



**Black Square**

**REAL TAXIWAYS**

**USA - Military Airfields**



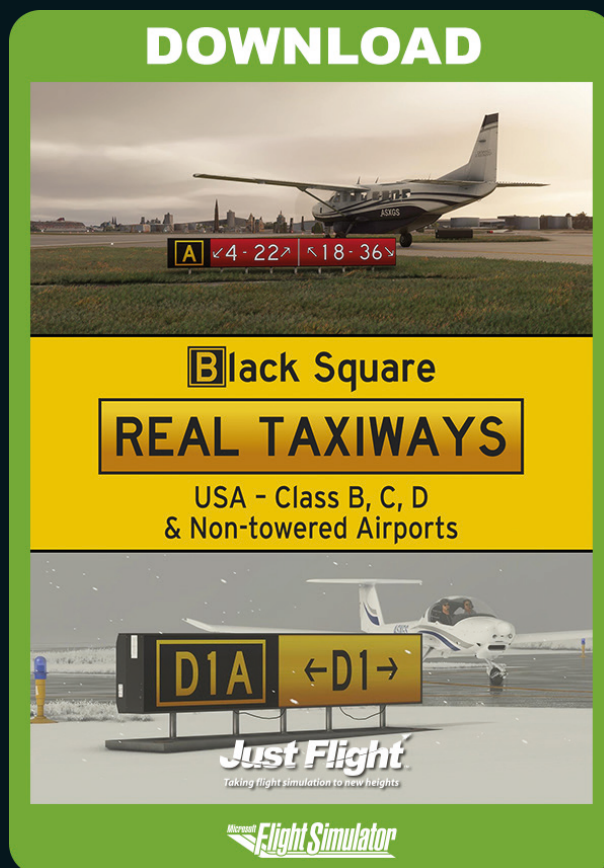
**USER GUIDE**

**Just Flight**

# **B**lack Square

## REAL TAXIWAYS

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**REAL TAXIWAYS**

**USA - Military Airfields**

## **User Guide**

Please note that Microsoft Flight Simulator must be correctly installed on your PC prior to the installation and use of this default airport enhancement tool.

## **CONTENTS**

<b>INTRODUCTION .....</b>	<b>5</b>
For pilots and aspiring pilots .....	5
Features overview .....	6
Corrections .....	6
Enhancements .....	6
Limitations .....	6
<b>INSTALLATION .....</b>	<b>7</b>
Using the automated installer.....	7
Installing packages manually.....	7
Updates .....	8
Technical Support.....	8
Regular News .....	8
Uninstalling .....	8
Detailed features.....	9
Textures .....	9
Mandatory textures .....	10
Optional texture packs .....	10
Excluding airports.....	11



<b>FREQUENTLY ASKED QUESTIONS (FAQ)</b> .....	<b>12</b>
<b>TROUBLESHOOTING</b> .....	<b>14</b>
<b>INCLUDED AIRPORTS</b> .....	<b>15</b>
<b>CREDITS</b> .....	<b>16</b>
<b>DEDICATION</b> .....	<b>16</b>
<b>COPYRIGHT</b> .....	<b>16</b>



# INTRODUCTION

Navigating the complex and highly regulated asphalt and concrete of all airports, both small and large, is just as important as navigating the skies above them. Real Taxiways enhanced airports for Microsoft Flight Simulator will allow users to experience the challenges and thrills of surface navigation like no simulator has allowed before.



## For pilots and aspiring pilots

Real Taxiways was born out of the desire for accurate taxiway naming and sign placement which is lacking in many flight simulators. As visual fidelity in flight simulators has increased, enthusiasts and pilots have been able to use simulators to experience realistic airport operations, including ground navigation via real-world charts. However, missing taxiway sign types, poorly placed signs and downright misleading ones have made this difficult.

Real Taxiways aims to provide the best airport operations environment for virtual pilots looking to improve their proficiency, and for aspiring pilots learning the challenges of ground operations for the first time, by simulating the accurate placement of taxiway signs of all types and sizes that would reasonably be found at real airports around the world.

Users should find that airports covered by Real Taxiways are now navigable via real-world airport diagrams, the signs on the ground, most external moving-map programs and online ATC instructions.

