Spaceship Starter Kit

Documentation for Unreal Engine 5



SpaceshipVFX_Overview: the ship and every effect of the kit in one level

Welcome to the documentation of the Spaceship Starter Kit — a free sample of the Space VFX Pack.

Space VFX Pack video: [https://youtu.be/50Ylf2kmLv8]

Support: [vladislaywe@gmail.com]

Documentation Index

1. Intro
2. What’s in the kit
3. Adding an effect to your actor
4. Customizing materials with Material Instances
5. Adjusting the Niagara effects
6. Animating objects along splines
7. Troubleshooting
8. Support

Intro

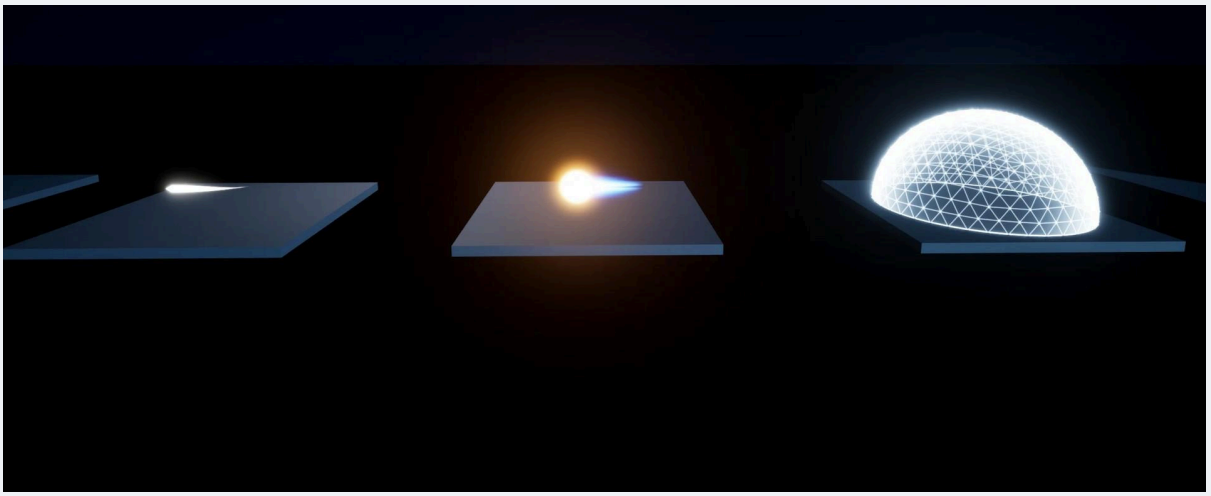
The Spaceship Starter Kit is an original low-poly spaceship with an energy shield, an engine trail and wing trails, ready to fly along a spline in a few clicks.

- All effects are Niagara Systems. You can add them to any actor, and the main settings are exposed in the Details panel.
- All materials are built on master materials. To change the look, create a Material Instance and adjust its parameters. You don’t need to edit the master material.
- The demo Blueprints fly the ship along a spline, so the trails are visible right away.
- Need more? The full Space VFX Pack adds 20 more effects: thrusters, shields, meteors, sparks, smoke, drilling debris and ready-made planets.

What’s in the kit

Effects

- 1 energy shield — NS_ShieldStandard
- 1 engine trail — NS_ThrusterTrailAdditive_Seamless
- Wing trails for spacecraft in flight — NS_WingTrail
- Original low-poly spaceship (SM_SciFiShip) with separate turrets, landing posts and front ski: one material (MM_SciFiShip) and one palette texture (T_SciFiShip_LUT)



Effects of the kit on separate stands of the Overview map

Blueprints

- BP_DemoSciFiShip — the assembled ship with turrets, landing gear and wing trails
- BP_SplineShip (ship flight with parking) and BP_SplineMoveLoop (moves any actor in a loop)

Folder structure

All content is in /Game/SpaceshipVFXStarter:

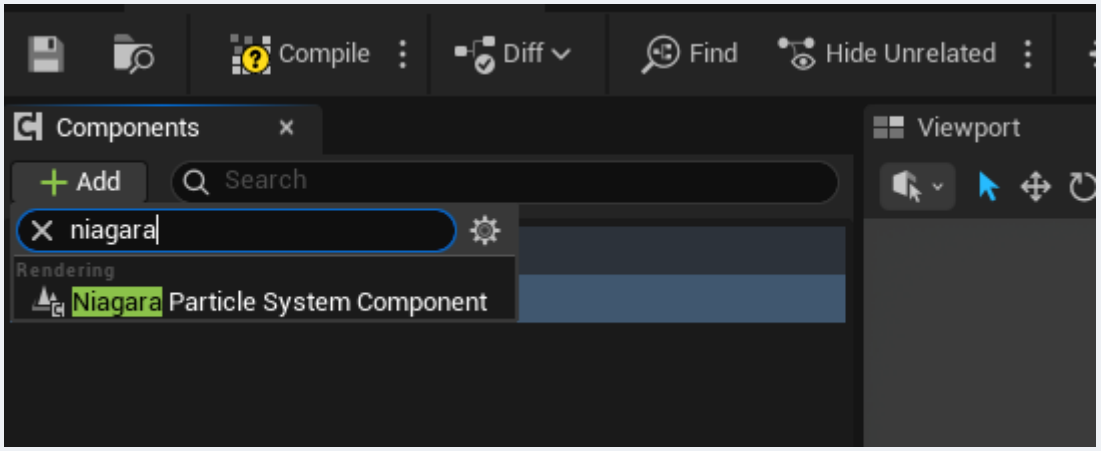
- **VFX** — Niagara Systems: Shield, ThrusterTrail, WingTrail.
- **Materials** — Master (master materials) and Instances (Material Instances used by the effects).
- **Textures** — effect masks (T_Thruster, T_DotGlow).
- **Demo** — DemoBlueprints (ship and spline movement), DemoMaterials, DemoMeshes (ship parts), DemoTextures (ship palette).
- **Maps** — SpaceshipVFX_Overview.

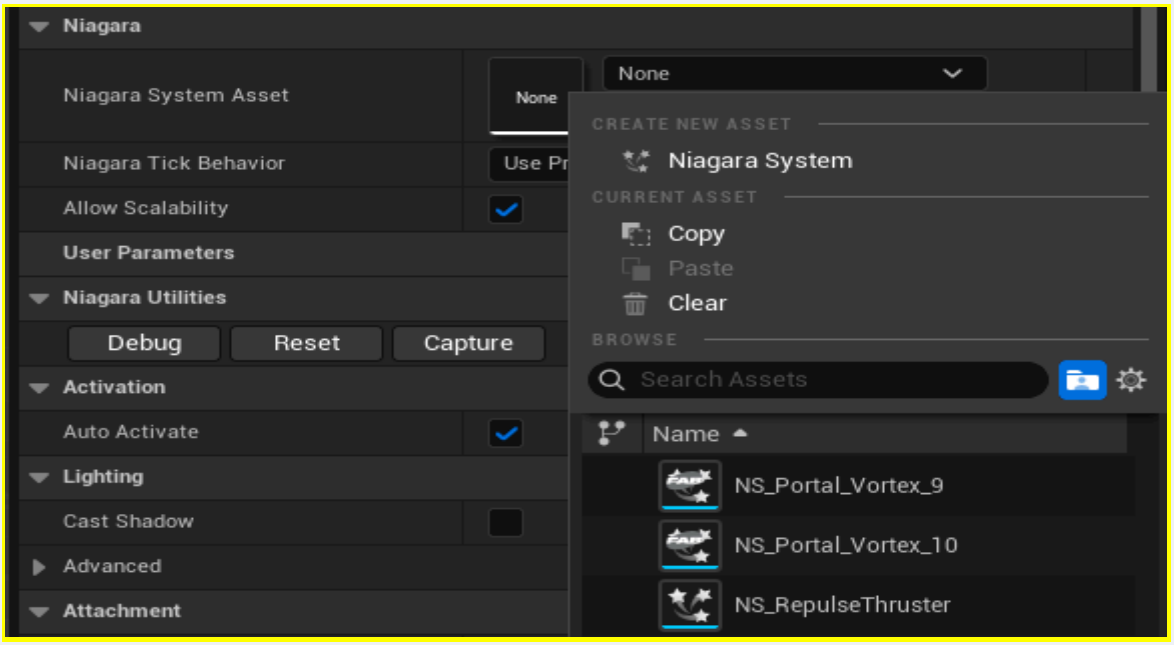
Demo level: **SpaceshipVFX_Overview** (start map: the ship flying along a spline and every effect on a separate stand).

