

# FLIGHT SIMULATOR PLATFORM SOLUTIONS FSPS ©

FRICTIONALITY  
for Prepar3D

**USER MANUAL**  
VER. 1.0



## TABLE OF CONTENTS

<b>1. Introduction</b>	Page	3
<b>2. Minimum Requirements</b>	Page	5
<b>3. Installation</b>	Page	6
<b>4. Activation</b>	Page	11
<b>5. Application menus and basic functions</b>	Page	13
<b>6. Configuration</b>	Page	16
<b>7. Changes history</b>	Page	29

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## **1. Introduction**

Flight Simulator Platform Solutions – FSPS © is a software development company producing applications for Microsoft's FSX Simulator and Lockheed's Martin Prepar3D Simulator.

Runway friction in FSX was always a subject of discussion in the developers and advanced users community. The problem in a few words, was that the friction provided in FSX for the aircraft was unrealistic. In some cases aircraft would taxi on idle thrust while the real aircraft was not behaving like this at the exact same conditions. (Runway condition, thrust, weight), runway distances for acceleration or braking on runways was messed up etc. Unfortunately this problem was carried into Prepar3D's as the two simulators are closely related.

At the start many thought that the aircraft physics model was not made correctly: For example that the thrust was misconfigured or that the weight distribution played a role.

Actually everything (most times) is due to the way Prepar3D is handling friction.

You can easily test out yourself a part of the problematic default Prepar3D settings by accelerating with a specific aircraft to a specific ground speed down the runway. You will notice that you will need (just for example) 10 seconds to reach 50KTS Ground Speed on model X. By changing the weather setting to have a wet runway you will see that you will need LESS time (i.e. 9.7 seconds) to reach the same speed. Is that possible?

Thinking lightly, someone would say yes. The friction of the same surface when on dry compared to wet is higher, so the opposing force would also be higher, so the distance on the same thrust and weight – thus the time – to reach the same speed would also be higher. But is that true? No. In real life there is also the resistance from the mass of water that the wheels travel on and cut through, so a 'virtual weight' is added to the formula... That – in real life – causes the aircraft to need more distance and additional time to reach the same speed when on wet!

In braking things are better. Doing the same test (braking using the same braking force from a certain speed with the same weight) in wet vs dry conditions, indeed wet test results in higher time as in real life.

However combining the two tests is a disaster. Combination is from full stop to accelerate to a certain ground speed and then brake to full stop again. Due to the error in logic on the accelerating part making a full test results in very close total times , so in distances, compared wet and dry, which - of course - is entirely inaccurate.

Some people in the past tried to fixed the problem by replacing the Sim1.dll (the Microsoft file that contains all friction values). Although – a pioneer approach – the results would vary from user to user as some smaller aircraft behaved differently from bigger ones. So the 'patch' would work nice for some but not so nice for others who use different aircraft.

FSPS decided to resolve once and for ever the “Prepar3D friction” matter. By directly communicating with Prepar3D (no need for any external software like FSUIPC) we managed to manipulate the friction for each surface and condition (dry, wet, snow) you could encounter. We managed to be able to manipulate it in real-time, without need of a 'patch' or changing any Prepar3D file. We placed all our knowledge into an application 'armed' with profile saving so you would save each friction for each of your aircraft.

That way you would fix (if you like) only the Grass runway wet friction for your little Cessna that you may don't like , and leave everything else untouched OR you would change all friction values for your complicated Boeing 737 home simulator for all kind of runway types you may encounter and for each of the weather conditions...

Dear FSPS customers, we proudly present you “Frictionality” . The application that will change Prepar3D's friction for ever...

## **2. Minimum Requirements**

In order to be able to enjoy Frictionality in your system you need a computer that conforms to the following minimum requirements:

### **Must respected Requirements (not minimum):**

- Windows: XP SP3 / Vista / Win 7 – 32 or 64 bit / Win 8 (but not recommended for use with Prepar3D)
- 2 Core Processor with 2GHz per core speed.
- 1GB RAM
- Lockheed Martin's Prepar3D v.2.4 or v. 1.4
- Microsoft's NET Framework 3.5 SP3
- Up and running internet connection for activation and license status checking (each time application starts).
- A PDF viewer application for reading the manual.
- Application must run only on Prepar3D - PC (not remotely)

### **Limitations:**

One active license at a PC at any given time. (Checked via online activation after every installation.) Multiple installations supported using License Transfer function.

### **3. Installation**

After your purchase from the web store of your choice you will be given a link to download the software and a serial number. Keep this combination of letters and numbers (your serial number) somewhere safe as it is your software's unique identification. Never lend it to anybody, keep it safe, and provide it in every communication with FSPS's support concerning Frictionality.

