

737 IMMERSION

FOR THE PMDG 737 NGX

USER MANUAL

v. 003

Thank you

First and foremost, thank you for purchasing 737 Immersion. Lots of passion and hardship went into this project to develop a one-of-a-kind product. We hope you will have as much amazement and fun as we had developing the product. What follows is a comprehensive explanation guide of what is included in this package, along with the conditions in which the effects are displayed. Enjoy your beautiful flights with 737 Immersion!

Table of Content

- 3 VFX Central (Install/Uninstall)
- 4 Compatibility
- 5 Optimal Settings
- 7 Weather Presets
- 8 Performance
- 9 Limitations
- 10 Support
- 11 Visual Effects
- 15 Credits



VFX Central is the best solution for Activating, Installing and Managing our products. It launches in parallel to your simulator to check for any changes made to the configuration, fixing potential issues on the fly so that everything is working on your next takeoff. The application also updates itself without any user interaction, so you can focus on what really matters in the cockpit!

Adding a product

To add a product, simply click the "ACTIVATE A SERIAL NUMBER" tile in the products grid of VFX Central. You can also do the same on the website.

Automatic Launch with your simulator

VFX Central will check the integrity of supported products when it is launched with your simulator. You can change your simulator configuration by going in the Preferences menu of VFX Central.

Automatic Updates

VFX Central will check and install updates automatically. You will be notified once a new update was installed.

Compatibility

Supported models

For now, 737 Immersion is compatible exclusively with the PMDG 737NGX -800/900 Base Pack and PMDG 737NGX -600/700 expansion pack available on the PMDG website (pmdgsimulations.com).

FSUIPC

737 Immersion requires FSUIPC to be installed. Make sure it is installed, or do so before or after the installation. Licensed version of FSUIPC is not required.

Compatibility with other Add-ons

This package works with other FSFX Packages products including PrecipitFX. It also works with common add-ons like Active Sky Next, ORBX products, REX products, FS2Crew products, common custom airports/sceneries and texture replacement packages.

Installing custom touchdown or contrails effects on a generic scale should not affect your 737 Immersion installation.

DirectX 10 (FSX)

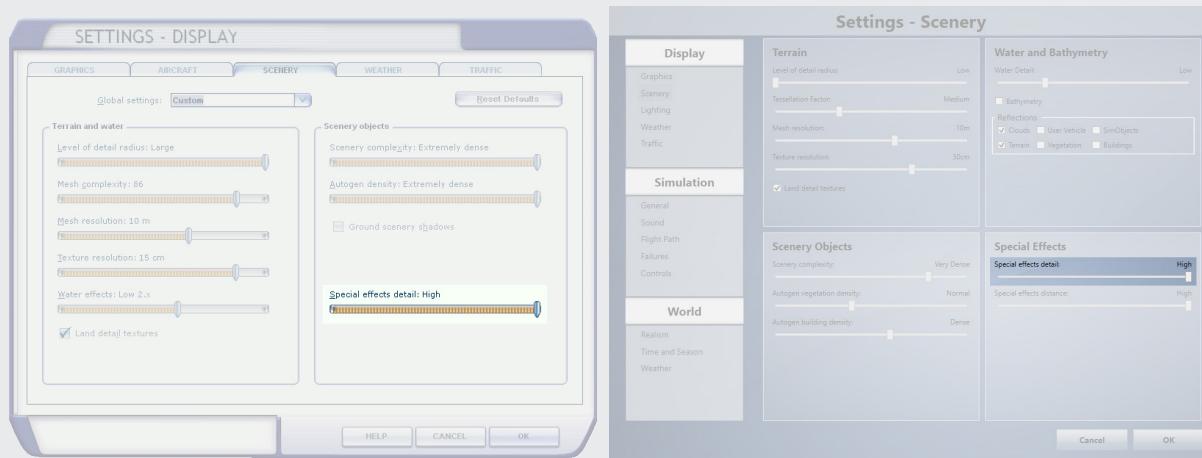
This package fully supports FSX in DirectX10 mode without conversions.

Optimal Settings (1/2)

Special Effects Slider

To ensure every effects are displayed as they are intended to, make sure the Special Effects Detail slider in the Scenery tab is set to High in Flight Simulator X or Prepar3D v2, v3 settings.

Setting this slider otherwise, some effects might look dim, or even invisible.



