	Introduction.....	52
8.2.2	Pak installer details.....	53
8.3	Mod manager	53
8.3.1	Properties tab	54
8.3.2	Sets tab	55
8.3.3	Mod manager glued	57
9	Help.....	58
9.1	About dialog	58
9.2	Open ToolkitForTSW manual.....	59
9.3	Open TSW2 Starters Guide.....	59
9.4	Open route guides	59
A.	Download locations	60
B.	UModel command reference	61
C.	Known issues	63
Index	64

List of figures

Figure 1 Using bookmarks for fast pdf navigation	10
Figure 2 Folders used in TSWTools.....	13
Figure 3 Modeless windows	15
Figure 4 Example of a window with visible scroll bars	16
Figure 5 Buttons	16
Figure 6 Text Box	17
Figure 7 Result Text Box	17
Figure 8 Combo box.....	17
Figure 9 File Dialog	17
Figure 10 Radio buttons	18
Figure 11 Two coupled List Views	18
Figure 12 Slider control	19
Figure 13 Tab control.....	19
Figure 14 TSW Tools Main Screen	21
Figure 15 Options dialog, File Locations tab.	22
Figure 16 Options, Tab Other visible	24
Figure 17 Options, Routes tab	24
Figure 18 Log viewer.....	26
Figure 19 Backup window	27
Figure 20 Key bindings or input mappings	28
Figure 21 Scenario Manager.....	30
Figure 22 Scenario Editor screen overview	31
Figure 23 Scenario identification part	32
Figure 24 Scenario part	33
Figure 25 Services part	34
Figure 26 Stop locations part.....	35
Figure 27 Publish Scenario Dialog	35
Figure 28 Unpack tool window.....	37
Figure 29 Unpacker while working.....	38
Figure 30 UModel interface for viewing the contents of uasset files	39
Figure 31 TSW2 Launcher	40
Figure 32 Railway radio stations window.....	42
Figure 33 Settings editor	43
Figure 34 Screen settings.....	45
Figure 35 Quality settings.....	45
Figure 36 Sound settings	46
Figure 37 HUD settings.....	47
Figure 38 Game play settings	47
Figure 39 User Settings.....	48
Figure 40 Advanced settings	48
Figure 41 Screenshot viewer	49
Figure 42 Screenshot preview window	50
Figure 43 Pak installer window.....	52
Figure 44 Mod manager Properties tab	54
Figure 45 Livery Manager Sets tab	56

Figure 46 Mod management architecture	57
Figure 47 About Dialog	58
Figure 48 Route guides selector	59



1 Introduction

There is not yet much you can do to enhance your experiences with TrainSim World, but few things are useful and justify a tool. ToolkitForTSW will do this for you:

- You can edit most game settings in the tool, including enhancements like Viewdistance and extended sound levels. You make sets and save them outside the game
- A scenario manager and editor, for the scenarios you created with the Scenario Planner.
- Make backups of your user settings and progress and restore them
- Manage your mods and add them to the game or remove them again
- You can create a collection of documentation and get access to this.
- A screenshot manager, that combines Steam and TSW screenshots for easy selection.
- A game launcher, using a settings file, a livery set and may start a radio station url.
- Browse through the file locations
- Unpack all .pak files and make a local unpacked copy.
- View uasset file contents using the UModel application (experimental)
- View the key bindings file, used in the game

1.1 Source code

You can view or download the source code here:

<https://github.com/RudolfJan/ToolkitForTSW>

The code is written in C#, uses WPF for the user interface and it uses a SQLite database.

If you have any questions about the source code, or if you like to contribute, please contact me:
trainsimulator@hollandhiking.nl

1.2 Donations

Until now I never asked for donations for my software. I do not need to make money with them, but as I get more experience, and applications get more complex, my expenses are increasing. For example, I use some development tools that are not free and need to do some additional courses etcetera.

Finally, I will need to purchase code signing certificates. This makes sure you can trust my software.

Therefore, now ask you to donate me if you sue this software:

- For professional developers, I ask **Euro 25 per year**. This is cheap
- For non-commercial use, a one time **Euro 5** donation makes me happy.

You can use this link, the QR code, or use the Paypal link at my website.

[https://www.paypal.com/cgi-bin/webscr?cmd=_donations&business=LNB\\$2R49HHBF6¤cy_code=EUR&source=url](https://www.paypal.com/cgi-bin/webscr?cmd=_donations&business=LNB$2R49HHBF6¤cy_code=EUR&source=url)



1.3 How to read this manual

Chapter 1 is mainly house keeping and a short introduction.

Chapter 2 covers some details regarding installation and the folder structure.

You may notice there is some consistency in the user interface. This is explained in Chapter 3 It may help you to understand how ToolkitForTSW works, but it is also valid for my other programs.

The remaining chapters cover each a row of the start screen. You can read them independently.

If you use Adobe Reader, you can turn on the bookmark tab to navigate fast to the section you want to read.

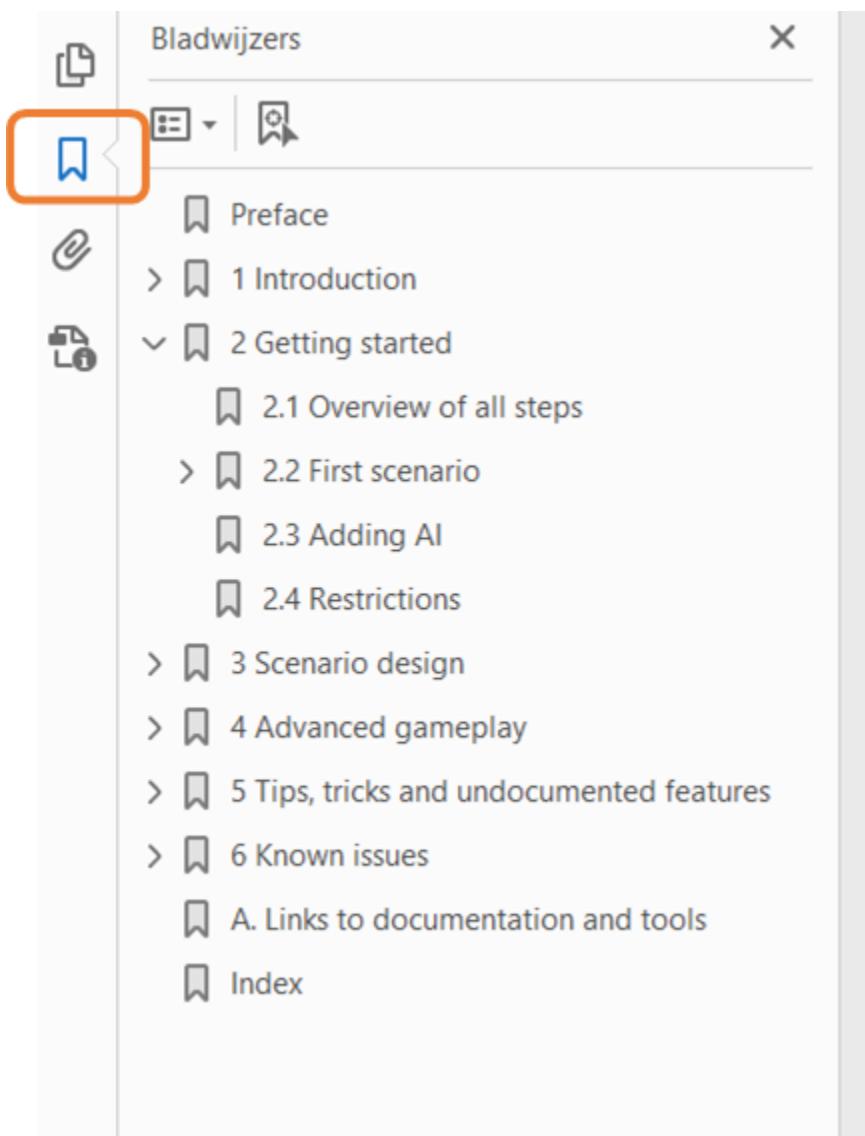


Figure 1 Using bookmarks for fast pdf navigation

1.4 Next version

For version 0.7 I changed plans a bit because of the opportunity to create a Scenario Editor. This delays the new screenshot manager. I probably will do the basics in the next version, I have some ideas on how to do it.

It is likely there will be a Livery Manager as well for the user created liveries and the Scenario Editor will be improved.

Finally, some work will be done with respect to the settings, e.g. cab sway and bloom require some specific attention to include recent findings of the community.

1.5 New in this version

1.5.1 Version 0.7

One big new feature, a Scenario Editor. It is a first version. You can fully edit a scenario, but it will not protect you against any typing error.

What used to be the Livery Manager is now changed to Mod Manager, to avoid confusion with the DTG in game Livery editor and because the mods are doing much more now than create a new livery.

There are a huge number of improvements that may not be very visible but make code easier to understand and better maintainable. If you are interested, let me know and I will tell you, or just get the source and see for yourself.

1.5.2 Version 0.6

This version is the first version for TSW2. The name of the application is changed to ToolkitForTSW, mainly because I decided not to try keeping it compatible for both TSW20202 and TSW2.

1. Adapted all file path names to accommodate TSW2.
2. Added some new settings specific for TSW2.
3. Adapted the units settings to support the value "Automatic"
4. Revised settings form, bug fixes, code revisions, improved usability.
5. Added support for the new Scenario Planner. It has following functions:
 - a. It will show all user created scenarios
 - b. It will do a simple sanity check and report the results.
 - c. It will allow you to generate simple documentation and wrap a scenario into a zip file so you can share it.
 - d. It will backup user scenarios. In the backup functions.

1.5.3 Version 0.51

Fixed two bugs:

- The Gamma correction settings was rounded with 0 decimal digits upon reading. This is resolved now.
- ToolkitForTSW had problems with file paths containing spaces. This should be solved now in most cases. Please let me know if you get unexpected file not found messages.

One new feature:

- You can turn cab sway on or off in the settings menu (Game play settings tab)

One improved feature:

- Better visibility of the commands list in the UModel tool. If you select a command, it will show the details in a details row.



2 Installation

2.1 Installation procedure

The game comes with an installer. Installing it is straight forward. The first time you run ToolkitForTSW, you must set some options in the game to enjoy all functions. See section 5.1

It has been tested using Windows 10, but likely will work in other environments as well. TSW Tools is written in C# and requires the latest .NET version to run.

You need to install the Unreal game engine and the UModel tool for some functions.

In order to read the manual, you need a pdf reader (by reading this it is clear to me you have that).

It is recommended to install a good text editor as well. Notepad++ is a good solution.

If you want to use the pak installer, you will need 7Zip installed.

Check out www.hollandhiking/trainsimulator for download links.

2.2 Folder structure

At the next page you can see the folder structure for the data ToolkitForTSW may store. The folders are created automatically after your first login. In rare cases this does not work, you can create them manually.

Backup is used to store saved backup sets.

Mods contains the mods. You are free to make a further subdivision. ToolkitForTSW will scan all subfolders to locate content.

Manuals is the place to go for documentation. In the root folder, you should find this manual, the starters guide and licence information. Inside the **RouteGuides** folder you can add subfolders as much as you see fit.

OptionsSets will contain the Options collections as you create them.

Scenarios contains the scenarios you published

Templates is for template files, at present only for scenario documentation templates.

Temp is for temporary files. You can delete the contents if you need to.

Unpack contains the unpacked .pak files, each of them in it

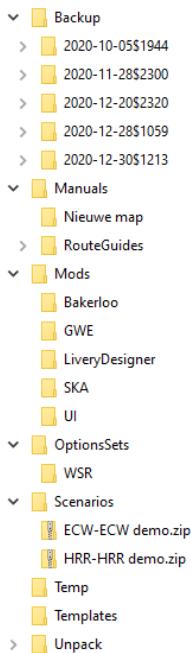


Figure 2 Folders used in TSWTools

own folder structure. In the folder **UnpackedAssets** the UModel application should store its exports.

2.3 Database

ToolkitForTSW uses a database to preserve some information for you. You can find it in the ToolkitForTSW root folder and it is called TSWTool.db. If it is missing, ToolkitForTSW will create it again for you, but all data will be lost.

If you want, you can open the database and see for yourself what is inside it, use the freeware tool you can download here:

<https://sqlitebrowser.org/>



3 User interface principles

In this chapter a short “buttons training”. This may help you to understand how the new user interface is designed and how you can use it. ToolkitForTSW is a complex application. It is not 100% fool proof, so handle it with a bit of care. Also, it is improved and changes regularly.

The user interface also has more or less hidden features, you may consider convenient.

Note: this chapter is copied from another tool I created, called LuaCreator, which uses the same principles for its user interface. I did not yet update all examples specifically for ToolkitForTSW.

3.1 Modal versus modeless windows

For Windows application, there are two ways to open a new window: **modal** or **modeless**.

A **modal window**, also called dialog form, needs to be closed using either the **OK button**, which usually saves data or a **Cancel button**, which cancels all changes made in the form. Access to all previously opened windows is blocked, while you are working with this window/dialog.

A **modeless window** spawns from its parent window. You can navigate freely between the windows you have open.

The advantage of modeless windows is a much larger flexibility and freedom during use. Freedom has its price, your desktop may soon be cluttered with a large number of open windows, and it is up to you to keep track of them. If data between these windows is related, changing data in a modeless window may cause inconsistency in other windows. Fortunately, WPF has some useful technologies to update all relevant windows automatically.

In the new WPF version of LuaCreator I decided to switch from Modal windows to modeless windows, with a very small number of exceptions. The main reason to do so, is that you always have access to the information you need. This works, because the logic in LuaCreator is (almost) completely separated from the logic to show data on the screen.

However, you can create situations where inconsistencies in data may occur. In this case, close the application and restart it.

You can close each window separately (using Alt+F4 or the cancel button in the top right position), all spawned windows will stay open. It is not a very good idea to close the startup window, at the moment there is no method to reopen it again, without closing ToolkitForTSW.

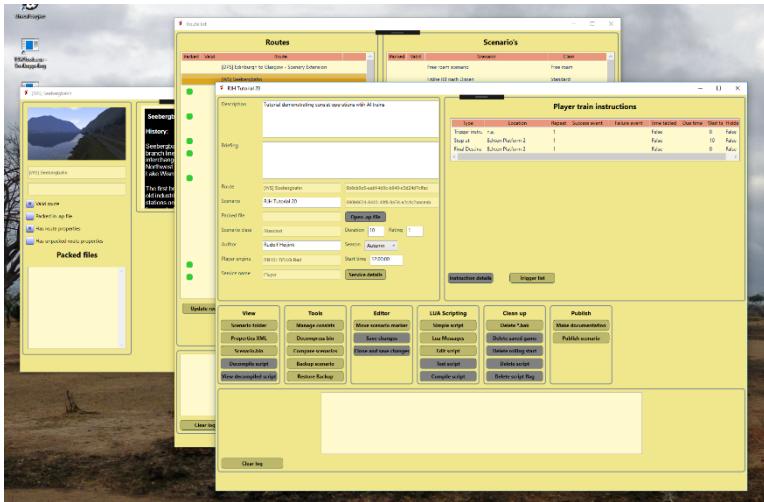


Figure 3 Modeless windows

3.2 Impact of the window size

I created the new WPF version using a fairly large screen, with a resolution of 2450x1440 pixels. As I understood it, WPF would scale nicely for other screen sizes. Unfortunately this is not true.

So, when I tested LuaCreator some years ago at my laptop screen (1920x1280 screen), the windows did not fit on the screen, which is not workable. For the short term I adapted some screens to fit better and adapt the content size a bit. I also added scroll bars to each window. Therefore if you work at a smaller screen it should be possible to use LuaCreator by scrolling. A consequence of all this is that full screen mode maximizes now to 09% of full screen.

I think how this is solved now works reasonably well and in most cases there is a way out. If it is not working for you, please send me screenshots.

Note: When working on a smaller screen e.g. a laptop screen, you may need to use the scroll bars to be able to use larger windows.

