PREPAR3D®

Dynamic Rain Effects

Version 19.8.0.20 / 20.4.0.20

Thank you for downloading the **A2A Simulations** Dynamic Rain Effects. This free software allows **developers of add-on aircraft** for Lockheed Martin® **Prepar3D®** v4/v5 to add realistically-lit dynamic rain effects to the virtual cockpit glass. The notes below describe how to do this and include important licensing information.

3-D Model Requirements

The rain effect needs its own transparent mesh on top of the existing glass. The easiest way to do this in 3ds Max is to copy the existing glass and add a push modifier with a value (in meters) of -0.001.

Each window has to be mapped on its own unique UV space; UV chunks bounding boxes can't overlap.

Raindrops move in the UV space on the virtual texture, so the UV mapping of the windows needs to be aligned horizontally and vertically.

Material recipe:

- Virtual texture in diffuse and emissive channels, default texture name is '$rain'
- Set default transparency
- Emissive mode: additive
- Set 'no shadow' to true
- Set 'virtual cockpit panel texture' to true

Windshield.ini File

The **Windshield.ini** file contains the definitions of all windows to which the rain effect will be applied. Each window has a separate section. If you have several small windows next to each other, it may be easier to define one big '[window]' section that covers them all. All parameters default to zero if not present, unless stated otherwise.

Parameter	Description
x=	Upper left corner coordinate in pixels.
y=	Upper left corner coordinate in pixels.
w=	Width in pixels.
h=	Height in pixels.
wX=	Wind scalar, horizontal component. Positive values indicate movement from left to right on the texture.
wY=	Wind scalar, vertical component. Positive values indicate movement from top to bottom on the texture.
gX=	Gravity scalar, horizontal component. Positive values indicate movement from left to right on the texture.
gY=	Gravity scalar, vertical component. Positive values indicate movement from top to bottom on the texture.
gCurve=	If present, alters the direction of the raindrops falling due to gravity further from the X centre of the window. Used for curved windshield.
speedcurve=	If present, changes speed of raindrops movement due to wind at the edges of the window. Used for curved windshield.
scale=	Scales the size of all raindrops on the window. Default is 1.0
gravityYsymmetry=true	If present, current [window] is considered symmetrical (bubble canopy).
controlValue=VariableName	If present, can be used to mask current [window] with local variable when the variable is set to true. Useful if a sliding canopy covers another part of the canopy.

The '[Global]' section, if present, contains parameters applied to all aircraft windows.

Parameter	Description
windScalar=	Scales raindrops movement due to forward aircraft movement. Default is 1.0
engineRpmScalar=	Scales raindrops movement due to engine rpm in front of the window (prop wash). Default is 1.0. Set to zero for most multi engine aircraft.

Integration in Prepar3D v4/v5 Add-Ons

The following '[Vcockpit]' section should be added to the 'panel.cfg' file.

```
[VcockpitXX]
Background_color=0,0,0
size_mm=2048,2048
visible=0
pixel_size=2048,2048
texture=$rain
gauge00=A2A_Windshield!main,0,0,0,0
texture00=Windshield, 0,0,2048,2048
```

The **Windshield.ini** file should be placed in the root folder of the aircraft, for example.

Prepar3D v5 Add-ons\[Add-on name]\SimObjects\Airplanes\[aircraft name]\

The **A2A_Windshield.dll** file should be placed in the aircraft's panel folder. Two version of this gauge are provided: v19.8.0.20 uses DirectX 11 APIs and should be included with Prepar3D v4 add-ons, and v20.4.0.20 uses DirectX 12 APIs and should be used for Prepar3D v5 aircraft.

Prepar3D v5 Add-ons\[Add-on name]\SimObjects\Airplanes\[aircraft name]\Panel\

Current Limitations

The A2A Dynamic Rain Effects (version 19.8.0.20 and 20.4.0.20) currently do not support rotorcraft or windshield wipers.

Support

For questions about the A2A Dynamic Rain Effects, please visit our website:

http://a2asimulations.com/contact

A2A Dynamic Rain Effects Licence

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