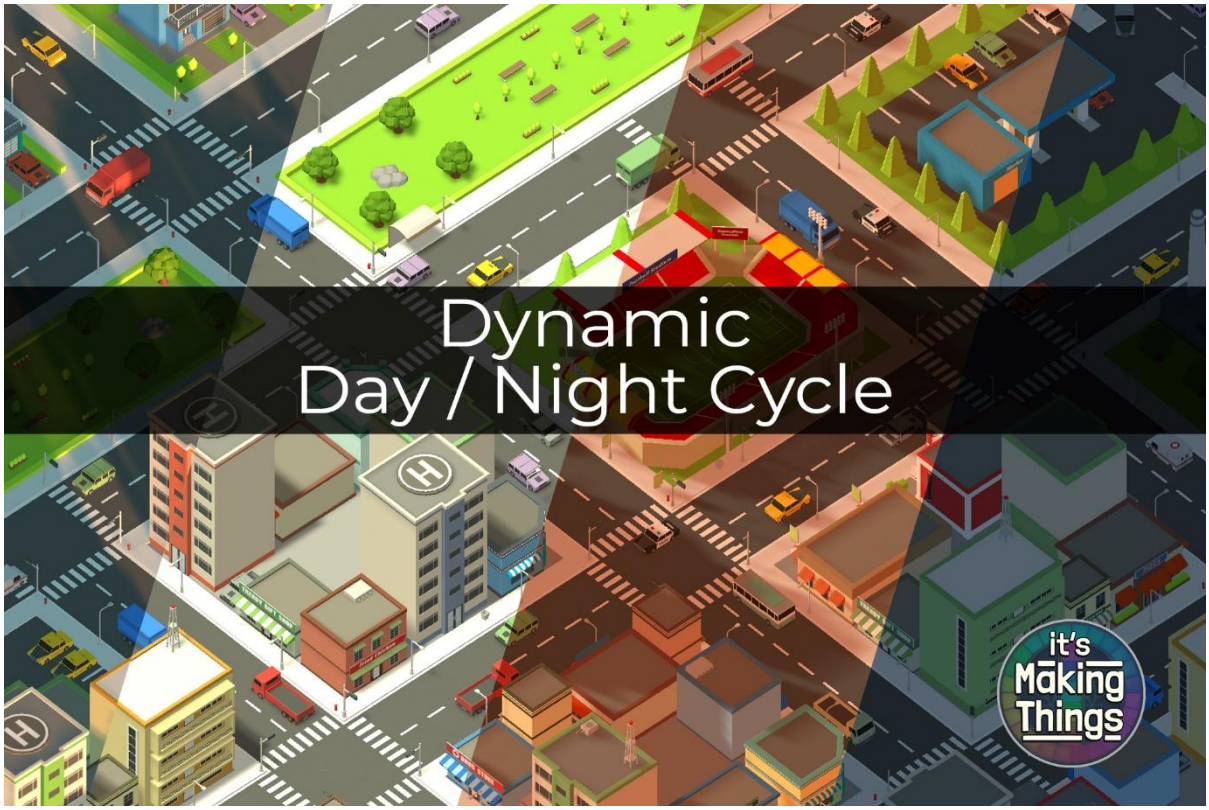


Contents

Dynamic Day/Night Cycle — User Manual

Overview

The **DayNightCycle** component simulates a full day-night lighting cycle in real-time, controlling ambient lighting, sun direction, fog, water color, and updating a UI clock.

Supports:

- Smooth time progression
- Manual time setting

- Scene-wide lighting transitions
- Fog and water color blending
- Runtime and editor-friendly workflow

Component Setup

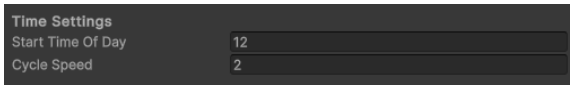
Attach the DayNightCycle.cs script to a GameObject (typically an empty GameObject called DayNightController).

Required Assignments:

- **sunLight**: The main directional light representing the sun. This is a child of the *rotationPivot*
- **rotationPivot**: A Transform whose X rotation simulates the sun's movement.
- **sceneCamera**: Camera for background color transitions.
- **timeText** (optional): TextMeshProUGUI object for displaying the in-game clock.
- **waterRenderer** (optional): Renderer for water surface.
- **waterColorProperty**: Name of the water color shader property (_WaterColor by default). This can be changed to match your specific shader.