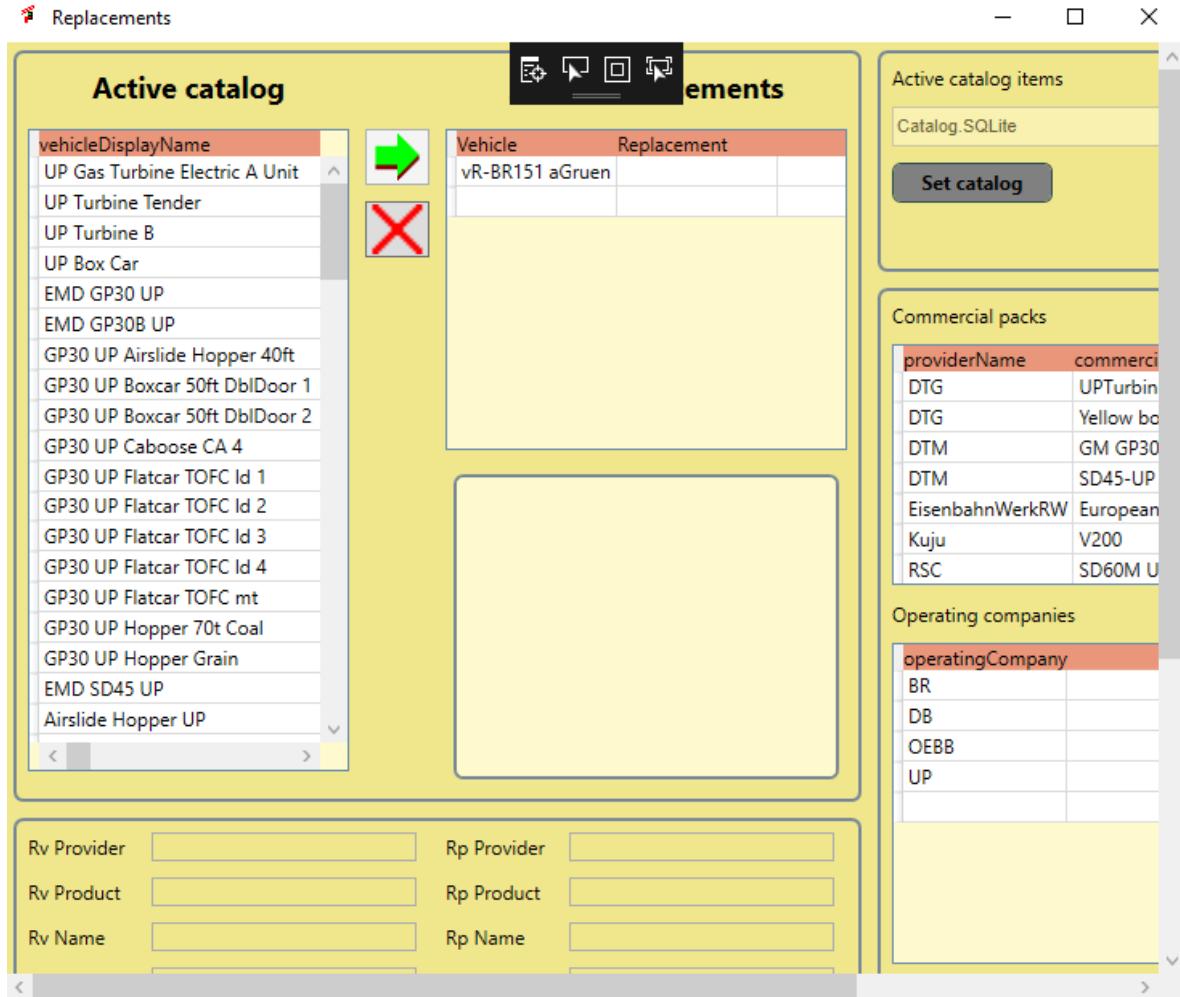


Figure 4 Example of a window with visible scroll bars

3.3 Controls

ToolkitForTSW uses a large number of controls. WPF makes it relatively easy to give them similar look and feel. In LuaCreator simple styling is used, later these may be replaced by more advanced and fancy options. For now, it is mainly functional, so it is helpful to understand the concepts that are used.



Figure 5 Buttons

Buttons are used to start an action. ToolkitForTSW uses colour codes to tell you more on the significance of a button:

- **Pink** is used for a **Cancel button**. This is mainly useful for a modal window and results in abandoning the planned changes.
- **Green** is used for the **OK button**, which usually makes changes permanent. For a modal window, an OK Button will close the window as well.
- **Grey** is used for a **Disabled button**. Pressing it has no effect, mostly because condition is not met. For instance, You cannot show Scenario Properties if no scenario is selected.
- **Dark Khaki** is used for **Normal buttons**. They will execute the indicated action.

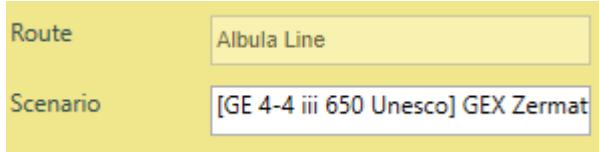


Figure 6 Text Box

A **TextBox** is used to allow you to enter text. In Figure 6 you see a four elements. The left column contains the meaning of the right column (in this case Route and Scenario). The right column contains the actual value from the game data. You see the **Border line** for the text. If the background is **yellow**, this means you cannot change the text, if the background is **white**, you can edit the text in this field.

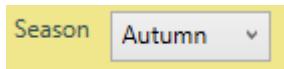


Figure 8 Combo box

A variant of this principle is a **combo box**, which shows a predefined set of values, e.g. the seasons in this example. The background is white, so you can edit it.

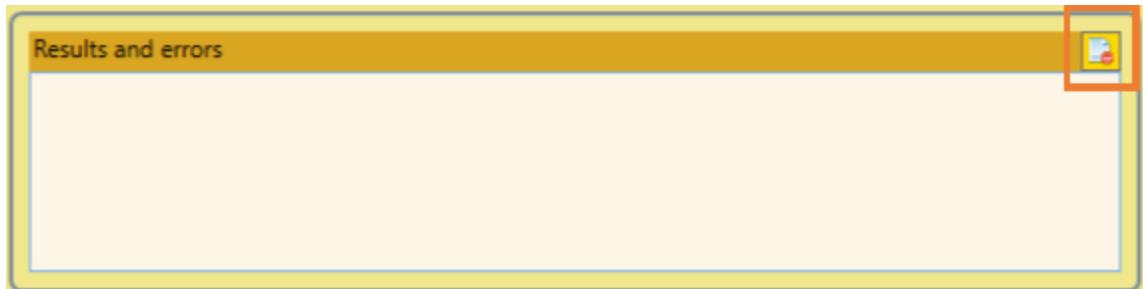


Figure 7 Result Text Box

A special case is the **Result Text Box**. This Text Box has more than one line and it will automatically scroll to the last line when its contents changes. It now has an integrated button at the upper right corner to empty the contents, see the highlighted spot in Figure 7.

It is used to inform you about results of actions where needed. Its use is not always consistent yet, This will be repaired in next versions. On most windows you will find one.

A **File Dialog** also is a special case. It is used to select a **file or directory**. The **actual value** is shown in the Text Box, but as you can see you cannot directly edit it. If you want to change it, press the button at the right side showing three dots. This will open the well-known standard windows dialogs for selecting files or directories.

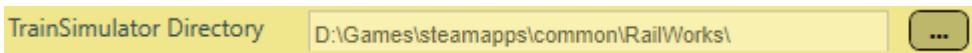


Figure 9 File Dialog

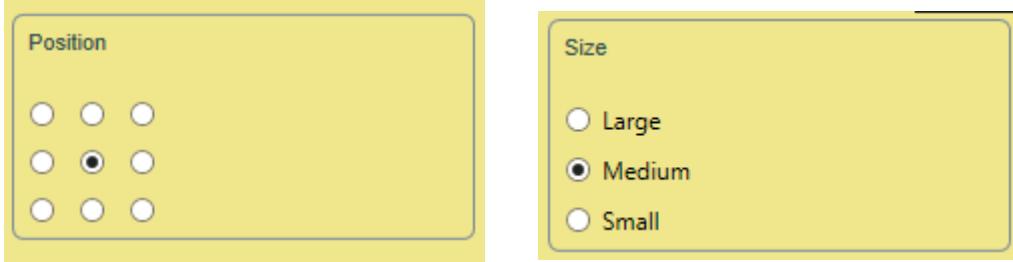


Figure 10 Radio buttons

Radio buttons are sets of small round buttons you can check, but you can check only one out of a set. A set is surrounded by a thin border line. In one case, you see there is no text. In this case each button represents a position at the screen for a Lua message. This will be explained later.

Tooltips are short help texts. You may see them at some screens. I intend to add them to all windows. Unfortunately, it is not possible to capture them easily.

ToolkitForTSW works a lot with **tables**. I have used two different technologies for tables:

1. **List View**
2. **Data Grid**

The bad news is that you cannot see which one I used. Data Grids offer a bit more flexibility than List Views. In the example below, you see the LuaCreator **Route List Window** which has two **List Views**. For newer windows I always will use a DataGrid.

Routes		Scenario's	
Packed	Valid	Scenario	Class
Three Country Corner Route		[86] 01. Steaming Through: Part 1	Career
Usedom		[86] 02. Steaming Through: Part 2	Career
Utrecht CS - Tiel (V1.8)		[86] 03. Having a Freight Day: Part 1	Career
Virginia Truckee Railroad		[86] 04. Having a Freight Day: Part 2	Career
VNRR Springfield Line		[86] 05. Doing The School Run	Career
WCML North		[86] 06. Running on Fumes	Career
Weardale and Teesdale Rail Network		[86] 07. The Show's Over	Career
West Highland Line South		[RailfanMode] Bf Blumberg-Zollhaus	Career
West of Scotland Lines - The Port Road		[RailfanMode] Bf Futzten	Career
West Somerset Railway		Donor Blumberg-Zollhaus	Standard
Wutachtalbahn - Lauchringen to Immendingen		QD North	Quick drive
Wycombe Branch		QD South	Quick drive
Zuid West Nederland		RJH BR10 guest loc 1/3	Standard
ZZ_Invalid 00000046-0000-0000-0000-000000002014		RJH BR10 guest loc 2/3	Standard
ZZ_Invalid 00000057-0000-0000-000000002015		RJH BR10 guest loc 3/3	Standard
ZZ_Invalid 00000074-0000-0000-0000-000000002017		SP010_Dampfersatz mit der V60	Standard
ZZ_Invalid 2dce24f-70d7-41ac-add3-9a41df570fa			
ZZ_Invalid 2e5c39fb-a961-4327-ab46-e614d7c00e8e			
ZZ_Invalid 4b7d5a81-44e9-4399-9b69-5515ab791c1f			

Figure 11 Two coupled List Views

Remarkable features (all of these are also valid for a Data Grid):

- The first line with the **Pink** background contains the explanatory **column headers**. You can make the columns wider or smaller if you need.
- A **selected line** is highlighted by giving it an **Orange** background colour.
- If the **number of rows** exceeds the space allowed for the table, **scroll bars** will be shown automatically.
- The **green** and **red blobs** act as a **check mark**. In this case a green blob means the route is packed in .ap file. The red blob means the route is not a valid route.

A **Data Grid** has one additional feature:

By **clicking** a column at a header row you can sort the table using this column. This may be disabled.

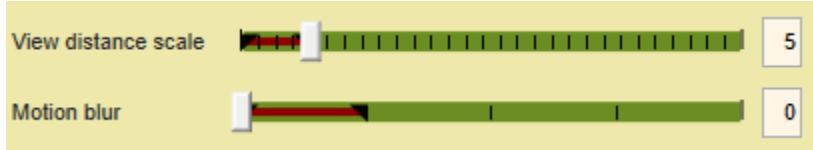


Figure 12 Slider control

The **Slider control** is used to select a value in a range. The brown area is a cosmetic feature and represents a recommended range. Please make sure to consult the documentation on the interpretation of this range. The tick marks show the granularity of the settings. In most cases the selectable values are restricted by the software. At the right side, you see an TextBox. You also can type the value directly in the TextBox, but this is not the recommended practice.

As a last control, I will introduce the **tab control**. This looks a bit like a button. What it does is that you can hide parts of a window and show only one of them. For instance, the options window shows either all file locations or the other options. The main advantage is that it saves screen space and makes the window more compact.

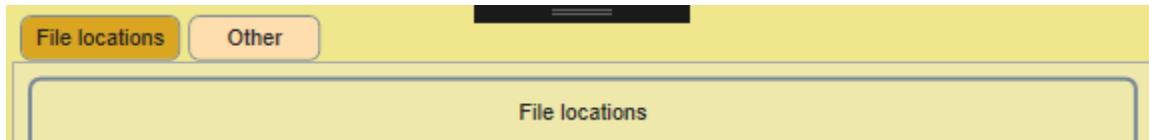


Figure 13 Tab control



4 Main screen

In Figure 14 the ToolkitForTSW main screen is depicted. Each function will be introduced in the subsequent sections.

1. Options, tool options. You need to set the options before you can use ToolkitForTSW
2. For errors, ToolkitForTSW provides an error log, which you can open here if needed.
3. Backup tool for the saved user data, screenshots etcetera
4. View the key bindings in a neat table format
5. **NEW** Manage user created scenarios
6. Unpack the game .pak files using the unreal unpacker (takes a lot of time!)
7. View the unpacked files using explorer
8. Interface to the UModel toolkit, to view uasset files
9. Game launcher
10. Edit the game options and save options as a set
11. Manage your additional mods (**Note:** image is not updated this button is now called manage mods)
12. Manage a list of Railway Radio Stations
13. The screenshot manager Used to find screenshots back and so on.
14. An installer tool to install mods directly from an archive.
15. About window
16. Open the ToolkitForTSW manual
17. Open the TSW2 Starters Guide
18. Open route guides
19. Close button, terminates the main screen

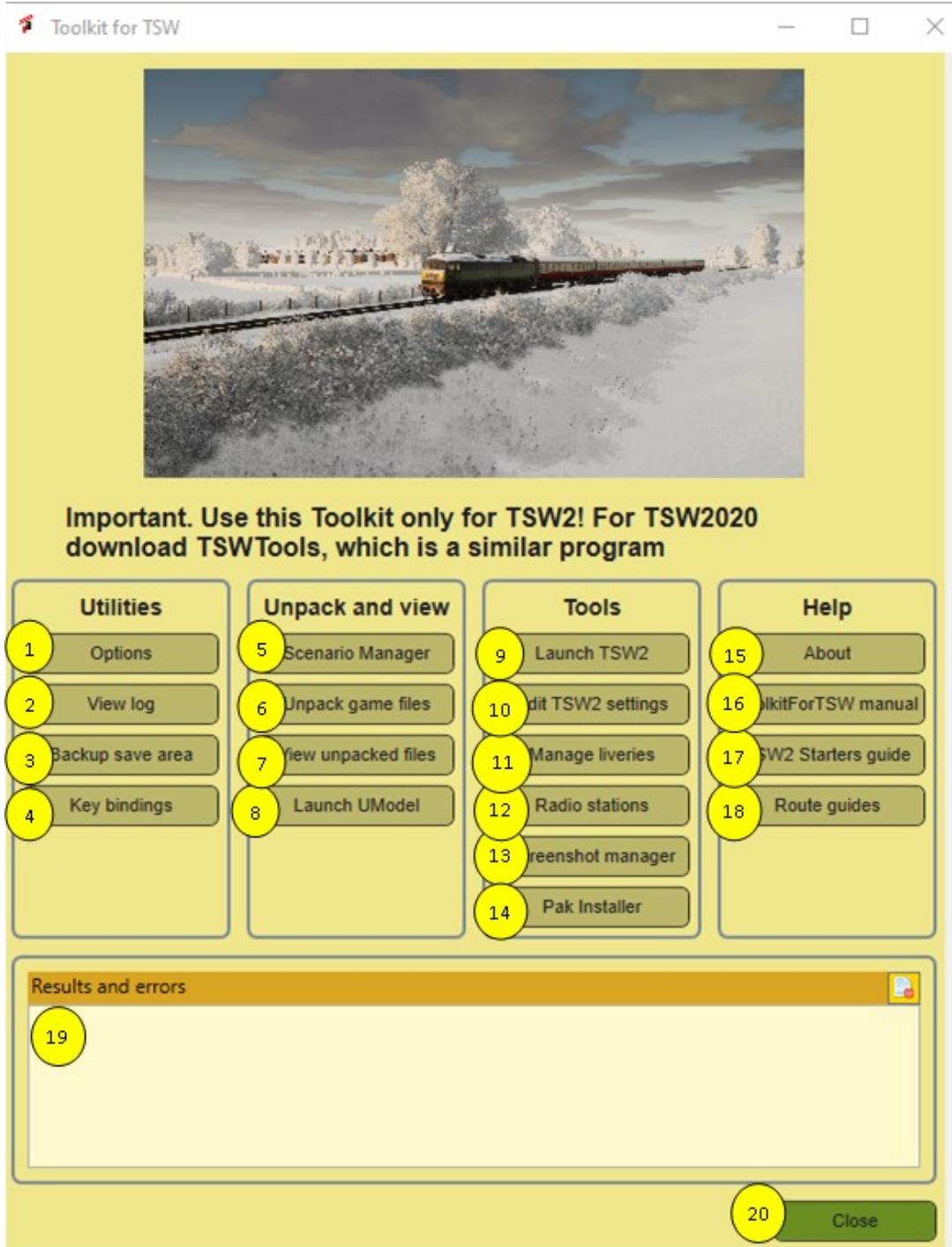


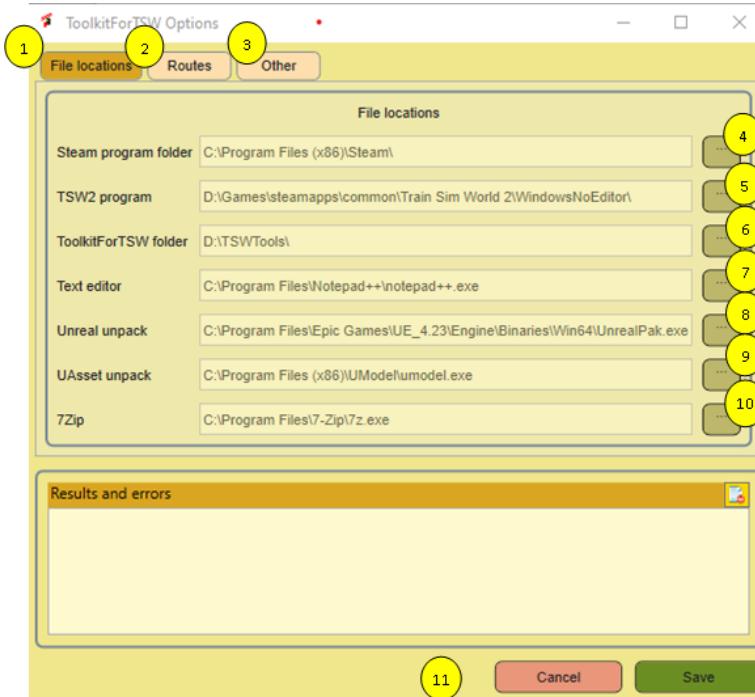
Figure 14 TSW Tools Main Screen



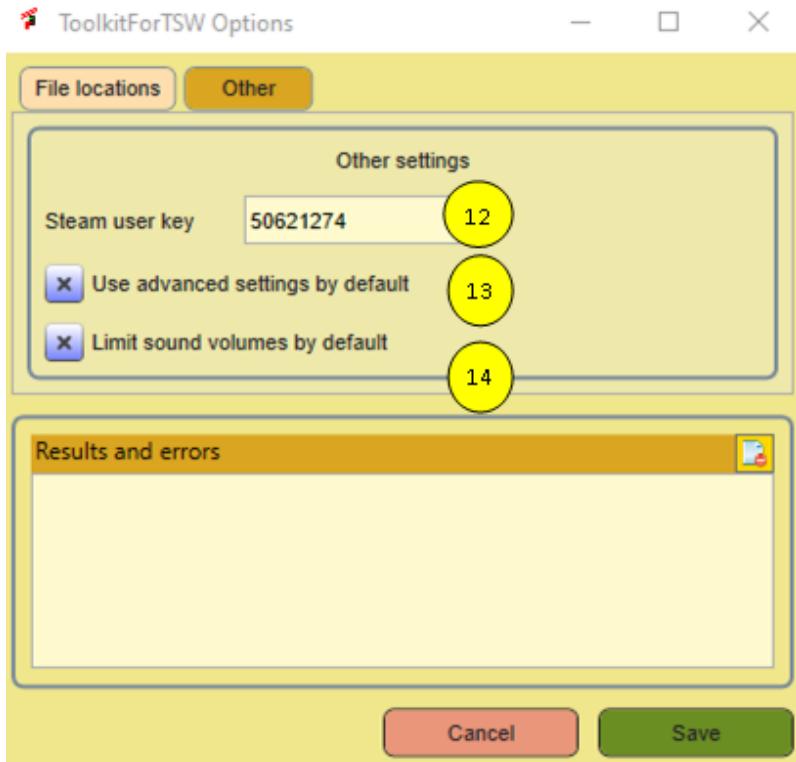
5 Utilities

5.1 Options Dialog

Before you can use ToolkitForTSW you need to set the options. Normally you only need to do this once. Options are stored in the registry.