## Features overview

The features of Real Taxiways fall into two major categories: corrections and enhancements.

### Corrections

Users familiar with the default airports in Microsoft Flight Simulator will no doubt have encountered frustrations such as oversized taxiway signs placed on the centreline of taxiways or hundreds of taxiway lights scattered in the grass or in airport parking areas. Real Taxiways has eliminated the possibility of many such immersion-breaking occurrences, some of which even payware airports struggle with.

For a complete list of these corrections, see the [Detailed features](#) section of this User Guide.

### Enhancements

In addition to correcting many unwanted aspects of the default airports in Microsoft Flight Simulator, Real Taxiways adds more than a dozen features which have either been lost over the years since their original appearance in the Flight Simulator series or which have never been seen in a flight simulator before. These features include dynamically generated ground vehicle signs, runway safety awareness signs, runway distance remaining signs and custom destination signs, of which many variations in content, size and orientation are generated at airports with different 'personalities' to create realistic diversity.

These, and many more, are enumerated in the [Detailed features](#) section.

## Limitations

Real Taxiways is a patching system for the default airports of Microsoft Flight Simulator and therefore must work within the current limitations of the simulator's facility data and rendering engine. While Real Taxiways does its best to eliminate unwanted results, such as noted in the Corrections section above, it is always possible that unwanted results will still be present due to unforeseen conflicts with other custom scenery, terrain data or, in the rare case, a mistake on the part of the Real Taxiways patching process. Please keep this in mind while enjoying the airports covered by Real Taxiways.

Additionally, you are encouraged to report errors in Real Taxiways' core features that you believe can be readily fixed, such as poorly placed signs or incorrect sign content, on the Real Taxiways section of the [Just Flight Forum](#).

Real Taxiways' largest single limitation is the elimination of rogue taxiway lighting at airports that also have green taxiway centreline lighting. Due to limitations in the Microsoft Flight Simulator SDK, it is not possible to BOTH eliminate rogue taxiway lighting entirely and to allow for the presence of green centreline lighting at larger airports. The developers of Real Taxiways have taken a 'some improvement is better than none' approach to this problem by removing the majority of rogue taxiway lighting on active taxiways on all airport surface areas that do not have green taxiway centreline lighting by default in Microsoft Flight Simulator.

Lastly, Real Taxiways does not currently remove windsocks, airport beacons or autogen buildings on taxiway surfaces, though this feature is in development and may be included in future versions of Real Taxiways.

# INSTALLATION

You can install this Real Taxiways software as often as you like on the same computer system:

1. Click on the '[Account](#)' tab on the Just Flight website.
2. Log in to your account.
3. Select the 'Your Orders' button.
4. A list of your purchases will appear and you can then download the software you require.

## Using the automated installer

Upon downloading and double-clicking the installer provided by Just Flight for Real Taxiways, the installer should be able to detect the correct directories for your Microsoft Flight Simulator installation and proceed with the install process. Clicking 'Next' and following the installer's instructions should result in a complete installation of Real Taxiways to your Community content directory, including all necessary and optional textures. If you would like to forego using these optional textures or exclude specific airports for any reason, see the [Excluding airports](#) section.

## Installing packages manually

If you are reinstalling Real Taxiways, wish to exclude airports or textures, or otherwise wish to perform the installation manually, the process should be as easy as moving or renaming files within your Microsoft Flight Simulator Community content directory. For information on locating your Community content directory, see below.

### Community content directory

**This should be named 'Community', though you may have set this location manually when installing MSFS.**

This is the directory where you may have installed other third party add-ons for the simulator. The exact path varies, based on the installation type, such as whether you purchased the simulator from the Windows Store or from a third party vendor such as Steam.

#### For Windows Store installation:

C:\Users\[Your User Name]\AppData\Local\Packages\Microsoft.FlightSimulator\_8wekyb3d8bbwe\LocalCache\Packages\

#### For Steam installation:

C:\users\yourusername\appdata\roaming\Microsoft Flight Simulator\packages\

**Important!** Windows 10 by default hides the 'AppData' folder so you will have to go to 'View' in the File Explorer menu and select 'Hidden items' to see it.

