Realtime Sky Builder documentation

Realtime Sky Builder gives your Unreal level a complete sky, clouds and weather, all driven from one panel, the Studio. Pick one of 16 Quick looks, adjust it page by page, and save the result as your own look.



Before you start

You need two built-in plugins enabled: **Niagara** and **Editor Scripting Utilities**.

- **Try it first in the demo.** Open Demo/Maps/StartHere: a large ground with a weather-reactive material and demo cameras.
- **Editor and runtime.** The Studio is an editor tool. The Sky Rig and Weather Rig it places also work in Play and in packaged builds.

Open the Studio

The Studio is an Editor Utility Widget you open once and dock beside your viewport.

1. Open the **Content Drawer** (Ctrl+Space).
2. Go to **Content › RealtimeSkyBuilder**.
3. Right-click **EUW_RSB_Studio**.
4. Choose **Run Editor Utility Widget**, then dock the panel next to your viewport.



Turn on **Realtime** in the viewport so the sky and weather update while you edit. In a level with no sky yet, click **Build sky**: it creates a linked Sky Rig and Weather Rig. There is one pair per level.

The Studio at a glance

The header links the Studio to your rigs, the rail on the left switches pages, and the page itself fills the rest.

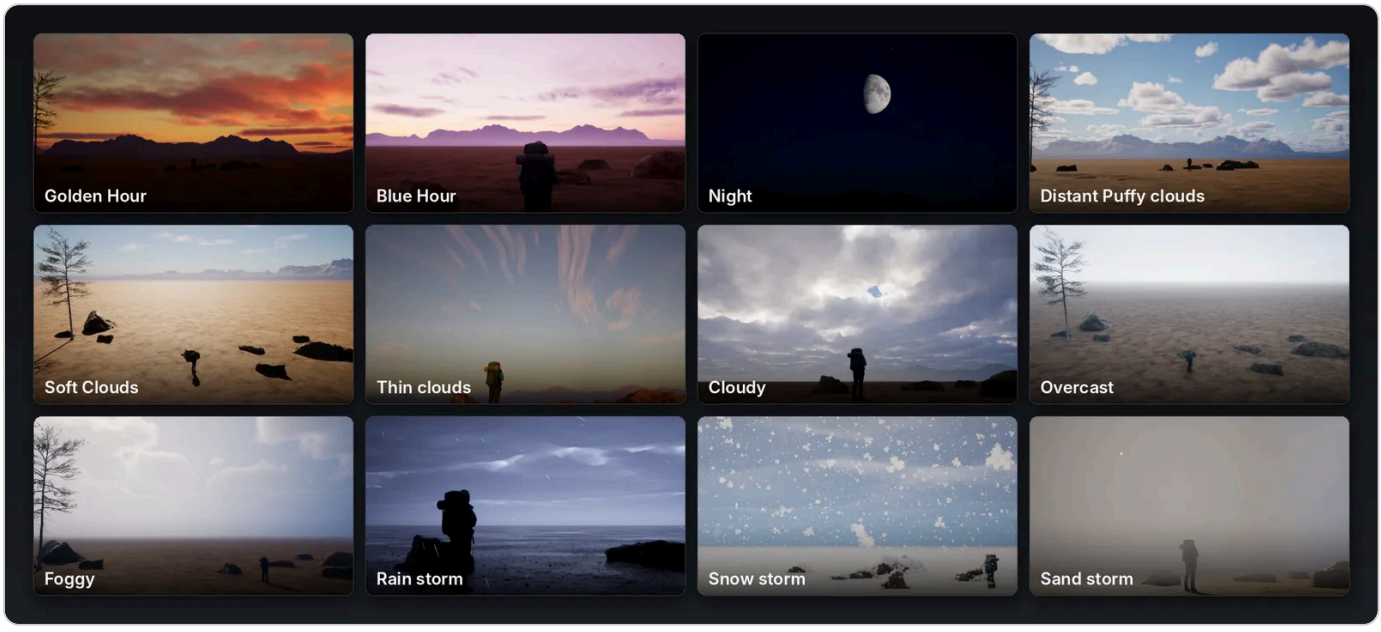


#	Control	What it does
1	Sky Rig	Selects the level's Sky Rig and shows it in Details
2	Weather Rig	Selects the Weather Rig (rain, snow and local fog)
3	Refresh	Links the Studio to the rigs in the level again
4	Configure UI	Shows drag handles to reorder the navigation; the order is saved per user
5	Help	Opens the online documentation
6	Navigation	Quick looks, Sun/Moon, Clouds, Atmosphere, Weather & effects, Location & Time, Quality, Save look
7	Quick looks	16 complete skies, one click each
8	Saved looks	The looks you save yourself

Hover any control for a short description. On a narrow panel, buttons show icons only.