1. **File locations tab.** The options window is a modal window and it has two tabs. The active tab has a brown colour. The not active tab is red. File locations is the tab for setting all file locations.
2. **New. Routes tab.** This tab allows you to enter and edit route names, which are used in the Scenario Manager.
3. **Other tab.** The third tab is for other settings.
4. **Steam program folder.** Set here the folder where you installed steam. This is needed for the screenshot manager. This NOT always the folder where steam installs games. In the example you see that at my computer Steam is installed at the C drive, but TSW is installed at the D drive.
5. **TSW Installation folder.** Click at the three dots to open an Open File Dialog. Make sure your path ends with "WindowsNoEditor" otherwise it will not have the desired effect and some functions of ToolkitForTSW will not work.
6. **ToolkitForTSW folder** is the folder where ToolkitForTSW will install its datafiles, e.g. the unpacked game. So this folder requires a lot of space. See section 2.2 for details.
7. **Text editor.** Notepad is used as a default, but I recommend to choose a better option, e.g. Notepad++
8. **Unreal unpacker.** Is the unpacker in the Unreal Engine. If you have the engine installed by using defaults, you probably do not need to do anything. Check out my website for some additional information on installing the Unreal engine.
9. **UAsset unpack.** Here you need the UModel program. Please check out my website for the download location and additional information.
10. **7Zip.** Here you can provide the location where 7Zip is installed. You need to point to **7z.exe** and not to one of the other programs that come with 7Zip.
11. **OK button** saves your changed settings, **Cancel** will cancel all updates in settings



12. **Steam User Id.** You need this ID to get the steam controlled screenshots. ToolkitForTSW tries to guess the correct id by inspecting your hard disk, but in case it does not work, you can set it manually.
13. **Use advanced settings.** This will turn on the checkbox Use Advanced settings in the settings editor.
14. **Limit Sound Volumes** This will turn on the limitation of sound volume settings to the officially supported values.

New. The Routes tab has a slightly more complex layout and needs some explanation:



Figure 17 Options, Routes tab

Why do we need this? The Scenario Planner does not save the Route Name in a very nice human readable form, but uses an ugly long text string. Unfortunately the way this string is built is not very consistent over all routes, so it is hard to retrieve the data in a form I like. This option fixes this for you. At the moment, you do not need to do anything. All TSW2 routes can be loaded from a file that is included in the application installer for you. (Including SEH) But I do not own all routes and maybe it will take some time before ToolkitForTSW is updated. In

these cases you can enter the data by yourself, or you can change entries in case of error. If you prefer not to do so, that is OK. But you may see a bit strange route names.

This is how it works:

At the left side, you see a list with all routes. At the right side, you see the editor. If you want to add a new route, make sure you press Clear first, so all text in the editor is deleted.

The enter you data and press Save. This will update and store the data in the table.

If you want to edit an existing entry: select the route you like to edit at the left side. Then press Edit. This will fill the data for the editor. When done, press Save and the data will be updated.

You also can delete an entry or you can load the list from this file.

Note: make sure the route abbreviation is unique, this is used as a key and you will be prevented to create two entries with the same abbreviation

Now the details:

1. List with all known routes, sorted alphabetically.
2. **Route name** as you want to have it displayed.
3. Route acronym or **abbreviation**. This must be unique.
4. **SP Name**. This comes form the scenario planner. If the scenario manager in ToolkitForTSW cannot find a route name in the database, it will use this instead. So to find it, create a scenario, find it in the Scenario manager and enter that here. It is case sensitive so be accurate.
5. The **route string**, which is the full string used in the Scenario Planner. It is available in the Scenario Manager.
6. A **description** you can add.
7. **Edit** button. Once you selected a route, press edit to modify it in the editor.
8. **Delete** button. Once selected a route, press this to delete the selected route from the list.
9. **Load list** will read the list provided with ToolkitForTSW. This will be done automatically when you install ToolkitForTSW. It will not overwrite existing data in the database.
10. **Save** a record from the editor. If you started the process using Edit, it will do an update, otherwise it will try to create a new entry.
11. **Clear** will clear the edit fields.

5.2 Log viewer

The Log Viewer tells exactly where errors occur and include the error message. It is a non-modal screen and you can leave it open when needed.

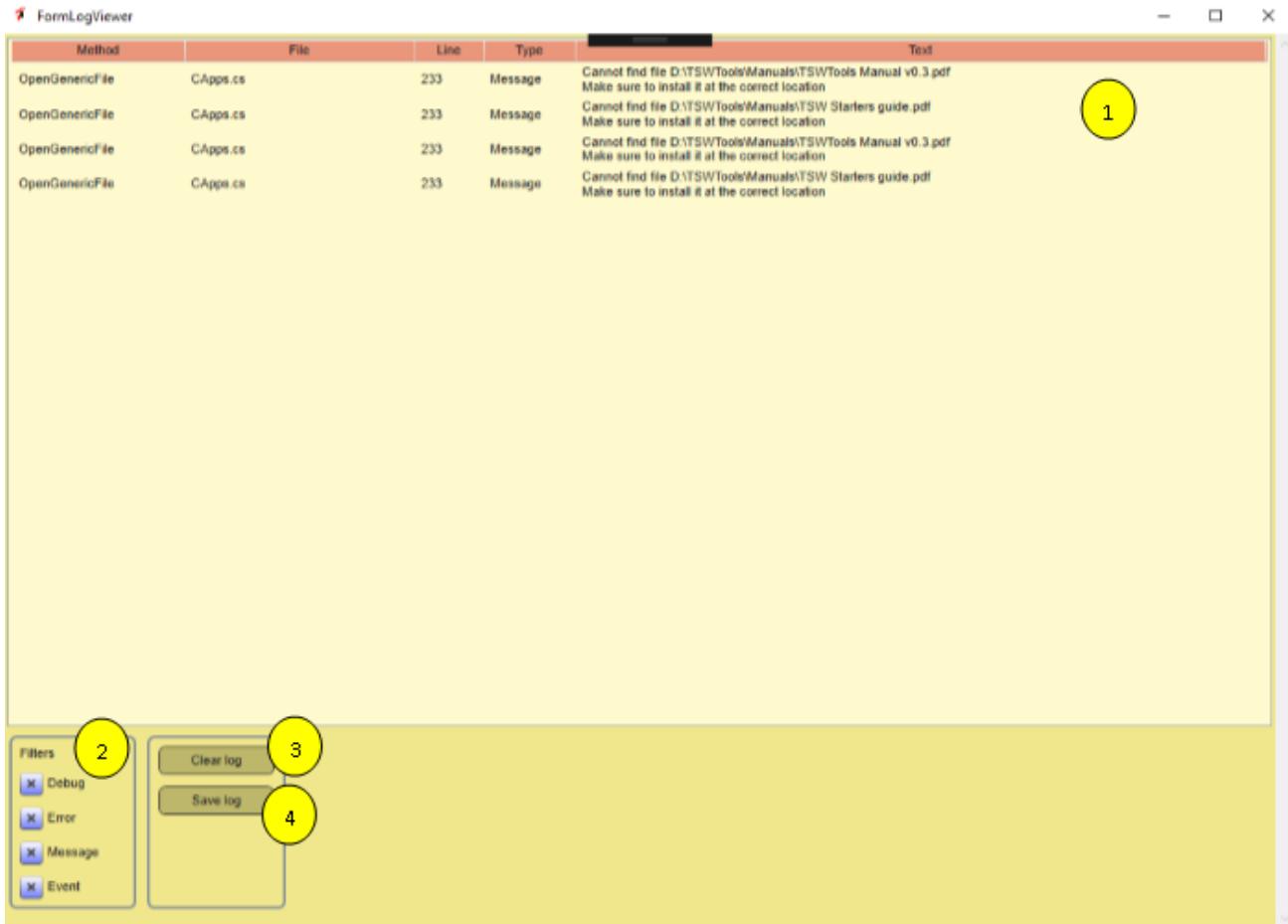


Figure 18 Log viewer

1. Here you find the actual log. It will be updated for each event automatically, no need to refresh it.
2. You can filter what you want to see. Default is all message types on.
3. This button will clear the contents of the log
4. Click here to save the logfile. You will be asked to provide a file name.

Note: if you want to report a bug, always send me a logfile. This helps me a lot to find out what is going wrong.

5.3 Backup save area

It happened once to me that the saved game data was corrupted. I deleted it and lost all progress. In Figure 19 the backup window is depicted.

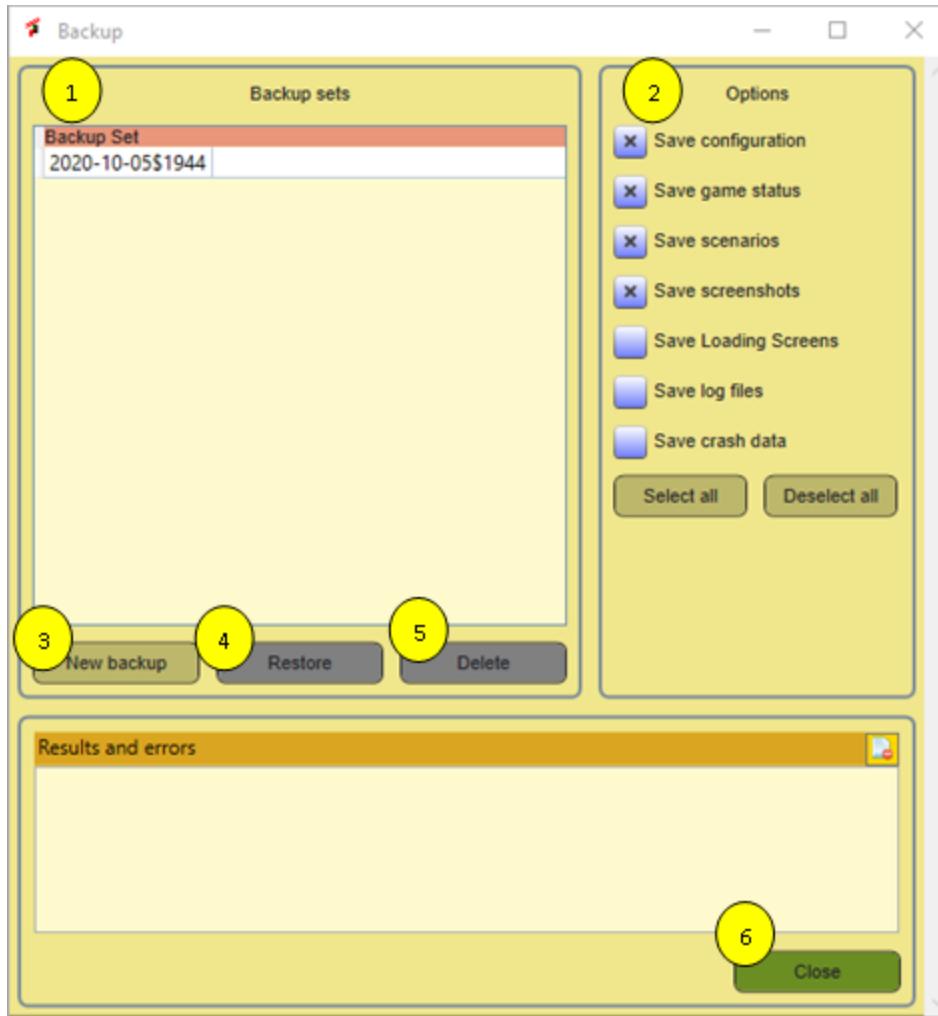


Figure 19 Backup window

1. This list all previous backups. Each backup is stored in a separate folder, named with the date (yyyy-mm-dd) and the a dollar sign and the system time in four digits. It is likely I will add the option to set a comment text in a next version. So, ask for it if you appreciate that!
2. Options, here you can select what you like to include in the backup. I recommend to use the checked items as a bare minimum. Optionally you can add screenshots (may consume a lot of disk space!). There are buttons to select the all or deselect them all. User created scenarios can be backed up also.
3. Press this button to create the backup. It will NOT ask for further confirmation!
4. If you select an existing backup, you may restore it. **Please be warned, you will NOT be asked to confirm this!!!**
5. You also can delete backups to free disk space.
6. This closes the window.

5.4 View key bindings

The screenshot shows a Windows application window titled "Input Mappings". The main title bar has icons for minimize, maximize, and close. Below the title bar is a yellow header bar with the text "Standard Key Mapping". The main area is a table with the following columns: Identifier, Action, Key value, Shift, Ctrl, Alt, Cmd, Game pad, and Input type. The table lists various actions such as Throttle, Reverser, AutomaticBrake, IndependentBrake, DynamicBrake, EmergencyBrake, Handbrake, EngineStartStop, Headlights, HeadlightsBack, Wipers, and WipersAlt, each mapped to specific keys or gamepad buttons. The "Input type" column consistently shows "StandardInputs". The table has scroll bars on the right and bottom. At the bottom right of the window is a green "Close" button.

Identifier	Action	Key value	Shift	Ctrl	Alt	Cmd	Game pad	Input type
Throttle	IncreaseInputs	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gamepad_RightTrigger	StandardInputs
Throttle	DecreaseInputs	D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gamepad_RightShoulder	StandardInputs
Reverser	IncreaseInputs	W	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gamepad_LeftStick_Up	StandardInputs
Reverser	DecreaseInputs	S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gamepad_LeftStick_Down	StandardInputs
AutomaticBrake	IncreaseInputs	Apostrophe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
AutomaticBrake	DecreaseInputs	Semicolon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
IndependentBrake	IncreaseInputs	RightBracket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
IndependentBrake	DecreaseInputs	LeftBracket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
DynamicBrake	IncreaseInputs	Period	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
DynamicBrake	DecreaseInputs	Comma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
EmergencyBrake	IncreaseInputs	BackSpace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gamepad_DPad_Down	StandardInputs
EmergencyBrake	DecreaseInputs	BackSpace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Handbrake	IncreaseInputs	Backslash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Handbrake	DecreaseInputs	Backslash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
EngineStartStop	IncreaseInputs	Z	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
EngineStartStop	DecreaseInputs	Z	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Headlights	IncreaseInputs	H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Headlights	DecreaseInputs	H	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
HeadlightsBack	IncreaseInputs	H	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
HeadlightsBack	DecreaseInputs	H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Wipers	IncreaseInputs	V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
Wipers	DecreaseInputs	V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs
WipersAlt	IncreaseInputs	V	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		StandardInputs

Figure 20 Key bindings or input mappings

This is not a tool doing much, but it gives you a nice overview of most input mappings. Anyway, it helped me to discover some undocumented features. The mappings are sorted alphabetically. In order to use this function, you need to unpack the game files first.

You can change the sort order by clicking at the column headers. It does NOT reflect the custom changes to keyboard mapping. I do not yet have any clue where this information is stored, probably in the status data, which I cannot open.

Note: unfortunately not all key bindings are shown here. Also you can change some of the key binding, and this is not reflected here. These bindings are stored in the profile file. I will see if I can read them as well.



6 Unpack and view

6.1 Scenario manager

NEW

6.1.1 General

The Scenario Manager tool can be accessed from the main page, using the Scenario Manager button.