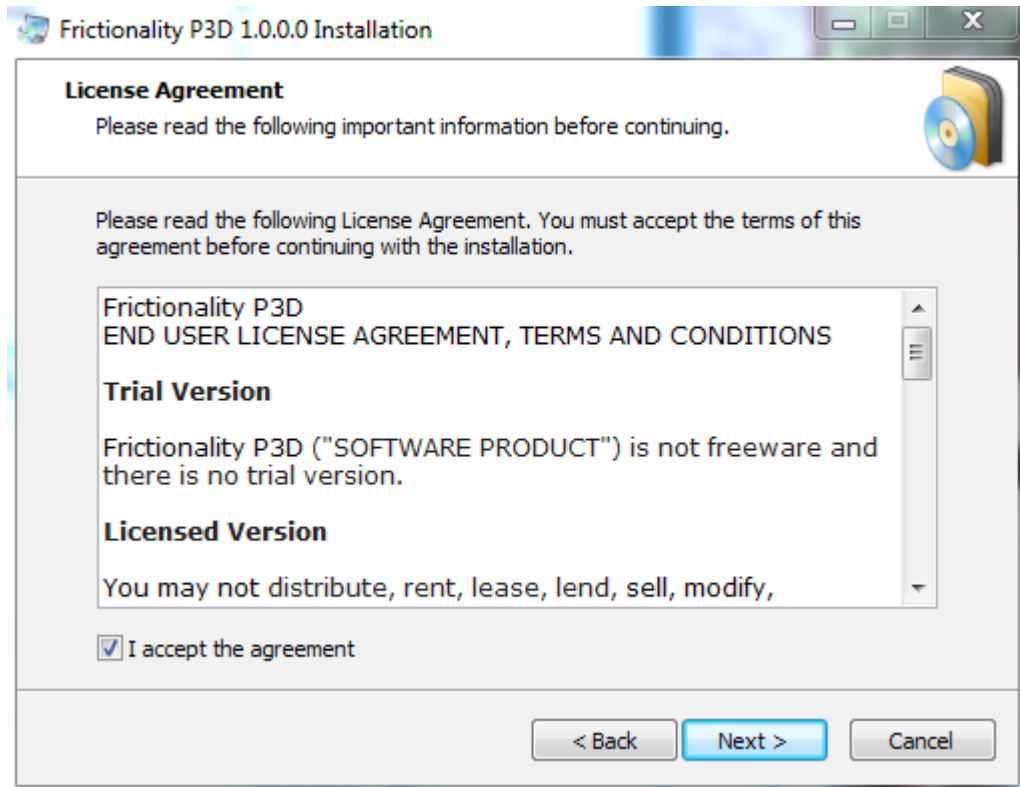
The executable file is named and to start installation you will have to double click on it after downloading is complete.

Do so select your language for setup and you will see the following screen:



Please close other applications and click next to continue the setup.

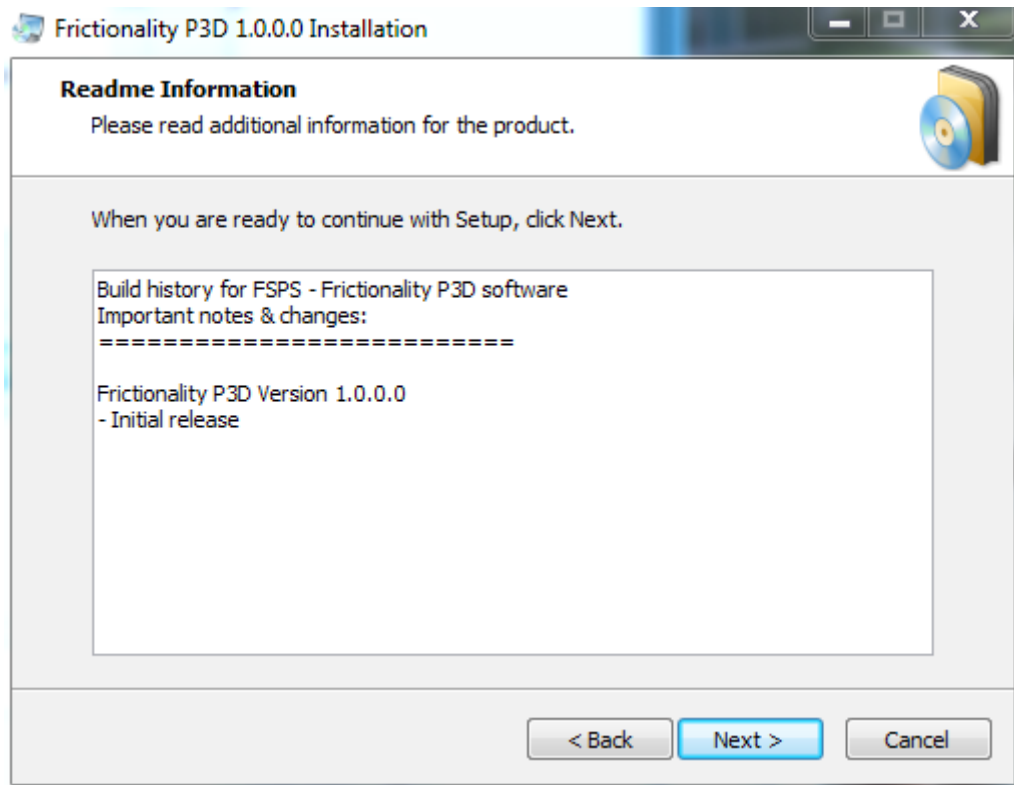
On the next screen you will be presented with the Licence agreement.



Please read it, click on "I accept the agreement" and then press Next > to continue.

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Next step is reading the version changes history...