### For custom installation:

If you used a custom location for your Flight Simulator installation, you will need to use that as the basis for your paths.

For example, you may have set: E:\MSFS\ as your custom installation location.

You may have set your root simulator directory to...

E:\MSFS\Official\OneStore

or, for a Steam version:

E:\MSFS\Official\Steam

You will then need to set your Community directory to E:\MSFS\Community.

## Updates

Due to the frequent updates to MSFS by its developers, periodic updates may be necessary to maintain all Real Taxiways functionality.

**Regardless of these updates, users who have already installed Real Taxiways and have the package correctly installed into their Community content folder should experience no interruption to their enjoyment of Real Taxiways airports after an update, and in fact can avoid updating their Real Taxiways installation indefinitely unless they notice undesired effects at their favourite airports.**

## Technical Support

For technical support (in English) please visit the [Support](#) pages on the Just Flight website.

As a Just Flight customer, you can get free technical support for any Just Flight product.

If an update becomes available for this package, we will post details on the Support page and we will also send a notification email about the update to all buyers who have not unsubscribed from Just Flight emails.

## Regular News

To get all the latest news about Just Flight products, special offers and projects in development, [subscribe](#) to our regular emails.

We can assure you that none of your details will ever be sold or passed on to any third party and you can, of course, unsubscribe from this service at any time.

You can also keep up to date with Just Flight via [Facebook](#) and [Twitter](#).

## Uninstalling

To uninstall this product from your system, use one of the Windows App management features:

**Control Panel -> Programs and Features**

or

**Settings -> Apps -> Apps & features**

Select the product you want to uninstall, choose the 'Uninstall' option and follow the on-screen instructions.

Alternatively, you can run the uninstaller program located in the root directory of this Real Taxiways edition.

Any of the above methods will only uninstall a single edition of Real Taxiways. You must uninstall each edition individually if you wish to remove them all completely.



## Notes:

Uninstalling Real Taxiways via any of these methods, or by simply removing the installer program from your computer, may not completely remove all Real Taxiways patched airports from your simulator installation. If you wish to remove the patched airports only (but not the installer) or find that patched airports are still present next time you start the simulator, please check your Community folder and delete the package associated with the edition of Real Taxiways that you are trying to remove, such as 'bksq-us-bcde'. All Black Square packages will begin with the prefix 'bksq-'.

## Detailed features

- Real-world taxiway names
- Near real-world taxiway sign placement
- Multiple variations of all sign types
- Double-sided taxiway signs
- Sign sizes are appropriate to the airport
- Hundreds of airport sign 'personalities' for an authentic experience
- No signs obstructing taxiways or runways
- Drastically reduced lights on active taxiways at airports without green centreline lighting (~90%)
- Signs easily readable from cockpit without zooming
- LAHSO markings removed where they are not present in the real world (present at almost every runway intersection by default)
- Destination signs match real-world charts
- Closed taxiways updated and signs added
- Sign text padding corrected and more readable



## Textures

Real Taxiways comes with two sets of textures to enhance your ground navigation experience. The first is required to experience the full feature set of Real Taxiways and the other is a personal choice.

To install the optional textures, simply copy the 'bksq-optional-textures' folder into your Community folder. For help locating your Community folder, see the [Community content directory](#) section.

## Mandatory textures

### Sign Face Textures



**This texture pack is mandatory to experience the full feature set of Real Taxiways. It is included with all Real Taxiways packages and should not have to be installed separately.**

Real Taxiways' taxiway sign face texture set has been carefully crafted with colours matching real-world taxiway signs and exact characters matching the required FAA and ICAO fonts. Users should find taxiway sign content significantly more legible and approximately 35% larger than default taxiway signs when using this texture pack.

If you choose not to install this texture pack, you will experience oddities such as those noted in the [TROUBLESHOOTING](#) section.

## Optional texture packs

### Ground Marking Textures



Many users believe that the default ground markings on runways and taxiways, and in parking areas, are too clean or bright and do not accurately emulate real-world ground navigation conditions. This texture pack attempts to correct this, while also adding black outlines to many ground markings, as is often seen at medium and large airports to enhance visibility. Red ground markings are also slightly muted, and runway hold short markings also conform to FAA and ICAO font standards.