It will show most of the information that is available inside the scenarios you created with the Scenario Planner in TSW2.

1. At the left side, you see all scenarios, ordered by route abbreviation (e.g. BKL, ECW, SPG ..).
2. If you select a scenario, it will show the services in the table at the right side.
3. For a selected service, it shows Path, service type, driving engine, consist and a list of stopping locations.
5. Going back to the right, at the lower side you see the result of three sanity checks on the selected scenario:
 1. If there is a service marked as player service.
 2. If any AI service starts before the player service. In this case, the service will not start at all.
 3. If you forget to confirm a service, the consist is not registered and your scenario will not run properly.

At the bottom you find a number of functions. Except the close function, they all require you to select a scenario before they will be enabled.

6. **Open in editor** will open the .sav file in an editor.

7. **Publish** opens the publish function, which allows you to pack a scenario in a zip file, give the zip a readable name and distribute it.
8. **Edit** opens the Scenario Editor. The Scenario Editor shows the same information, but for a single route. And you can change the information.
9. **Delete** deletes the selected scenario. As always, it just does what you ask, so be careful.
10. **Close** closes the window.

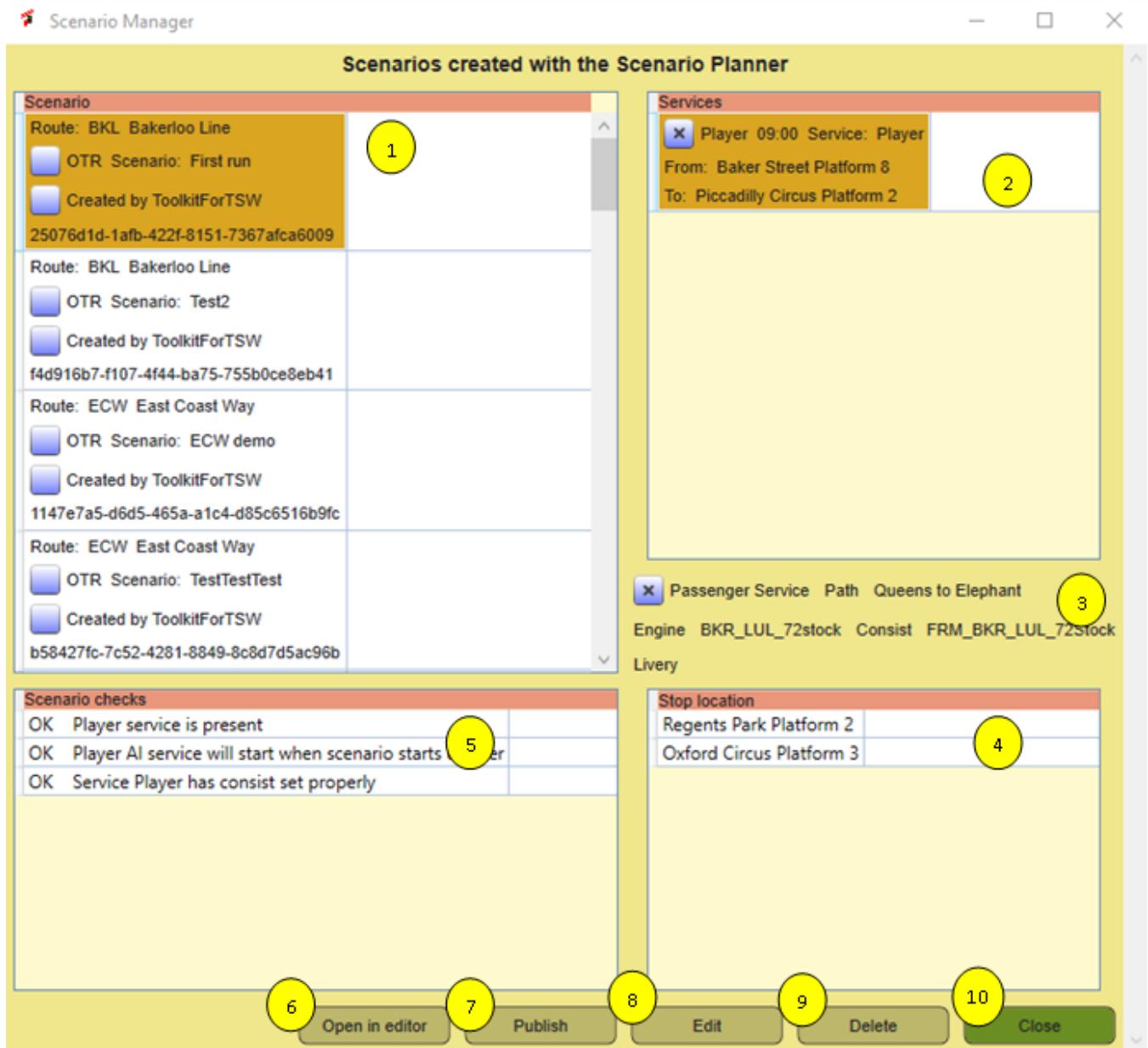


Figure 21 Scenario Manager

6.1.2 Scenario Editor

NEW

Starting in the Scenario Manager, which is used to select a scenario, you can edit the scenario. There is no need to worry, you cannot overwrite a scenario you created in TSW2. Upon Saving your changes, you are forced to make a clone first, with a new name and a new GUID to identify it. Once you created the clone you are free to do what you want and it will overwrite your changes.

WARNING: In the present form the Scenario Editor is not fool proof. For example, you can enter non-existent stop locations. If you do so, TSW2 may crash or not. I did not test that. So, use this tool at your own risk.

The Scenario editor supports changes at three levels:

- For the whole scenario
- For each individual service
- For each stop location in service.

This is a bit complicated, so make sure you understand what will happen.

The main screen of the Scenario Editor looks like this:

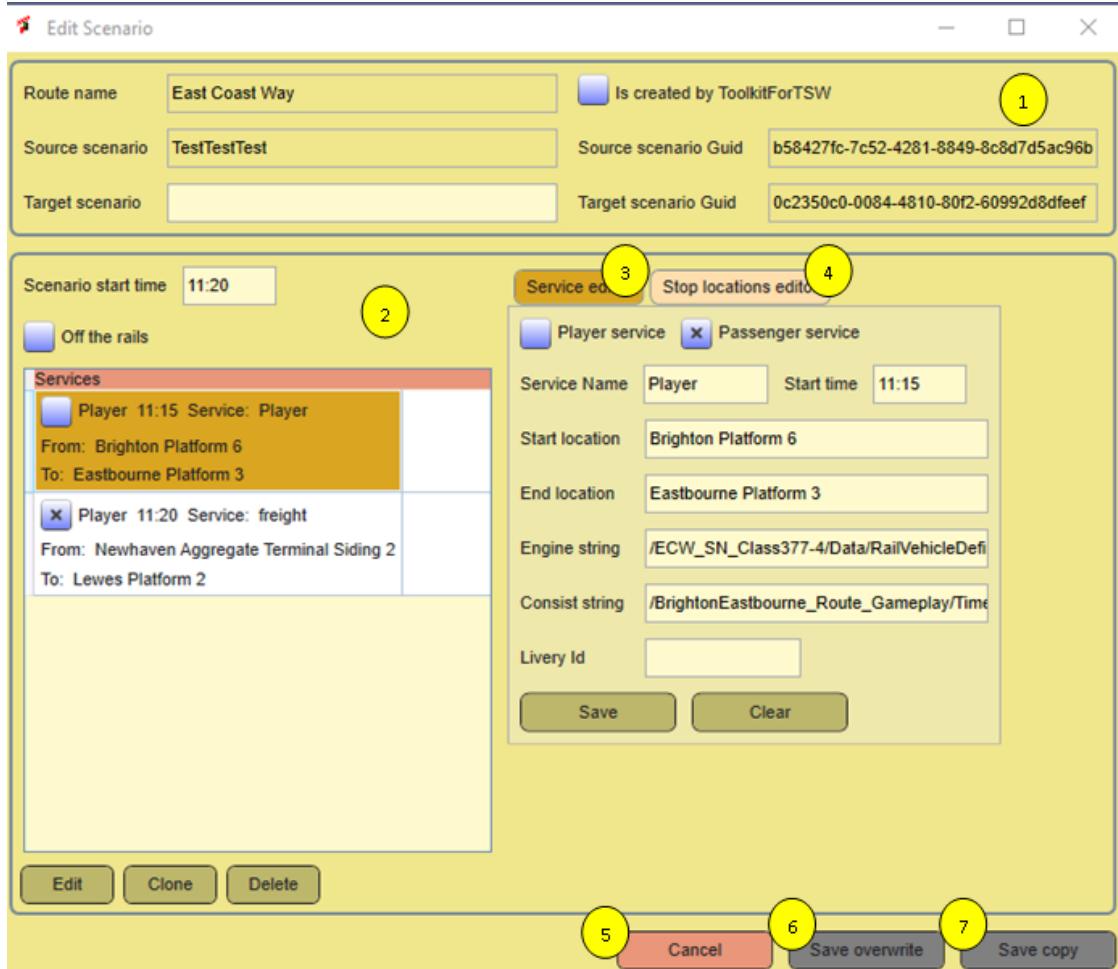


Figure 22 Scenario Editor screen overview

The different parts will be explained in more detail, but here they will be introduced.

1. This area identifies the scenario. You can set a new name here. The Scenario Guid is created automatically.
2. This part covers some more detail at the scenario level. The main part is a list of services, but you also can change the start time and off the rails mode. It allows you to prepare a service for editing.
3. The tab you see here covers the service editor. Here you can change services at the service level, e.g. starting time, livery, rolling stock.
4. The tab you cannot see has a list of stopping points for the service you are editing. You can reorder, remove, add or change stopping points here.
5. The cancel button closes this window.
6. Save overwrite is enabled if you created the original scenario in ToolkitForTSW. It will use the same Guid as the source scenario.
7. Save copy will create a new scenario and write all data to this scenario. This is the low risk strategy.

Note: especially at German routes Unicode characters may be used, e.g. ä, ü and so on. This is recognized properly by the Scenario Editor and it will translate this into code properly. Competing tools may not do so.

6.1.3 Edit Scenario Identification part

At the top of the screen you see the Scenario Identification part. The only thing you can do here, is set the new Scenario Name.

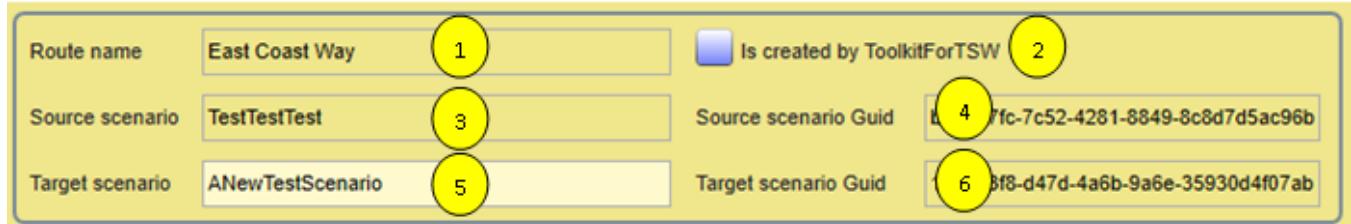


Figure 23 Scenario identification part

1. Route name. This is recovered for the .sav file and translated to make it readable. You cannot change the route name, that would not make sense.
2. If this checkbox is checked, this means you already copied the scenario and you created it using ToolkitForTSW. You are NOT required to make a copy again. This avoids cluttering your PC with copies, which feels a bit pointless.
3. The original scenario name. You cannot edit it here, but in the field below you can enter a new name and decide later if you want to make a copy.
4. The original scenario Guid. This is the key that identifies the scenario in an (almost) worldwide unique way. You cannot edit this field.
5. Here you must set a new name for the scenario. You can re-use the original name, but if you do so, you have no way to keep them apart later.
6. If you need to copy, a new scenario name is created.

6.1.4 Scenario part

In this part you can change several global aspects of a scenario. You can shift the start time, including start times of all services. You also can clone or delete services or open a service to change it. Finally, you can turn off the rails mode off or on.

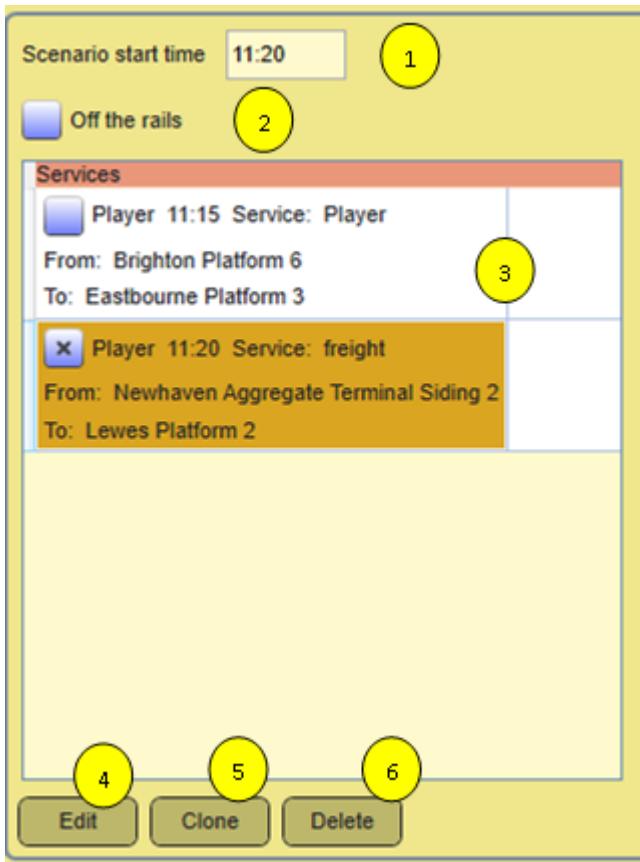


Figure 24 Scenario part

1. Scenario start time. This displays the start time of the player service. If you change it here, it will adjust the start times of all services, but be aware, this will happen when saving the scenario.
2. You can set or unset the off the rails mode. Probably it is not a very good idea to turn it off. That may have impact on the execution of a scenario. I did not check that.
3. Here you see a list of all services. You cannot edit it here. If you want to change anything for a service, select the service here.

The buttons described below, will be enabled as soon as you select a service.

4. Edit will fill the right part of the screen with a copy of the service details, so you can edit them.
5. Clone will make a copy of the service and put it into the list. You definitely need to change at least the start location, because two trains cannot share the same start location.
6. Delete will delete the service. This cannot be undone.

6.1.5 Services part

In the services part you can change service parameters.

1. Checkbox. This sets a service as player service. Please note, that only one service can be the player service, so for all other services this flag is turned off.

2. Checkbox Passenger service. You can safely turn this on or off. If you check this, during gameplay load passenger instructions will be generated for a service. Unfortunately, you set this at the service level, so it is applicable on all stops.
3. Service name, the name you give the service. You can change it, but be careful, TSW2 considers a lot of words as bad language.
4. Sets the start time for the service. You are not bound to the five minutes rounded values TSW2 offers you.
5. Sets the start location. Be careful to edit this and make sure you do not make any typing error. I do not know what happens if you use a starting location stat is not officially in the list of locations where you can start a service. Also I do not check the marker length. This may result in unexpected errors.
6. End location. See also all comments above.
7. Engine string. This is the internal Scenario Planner format for the engine. At the moment I cannot provide any means to find out what you should use here.
8. Consist string. Represents the consist. See also the comment above.
9. LiveryId is the identification string of a livery. This data is not yet revealed anywhere. I am working on this ...
10. Save the changes in this scenario in the target scenario. If you cancel the whole edit operation, nothing will be changed, but there is no udo for the target scenario.
11. Clear. Clears all fields. You do not really need this.



Figure 25 Services part

6.2 Stop locations part

In the stop locations part you can reorder, add, delete and change stop locations. If you try the Edit a service, this tab will be activated and contain data.

1. List with all stop locations
2. When selected a stop location, move it up or down in the list.
3. Edit the selected stop location in nr 7
4. This will clear the selection. If you want to add a new location to the list, you first must remove the selection. This button arranges that for you.
5. Delete. Delete the selected stop location.
6. Save changes for a stop location. If nothing was selected (e.g. after pressing Add new), a new stop location will be added, otherwise the stop location will be updated.
7. This is the field where you can type text to change the stop location or create a new one.

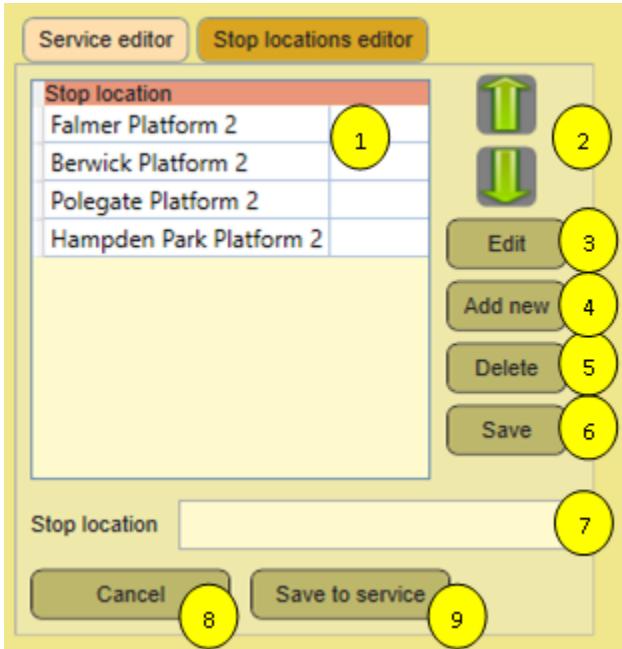


Figure 26 Stop locations part

8. This will undo all changes.
9. This will save the changes for the new service.

6.2.1 Publish scenario

The dialog allows you to complete the fields author and Description. Be aware that special characters are not yet supported. The HTML browser may interpret them in an unintended way. I will improve this later, this is just to make a start.