Quick looks

One click applies a complete sky: sun, moon and stars, clouds, atmosphere, weather and wet or snowy ground.



- **Looks blend instead of snapping.** The blend time is **Look Fade Seconds** on the Sky Rig (Details › Quick looks). Set it to 0 for an instant switch.
- **Every Quick look uses High quality**, so you start from the best result.
- **A look is a starting point.** Everything it sets stays editable on the other pages. Editing during a blend stops the blend and keeps your change.

- **To change a Quick look itself,** open its Data Asset in Data/Looks/QuickLooks (DA_RSB_QuickLook_*), edit it and save. The button uses the new values on its next click.

Sun & Moon

Three tabs control the sky lights: **Sun**, **Moon** and **Night Sky**.



#	Control	What it does
1	Tabs	Switch between Sun, Moon and Night Sky
2	Use manual sun	Place the sun yourself with Elevation and Azimuth. When Location & Time is on, it places the sun instead
3	Elevation	Height of the sun above the horizon, in degrees
4	Azimuth	Compass direction of the sun; shadows and sky colour follow
5	Temperature	Warmer (lower K) or cooler sunlight
6	Sky exposure	Use sky exposure fixes the exposure; Day exposure sets its value

Intensity, Disc size and Sun glow concentration fine-tune the sunlight and the glow around the sun.

The Moon and the stars switch on and off independently. Night, Cloudy night and Blue Hour turn both on.



#	Control	What it does
1	Moon	Shows or hides the moon
2	Moon elevation and azimuth	Where the moon sits in the sky
3	Moon light	How much light the moon casts, in lux
4	Moon phase	The moon’s phase, from 0 to 1
5	Night exposure	Exposure for night scenes
6	Stars	Shows or hides the stars
7	Star brightness, density, rotation	How bright and how many stars, and how the star field is turned
8	Milky Way	Strength of the Milky Way band

Clouds

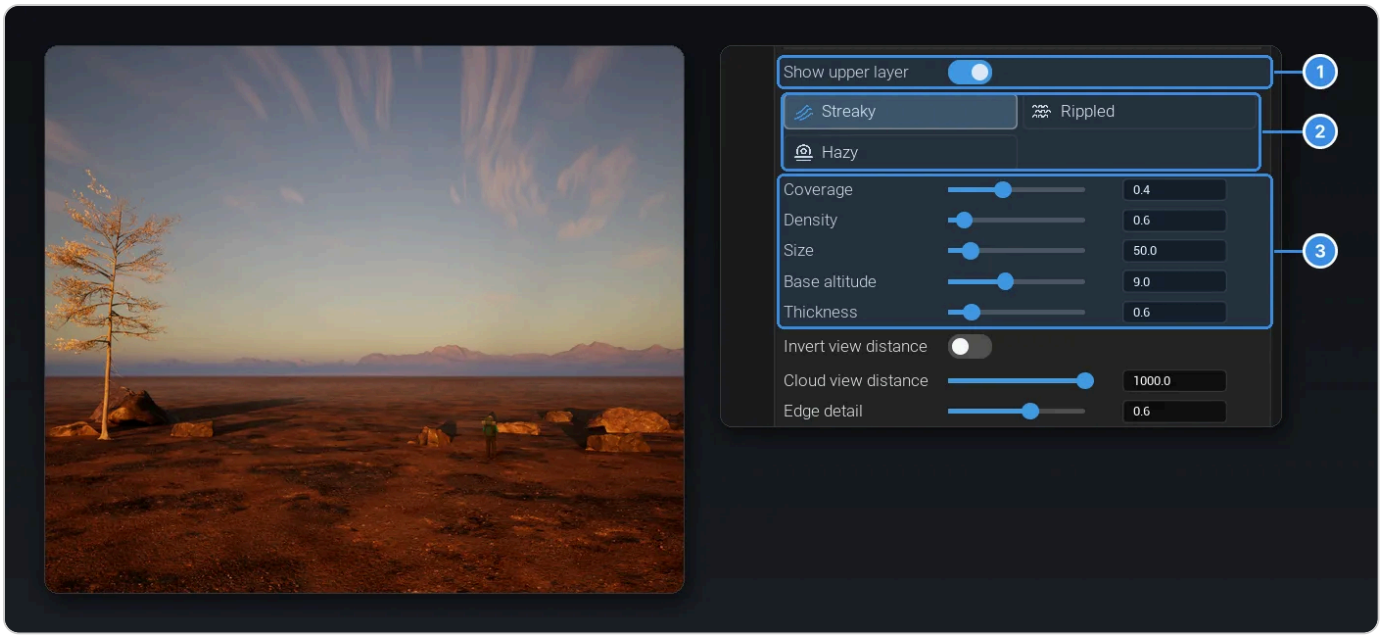
Start from a cloud type, then shape it. The **Cloud type** tab sets the main layer; **Cloud Motion** moves it.