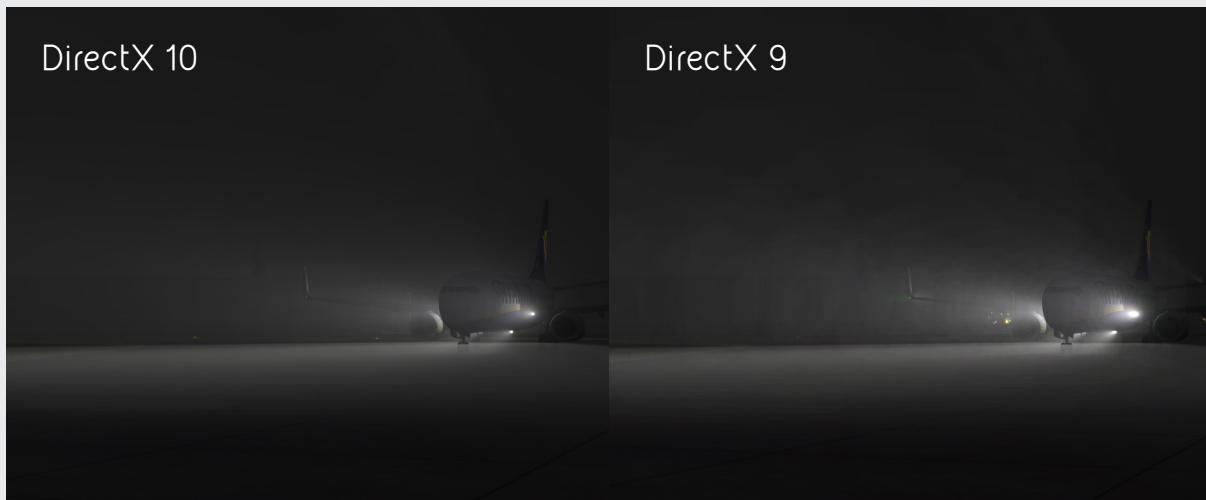
Anti-aliasing and screen resolution

Anti-Aliasing and screen resolution are important factors affecting the performance of your sim, specifically when visual effects are visible close to the camera. Make sure you tune those to balance your need.

Optimal Settings (2/2)

DirectX 10 (FSX)

Using DirectX 10 in FSX will result in much smoother volumetric lighting.



HDR (P3D v2, v3)

Using HDR in P3D v2 and v3 will result in much smoother and brighter volumetric lighting.



Weather presets

Weather engines

To make your life easier, we compiled a list of METARs you can use to see various effects bundled in this package. You can replicate them in your Simulator's build-in weather engine or in any other third-party weather engine.

Cold Weather

GLOB 000000Z 12010KT 2SM -SN SCT030 M30/M34 A3015

In these conditions, you will be able to see low-level contrails after takeoff and cold start smoke when starting the engines.

Saturated air

GLOB 000000Z 36006KT 3SM -RA OVC007 02/02 A2943

Saturated air will trigger all the condensation effects around the aircraft, including wing condensation, engine condensation, lift vanes voritces and flaps' trailing edge vortices. temerature and dew points must less than 2*C appart for those effects to show.

Low Visibility

GLOB 000000Z 00000KT 1/2SM FG BKN018 OVC050 13/13 A2961

Low visibility will trigger volumetric lighting effects at dusk, night and dawn. This weather is often linked with saturated, slow moving air. You might also see various condensation effects with this weather.

Performance

Our tests

737 Immersion has been tested by several people using various hardware configurations. We developed each effect with the balance of quality and performance in mind. We always made certain the performance impact would be as minimal as possible. The VAS footprint is also very low, less than 5MB. Textures are compressed, and are no larger than necessary.

Additional options

Because performance is based on the user's configurations, we are offering multiple options when installing 737 Immersion. That way, you can tune your 737 Install to match your performance requirements.

BACK	Brake Dust	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ALL / <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NONE
	Engine Water Spout	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	Wheels Spray	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	Flaps Vortices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				

Options

Shorter Contrails
Shorter contrails will result in better performance.

Lighter Wing Condensation
This option reduces the complexity of wing condensation effects. Giving you better performance if necessary

Lighter Volumetric Lighting
This option will shorten light beams, giving you better performance if needed.

Don't forget to read the product's manual for this product to get



The screenshot shows the configuration window for 737 Immersion. At the top, there are four rows of toggle switches for visual effects: Brake Dust, Engine Water Spout, Wheels Spray, and Flaps Vortices. Each row has four green switches on the left, followed by a separator, then two orange switches labeled 'ALL / NONE' in the center, and four green switches on the right. Below this is a section titled 'Options' with three items: 'Shorter Contrails', 'Lighter Wing Condensation', and 'Lighter Volumetric Lighting'. Each item has a descriptive text block and a row of four toggle switches. At the bottom of the window, a note says 'Don't forget to read the product's manual for this product to get'. To the right of the configuration window is a dark overlay showing the 737 Immersion logo and 'FOR THE PMDG 737 NGX'. At the bottom of this overlay are two large circular buttons: a red one with a white 'X' labeled 'UNINSTALL' and a green one with a white arrow labeled 'APPLY'.

Limitations

Effects will not show if all engines are shutdown.

The technique used to display effects around the aircraft depends on the airplane's smoke system which does not work when all engines are off. This is a Flight Simulator limitation

Effects are not visible during instant replay.

Flight Simulator X's replay system is very limited and does not allow the replay of advanced effects systems. A great solution is to use FSRecorder (<http://www.fs-recorder.net>) with the smoke replay option turned off.

Support

AVSIM Forums

User-to-user support is offered through our official AVSIM Forums.