The documentation function uses a template, which is stored in your ToolkitForTSW folder, subfolder templates. A default is provided, but you can replace it by your own. There is not an option yet to choose a template. The first file (alphabetically ordered) will be picked.

This file works with placeholders to identify the various text parts, do not forget the curly braces!:

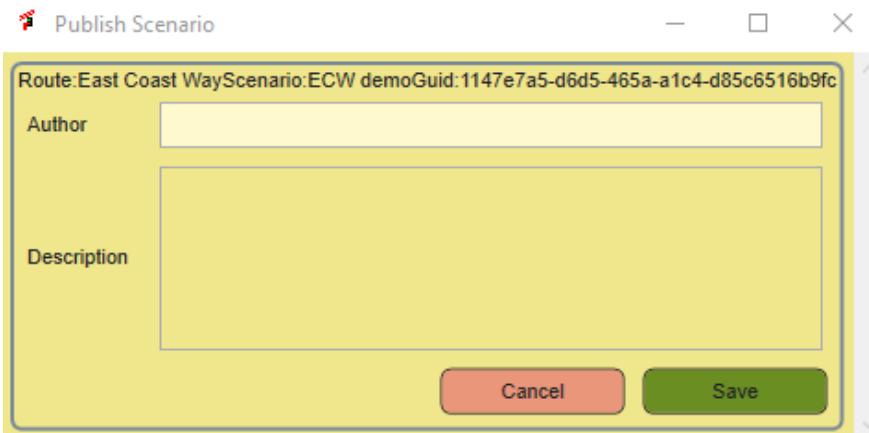


Figure 27 Publish Scenario Dialog

Placeholder	Comment
{Author}	Author name as filled in the dialog
{Description}	Descriptive text for your scenario
{RouteName}	The full name of the route
{ScenarioName}	The name of the scenario
{PlayerEngine}	The engine name for the player service
{Filename}	Filename of the scenario file
{ServiceList}	A table that consists of all services

Let me know your wishes to add more fields!

The resulting zip file is stored in the folder Scenarios in the ToolkitForTSW folder.

6.3 Unpack game files

This function will unpack the game files. It cycles through all .pak files it can find and uses the unreal unpacker to do the job. It may take a lot of time, during which ToolkitForTSW appears to hang. Please have a lot of patience.

For this function to work, you need to install the Unreal Engine.

1. Here you have a list of all installed active .pak files. As you may notice, the first one is a livery I have installed now. The game core .pak file is NOT shown here.
2. Because unpacking is time consuming, it is done in a separate process. Every second this process reports if it is still running back to the window. If this square is green and shows the word "ready" it is waiting for an unpack order. During unpacking it will have an orange background and the text "busy". I would like a more fancy animation, but that is not yet working properly.
3. Click this button to unpack the game core.
4. Click this button to unpack all DLC, **including the game core**.
5. In 1 you can select one or more .pak files. This will enable this button, which does what it says.

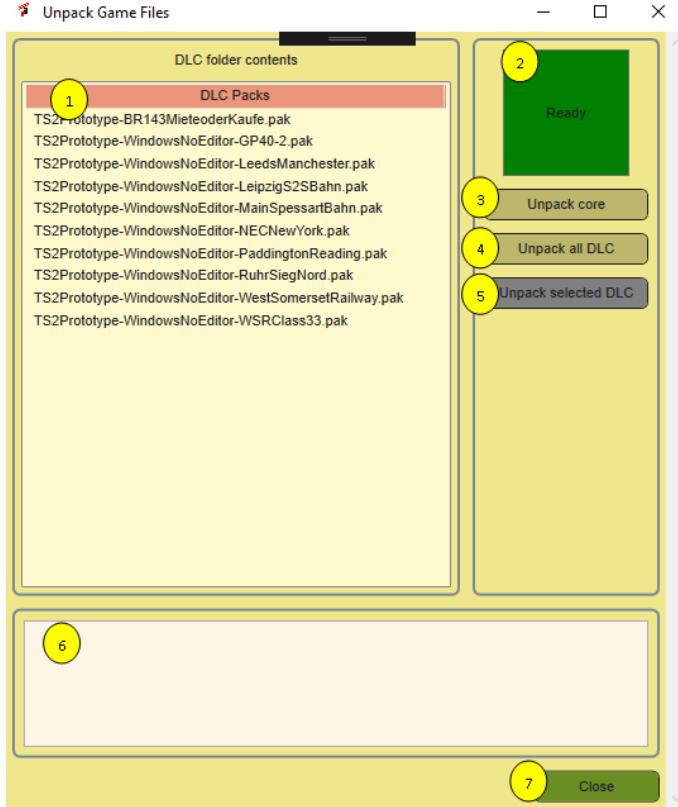


Figure 28 Unpack tool window

6. For the moment you can see here a number that is updated every second, so you have some idea that it is still running.
7. Closes the window.

The unpacked files will be stored in the ToolkitForTSW folder. See section 2.2 for details.

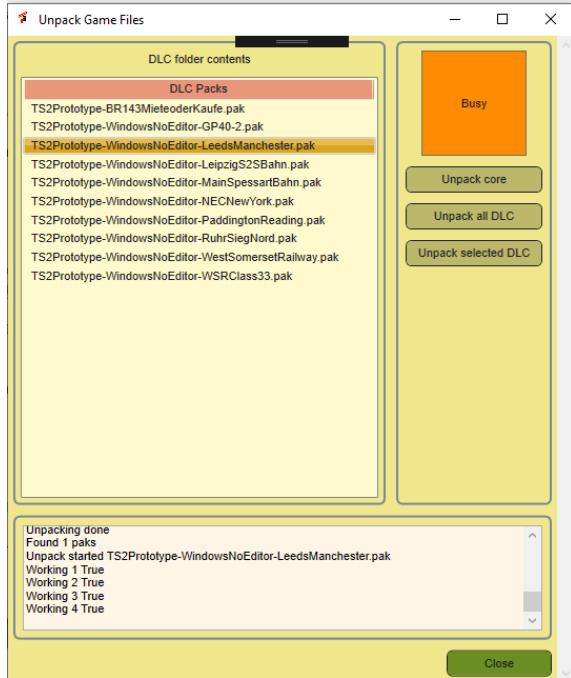


Figure 29 Unpacker while working

6.4 View unpacked files

This opens windows explorer, so you can browse through the unpacked files.

6.5 Launch UModel

UModel is a reverse engineering toolkit for Unreal games. It has its own user interface, but I think my solution makes it a bit easier to work with the tool.

Note: this function is experimental. Please give me feedback. Until now I have not been able to do anything useful with it.

1. Here you find a list with UModel options that seem most relevant to me, for easier reference.
2. This is a view on thee unpacked assets. You must select a .uasset type file here (likely) and press the Add files button.
3. Here you will find the output of UModel. This textbox will be much wider during execution. I still need to find a better style for this user interface. Coming in the next version...
4. Once you selected an option, this button will insert it at the command line.
5. This line contains the input path you selected in the Files block. You can edit it manually if you like.

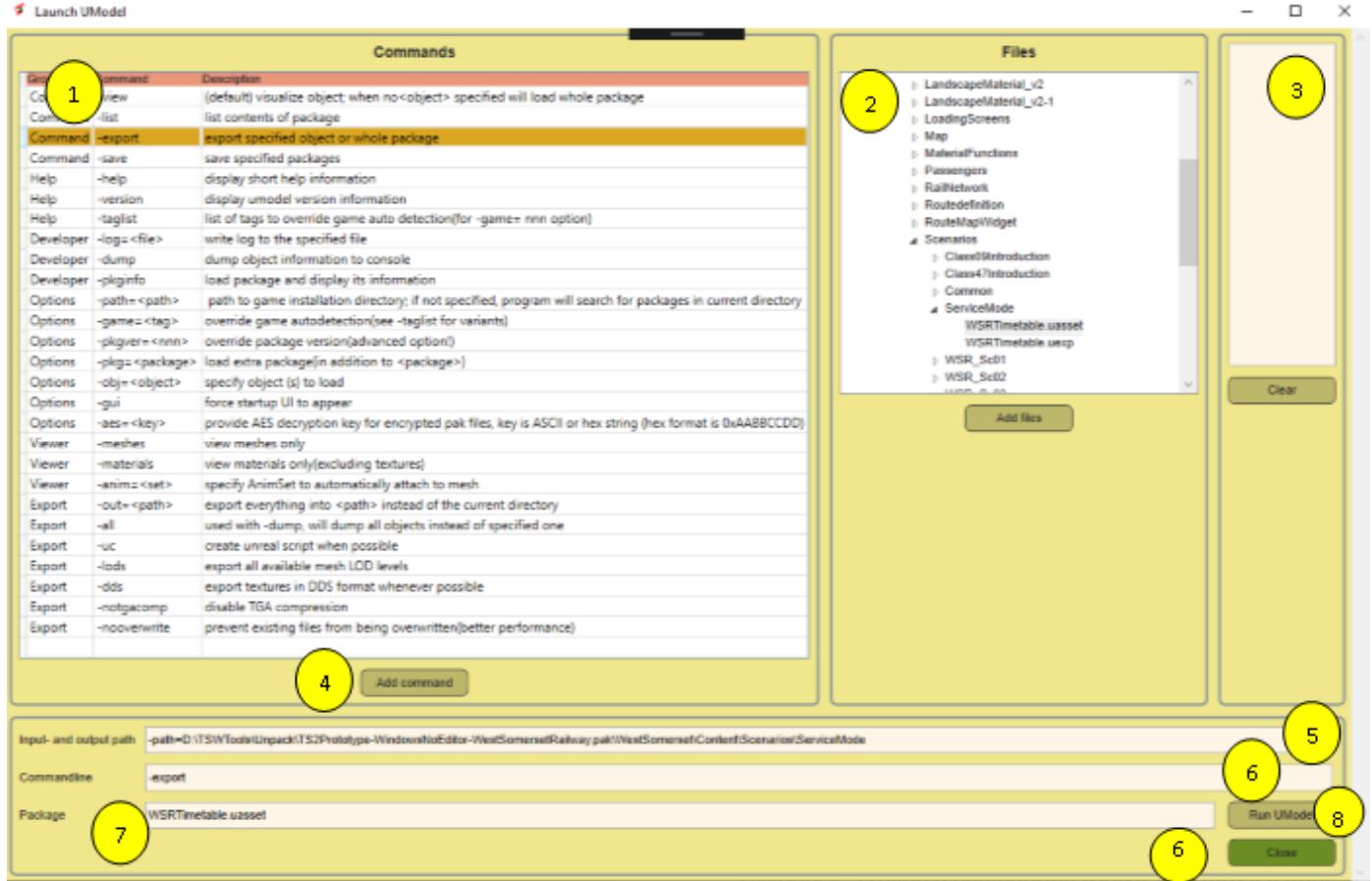


Figure 30 UModel interface for viewing the contents of uasset files

6. Here all options you added will be placed. You can (and sometimes must) edit this manually.
7. ToolkitForTSW will split the path you entered in the Files block and place the filename here. UModel interprets this as the “package”.

The UModel application is called as follows: Input and output path + commandline+ package.

The -out parameter is always set to the path in the ToolkitForTSW folder:

```
<ToolkitForTSWFolder>\Unpack\UnpackedAssets
```

Give it a try and let me know please if you have success or if you encounter errors. For your convenience, the UModel help file is included in appendix B of this manual.



7 Tools

7.1 Game launcher

ToolkitForTSW now has a game launcher. It has a number of functions::

1. You can load an options set before launching the game
2. You can activate a railway radio channel
3. You can select mods, using the mod manager
4. You can select a predefined set of mods to use.

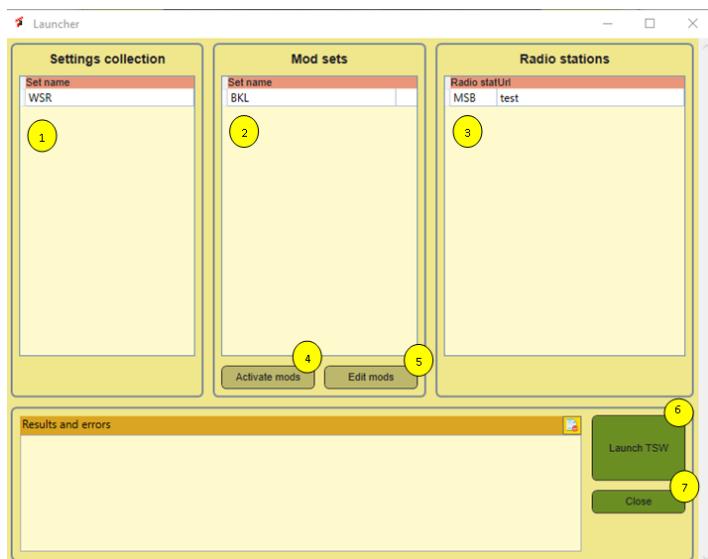


Figure 31 TSW2 Launcher

In the upper part of the window you see three tables. In each table you can optionally select one row. If you have a row selected, the settings that are represented here will be applied. If you do NOT select a row, nothing will be done with the settings of this type.

Note: in the current version, you cannot deselect the items. I will fix this in future.

Functions in more detail:

1. Select one of the previously prepared settings files. These are stored in the folder **{ToolkitForTSW}\OptionsSets**. See 7.3 for details.
2. Here you can activate a complete **Mod set**. See chapter 8 for details.
3. Here you can select a predefined Url for a railway radio station, which will be launched.
4. **Activate Mods** will activate the selected Mod Set
5. **Edit Mods** will open the Mods Manager.
6. The **Launch TSW** button. It will set the selected options set and activate a radio station. Once this is done, TSW will be started.
7. **Closes** this window.

It would be nice if we could set some more options, e.g. choose a route or avatar during startup... If you discover any of such functionality, let me know.

7.2 Railway Radio Stations

In the previous releases you could open a link to the Railway Radio communications for Sandpatch and run this at the background to increase atmosphere. In this version you can add other radio stations as well. You must use URLs, other ways are not (yet) supported. The list is maintained in the ToolkitForTSW database. The window looks like this:

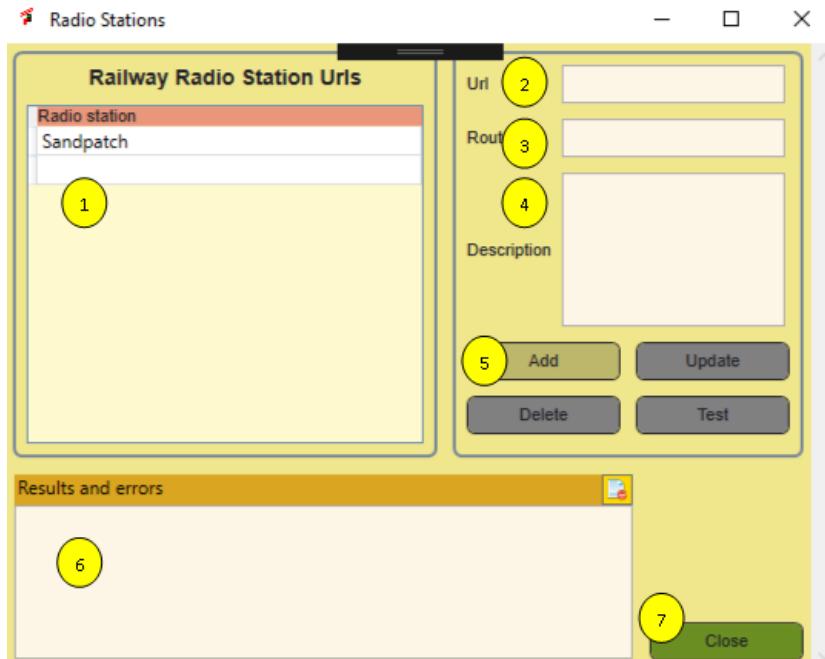


Figure 32 Railway radio stations window

Its use is straight forward:

1. A list with all defined radio stations
2. The Url of the station
3. The route name (this will be shown in the list)
4. You may add a description
5. Buttons:
 - a. Add a new Radio station (please make sure to fill the Route field!)
 - b. Update: Update the details of an existing radio station, requires you to select a station from the list
 - c. Delete, delete a station
 - d. Test opens the Url in your default browser
6. Error messages and other issues
7. Closes this window.

Note: I would like to add radio stations to the route guides and I would appreciate to receive links to stations you know about.

7.3 Edit TSW Settings

7.3.1 Introduction

TSW has a lot of different settings you can adjust in game. This has a number of restrictions:

1. The settings are not always well organized
2. Especially for sound the range for adjustment is too limited. People complain about low sound volumes
3. Some interesting settings are not directly accessible, though you can edit the engine.ini file.
4. It may be useful to have more than one settings set, e.g. one using imperial units and one for metric, a low resolution and a more high resolution set depending on route and how powerful your computer is.