Inspector Settings

Time Settings

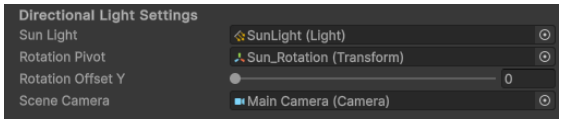


- **startTimeOfDay**: Hour of the day at scene start (0–24).
- **cycleSpeed**: Time progression speed multiplier.
- **TimeOfDay** *(read-only)*: Current in-game time.

Reset Settings

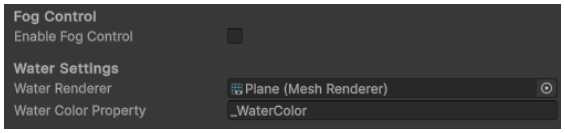
- **resetSpeed**: Speed at which time resets smoothly.
- **forwardsOnly**: Forces time resets to only move forward.

Directional Light Settings



- **rotationOffsetY**: Y-axis rotation offset for the sun's path. This allows you to control rotation angle in the scene.

Fog Control

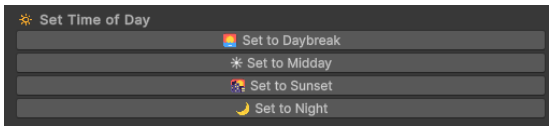


- **enableFogControl**: If true, fog color and density are controlled automatically.

Water Settings

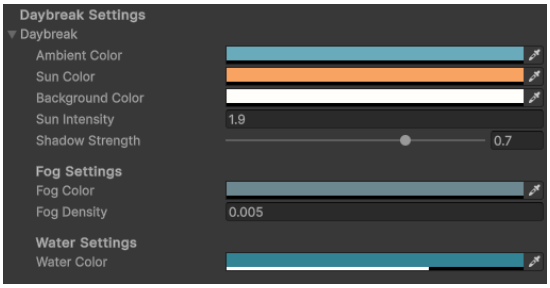
- **waterRenderer**: Renderer using water shader.
- **waterColorProperty**: Shader property controlling water color. This uses MaterialPropertyBlocks.

Lighting Time Settings



Four lighting profiles. Click the buttons at the bottom of the component to set those values:

- **Daybreak**
- **Midday**
- **Sunset**
- **Night**



Each profile includes:

- **ambientColor**
- **sunColor**
- **backgroundColor** (camera background color)
- **sunIntensity**
- **shadowStrength**
- **fogColor** *(if enabled)*
- **fogDensity**
- **waterColor**

These define the scene's environmental settings for that time period and automatically blend between them.

Runtime Controls (Public Methods)

Call these methods from other scripts, UI buttons, or events:

Method	Description
StopTime()	Pause time progression
StartTime()	Resume time progression
ResetToStartTime()	Smoothly reset time to startTimeOfDay
SetToDaybreak()	Instantly set time to 6:00
SetToMidday()	Instantly set time to 12:00
SetToSunset()	Instantly set time to 18:00

Method	Description
SetToNight()	Instantly set time to 0:00

How It Works

- **Update()** — Increments _timeOfDay based on cycleSpeed.
- **UpdateLighting()** — Calculates sun rotation and interpolates environment settings between the two closest time profiles.
- **UpdateTimeUI()** — Updates the on-screen time display once per minute change.
- **ResetTimeSmoothly()** — Smoothly interpolates _timeOfDay over time when called.

Best Practices

- Use **rotationPivot** as the *parent* of the sun light for easier Y-axis control.
- If using custom fog or water solutions, disable enableFogControl or clear the **waterRenderer** reference.
- Keep **cycleSpeed** low for realistic day-night transitions (e.g., 0.05 to 0.2).

Example Setup — Quick Start

GameObject: DayNightController
Attach Script: DayNightCycle

Assign References:

- **sunLight** → Your main Directional Light (Sun). You can adjust the Y rotation to simulate the Sun's height at different times of the year.
- **rotationPivot** → Empty GameObject or the parent of the sun light.
- **sceneCamera** → Main Camera.
- **timeText** → TextMeshProUGUI object (optional).
- **waterRenderer** → Water plane renderer (optional).

For support please contact itsmakingthings@gmail.com