

Time and Weather System

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Hello and thank you for purchasing my Time and Weather System!

Features of this System

Time Controller - Controls the time, date, and skybox

- Time of Day, Month, and Year
- Day-Night Cycle
- Skybox with Day and night sky
- Variable sunrise and sunset times
- Customisable Months and Seasons
- Seasonal Skyboxes - set different colours and sun intensity across the seasons
- Seasonal Sun Tilt - the sun changes its tilt in the sky across the year

Time Display - Displays current time and provides improved time progression editor controls

Weather Controller - Generates tracks and controls the weather throughout each day

- Temperature and chance of rain to determine weather
- Hourly weather forecast
 - generated every midnight
- Cloud & wind control variables
- Surface wetness & Snowiness
 - (when using the 'Wet', 'Snowy' or 'WetAndSnowy' shader)
- Customisable Seasonal Weather Conditions
 - Different temperature and rain ranges for each season
 - Customisable skyboxes
- Customisable Weather Conditions
 - Requirements for weather condition to occur
 - Cloud fullness
 - fog colour & strength
 - Particle effects
 - Wetness and Snowiness based on weather
 - (when using the 'Wet', 'Snowy' or 'WetAndSnowy' shader)
 - Ambient audio while weather is active

Weather Particle Systems

- Rain
- Snow
- Lightning
- Heatwave

Weather Audio Effects

- Lightning
- Rain
- Wind ambience

Weather Display - Displays current weather and provides improved forecast editor controls

- Displays current weather variables
- Change current weather
- View and change the day's hourly forecast

Clouds Shader - variable cloud density, speed, and direction

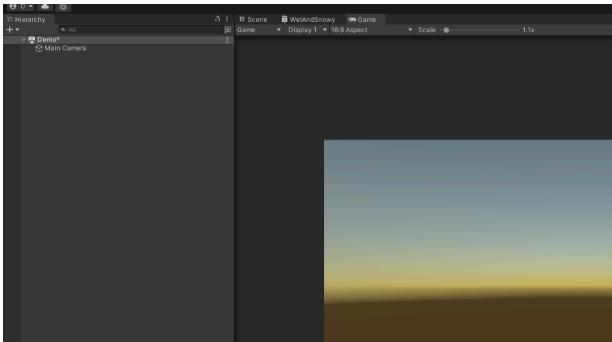
Lunar Cycle - Moon phases with customisable sprites and duration

Wet and Snowy Shaders - Makes a material seem wet or snowy based on the weather

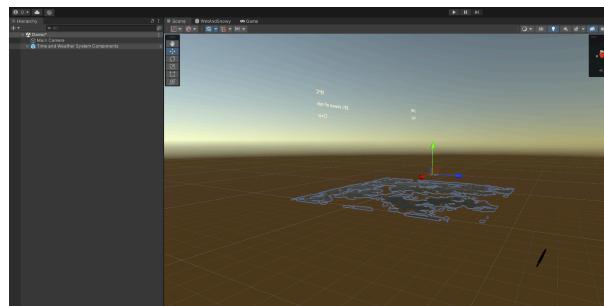


Quick Set up Guide

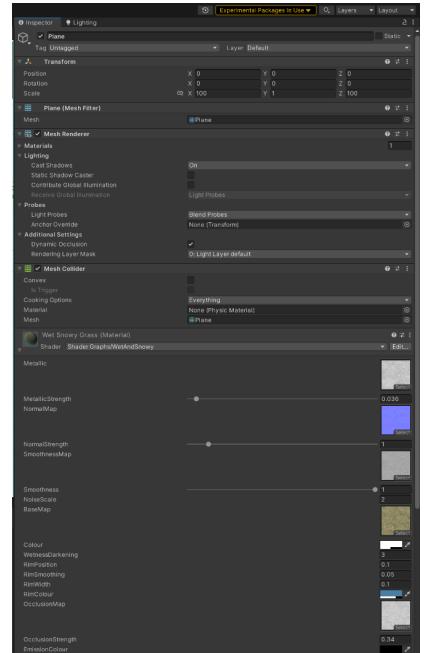
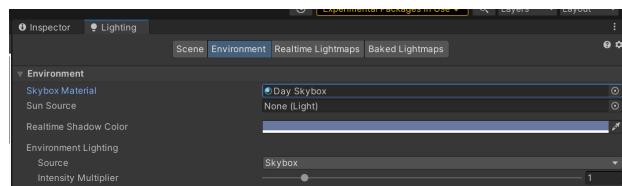
1. Create a new scene and delete the default directional light