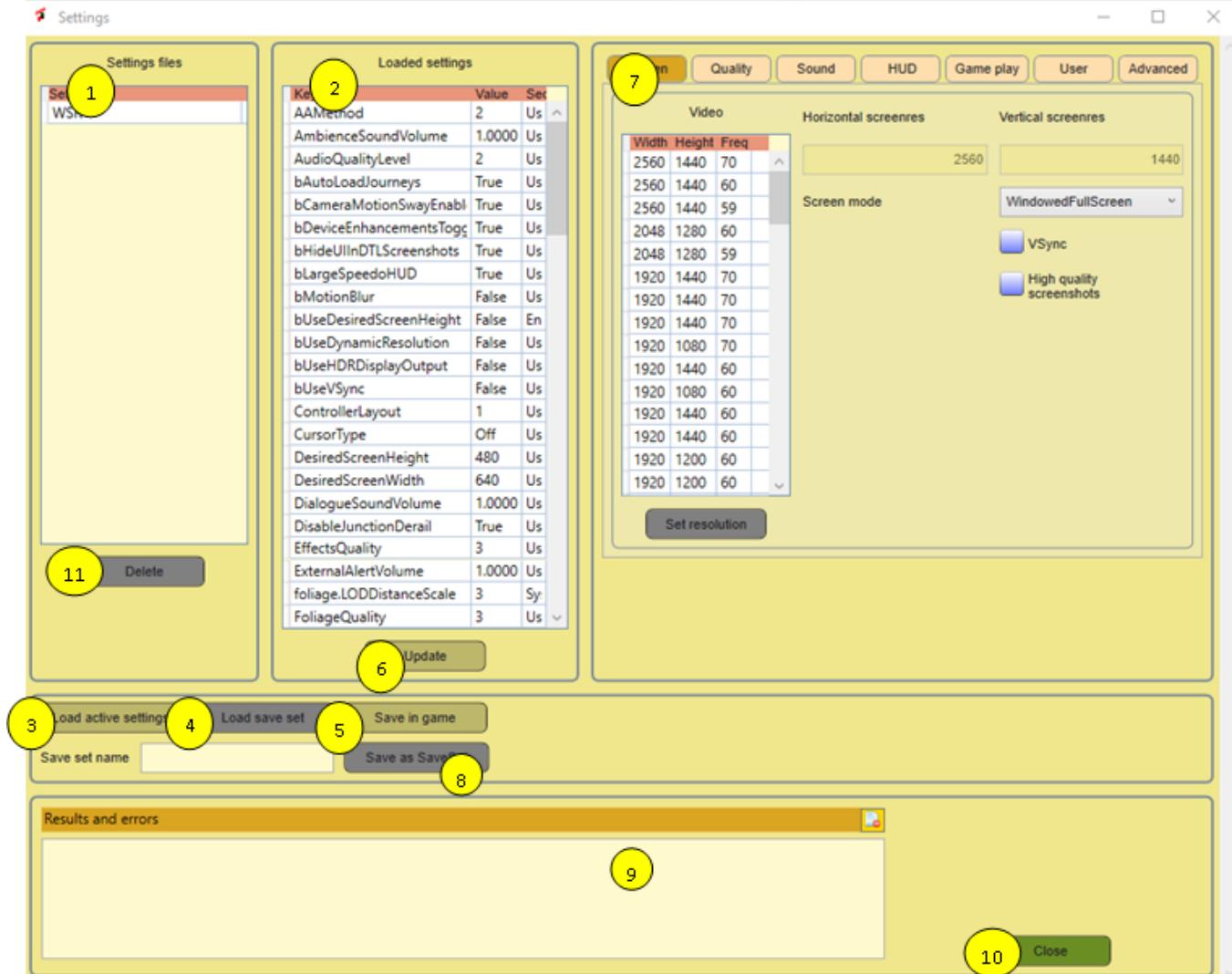


Figure 33 Settings editor

ToolkitForTSW solves this problem for you. It allows to edit most settings, including a number of Unreal settings not covered in game. It allows to save the settings files in the ToolkitForTSW folder and load sets in the game during launch. The window is a bit complicated, so please read the instructions carefully. It has a main window and a number of tabs for different types of settings.

The common functions are:

1. A list of all available settings collections (technically each collection is stored in a separate folder).
2. The actually loaded collection of settings in the editor.
3. With this button you can load the settings that are now actually set in game
4. With this button you can load a saved set, you must first select such a set in 1.
5. Saves the edited setting as active game settings
6. Updates the loaded settings from what you changed in the tabs (nr 7)
7. Here you see a number of tabs, each of them will reveal a subset of the editable collection. This will be covered in more detail later.
8. Saves the set you are editing now as a saved set. You must provide a **save set name** in the textbox to enable the button. I require you provide at least three characters in the name.
9. Provides informative messages
10. Closes the settings editor. Note that it will NOT warn you for unsaved changes.
11. **NEW**. Delete the selected save set.

In game, the settings are stored in two different files:

The TSW specific settings reside in **GameUserSettings.ini**. The Unreal settings are stored in **Engine.ini**.

TSW has a bit of strange behaviour. Each setting has a default value. If the default value applies, the setting is not always defined in the .ini file. You do not need to worry about this. The Settings function in ToolkitForTSW can handle this and knows the default value, but it will always create an entry for the setting. Also settings are organised in groups at a technical level. ToolkitForTSW knows about these groups and will make sure this is working.

If DTG decides to add a new setting, this should not be a problem. You cannot edit them, but its value will be preserved, due to the way this functionality is managed.

In the next sections, all supported settings are explained where necessary. For detailed information on what each setting will do, please read the **TSW2 Starters Guide**, which is included in the ToolkitForTSW installation file.

7.3.2 Screen settings

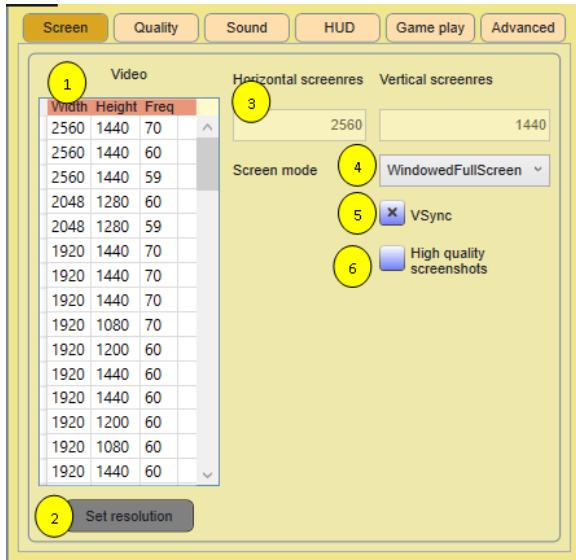


Figure 34 Screen settings

1. Here you get a list of all screen resolutions your screen supports. The frequency is available here, but it is not used as a game setting. By clicking at the column header, you can have some influence on the sort order.
2. Once selected a resolution, click here to activate it.
3. These two boxes show the set screen resolution.
4. Here you can select the screen mode. It is a combo, so no mistakes possible.
5. Turns vSync on or off
6. Turns high quality screenshots on or off. Warning: high resolution is very high resolution and consumes a lot of disk space.

7.3.3 Quality settings

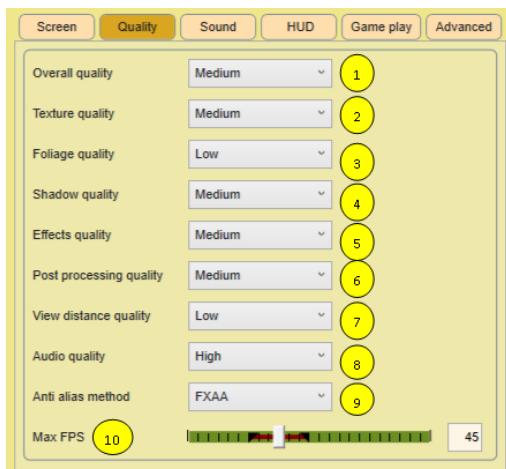


Figure 35 Quality settings

These settings affect the graphics quality. In the **GameUserSettings.ini** file this is not always done consistently. You can select the values Ultra, High, Medium and Low for each of them.

NEW Shadow Quality and Effects Quality use a slightly different range. You can select Off, Low, Medium and High.

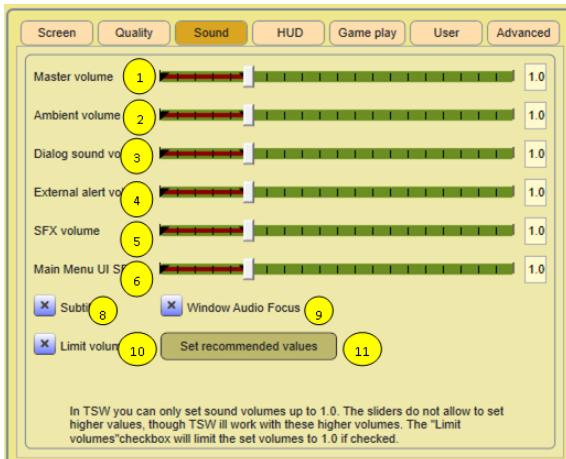
For the anti-alias method, the technical terms are used. Matt (our DTG expert) recommends FXAA for most cases.

You can limit the number of frames per second. Below 30fps is not a good idea, and 60fps should be enough for high end systems. If you set it to 0, no limit is set.

7.3.4 Sound settings

TSW supports sound settings in the range 0.0 to 1.0. For many users this is not loud enough and higher values are recommended by some users. **You can set these higher values here, but you do it at your own risk.**

Note: it is not needed to use the values. You may also turn up the speaker volume a bit. In more recent routes it is working a lot better.



In brown you see the officially supported range. If you select a higher value, in the TSW settings menu you can

Figure 36 Sound settings

only change it back to the supported range.

- At 8 you turn subtitles on or off.
- At 9 you can set windows audio focus, whatever that means.
- At 10 you can limit the settable sound volumes to the officially supported volumes (max 1.0).
- At 11 you can set the values to the recommended higher values or you set them to the recommended values that fit in the game limits. **NEW** this is now fully implemented in the User Interface.

7.3.5 HUD settings

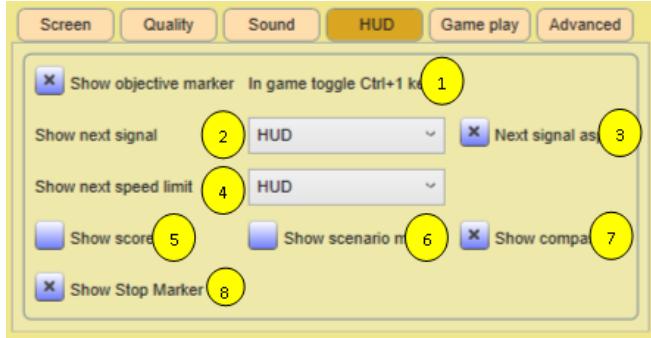


Figure 37 HUD settings

In TSW you have a lot of control on what you want to see at your screen and how you want to see that. See the TSW Starters Guide for all details. In TSW Tools you can apply the initial settings in a more structured way.

1. The objective marker shows the distance to the next task, either in the form of a marker or included in the HUD. If you set this checkbox, the marker will be shown.
2. The next signal can be shown as marker or in the HUD or both. This setting sets the initial value. You can change it with the keyboard in game. See the TSW Starters Guide for a detailed explanation.
3. You can show or hide the next signal aspect also.
4. Same for the next seed limit, but here there is not an option to hide its value.
5. TSW has a scoring system, you can show the actual score or hide it.
6. TSW has markers in the 3D world where you can start a scenario or tutorial. This setting will hide or show these markers.
7. You can hide or show the compass separately.
8. Sets the visibility of where your train should stop in the 3D world.

7.3.6 Game play settings



There are a few gameplay settings, which are settable here.

Figure 38 Game play settings

1. Set disable junction derail on or off.
2. Set first person mode default to walk or to run
3. Turn force feedback on or off
4. You can turn cab sway on or off
5. You can select imperial or metric units (Mph or km/h)
6. You can select grade units
7. You can select temperature units

NEW For 5, 6 and 7, the new value Automatic is supported as well. If you select this value, the actual value will be determined by the route you play.

7.3.7 User settings

NEW TSW2 introduces some new settings that do not fit well into the system. Therefore I created a new tab User Settings. My assumption is that you will use these settings globally.

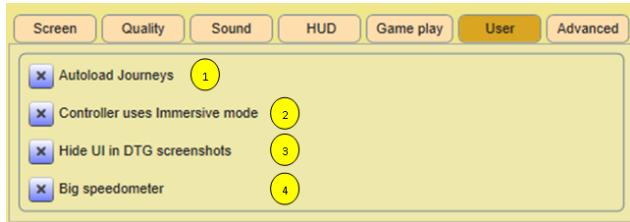


Figure 39 User Settings

Four settings are supported here:

- **Autoload Journeys**, which cause the next journey to be loaded automatically.
- **Immersive mode** for the XBOX controller, which uses a simplified control set for the XBOX controller. See also the official game manual.
- **Hide UI for DTG screenshots**, which hides the UI if you use Ctrl+F10 to create a screenshot for upload to your profile.
- **Big speedometer** HUD. If you like it bigger, check this ...

7.3.8 Advanced settings



Figure 40 Advanced settings

The advanced settings are all settings supported by the Unreal engine. See the **TSW2 Starters Guide** for detailed information.

For your convenience, at 8 you can select a recommended setting for all parameters. If you deselect 9, the advanced settings will not be used, except for Screen percentage, which will be set to 100%

For Motion Blur (5) TSW provides a key combi to turn it on or off. Here you can turn it off or select values in the range 1-4 to determine the amount of motion blur.

Gamma correction (7) makes TSW looks lighter or darker. 0.5 is a good default, you may want to set it higher for night drives.

7.4 View screenshots

TSW has three screenshot methods:

1. You can use the F12 key to get a screenshot including the HUD. Essentially this is the steam screenshot facility
2. You can use Ctrl+F12 to get a TSW screenshot, without any HUD stuff.
3. With ctrl+F10 you get a screenshot that is uploaded to your Dovetail live profile. This is not locally available and outside the scope of the screenshot manager.

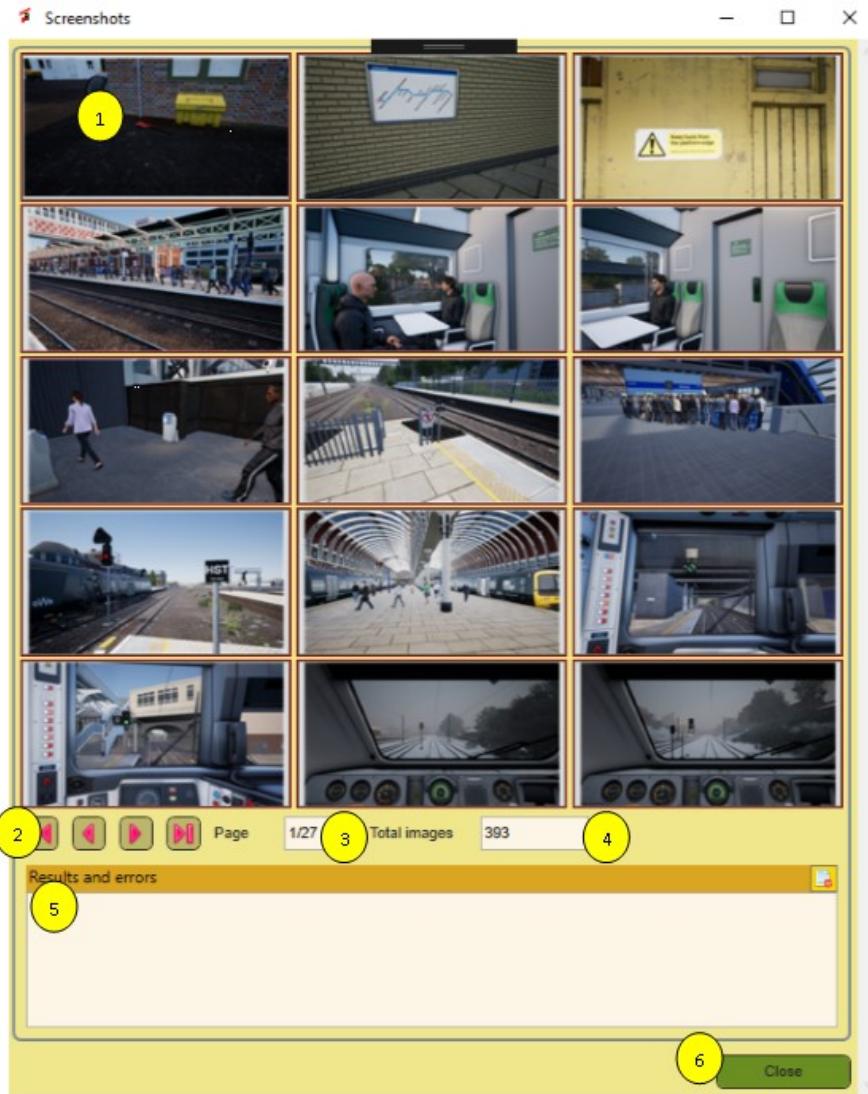


Figure 41 Screenshot viewer

Unfortunately the two types of screenshots are stored at different locations and have different size and file format. Therefore ToolkitForTSW includes a screenshot viewer that brings them all together. You also can delete screenshots here or make a local copy if you like.

1. Thumbnails of the screenshots, click on a thumbnail to show the screenshot larger!
2. Navigation buttons to go to the first page, next page, previous page or last page.
3. Show at which page you are now.
4. Number of available screenshots
5. Space for error messages
6. Closes this window
7. You can open a separate window for each preview you like to show.