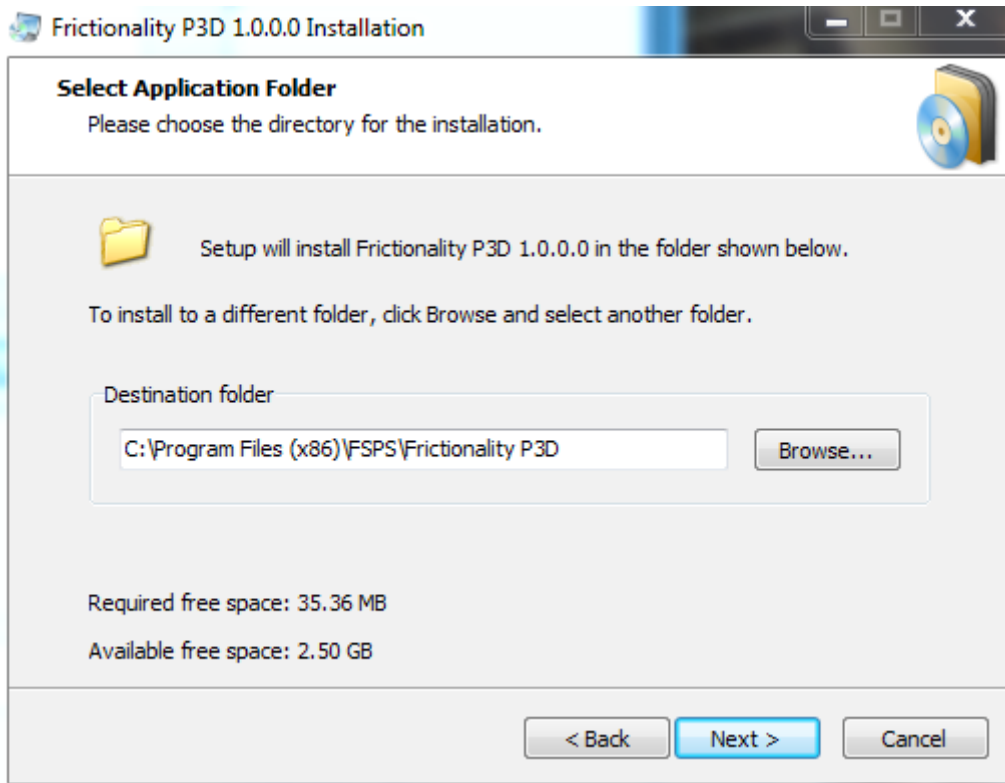


Press next to continue.

In the next step you will be asked where Frictionality is to be installed.

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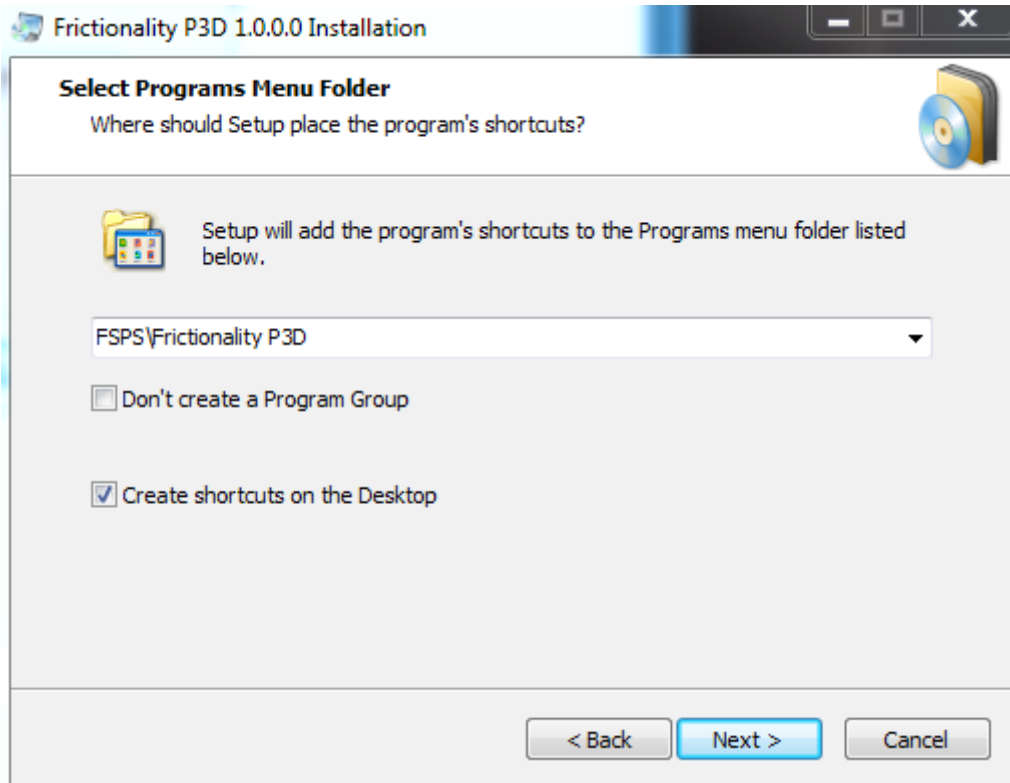
Choose the directory you want , as above, and press next to continue.

**CAUTION: If you are running a x64 system make sure you install the product on a Program Files (x86) folder !!!**

**CAUTION ... #2: DO NOT install inside Prepar3D directory. !!!**

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Next step is for shortcuts in the Programs menu and on the desktop



Make your choice and press next to continue.

Finally :

Read the summary of what it is about to be installed and where and of course press Install to continue.

The progress will be shown and soon the final setup screen will be shown.

You are now done installing the software.

## 4. Activation

After installation you will be able to see the Frictionality shortcut on your desktop.



Clicking it will guide you on this first installation to the new FSPS Activation Center screen (You need a working internet connection at this point)

A screenshot of the "FSPS Activation Center" window. The window has a title bar with the text "FSPS Activation Center" and a red close button. The main area contains four input fields: "Site code" with the value "D091741F", "MID" with the value "3CC9-16DE-CBE2-AC2B", "Serial number" (empty), and "Email Address" (empty). Each of the last two fields has a small grey button with a question mark to its right. Below the fields is a large grey button labeled "Unlock Application". At the bottom of the window, there is a red text message: "Please make sure to disable your firewall during activation procedure".