#	Control	What it does
1	Cloud type	Puffy, Broken, Overcast, Wispy or Storm. Each is a preset for the controls below
2	Coverage	How much of the sky is covered
3	Density	How thick and opaque the clouds are
4	Size	Scales the cloud shapes
5	Base altitude	Height of the cloud bottoms
6	Cloud view distance	How far away clouds are still drawn
7	Show upper layer	Adds a second, high cloud layer

Thickness, Light diffusion, Inner shadow, Detail softness, Edge detail and Edge sharpness refine the shapes and how light passes through them. Click any value to type an exact number, then press Enter.

Upper layer. Turn on Show upper layer (1), pick **Streaky**, **Rippled** or **Hazy** (2), then set its own coverage, density, size, altitude and thickness (3).



Cloud Motion. Placement X/Y slides the cloud field (1). Absolute time moves the clouds through their evolution; key it in Sequencer for repeatable shots (2). Wind X/Y sets direction and speed (3). **Animate clouds in Play** is on by default; turn it off when Sequencer keys Absolute time (4).



Atmosphere

The air between you and the horizon: sky colour, haze and height fog.



#	Control	What it does
1	Sky light intensity	Ambient light from the sky
2	Rayleigh scattering	The blue of the clear sky
3	Haze / Mie scattering	Aerosol haze and the glow around the sun
4	Fog density	How thick the height fog is
5	Fog layer height	How high the fog reaches, in metres
6	Fog tint	The colour of the fog

Weather & effects

Two tabs: **Particles** for what falls from the sky, **Surfaces** for what it does to the ground.



#	Particles	What it does
1	Enable particles	Turns rain, snow and local fog on
2	Rain density	How heavy the rain is
3	Snow density	How heavy the snow is
4	Fall speed multiplier	Faster or slower drops and flakes
5	Local fog	Animate, density and colour of the low local fog
6	Animate weather	Plays the particles in the editor. Turn it off and use Preview time to hold one moment
7	Wind X/Y	Pushes the rain and snow, in m/s

Rain and snow are lit by the sun and moon, so they turn warm at golden hour. They don’t fall under roofs, and rain splashes on the ground. In the editor they follow the viewport camera while the Studio is open and the viewport is in Realtime.