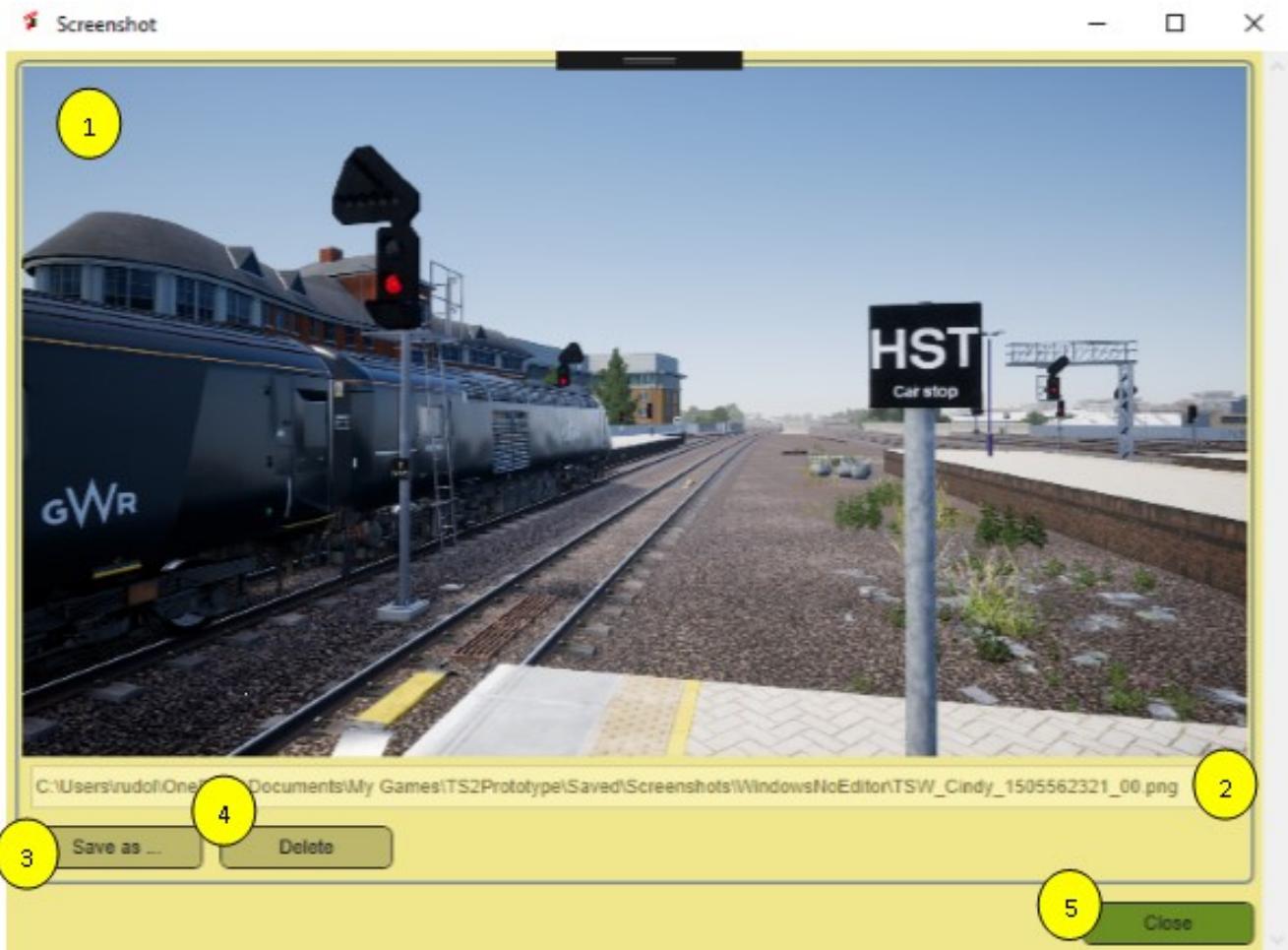


Figure 42 Screenshot preview window

1. Larger preview of screenshot. You can do this by clicking at a thumbnail.
2. File path of the previewed screenshot
3. Opens a file dialog and copies the selected screenshot to the desired location, while updating the file name.
4. Deletes the selected screenshot. Warning: it does NOT ask for confirmation!

1. **Note:** It would be nice to include your screenshots in the loading screen. Unfortunately the loading screens are refreshed when the game starts, so I will not implement such a feature.



8 Working with Mods

8.1 Introduction

TSW currently has no official features to create your own liveries and mods. However, some people found a way of working that allows minor changes to the game. The good news is that installing them is very easy, just place a file at the proper location. The bad news is that it simply replaces the original object and you can install only one mod as a livery at a time. If you install, say more than one livery for an engine at the same time, it is not so clear what happens. For liveries that cover scenery it is even more unpredictable what happens.

Having said that, ToolkitForTSW supports managing liveries as far as possible. You have several options here:

1. Ignore ToolkitForTSW and place .pak files in the DLC directory annually and remove them eventually.
2. Use the ToolkitForTSW Livery management features, to keep track on the liveries you have and use to the tool to easily install and uninstall liveries and mods.
3. You also can create sets, which combine some liveries and use the TSW Launch Tool to install them specifically at launch time, along with the game settings and eventually Railway Radio Stations.

Along with this comes a **Mod Installer** tool, which supports all three options.

However, it is not a very good idea to mix these options. If you install pak files directly, ToolkitForTSW will not know which pak files belong to the game and which are mods, so to be safe, ToolkitForTSW chooses the most safe policy, but this may result in unpredictable behaviour.

If you want to use ToolkitForTSW, do it consistently for the best results. In the next sections the three tools will be described in detail:

1. The Pak Installer
2. The Livery Manager
3. The Livery Sets tool

TSW Launch is explained in section 7.1.

8.2 Pak installer

8.2.1 Introduction

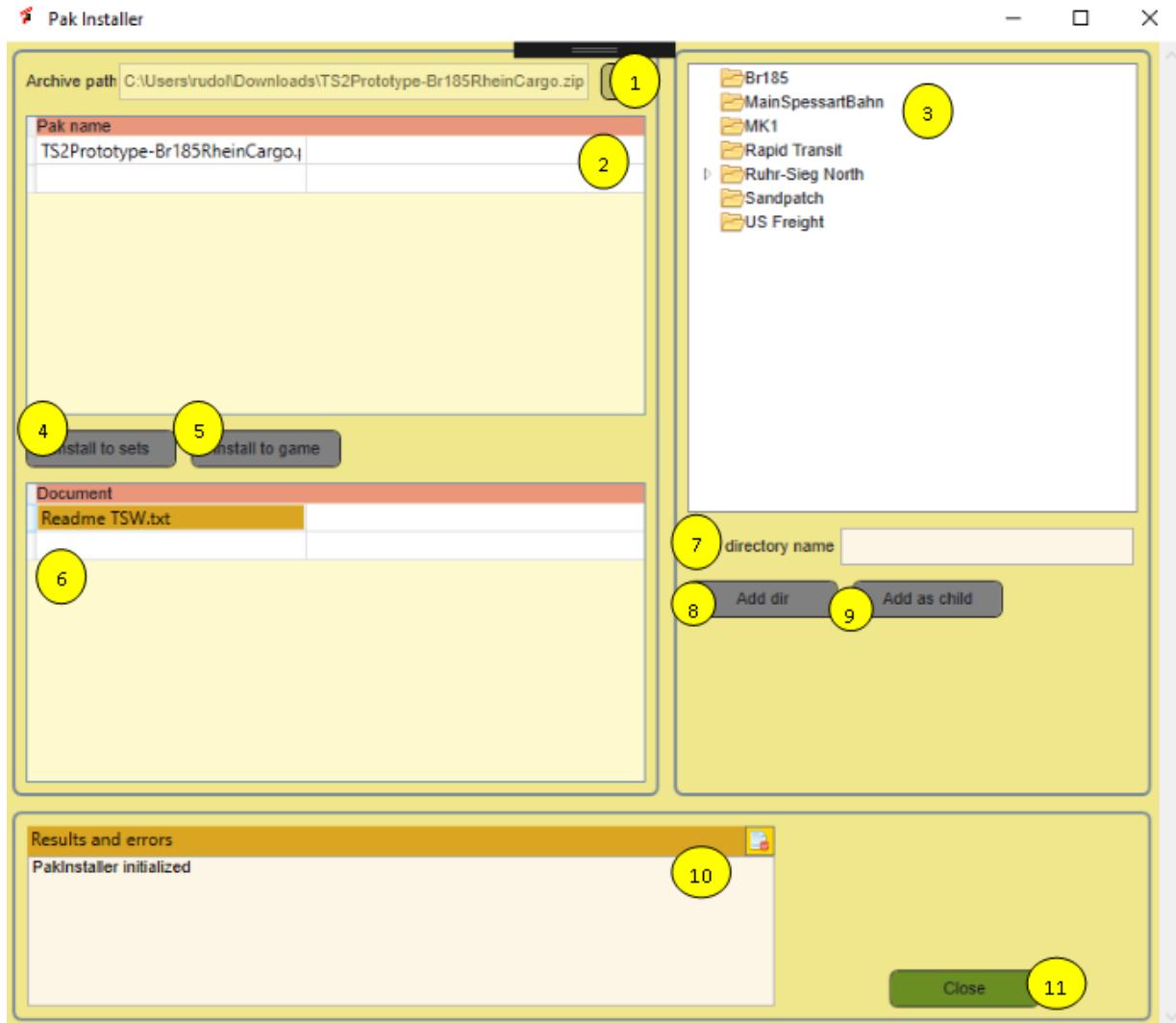


Figure 43 Pak installer window

Installing downloaded add-ons is a bit of a hassle. You need to download them, unzip them somewhere and place the files in the correct location. The Pak installer simplifies this process. You can use the Livery Manager or just skip all this, whatever you like.

The steps are simple:

1. Find the archive.
2. See the .pak files

3. Copy them to the desired location.
4. Optionally, you may review the provided documentation.

Currently, the intention is to use this for mods only. In future this may be extended.

8.2.2 Pak installer details

We follow the usual pattern:

1. You need to select an archive first. By default, the Pak installer opens the Download folder and supports **.zip**, **.7z** and **.rar** file format.
2. Here you see the .pak files that are included in the archive. Select the one you want to install
3. You can install the paks to the folder for the livery manager. If you do so, the pak will be registered in the livery database. You **MUST** select a folder here.
4. If you have selected a .pak file (2) and a folder (3) the button will be enabled. It retrieves the .pak file and places it in the specified folder, overwriting existing files without warning.
5. You also can install the pak in the game right away. This option is meant for people who do **NOT** want to use the livery manager.
6. Here you see all pdf, txt and docx files in the archive. If you click on one of them, it will be opened using the windows shell commands.
7. You may enter a folder name here.
8. If you entered a folder name in 7, you can either add a new folder at the top level using this button.
9. You also can add a folder as a sub folder for an existing folder.
10. Messages from the system go here.
11. Close this window.

8.3 Mod manager

ToolkitForTSW offers a Mod Manager, that allows you to manage mods and install or uninstall them with a few clicks. It also maintains a catalogue with all mods you have available.

Note: to avoid confusion with Livery Designer, which is part of TSW2, I renamed this tool from Livery Manager to Mod Manager. Also, it is largely rewritten.



The Mod Manager has two tabs:

1. **Properties** allows you to set metadata for mods kept in the catalogue. Using this is optional, but in near future this will be used, e.g. to enable you to filter mods. This function also allows to activate mods in the game.
2. **Sets** supports the creation of Mod sets, which can be used in the TSW2 Launcher to activate all mods you need at once.

8.3.1 Properties tab

When you start the Mod Manager, ToolkitForTSW checks the folder <ToolkitForTSW>/Mods and all sub folders for .pak files. If any are found, the Mod database is updated. (See section 2.3 for more details). Now you can enhance the data with additional properties. This all is done in the Properties tab of the Mod Manager, which you can invoke from the main window.

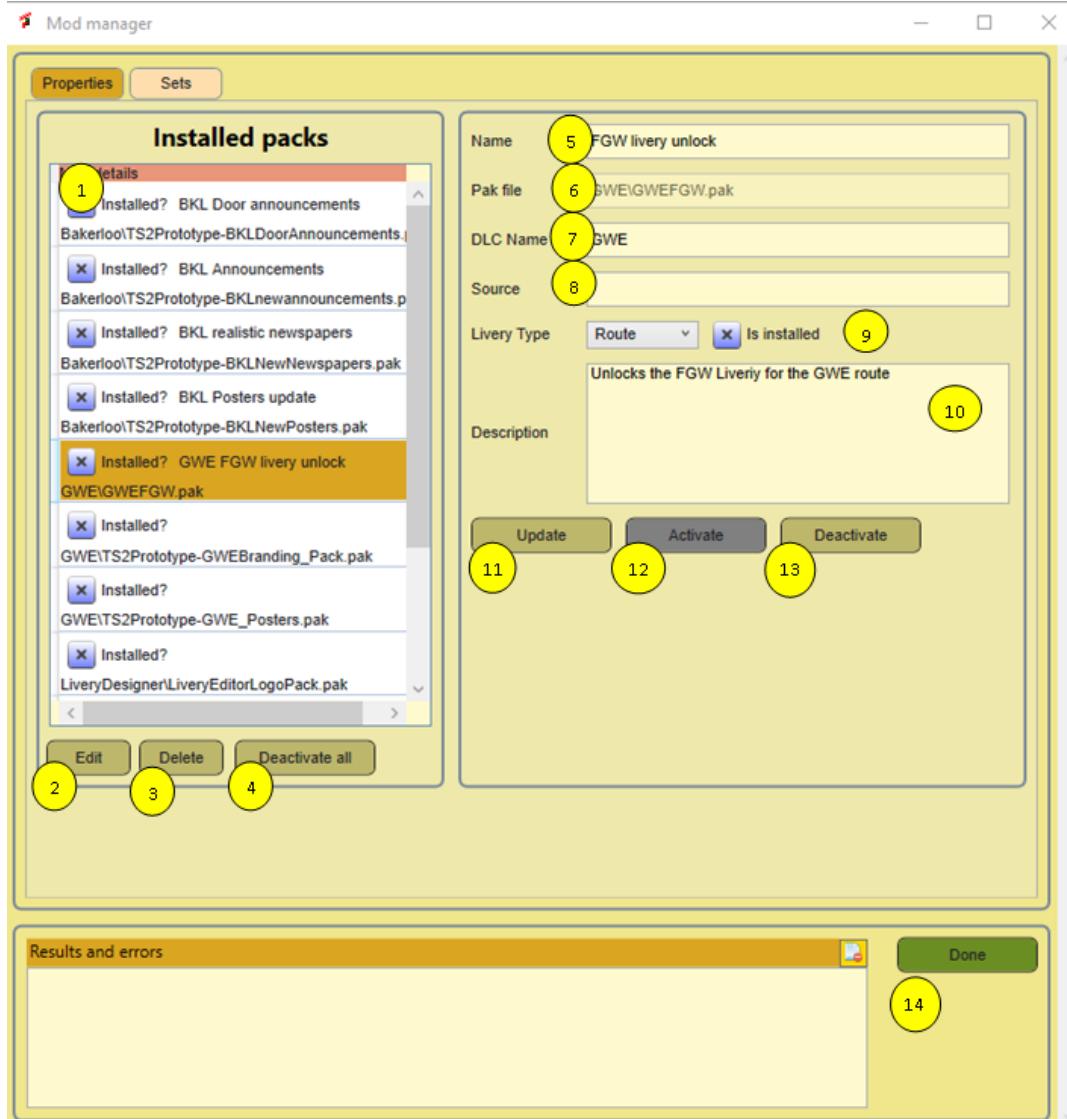


Figure 44 Mod manager Properties tab

A more detailed description:

1. A table that reflects the actual mods registered in the database.
2. Edit. Prepares this mod for editing the properties of this mod.
3. Delete the selected mod from disk and from the database.
4. D deactivate all mods. This means you remove all registered mod from the game.
5. The name you give to the mod

6. The filename of the mod, relative to the Mods folder
7. The DLC for which the Mod is applicable
8. Source. Here you can add an URL to the webpage were you downloaded to mod. Very handy if you want to check for an update later.
9. Mod type (yes I know a typo in the manual, fixed in the app) to make your mods better searchable in future. At the same line a checkbox that tells you if the Mod is activated in the game.
10. Here you can add a description that tells what the Mod does. If you hover over the mods in the list, this will be shown as a tooltip.
11. Update. Press this to update the database for the selected mod with any changes you put in the editor.
12. Activate. Copy the mod to the DLC folder of TSW2.
13. Deactivate. Remove the Mod from the DLC folder in TSW2. This will NOT delete the Mod!
14. Shows error messages and other useful things. (Common for both tabs)
15. Closes the window. (Common for all tabs)

8.3.2 Sets tab

The sets tab allows you to group mods in a set that can be activated at once in the Launch Tool. The created sets will be visible in the Launch window and can be used there. Sets are saved in the database. (Note this is different from the previous version of ToolkitForTSW> There XML files were used).

1. Here the same database view as at the other tab.
2. This list contains a list of all created sets. A tooltip shows the description.
3. If you select a set in 2, you see in 3 all mods in this set. A tooltip shows the description.
4. If you select a set, you can open it to edit and change the set name here.
5. In this field you can edit the description of the set.
6. Edit. Press this button to open a set to edit its name and description.
7. Save. Save the changes for Set name and description
8. Delete. Delete the selected set
9. Clear. Clear the edit fields and undo any selection. You may need this if you want to add a new Set.
10. You need to have selected a Mod in table nr 1 and a set in table nr 2. Then this button will add the mod to the set. Nothing is copied, you just say this Mod belongs to the set. A mod can be added to as many sets as you like.
11. If you have selected a Mod in a set (table 3), this button will remove the mod from the set.