## Sign back textures



If you predominantly fly in North America, you are probably used to seeing taxiway signs with black rears and a black frame surrounding the sign face. This texture pack will simply turn all yellow components of the taxiway sign model dark grey.

## Excluding airports

Microsoft Flight Simulator employs a hierarchical scenery system that allows some scenery to overwrite, or be transparent to, other geographically related sceneries. Unfortunately, at the time of writing, the exact method by which users can manipulate this hierarchy is not completely understood.

The easiest way to exclude an airport from your Real Taxiways installation is to remove or rename that airport's specific BGL file from the appropriate 'bksq-' package for your installation, such as 'bksq-us-bcde', in your Community folder. Within the package you will find the BGL files in the 'scenery\global\scenery' subdirectories.

To avoid misplacing or losing specific airport files, it is recommended that you simply rename the airport file you wish to be excluded by adding the extension, '.bak' to the BGL. Doing so will prevent Flight Simulator from loading the file and making modifications to the airport. If you do lose the original airport's BGL file, a new one can be obtained by reinstalling Real Taxiways from your Just Flight account.

# FREQUENTLY ASKED QUESTIONS (FAQ)

## **How accurate is the placement and content of each sign?**

There is no international database of taxiway sign content and placement, therefore Real Taxiways generates signs and places them based on ICAO and FAA guidelines, after a streamlined manual process is used to assign taxiway names and special properties based on charts and satellite imagery. While the results may not be perfect, the added signs are functionally identical to their real-world counterparts.

## **How well will using Real Taxiways improve the realism of the airports in my simulator?**

Real Taxiways was created specifically to provide a realistic environment for virtual pilots who want to simulate the real world as closely as possible. The basic nature of some default airports has a substantial impact on the quality of the real-world experience it is possible to re-create, such as the omission of safety-critical signage, incorrect taxiway names and downright misleading sign placement or content. With Real Taxiways you will be able to navigate airports using real-world charts, receive instruction from online ATC, navigate on airport ground surfaces just as you would in the real world and also develop essential situational awareness at your local airfields.

## **Will Real Taxiways interfere with Microsoft Flight Simulator's World Updates?**

If you are aware of an airport which has received special treatment in a World Update and you no longer wish to use the Real Taxiways version of that airport, you can always exclude that airport at any time. For instructions on how to do this, see the Excluding airports section on the previous page. Alternatively, more experienced users who are familiar with editing Content.xml can attempt to correct the scenery hierarchy there, but are advised that the exact behaviour of Content.xml is not entirely known at the time of writing this User Guide.

## **Will Real Taxiways interfere with third party freeware/payware airports or scenery?**

If you download or purchase a third party airport and you no longer wish to use the Real Taxiways version of that airport, you can always exclude that airport at any time. For instructions on how to do this, see the Excluding airports section on the previous page. Alternatively, more experienced users who are familiar with editing Content.xml can attempt to correct the scenery hierarchy there, but are advised that the exact behaviour of Content.xml is not entirely known at the time of writing.

## **Can Real Taxiways be used to enhance third party freeware/payware airports?**

Real Taxiways does not currently support any third party airports, specifically. It is, however, possible to combine Real Taxiways signs with third party freeware or payware that enhance other features of the airport, such as adding handmade buildings or other models. This, again, is only for users or developers who are familiar with Content.xml and with how Microsoft Flight Simulator's new scenery hierarchy overwrites and extends existing airports.

## **Do I need to update whenever there is an update available for Real Taxiways?**

There is no requirement to update once you have installed Real Taxiways airports. Periodic updates are recommended for the best integration with the rest of the scenery in Microsoft Flight Simulator but are never required. If there has been a major update to Real Taxiways that affects all users, you will be notified via email unless you have unsubscribed from Just Flight emails. Otherwise, once they are installed, it should be possible to continue using Real Taxiways airports indefinitely without updating.