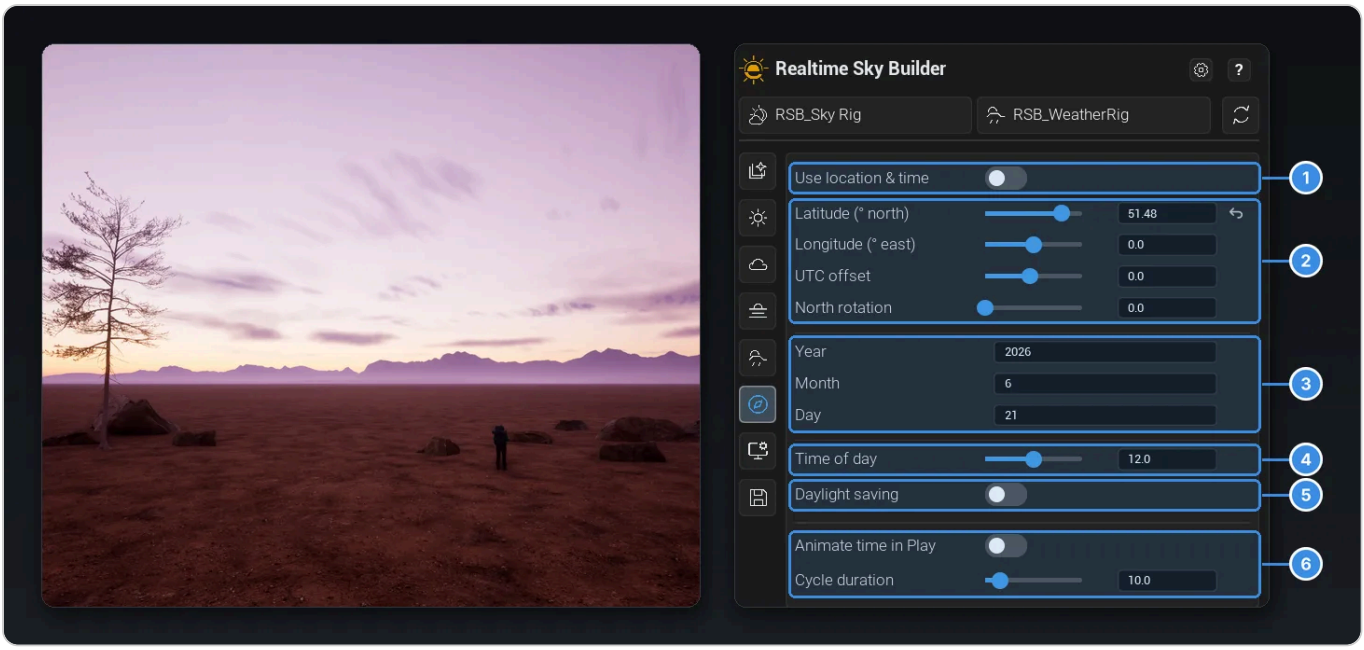


#	Surfaces	What it does
1	Surface weather	Master switch for wet and snowy ground
2	Wetness	Darkens the ground and adds shine
3	Raindrops	Ripples on wet surfaces
4	Puddle coverage	Standing water in low areas
5	Snow coverage and depth	How much snow, and how thick, in cm
6	Snow slope	The steepest slope that still holds snow
7	Pattern size	Size of the drift and puddle pattern, in metres

Surfaces only show on materials that use MF_RSB_WeatherSurface (see **In your own project** below).

Location & Time

Turn this on to place the sun from a real place, date and time instead of by hand.



#	Control	What it does
1	Use location & time	The sun follows the location, date and time below
2	Latitude, Longitude, UTC offset, North rotation	Where in the world the level is. North rotation turns the compass to match your level (+X is north at 0)
3	Year, Month, Day	The date, which sets the sun’s path and day length
4	Time of day	Local time, in hours
5	Daylight saving	Adds the summer-time hour
6	Animate time in Play	Runs a day cycle in Play; Cycle duration sets how long it takes