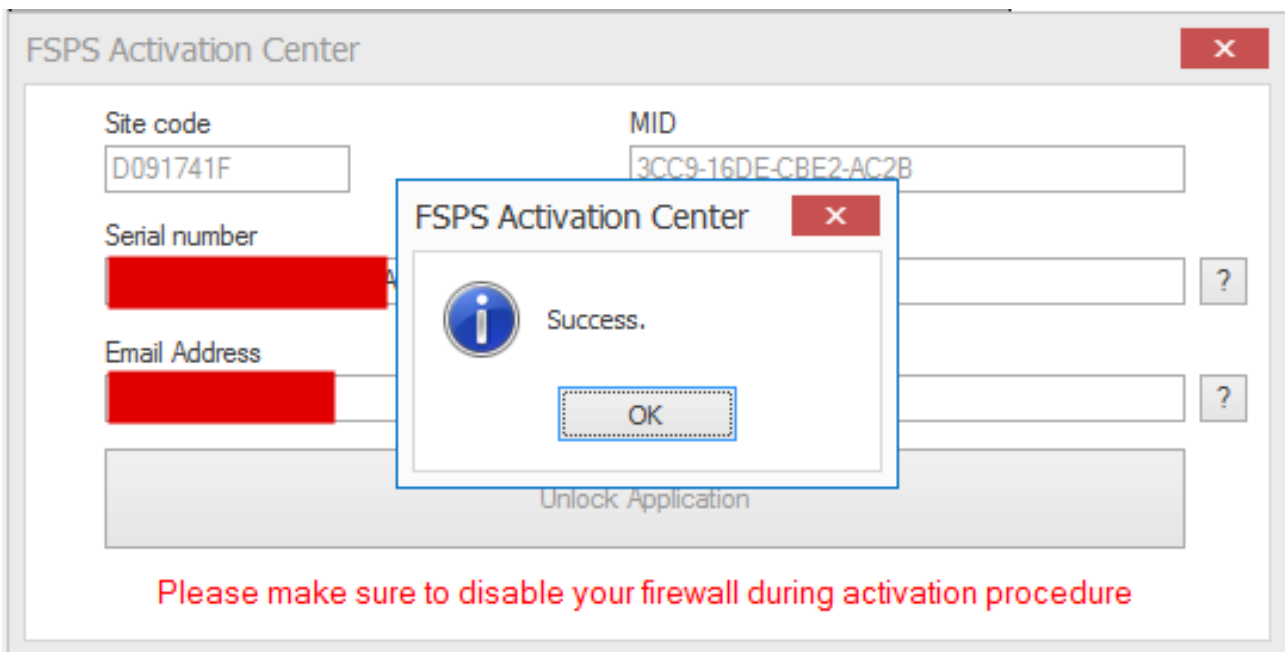
On this screen you can see two codes created, the “Site code” and “MID”, codes that identify your PC hardware. The slightest change – even a different HD for example – will change these codes, thus making impossible for the Anti Piracy system to mistakenly ID two different computers.

All you have to do now to activate the software, is to insert your serial number in the first field marked “Serial number” and a valid email address in the second field marked “Email Address” and press the - now available - “Unlock Application” button.

Please wait as the software is communicating with FSPS servers, uploading your serial number and registering your software.

If all goes smoothly the following screen will appear:

Pressing OK (below the “Success”) will shut-down the FSPS Activation Centre and will launch the actual Frictionality application.



*If you encounter an error like “Error all licences in use” please contact support at: <http://support.thefsp.com> using our ticket system, **with your serial number**, your Site code and your MID included, as either something has gone terribly wrong in the activation or you are already installing on a second computer...*

*If you encounter an error like “Serial number invalid” you most probably are copy – pasting the serial number the wrong way. A space character may be also pasted ( there are no spaces in the serial ) and anyway this is a spelling error. Check your serial and re-enter it correctly!*

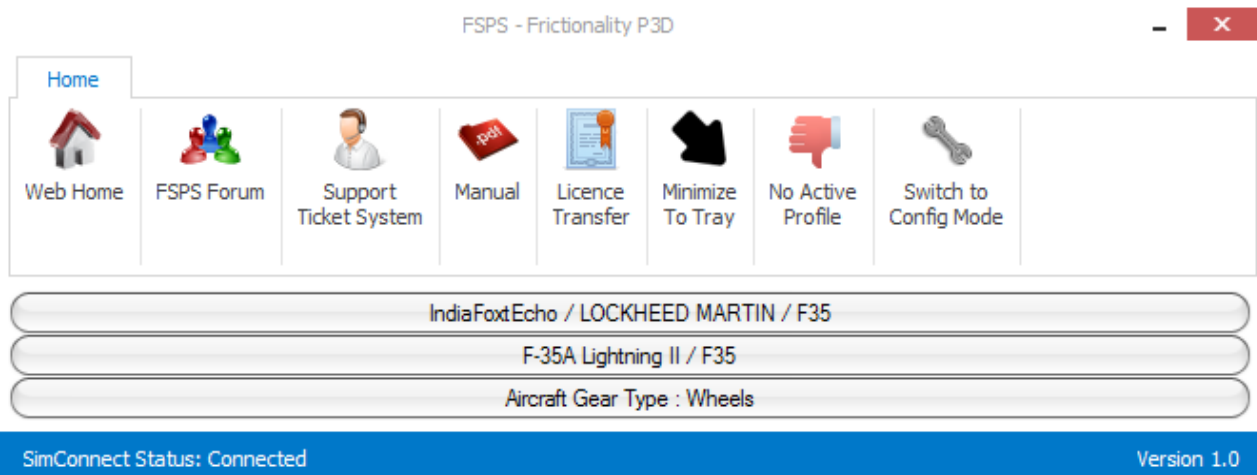
## 5. Application menus and basic functions

If you have successfully completed the above you should be ready to start up the Frictionality application. You can start up Frictionality before or after Prepar3D. After start the first thing you would see is the following Main Menu screen :

As you can see it consists of 3 main parts.