Adding an effect to your actor

To add an effect to your own actor (for example, your player's spaceship):

1. Open the actor's Blueprint.
2. In the Components panel, click **+Add**, search for **Niagara** and select **Niagara Particle System Component**.
3. Select the new component and, in the Details panel under **Niagara**, choose the effect in the **Niagara System Asset** field.
4. Position and rotate the component so the effect points in the right direction (for example, behind the engine nozzle).





> You can also drag any Niagara System from the Content Browser directly into the level to preview it.

Customizing materials with Material Instances

Every effect uses a Material Instance based on a master material. To create a material for your project without affecting the original:

1. In the Content Browser, find the master material or an existing Material Instance from the pack.
2. Right-click it and select **Create Material Instance**. Give the new instance a clear name.
3. Open the instance and enable the parameters you want to change. You can replace textures and adjust colors, intensity, scrolling speed and other values.
4. Assign the new Material Instance to the effect. In the Niagara System, select the emitter, open its renderer (Sprite or Mesh Renderer) and set the material there. Or, if the effect exposes a material parameter, set it in the Details panel.

Main material parameters

Material	Key parameters	What they change
MI_SecondaryGlow (MM_ThrusterEngine)	**OpacityIn (S)**, **FadeDist**, **Power Mask**, **Texture**, switch **DepthOrSoftOpac**	Opacity of the flame, fade distance near surfaces, strength of the mask, mask texture (T_Thruster / T_DotGlow), depth fade or soft opacity.
MI_ThrusterTrail_Additive (MM_ThrusterTrail)	switches **NeedMask?**, **UorV**, **NeedMoreOpac**, **NeedMorePower**	Use a mask, choose the U or V direction of the trail texture, extra opacity, extra brightness.
MI_FresnelGlow_Standard (MM_FresnelGlow); MI_FresnelMeshWF_Standard (MM_FresnelMeshWF)	**Multi**, **Color**, switches **NeedBlob**, **XYZ or Z**, **MeshOrVFX**	Glow intensity and color of the shield edge; blob deformation on/off; mesh or Niagara usage.

> Work on a copy (a new Material Instance) instead of the original. This keeps the pack's default look intact, and updates to the pack won't overwrite your changes.

Recoloring the ship: the whole ship uses one palette texture, T_SciFiShip_LUT. Each color strip paints one group of faces, so you can repaint the hull, stripes, wings and windows by editing the strips in any image editor and reimporting the texture.

Adjusting the Niagara effects

Each effect has User Parameters that you can change without opening the Niagara System. Depending on the effect, these include size, spawn rate, color, speed, lifetime and other values.

In the editor

Select the Niagara component (in the level or in a Blueprint) and change the values under **User Parameters** in the Details panel.

At runtime

To change a parameter during gameplay (for example, to make the wing trails wider when the ship accelerates), use **Set Niagara Variable** nodes in a Blueprint: **Set Float** for numbers and **Set Linear Color** for colors. Enter the parameter name exactly as it appears in the User Parameters list.

Example: the user parameter of NS_WingTrail that controls its width is called Width — use exactly this name in Set Niagara Variable (Float).

Parameters by effect

Effect	Key parameters	Notes
Engine trail — NS_ThrusterTrailAdditive_Seamless	**Width, LifeTime, ColorTrail, ColorGlow, PanX, PanY**	GPU ribbon, visible only when the object moves.
Energy shields — NS_ShieldStandard	**MeshSize**, **SpriteSize**	CPU. Simplest shield.
Wing trails — NS_WingTrail	**Width**, **SpawnSpacing**, **Color**	GPU ribbon, needs movement.