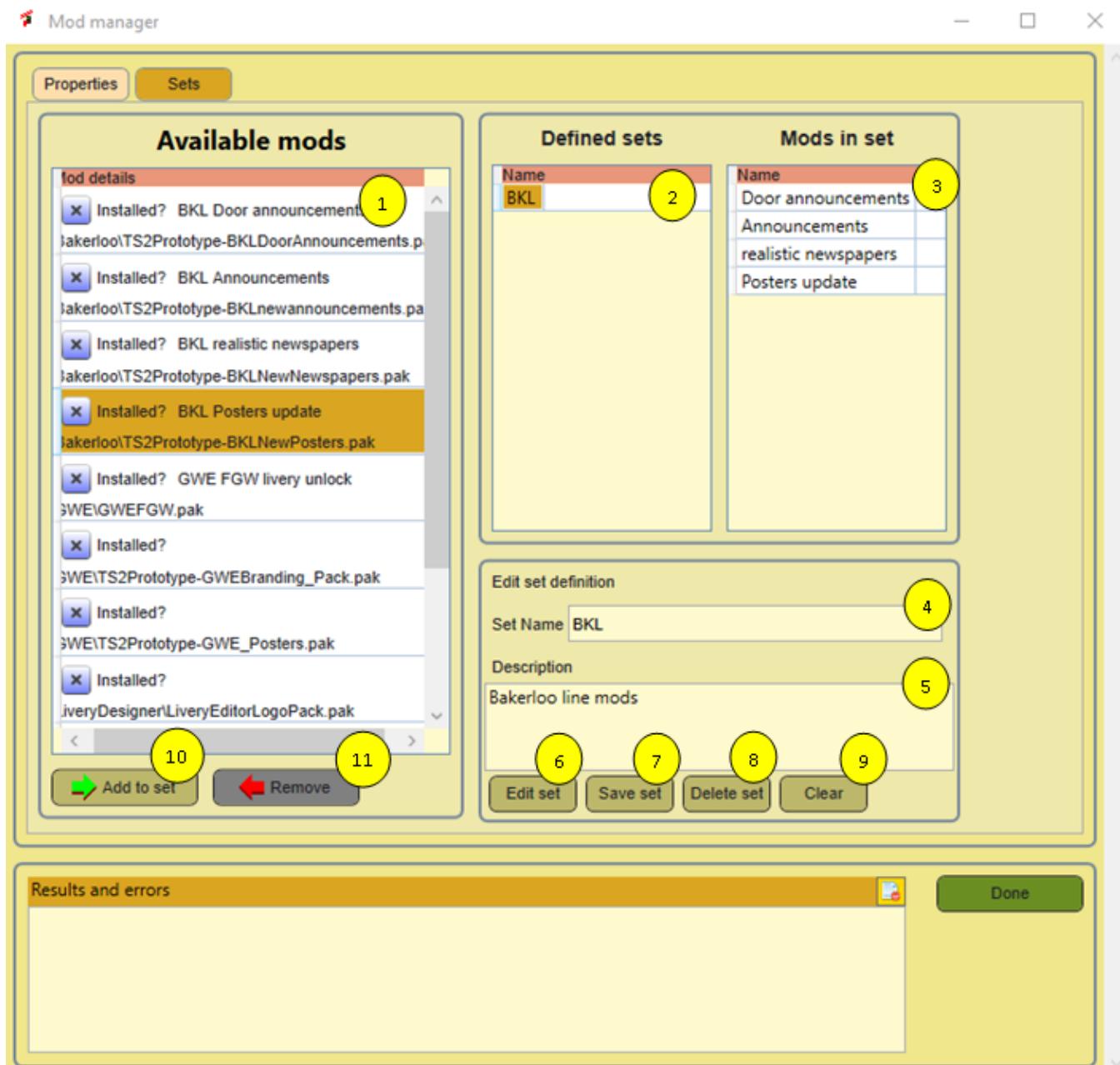


Figure 45 Livery Manager Sets tab

8.3.3 Mod manager glued

This all may still be a bit confusing. Let me try to clarify this, using the diagram in Figure 46. Note the boxes are numbered.

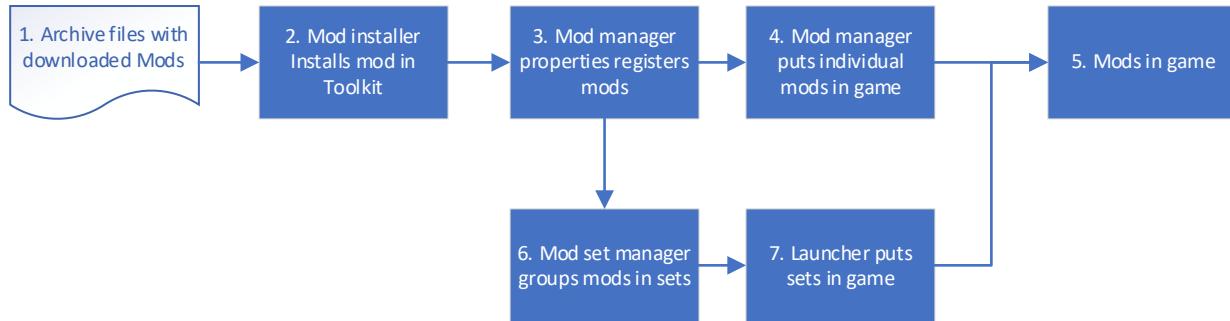


Figure 46 Mod management architecture

1. It all starts with a downloaded pak file, which is likely to be archived.
2. Using the Mod installer, you extract the .pak file and you place it in the mod folder of ToolkitForTSW. Also you register the mod in the database.
3. The mod manager helps you to set some metadata for each mod.
4. The Mod manager (properties tab) is also capable to copy the file to the game (activate the mod). It always knows which managed mods are in the game. Note that it does not know anything about mods you copy directly to the game.
5. Mods in game reside in the DLC folder and do what they should do, but be aware you can only apply one mod for any given game function.
6. The set tab will group existing mods into a set
7. The TSW Launcher can activate all mods in a set at once. At the moment it will not deactivate any mods. I am still thinking in how to do that without frequent moving files.



9 Help

9.1 About dialog

The About Dialog informs you about the actual version of ToolkitForTSW. It also provides a link to the website where you can download updates and additional tools.

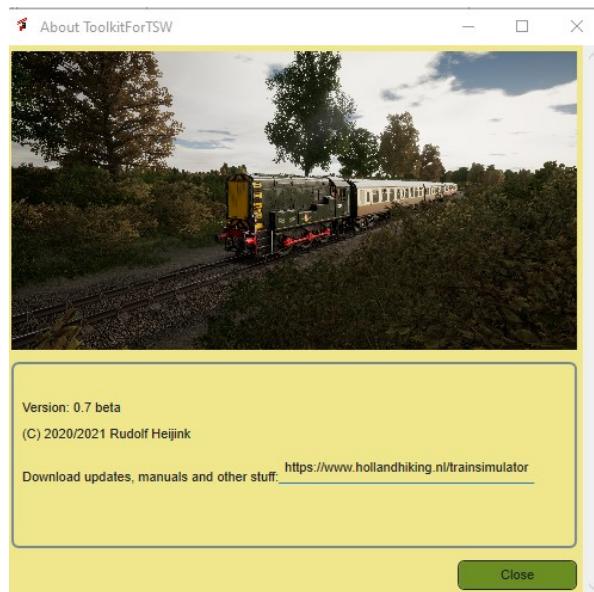


Figure 47 About Dialog

9.2 Open ToolkitForTSW manual

Clicking the button should open this manual, which is included in the installer. In case you want to install updates, make sure to select the appropriate folder. See section 2.2 for more information.

9.3 Open TSW2 Starters Guide

The TSW2 Starters Guide provides a lot of useful additional game information. A version will be included in the installer. In case you want to install updates, make sure to select the appropriate folder. See section 2.2 for more information.

9.4 Open route guides

In this folder you can install the official game manuals and any additional material as you see fit. Likely, for some routes I will provide additional route guides, which you can download from my website. In case you want to install additional files, make sure to select the appropriate folder. See section 2.2 for more information.

If you click the button, a simple dialog opens. It represents the folder/file tree for the Manuals/RouteGuides folder. You can select either a directory or a specific document and click the button to open it. ToolkitForTSW uses Shell Execute, so it works for all known file types and you are completely free to build your own directory tree.

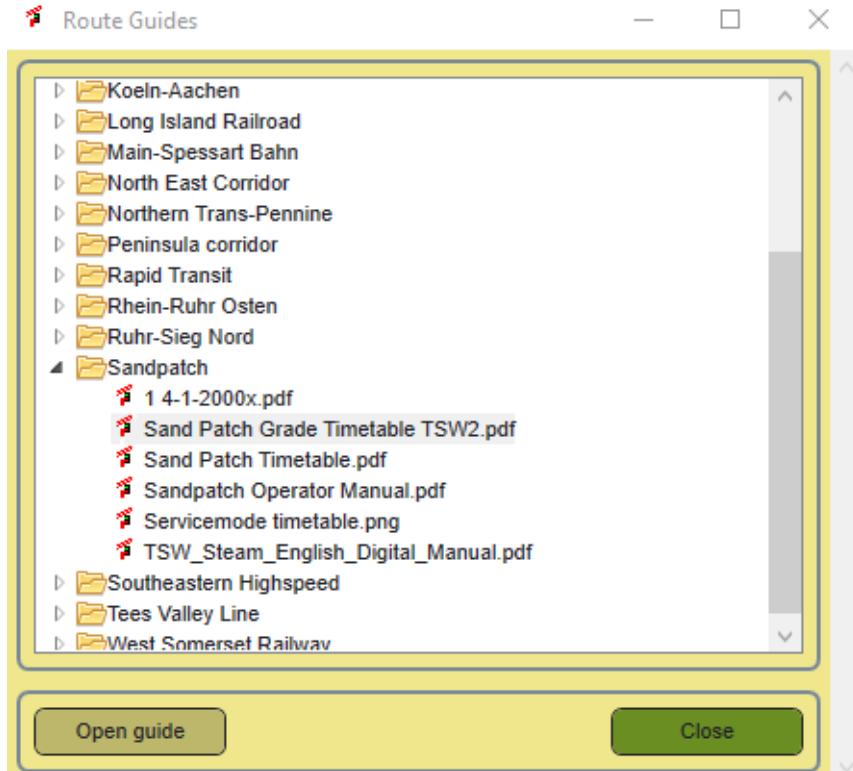


Figure 48 Route guides selector



A. Download locations

All my guides and tools are available here:

Site name	URL's
Holland Hiking (download page for all tools and guides)	http://www.hollandhiking.nl/trainsimulator/

At this site you also will find links to all other tools and manuals mentioned in my guides.

B. UModel command reference

Unreal Engine viewer and exporter

Link to website:

<http://www.gildor.org/>

```
Usage: umodel [command] [options] <package> [<object> [<class>]]  
       umodel [command] [options] <directory>  
  
<package>      name of package to load - this could be a file name  
                  with or without extension, or wildcard  
<object>        name of object to load  
<class>         class of object to load (useful, when trying to load  
                  object with ambiguous name)  
<directory>    path to the game (see -path option)  
  
Commands:  
-view           (default) visualize object; when no <object> specified  
                will load whole package  
-list            list contents of package  
-export          export specified object or whole package  
-save             save specified packages  
  
Help information:  
-help            display this help page  
-version          display umodel version information  
-taglist          list of tags to override game autodetection (for -game=nnn  
option)  
-gamelist        list of supported games  
  
Developer commands:  
-log=file        write log to the specified file  
-dump             dump object information to console  
-pkginfo          load package and display its information  
  
Options:  
-path=PATH       path to game installation directory; if not specified,  
                program will search for packages in current directory  
-game=tag        override game autodetection (see -taglist for variants)  
-pkgver=nnn      override package version (advanced option!)  
-pkg=package     load extra package (in addition to <package>)  
-obj=object      specify object(s) to load  
-gui              force startup UI to appear  
-aes=key         provide AES decryption key for encrypted pak files,  
key is ASCII or hex string (hex format is 0xAABBCCDD)  
  
Compatibility options:  
-nomesh          disable loading of SkeletalMesh classes in a case of  
                  unsupported data format  
-noanim          disable loading of MeshAnimation classes  
-nostat          disable loading of StaticMesh class  
-notex           disable loading of Material classes  
-nolightmap     disable loading of Lightmap textures
```

```
-sounds           allow export of sounds
-3rdparty        allow 3rd party asset export (ScaleForm, FaceFX)
-lzo|lzx|zlib    force compression method for fully-compressed packages

Platform selection:
-ps3              Playstation 3
-ps4              Playstation 4
-nsw              Nintendo Switch
-ios              iOS (iPhone/iPad)
-android         Android

Viewer options:
-meshes          view meshes only
-materials       view materials only (excluding textures)
-anim=<set>     specify AnimSet to automatically attach to mesh

Export options:
-out=PATH         export everything into PATH instead of the current directory
-all              used with -dump, will dump all objects instead of specified one
-uncook          use original package name as a base export directory (UE3)
-groups          use group names instead of class names for directories (UE1-3)
-uc              create unreal script when possible
-psk              use ActorX format for meshes (default)
-md5             use md5mesh/md5anim format for skeletal mesh
-gltf            use glTF 2.0 format for mesh
-lods            export all available mesh LOD levels
-dds              export textures in DDS format whenever possible
-notgacomp       disable TGA compression
-nooverwrite     prevent existing files from being overwritten (better performance)

Supported resources for export:
SkeletalMesh     exported as ActorX psk file, MD5Mesh or glTF
MeshAnimation    exported as ActorX psa file or MD5Anim
VertMesh          exported as Unreal 3d file
StaticMesh        exported as psk file with no skeleton (pskx) or glTF
Texture          exported in tga or dds format
Sounds            file extension depends on object contents
ScaleForm         gfx
FaceFX           fxa
Sound             exported "as is"

For list of supported games please use -gamelist option.

For details and updates please visit http://www.gildor.org/en/projects/umodel
```

C. Known issues

There are some issues I am aware of, but not yet solved. These are listed here.

Issue nr	Description	Priority
1	On small screens the user interface is not always looking good	Medium
2	The UModel interface is still experimental	Medium
3	The index for this manual should be updated	Low
4	In combination with OneDrive loading screenshots performs poor	Medium
5	Thumbs are not properly updated when you delete a screenshot	Medium

Index

7Zip	23	Gamma correction	49
About window	20	German routes.....	32
About Dialog.....	58	grade units	47
activate mods	53	Hide UI for DTG screenshots	48
Activate Mods	41	high quality screenshots	45
advanced settings.....	48	Immersive mode	48
anti-alias	46	input mapper	20
Autoload Journeys	48	input mapping.....	28
Automatic		installer	12
units	48	installer tool.....	20
backup	26	key binding.....	20, 28
Backup tool.....	20	key bindings	20
Big speedometer	48	Launch Tool.....	55
cab sway	47	Limit Sound Volumes	24
Cancel button	14, 17	List View	18
Close button	20	LiveryId.....	34
column headers	18	Log Viewer	26
combo box	17	main screen.....	20
Consist string	34	manual	12, 59
controls.....	16	Mod in a set	55
Data Grid	18, 19	Mod Installer	51
database	13	mod manager.....	40
default value.....	44	Mod Manager	53
disable junction derail	47	mod sets.....	55
Disabled button	17	modal window	14
donations.....	9	modeless window	14
download link	49	Motion Blur	48
download links.....	12	Normal buttons	17
Edit Mods	41	Notepad++	12
End location	34	OK button	17
Engine string	34	OK button ,	14
engine.ini	43	options	20, 22
Engine.ini	44	options set	40
error log	20	Other tab	23
Error log	26	Passenger service.....	34
File Dialog	17	Paypal.....	9
File locations tab	23	player service	33
first person mode	47	preview of screenshot	50
folder structure	13	Radio buttons	18
force feedback	47	railway radio	40
frame rate limit.....	46	Railway Radio Stations.....	20
FXAA	46	recommended setting	48
game launcher	40	Result Text Box	17
GameUserSettings.ini	44	route guides	20, 59

Routes tab	23, 24	tab control	19
run	47	temperature units	47
Scenario Editor	31	templates	35
Scenario Guid	32	text editor	12, 23
Scenario Manager	29	TextBox	17
Scenario Planner	24	the Railway Radio	42
scenarios.....	20	thumbnail	50
screen mode	45	ToolkitForTSW manual	20
screen resolutions	45	Tooltips	18
screen sizes.....	15	TSW folder	22
screenshot	49	TSW Installation folder	23
screenshot manager.....	20	TSW2 Starters Guide	44, 59
screenshots.....	49	TSWTools folder	23
selected line	18	uasset	38
service.....	31	UAsset unpack	23
Service name	34	UModel	20, 38
settings	43	Unicode characters	32
Settings	41	units	47
Slider control	19	unpack	36
sound settings	46	unpacked files	38
source code	8	Unreal game engine	12
start location	34	Unreal unpacker	20, 23
start time	34	Use advanced settings	24
Steam program folder	23	user interface	14
Steam User Id	24	User Settings	48
stop location.....	31	vSync	45
stop locations	34	walk	47