- The upper menu-bar : It provides various links to forums , support etc., the check for updates function and the Licence Transfer button.
- The centre part with your aircraft information. (Actually shows what aircraft you are using)
- The bottom information bar: It shows some information regarding your Simconnect connection (connected or not) , any abnormal messages, and the version number.

The Upper menu-bar:



- Pressing the “Web Home” icon will launch a browser window that will navigate you to FSPS homepage : <http://www.thefsp.com>
- Pressing the “Tech Forum” icon will launch a browser window that will navigate you to the FSPS official forum : <http://forum.simflight.com/forum/128-fsp-support-forum/>

Note that the forum although monitored regularly is not the official support place, but more of a kind of gathering place for users to talk about the products, ask for new features etc. So please prefer the following to contact us:

- Pressing the “Support Ticket” icon will launch a browser window and you will navigate to FSPS Support web page : <http://support.thefsp.com/>  
The Ticket system ensures support in a case by case order, just press the “Open New Ticket” to submit a new request, or “Check Ticket Status” to check for answers to a previously created ticket.
- Pressing the “ PDF Manual” icon will launch this manual in your default PDF file type reader.
- **The next button “Licence Transfer” has a very important function , please note carefully.**

As previously described the application can be used on one computer only at any given time. The system that checks for validity of the information however is so secure that even uninstalling the application will not delete the licence information from the FSPS servers. So ...

If you want to change/alter your hardware on the same PC that you have Frictionality installed on, if you want to install on another computer or if you want to uninstall Frictionality, in order TO AVOID APP LOCK UP on the next installation, press “Licence Transfer” button before doing anything else.  
( You need a working internet connection at this point )

This will , after your confirmation, shut down Frictionality, and remove the Licence information from our servers, thus enabling the application to be installed on a different computer, or in the same computer after the big hardware changes!

So before any change of hardware or Operating system, before any uninstallation or if you just want to have the software installed and used on a different PC, start up the Frictionality and press “Licence Transfer”.  
Then do your changes in hardware or Operating System, install Frictionality on a different computer etc.  
Just activate the software using your serial number and no problem... you can use the application normally.

- Next button minimizes the application to the system tray. Double clicking the icon on the tray re-maximizes the application.

- If you had previously created an aircraft profile (see below) , the next icon will inform you if it had loaded or not.
- Finally the last icon will start the “Configuration mode” so you would be able to manipulate settings, save profiles etc (see below). If you press it again you return to the small menu the so called “Play – mode” . You can use the application in either mode, the “Play – mode” is just a mode to avoid any changes made by mistake.

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## 6. Configuration

Pressing the “Switch to Config Mode” as previously described will enter the Configuration mode where you will be able to manipulate the Prepar3D friction related settings in real time.

You will be upon the following screen:

FSPS - Frictionality P3D

Home Profiles Test

Web Home FSPS Forum Support Ticket System Manual Licence Transfer Minimize To Tray No Active Profile Switch to Play Mode

IndiaFoxEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Dry Set Runway Condition

Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus	Dry
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral	Wet
Shale	Planks	Snow	Ice	Steel Mats	Brick	Snowed

Friction Configuration

0 % Rolling Friction 200 %

0 % Sliding Friction 200 %

0 % Braking Friction 200 %

	Wet Runway	Snowed Runway
Rolling		
Sliding		
Braking		

SimConnect Status: Connected Version 1.0



As you see some new buttons and information emerged:

**Let's see one by one their meaning.**

First you have the “Current Surface Type” buttons.

17 of the Prepar3D's runway surface types are available.

To configure a surface type you will have to press the relevant button and Prepar3D will take you at a preset location on the start of the runway, on runway heading.

(If you are already in Asphalt and want to set the Asphalt settings, go to Concrete – wait to load – and then to Asphalt again to set you at the location we had preset).

Let's select Concrete for now. The Simulator will load your current aircraft at a preset location with Concrete surface.

Then – after deactivating any weather software it may run at the time – press the set weather on the right.


You have three choices: Dry , Wet and Snowed.


Start with Dry.


You will come upon the below screen:


FSPS - Frictionality P3D
- X


Home
Profiles
Test


  
 Web Home


  
 FSPS Forum


  
 Support Ticket System

  
 Manual

  
 Licence Transfer

  
 Minimize To Tray

  
 No Active Profile

  
 Switch to Play Mode

IndiaFoxEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Dry

Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral
Shale	Planks	Snow	Ice	Steel Mats	Brick

Set Runway Condition

Dry

Wet

Snowed

Friction Configuration

0 %

Rolling Friction

200 %

Modified	Original
5 %	5 %
Restore to Original	

0 %

Sliding Friction

200 %

Modified	Original
64 %	64 %
Restore to Original	

0 %

Braking Friction

200 %

Modified	Original
70 %	70 %
Restore to Original	

	Wet Runway	Snowed Runway
Rolling	90% of 5% (Fair Weather) = 4.5%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	90% of 70% (Fair Weather) = 63%	80% of 70% (Fair Weather) = 56%

SimConnect Status: Connected
Version 1.0

As you see, there are now values showing below (on the Friction Configuration part), there are also values to the left called “Modified” and “Original” and also below the Wet and Snowed differences.

But what is the meaning of each setting?

Let's answer as simply as we can:

The first is the **Rolling Friction**.

The value is displayed in % and describes and handles the surface's general friction. The higher the number the higher the grip of the tyres but also the resistance in motion.

If we – for example – lower the Rolling Friction number the aircraft will need much less thrust to move , it will accelerate much faster but it will brake much softer as the surface will not provide much friction.