Quality

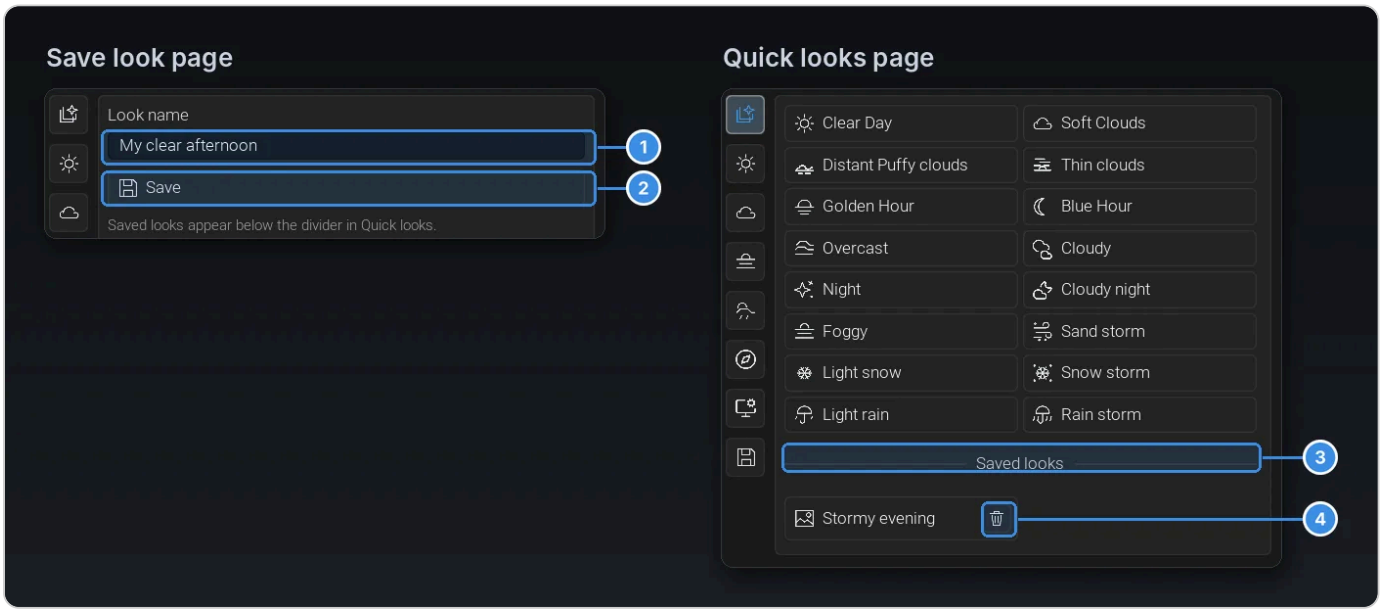
Quick looks start at **High**. Step down only when you need the frame time back.



#	Control	What it does
1	Low, Medium, High	Presets for cloud sampling, shadows and particles
2	Sample and shadow settings	View and shadow sample scale, reflection samples, cloud shadow distance and ray stop threshold, for fine-tuning cost against quality
3	Particle quality multiplier	Detail of the rain and snow particles

Save your own looks

Save the current sky as your own look and bring it back with one click.



1. On the **Save look** page, type a name.
2. Click **Save**. The look is stored as a Data Asset in Content/RealtimeSkyBuilder/SavedLooks.
3. Your look appears in Quick looks under **Saved looks**. Click it to apply it again.

4. The bin icon deletes a saved look after you confirm.

A look stores appearance only. Save the level as well to keep the rigs and where they are placed.

In your own project

Open your level, run the Studio and click **Build sky**. Then pick a look and adjust it as above.

Ground that reacts to weather. Surface weather is opt-in per material. Connect MF_RSB_WeatherSurface between your material's inputs and its outputs; it reads the values the Sky Rig writes to MPC_RSB_Weather.

- **Snow depth** displaces the ground with Nanite tessellation. Set r.Nanite.Tessellation=1 in your project's DefaultEngine.ini (the demo project already does), and keep tessellated triangles under about 150 m.
- **Shading model.** Don't use Subsurface on materials that use the weather function.
- **No cover yet.** Ground under a roof still gets wet or snowed on, even though particles stop at the roof.

Sequencer and Blueprints. Key **Absolute time** (clouds) and **Time of day** for repeatable shots, and turn off Animate clouds in Play while you do. From Blueprints, call ApplyLook(Look, BlendSeconds) on the Sky Rig to switch looks.

Tips and troubleshooting

If you see this	Do this
The sky doesn’t change while you edit	Turn on **Realtime** in the viewport
No rain or snow in the viewport	Turn on Enable particles, keep the Studio open, and check that a Weather Rig is linked
The picture is too dark or bright for a moment after a day/night switch	Auto exposure is adapting. Turn on Use sky exposure for a fixed, instant exposure
The ground doesn’t get wet or snowy	Turn on Surface weather, and add MF_RSB_WeatherSurface to the ground material
Rain falls through a thin roof	Cover comes from the distance field; very thin geometry (under about 20 cm) may not block it
A saved look didn’t bring back the rigs’ placement	Looks store appearance only. Save the level too