<http://www.avsim.com/forum/723-official-fsfx-packages-support-forum/>

Customer support

Support is also offered on our website. Frequent issues are listed with solutions. If nothing suits you in this list, it is also possible to contact us through this page.

<https://fsfxpackages.com/en/support/>

PMDG

Precision Manuals Development Group (PMDG) will not offer support for 737 Immersion.

Visual Effects (1/4)

Contrails

Our contrails can be observed when the air is at very low temperatures, most of the time being at higher altitudes. With 737 Immersion, contrails are visible even at low altitude when the air is saturated and the temperature goes below -25°C (-13°F) or lower. Denser contrails can be observed at -35°C (-31°F) or lower. This contrail will remain visible for 200 seconds or 29 kilometers (18 miles) at 280 knots.

Wheels effects on wet and snow covered pavements

Landing gear tires effects on water and snow has been greatly enhanced. The effect will disperse water in case of rain, and leave dry marks on the ground behind the wheels. The intensity of the effect will gradually increase with an increase in airspeed. You will also see that the center gear is much smaller than the two main gears. Tracks left on wet pavements will reflect this size difference.

Engine cold start smoke

Igniting the engine in a cold environment may cause a condensation vapor cloud to occur when the temperature is below -5°C (23°F). The colder it gets, the more the effect will show.

Brake Dust

Brake dust can be observed coming out of each main landing gear when it is retracting. The brake dust is caused by the carbon brake residues left from previous brake applications on the ground. This effect is not visible at night and when no precipitations are observed to improve performance.

Visual Effects (2/4)

Touchdown smoke

The touchdown effect is visible when the wheels come into contact with the runway pavement. The effect has been greatly enhanced to increase realism.

Volumetric Lights

Volumetric taxi, turnoff and landing lights can be observed at dusk, night, and dawn when the visibility is lower than 5SM. The effects will be more pronounced when the visibility drops below 3/4 SM. Moreover, these lights are fading in when turned on and fading out when turned off, just like on the real aircraft.

Volumetric logo lights can be observed on the horizontal stabilizer at dusk, night, and dawn when the visibility is lower than 1/2 statute miles (SM).

Volumetric strobe lights can be observed on each wing, and at the back of the aircraft at dusk, night, and dawn when the visibility is lower than 1/2 statute miles (SM).

Volumetric wing lights can be observed along the fuselage in the FWD section lighting up the wing at dusk, night, and dawn when the visibility is lower than 3/4 statute miles (SM).

Volumetric navigation lights can be observed at the end of each wing at dusk, night, and dawn when the visibility is lower than 1/2 statute miles (SM).

Volumetric beacon lights can be observed as flashing red lights on the top and bottom of the fuselage at dusk, night, and dawn when the visibility is lower than 1/2 statute miles (SM).

Visual Effects (3/4)

Engine Lift Vanes Vortices

Vortices are visible on the engines' lift vanes when the air is saturated. They become visible at an angle of attack of 2° and over. They are displayed in 2 intensities depending on the angle of attack.

Flaps Vortices

Flaps' trailing edge vortices can be visible when the air is saturated, the winds are less than 20 knots, temperature is above -15°C (5°F) and when the angle of attack is above 2°. There are 3 intensities depending on the angle of attack.

Engine Condensation

Engine condensation is caused by the rapid loss of pressure in the engines' air intakes when the air is close to, or reaches saturation. This effect is visible at 70% N1 or more, when the difference between the ambient temperature and the dew point is less than 2°C (4°F), when winds are less than 25 knots and with an airspeed of less than 220 knots.

Wing Condensation

Wing condensation is due to the rapid loss of pressure from the air flowing over the wing when the air is close to, or reaches saturation. In 737 Immersion, this effect is visible with an angle of attack of more than 4° when the air is saturated, with a temperature above -15°C (5°F) and with an ground velocity of less than 100 knots. Various intensities are displayed depending of the wing's angle of attack.

Visual Effects (4/4)

Engine Jet Wash Effects on Water and Snow

Engine jet wash effects can be seen under rain and snow conditions. These effects will change depending on the thrust applied to each engine. Custom water effects around the engines when using reversers are also included. They will also change depending on the amount of reverse thrust used. Rain and snow effects are different since snow is lighter than water.

Water and snow ingestion into the engine

On wet and snow covered pavements, some water or snow can be ingested into the engine. Some water/snow spouts will be visible during low speed aircraft movements. In 737 Immersion, and engine setting between 23% and 60% will trigger the effect on wet or snowy surfaces.

Credits

Beta testers

Alex Farmer
Ryan Dunlop
Jeroen Doorman
Jonah Snoei
Frederick Durand
Samuel Paradis

Video producers

Keven Ménard (Walk-through video)
Jeroen Doorman (youtube.com/user/JerdooFlightX)
Jonah Snoei (youtube.com/user/JRSchipholtv)

Effects development (visual & behavior)

Keven Ménard

VFX Central

Keven Ménard
Michaël Villeneuve-Normand

Documentation

Keven Ménard
Frederick Durand

Website & Server management

Keven Ménard
Michaël Villeneuve-Normand

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