If we raise the Rolling Friction we will accelerate harder as there is more resistance from the surface but the plane will brake much better.

Second is the **Sliding Friction** which on the same manner describes the friction when the aircraft is side sliding on the runway. (Not of much use of the majority of the simmers but we included it anyway).

Third is the **Braking Friction**.

The value is again displayed in % and it describes and handles the friction during braking only. The higher the setting the better your brakes will function the lower the setting the least efficient your brakes will be.

Unfortunately this is the way Prepar3D thinks about how friction works and – correct or not – we have to work on these values and on this logic:

If you raise the Rolling Friction – for example – to forbid an aircraft taxi on idle thrust you will notice that the braking is now much better (maybe impossibly better) so you should take the Braking Friction a bit lower to compensate. (You want real acceleration but you don't want to destroy the realism of braking )

Pressing now the WET button on the right you will set instantly a weather condition that will turn the Surface to Wet:

FSPS - Frictionality P3D - X

Home

Profiles

Test

Web Home

FSPS Forum

Support Ticket System

Manual

Licence Transfer

Minimize To Tray

No Active Profile

Switch to Play Mode

IndiaFoxtEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Wet

Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral
Shale	Planks	Snow	Ice	Steel Mats	Brick

Set Runway Condition

Dry

Wet

Snowed

Friction Configuration

0 %200 %

Rolling Friction Modifier

90 %90 %

Restore to Original

Modified

Original

0 %200 %

Sliding Friction Modifier

90 %90 %

Restore to Original

0 %200 %

Braking Friction Modifier

90 %90 %

Restore to Original

	Wet Runway	Snowed Runway
Rolling	90% of 5% (Fair Weather) = 4.5%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	90% of 70% (Fair Weather) = 63%	80% of 70% (Fair Weather) = 56%

SimConnect Status: Connected
Version 1.0

As you see now below, on the Friction Configuration the values changed to some much higher numbers. That is why there are called **“Modifiers”**. The values are based on the dry surface's values that are now modified for Wet usage.

Again this is the Prepar3D's logic and we have to work this way to fix it. Changing the modifiers will result in different friction following the basic rule : the higher the number, the better the friction.

So for example if we want to make the acceleration more difficult as using the default for concrete Prepar3D Rolling friction modifier value of 90% will provide the 90% friction of 5% (From dry conditions) which results in 4.5% . This, as a lower number, provides on the acceleration less resistance to the aircraft and will make it look faster and more powerful. In real life the water layer provides a significant increase in rolling resistance and will make your aircraft slower. So to correct it we will have to increase the number to something above 100% .

Check the image below , as we set in this case the Rolling Friction Modifier for wet in 120% (Original value is 90%).

Now our aircraft will be much more difficult to move on the wet runway.

However our move to raise the Rolling Friction Modifier have unrealistic results if we brake. Your aircraft will now brake even better than when in dry conditions. To compensate you will have to lower significantly the Braking Friction Modifier so it would now reflect correctly the real life lesser effect on braking in wet conditions.

In the image below we used a 70% setting to compensate the results.


Using the same logic you can manipulate the Snowed runway's values which again in default Prepar3D are completely unrealistic. Again default Prepar3D values gives you better acceleration in Snowed runway conditions, despite the braking is – at it should - less effective.


Scientific studies show that on Snow contaminated runways, both rolling distance and braking distance grows compared to Wet. (With some exceptions of course that cannot be simulated by Prepar3D, like iced snow particles on runway that extends even more the braking distance (due to even less grip), or packed fresh snow that in some cases reduces the braking distance as it provides not grip but huge resistance in wheels movement).


Anyway when you finish manipulating the Wet and Snowed setting the application will look like this:


FSPS - Frictionality P3D
-
x


Home
Profiles
Test


  
 Web Home


  
 FSPS Forum


  
 Support Ticket System

  
 Manual

  
 Licence Transfer

  
 Minimize To Tray

  
 No Active Profile

  
 Switch to Play Mode

IndiaFoxEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Wet

Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral
Shale	Planks	Snow	Ice	Steel Mats	Brick

Set Runway Condition

Dry
Wet
Snowed

Friction Configuration

0 %	<input type="range" value="120"/>	200 %	120 %	90 %
<input type="range" value="120"/>				
Restore to Original				

0 %	<input type="range" value="90"/>	200 %	90 %	90 %
<input type="range" value="90"/>				
Restore to Original				

0 %	<input type="range" value="70"/>	200 %	70 %	90 %
<input type="range" value="70"/>				
Restore to Original				

	Wet Runway	Snowed Runway
Rolling	120% of 5% (Fair Weather) = 6%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	70% of 70% (Fair Weather) = 49%	80% of 70% (Fair Weather) = 56%

SimConnect Status: Connected
Version 1.0

You can now press the (now visible as you are in Configuration Mode) Profiles TAB above to enter the Profiles menu:

FSPS - Frictionality P3D - [X]

Home **Profiles** Test

Save Profile Restore All Frictions To Original Assign Profile

IndiaFoxtEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Wet						Set Runway Condition	
Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus	Dry	
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral	Wet	
Shale	Planks	Snow	Ice	Steel Mats	Brick	Snowed	

Friction Configuration		Modified	Original
0 %	Rolling Friction Modifier	200 %	90 %
<input type="range" value="120"/>		<input type="button" value="Restore to Original"/>	
0 %	Sliding Friction Modifier	200 %	90 %
<input type="range" value="90"/>		<input type="button" value="Restore to Original"/>	
0 %	Braking Friction Modifier	200 %	90 %
<input type="range" value="70"/>		<input type="button" value="Restore to Original"/>	

	Wet Runway	Snowed Runway
Rolling	120% of 5% (Fair Weather) = 6%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	70% of 70% (Fair Weather) = 49%	80% of 70% (Fair Weather) = 56%

SimConnect Status: Connected
Version 1.0

If you press “Save Profile” all the settings for the aircraft you are using will be saved inside Frictionality's installation subdirectory “Profiles” . Automatically, from now one, when ever you load this aircraft and you have Frictionality running the Profile will load and your customized values will be activated. If you press Restore All Frictions to Original the default Prepar3D values (or your patched Sim1.dll's values) will be loaded.