### **Will Real Taxiways' texture packs interfere with third party freeware/payware airports?**

While the taxiways' sign back colour and ground markings should cause no functional interference with any other airport or add-on, their use is entirely at the user's discretion. On the other hand, the taxiway sign face textures are required and may interfere with any other modification that attempts to modify these textures, although the Real Taxiways team is not currently aware of any such modification, either freeware or payware.

### **Why do I still see taxiway lighting and signs in the middle of aprons at some airports?**

Real Taxiways works on a per airport basis and does not apply its changes to all airports. If you are seeing any of the unwanted features mentioned in the [Corrections](#) section then it's likely that you're not at an airport covered by Real Taxiways. See the [INCLUDED AIRPORTS](#) section for a complete list of all the airports covered by this edition of Real Taxiways. For rogue taxiway edge lighting specifically, see the [Limitations](#) section of this User Guide for more information.

# TROUBLESHOOTING

## **I don't see any changes to airports after installing Real Taxiways.**

Make sure that you completed the installation process as outlined in this User Guide. To double-check this, look in your Community content folder and see if you have the correct 'bksq-' package for your installation, such as 'bksq-us-bcde'. If you do, and its 'scenery/global/scenery' folder is populated with BGL files, then the problem lies within the simulator, possibly due to a recent update. If this is the case, contact Just Flight [Technical Support](#).

Advanced users might be able to further diagnose the problem by using Developer Mode to inspect the virtual file system and confirm whether the BGL files are being loaded from the Community folder. Advanced users might also be able to determine whether the appropriate entry has been made in Content.xml. Deleting Content.xml and allowing the simulator to build a new one next time you start it may be a viable way to fix some scenery-related problems. If you attempt this, make sure you save a back-up of your original Content.xml.

## **Everything installed correctly but some airports don't seem to be enhanced.**

It is unlikely that only some airports have been enhanced by Real Taxiways, but not all the airports which should be covered. Double-check the list of included airports on the following pages to ensure that you are at one of the airports covered. Since it is possible to exclude some airports, as explained in the [Excluding airports](#) section, make sure that you retain back-ups of any files you remove from the Real Taxiways package in your Community folder, and simply replace them if you want to restore Real Taxiways functionality at those airports.

## **I still see incorrect taxiway signs, signs facing the wrong way or signs placed in the middle of taxiways, runways or aprons, and I am definitely at one of the covered airports.**

Time to report a bug! Please contact Just Flight [Technical Support](#) to report the bug and it will be fixed in a subsequent update to your Real Taxiways edition. Remember, Real Taxiways aims to provide a functionally identical airport environment to the real world but may not match it exactly. Please only report errors that you believe have an impact on immersion or the functionality of an airport's surface navigation aids.

## **I still see blue taxiway edge lighting in the middle of aprons, taxiways or runways, and I am definitely at one of the covered airports.**

The exclusion of rogue taxiway lights is not perfect but should drastically reduce your chances of finding them, especially on active taxiways, wherever you want to steer the nose-gear of your aircraft. For a complete explanation of these limitations, see the [Limitations](#) section.

## **I see windsocks, airport beacons or buildings on taxiways, runways or aprons at covered airports.**

Removal of these obstructions is not currently a feature of Real Taxiways, but is being considered for future versions.

## **I see weird taxiway sign text such as [MMMM], [STUV] or DEHINO.**

This means that everything is working correctly but you don't have the taxiway sign face texture pack installed, or the textures are being overwritten. As these textures are mandatory for the full Real Taxiways experience, they are included with each distribution of Real Taxiways and do not have to be installed separately. If you have installed the appropriate 'bksq-' package for your installation, such as 'bksq-us-bcde' into your Community folder, and you are still seeing these signs, it is likely that you have another texture pack that overwrites these textures. Although there are currently not any such packages, either payware or freeware, available at the time of writing, this may not always be the case. For help determining which package might be interfering with Real Taxiways, and how to resolve the problem, please visit the Just Flight Real Taxiways [Forum](#). In the meantime, if you would like to keep flying, core taxiway sign information such as runway numbers, arrows and names will still work just fine; only new sign types should be affected.