Creating your own effects

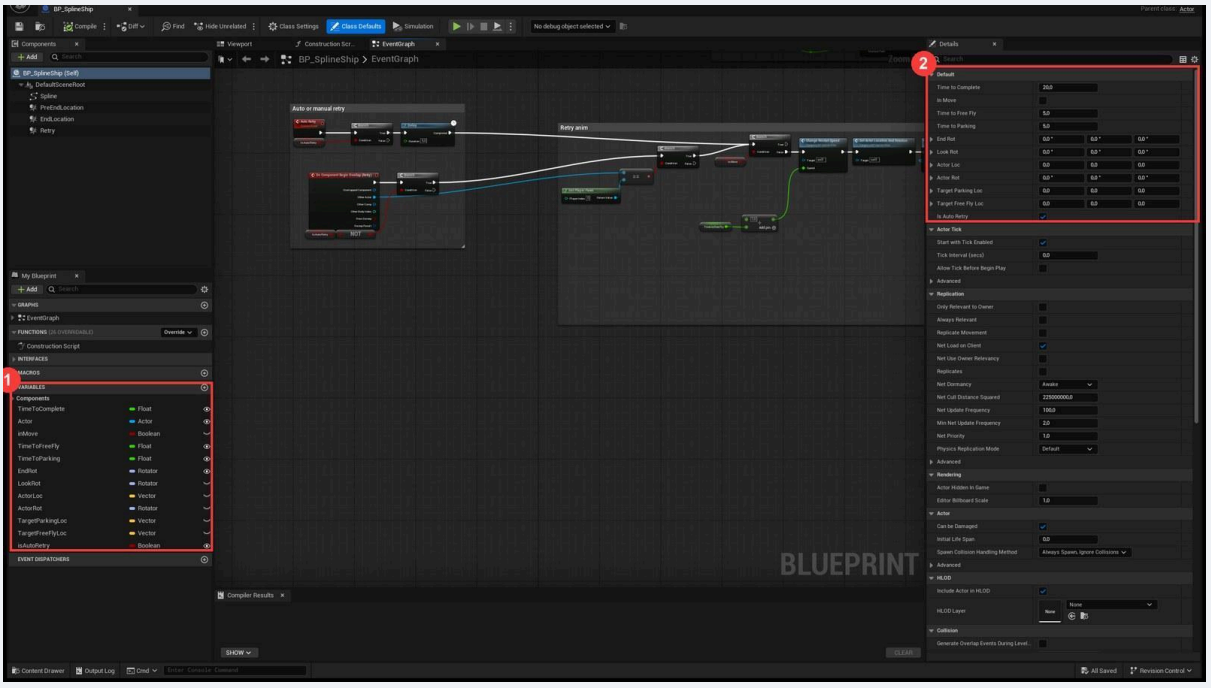
To make larger changes, duplicate an existing Niagara System (right-click > **Duplicate**) or create a new one and copy emitters into it. To copy an emitter, open the source system, select the emitter, press **Ctrl+C**, then paste it into your system with **Ctrl+V**.

> If two copied emitters use the same User Parameter names, they will share values. Rename the parameters if you want to control them separately.

Animating objects along splines

The demo Blueprints use a Spline component to move objects such as the spaceship along a path. You can edit the path directly in the level.

1. Place **BP_SplineMoveLoop** (moves any actor in a loop, used for the trail stands) or **BP_SplineShip** (flight of the ship with parking) in the level and select it.
2. In the Details panel, select the **Spline** component. Its points appear in the viewport.
3. Select a spline point and move or rotate it with the transform gizmo.
4. To add a point, hold **Alt** and drag an existing point, or right-click the spline and choose **Add Spline Point Here**.
5. Adjust the movement settings of the Blueprint in the Details panel (category **Default**): **TimeToComplete**, **Actor**, **isRot**, **needOverlap** for BP_SplineMoveLoop and **TimeToComplete**, **TimeToFreeFly**, **TimeToParking**, **isAutoRetry** for BP_SplineShip.