If you press “Assign Profile” you will be able as shown below:

**Import From Profile**

Aerosoft Airbus X Generic FSPS.csv  
iFly B737 Generic FSPS.csv

**Profile Aircraft**  
Creator : iFly Development Team  
Type : BOEING  
Model : B738

**Current Aircraft**  
Creator : IndiaFoxEcho  
Type : LOCKHEED MARTIN  
Model : F35

**Friction Configuration**

	Modified	Original
Rolling Friction Modifier	120 %	90 %
Sliding Friction Modifier	90 %	90 %
Braking Friction Modifier	70 %	90 %

	Wet Runway	Snowed Runway
Rolling	120% of 5% (Fair Weather) = 6%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	70% of 70% (Fair Weather) = 49%	80% of 70% (Fair Weather) = 56%

SimConnect Status: Connected Version 1.0

to load – to import – in other words a profile from an other aircraft. This function can become very handy if you load a similar aircraft (for example a B737-700 compared to a B737-800) and you just want to import all its settings to save some valuable time from configuring. Just select the aircraft from the list and press the Assign button. Some profiles for some “must” simulator add-ons had already been added during installation by FSPS development team.



The list loads the aircraft contained on two directories:


- a) From the “Frictionality installation directory/Profiles”
  - b) From the “Frictionality installation directory/Profiles/Generic Profiles To Import”
- The later is a directory that you place any profile found in forums sent by a friend who already set that aircraft OK etc, and check its functionality yourself. If you like it keep it by saving it using the save profile button.

**Press now the Test button up on the menu bar to enter the Test menu.**

FSPS - Frictionality P3D
- X

Home   Profiles   **Test**

  
 Start Test

  
 Results

  
 Clear Test Results

IndiaFoxEcho / LOCKHEED MARTIN / F35

F-35A Lightning II / F35

Aircraft Gear Type : Wheels

Current Surface Type: Concrete - Runway Condition : Wet

Grass	Asphalt	Concrete	Gravel	Dirt	Bituminus
Macadam	Sand	Tarmac	Hard Turf	Oil Treated	Coral
Shale	Planks	Snow	Ice	Steel Mats	Brick

Set Runway Condition

Dry

Wet

Snowed

Friction Configuration

		200 %			
0 %	Rolling Friction Modifier			120 %	90 %
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					

Modified	Original
120 %	90 %
Restore to Original	

		200 %			
0 %	Sliding Friction Modifier			90 %	90 %
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					

Modified	Original
90 %	90 %
Restore to Original	

		200 %			
0 %	Braking Friction Modifier			70 %	90 %
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					
<div style="border-bottom: 1px dashed #ccc; width: 100%; position: relative;"> <div style="position: absolute; left: 50%; transform: translate(-50%, -50%); border: 1px solid #4a7ebb; border-radius: 50%; width: 10px; height: 10px;"></div> </div>					

Modified	Original
70 %	90 %
Restore to Original	

	Wet Runway	Snowed Runway
Rolling	120% of 5% (Fair Weather) = 6%	80% of 5% (Fair Weather) = 4%
Sliding	90% of 64% (Fair Weather) = 57.6%	80% of 64% (Fair Weather) = 51.2%
Braking	70% of 70% (Fair Weather) = 49%	80% of 70% (Fair Weather) = 56%

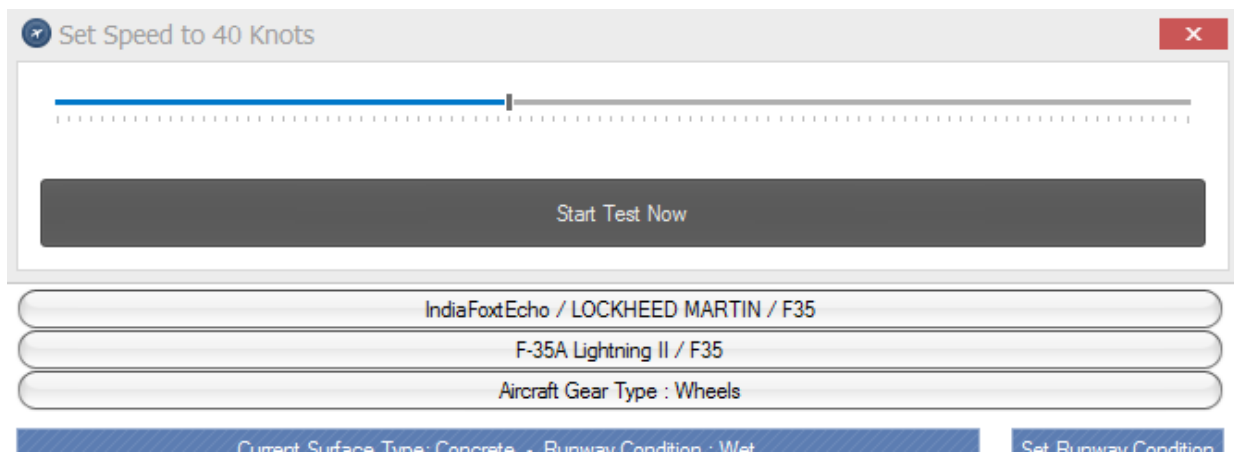
SimConnect Status: Connected
Version 1.0

As you can now see, three new buttons are visible:

The Start Test, the Results and the Clear Results, and you are inside the Test Menu. The Test Menu is we believe necessary for you, in order to test your settings and have solid results between setting “a” and setting “b”.