# INCLUDED AIRPORTS

KADW	KEGI	KIAB	KNBG	KNRB	KSPS
KBAB	KEND	KLFI	KNCA	KNSE	KSSC
KBAD	KEOD	KLGF	KNDZ	KNTD	KSUU
KBIF	KFBG	KLHW	KNEL	KNTU	KSVN
KBIX	KFFO	KLRF	KNFG	KNUQ	KSZL
KBKF	KFHU	KLSF	KNFL	KNUW	KTCM
KBLV	KFMH	KLSV	KNFW	KNYG	KTIK
KCBM	KFTK	KLTS	KNGU	KNYL	KTNX
KCEF	KGRF	KLUF	KNHK	KOZR	KVAD
KCOF	KGSB	KMCF	KNID	KPAM	KVBG
KCVS	KGTB	KMER	KNJK	KPMD	KVOK
KDAA	KGUS	KMGE	KNKT	KPOB	KVPS
KDLF	KHLR	KMIB	KNKX	KPOE	KWAL
KDMA	KHMN	KMMT	KNLC	KRCA	KWRB
KDOV	KHOP	KMTC	KNMM	KRIV	KWRI
KDPG	KHRT	KMUO	KNOG	KRND	KXMR
KDYS	KHST	KMXF	KNQI	KSKA	KXNO
KEDW	KHUA	KNBC	KNQX	KSLI	PAED

# CREDITS

Real Taxiways	Nicholas Cyganski
Installer	Martin Wright
Manual	Nicholas Cyganski
Manual layout	Fink Creative

# DEDICATION

This software is dedicated to the Father of Flight Simulation, Bruce Artwick, and the subLOGIC team. Flight simulator enthusiasts, and likely many developers, have little idea of how much remains in Microsoft Flight Simulator (2020) from the original versions of subLOGIC Flight Simulator released in the early 1980s, more than forty years ago. This heritage is evident nowhere more than in the basis of all flight simulator scenery: the BGL file. BGL stands for BAO Graphical Language, BAO standing for Bruce Artwick Organisation. Through the creation of this add-on for Microsoft Flight Simulator, I have had the pleasure of becoming intimately familiar with the ingenious, space-saving, immensely efficient bytecode created by Bruce Artwick for the storage of flight simulator facilities data. This is my small thank you to Mr Artwick and his team for creating the hobby that we all love so much and for inspiring generations of software engineers and pilots alike. Thanks to you and your team, I have never felt closer to the pioneers of personal computing, whom I admire so much.

# COPYRIGHT

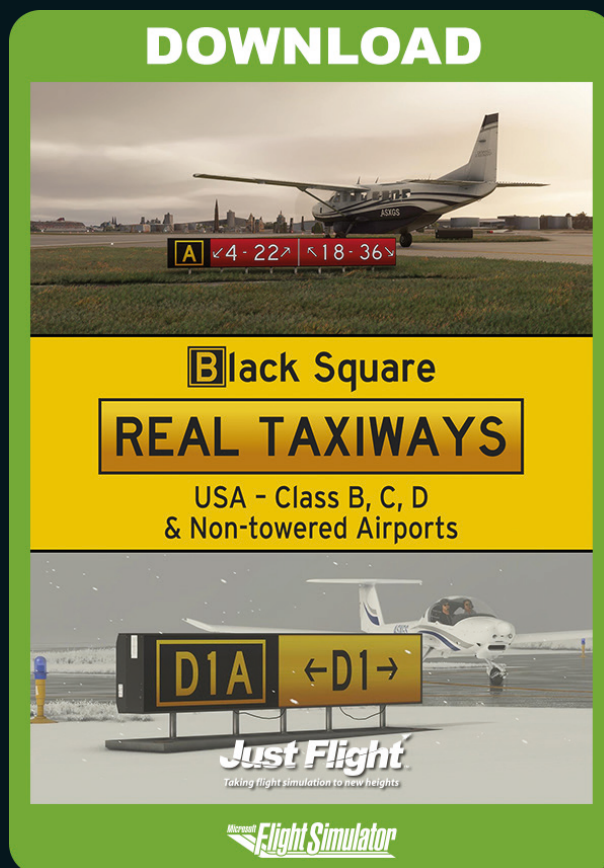
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