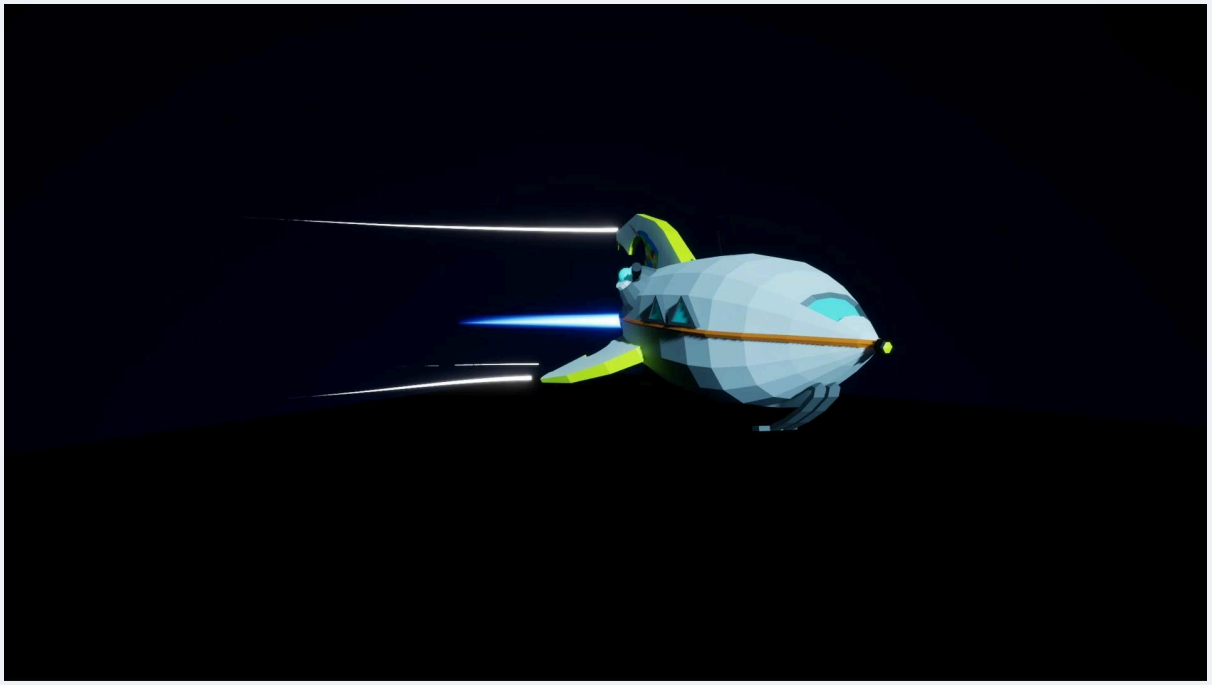


BP_SplineShip: (1) variables in My Blueprint, (2) their default values in Class Defaults. The same values can be changed per instance in the level.

Setting	What it does
TimeToComplete (both, default 20)	Time in seconds to travel the whole spline. Lower value = faster movement.
Actor (BP_SplineMoveLoop)	The actor in the level that is moved along the spline (for example BP_DemoSciFiShip).
isRot (BP_SplineMoveLoop, default off)	Rotate the actor along the direction of the spline.

Setting	What it does
needOverlap (BP_SplineMoveLoop, default on)	Uses the Box trigger of the Blueprint to control the movement by overlap.
TimeToFreeFly, **TimeToParking** (BP_SplineShip, default 5)	Duration of the free flight to PreEndLocation and of the parking at EndLocation after the spline ends.
isAutoRetry (BP_SplineShip, default on)	Restart the flight automatically. When off, the flight restarts when something overlaps the Retry trigger.

> To use your own mesh, open the Blueprint and replace the mesh in its Static Mesh component. Then attach the Niagara effects (thrusters, wing trails) to the new mesh.



BP_DemoSciFiShip flying along BP_SplineShip with the engine trail and wing trails

Troubleshooting

- **Save often when editing Niagara Systems.** Editing some settings, especially color curves, while many particles are spawning can crash the editor. Set the spawn rate to zero or disable the emitter before editing, then turn it back on.
- **The effect isn’t visible.** Check that **Auto Activate** is enabled on the Niagara component, or activate it from a Blueprint. Also check the component’s scale and rotation.
- **Gaps appear in trails or exhausts on fast-moving objects.** Increase the spawn rate or velocity of the emitter, or reduce particle lifetime.
- **The effect doesn’t follow the actor’s rotation.** In the emitter’s **Emitter Properties**, check the **Local Space** option. Enabled: the effect moves rigidly with the actor. Disabled: particles stay in world space and the effect bends when the actor turns.
- **Trails are not visible.** Ribbon trails (NS_ThrusterTrail…, NS_WingTrail) are drawn only while the object moves. Attach them to a moving actor or use BP_SplineMoveLoop.

Support

If you have questions, find a bug or need help with the kit, contact me:

- Support: [vladislaywe@gmail.com]
- Full Space VFX Pack on Fab: [link]

Thank you for using the Spaceship Starter Kit. Good luck!