Press the test button:

Upper section of the application changes as below:



Use the slider to adjust to your required speed.

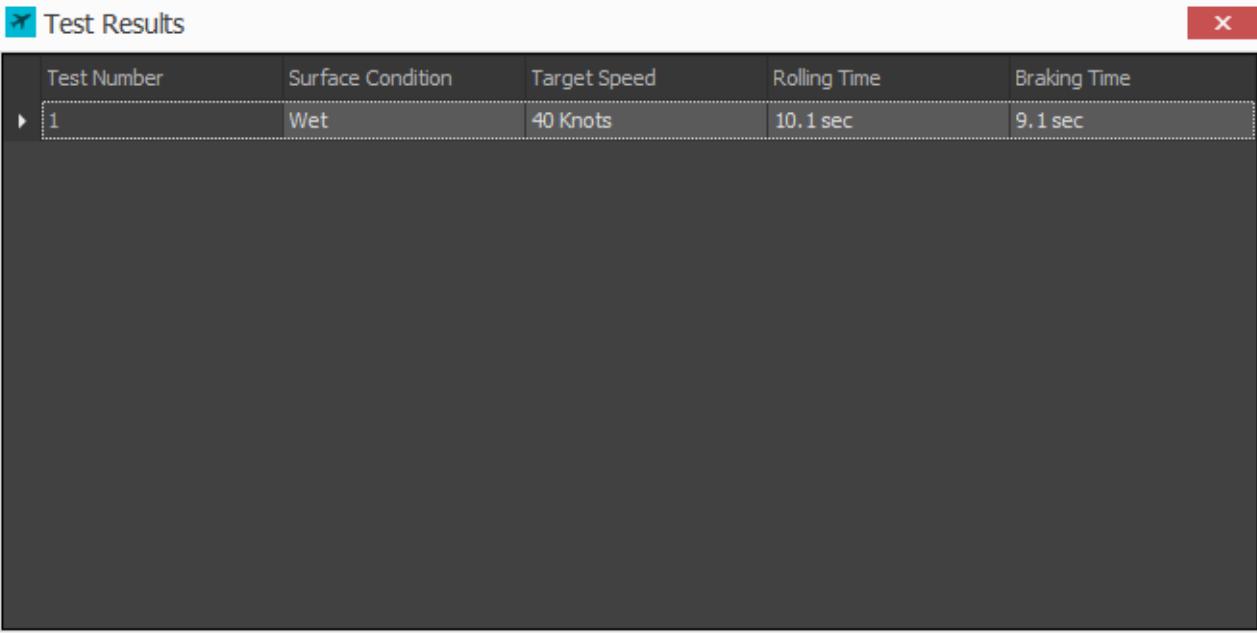
Select (in our example) 40 KTS .

When you press “Start Test Now” the application will automatically move the thrust to full and your aircraft will start rolling. At exactly 40 – in this case – KTS of Ground Speed the thrust will be reduced to idle and brakes will be applied.

(\*\*\* Some aircraft with customized thrust systems that are not following Microsoft's SDK – like some advanced Airbuses out there who had to go around the standard thrust system in order to function properly – are not supported as our command via Simconnect to add thrust cannot work. You will have to do your own manual tests).

Check it live in your simulator.

When the test finishes, the Test results will pop:




The screenshot shows a 'Test Results' dialog box with a table containing one row of data. The dialog has a title bar with a close button (X) and a 'Friction Configuration' bar at the bottom with 'Modified' and 'Original' buttons.

Test Number	Surface Condition	Target Speed	Rolling Time	Braking Time
1	Wet	40 Knots	10.1 sec	9.1 sec

As you see you get: a test number, the surface condition, the test's target speed , the measured time for accelerating to the preset speed will be shown, as also the measured time for braking to a stand still : Rolling Time and Braking time.

Making another test will bring you another test results screen and so on.



The screenshot shows a 'Test Results' dialog box with a table containing two rows of data. The dialog has a title bar with a close button (X) and a 'Friction Configuration' bar at the bottom with 'Modified' and 'Original' buttons.

Test Number	Surface Condition	Target Speed	Rolling Time	Braking Time
1	Wet	40 Knots	10.1 sec	9.1 sec
2	Snowed	40 Knots	9.1 sec	8.9 sec

Close results screen by pressing X on the upper right.

By pressing the “Results” button as you understand will bring you up your Results screen and by pressing Clear results will clear all made tests from memory.

By making changes and right afterwards test them you can check what you have done to Prepar3D frictions easily and adjust the sliders as necessary.

Test again and again until you see differences.

Of course you have to think about the conditions, if they change or not, if the runway length is enough for another test and other details, that we are sure you will figure out on course of using the application.

If you believe you found a great profile for your favourite aircraft please share it! We strongly encourage it!

**Prepar3D Frictions are now in your hand. Play with them, manipulate them in real time, adjust them, leave them as they are if you wish!  
Prepar3D's Friction problems are now a thing of the past.  
FSPS mastered the issue, and Prepar3D frictions are now YOURS, as easy as it gets targeting to the common cause... As Real As it Gets!**

**Enjoy Frictionality , enjoy a new level of realism for your favourite simulator, always on the depth YOU want.**

## **7. Changes history**

1<sup>st</sup> October 2014:

Frictionality P3D ver 1.0

- Initial release