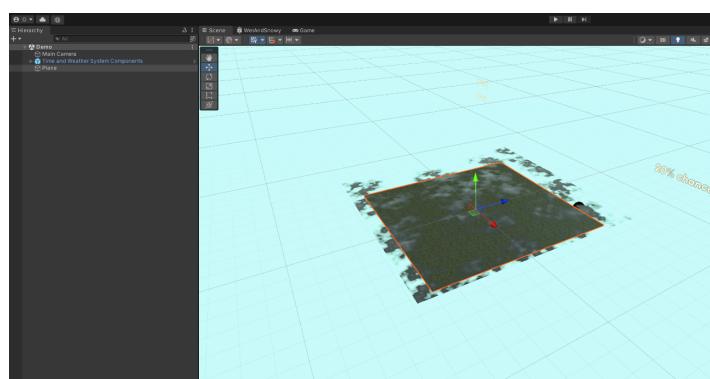
2. Drop the 'Time and Weather System Components' prefab into the scene



3. Set the skybox material to 'Day Skybox' in Lighting > Environments



4. Add a ground plane and set its material to 'Wet Snowy Grass'



5. Press play to see it in effect!

Time Controller

The Time Controller can function without a Weather Controller.

Required Variables

Month Presets: The information for each month throughout the game year

- Month name, season, and number of days in the month

Seasonal Rotation: The sun's parent object that changes the sun's rotational tilt across the seasons

Current Year: The current in-game year

Sky Data: (overwritten by 'Seasonal Sky Data' of Seasonal Conditions in the weather controller)

- The intensity of the sun and moon
- The skybox top and middle gradients during day and night
- The ambient colour of the skybox throughout the day
- The colour of fog during this season

Sunlight: the sun's light component

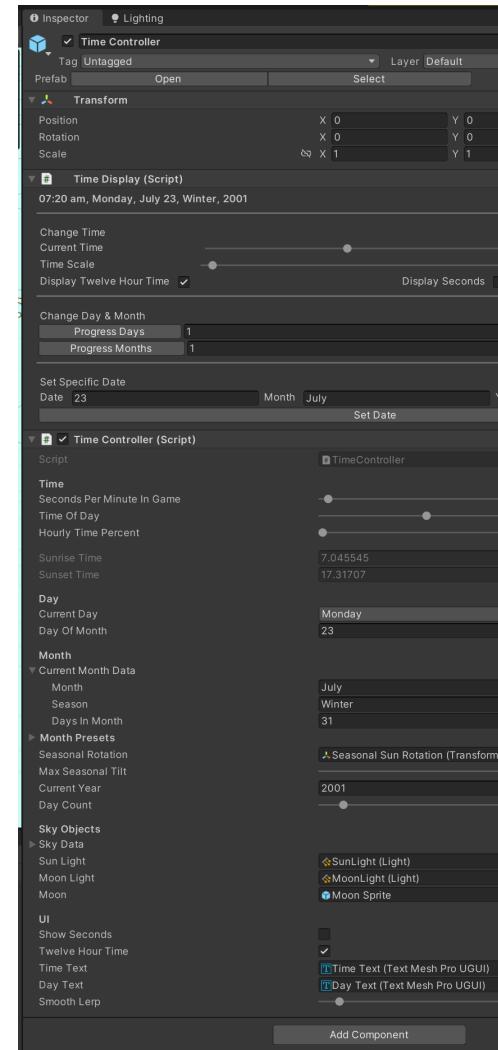
Moonlight: the moon's light component

Moon: The moon sprite object

Set Up

The Time, Day, and Month Headers are for debug purposes and don't need to be set. They are equivalent to the Time Display.

1. Add a month preset element with the name, season, and number of days for each month in your game.
 - The premade time controller prefab is preset with a realistic year, but you can change these to have as many different months as you like.
 - The length of the year is determined by the sum of the days in each month.
2. Set the seasonal sun rotation.
This is an empty gameobject that parent's the sun gameobject to change its rotational tilt throughout the seasons.
3. Set the in-game year.
4. Set the Sky Data (see above for variable definitions)
If you are also using the weather controller you can skip this step.
The location of each curve and gradient represents the time throughout the day.
5. Set the sun's light component, moon's light component, and moon sprite
 - The Sun prefab is set up with the moon object as a child opposite in position to it so they rotate in tandem.
 - The moonlight has a child sprite to depict the moon



Weather Controller

The Weather Controller Requires a Time Controller to function.

Required Variables

Season Conditions:

- Season: the name of the season
- Temp & Chance of Rain Ranges: the lowest and highest temperatures and chance of rain for the season
 - This affects which weather will occur
- Hottest Time & Coldest Time Ranges: the time ranges (in 24 hour time) in which the hottest time and coldest morning and night times will occur during the season
- Seasonal Skybox Data:
 - The intensity of the sun and moon
 - The skybox top and middle gradients during day and night
 - The ambient colour of the skybox throughout the day
 - The colour of fog during this season

Weather Data Presets:

- The name of the weather condition
- Temp & chance of rain ranges: the required conditions for this weather to occur
- isRaining: whether it must be raining for this weather to occur
- Cloud Power Range: sets the cloud density to a random value within this range during this weather condition
- Fog strength: The fog density during this weather condition
- Wetness & Snowiness: The respective wetness and snowiness of surfaces during this weather condition
 - (when using the 'Wet', 'Snowy' or 'WetAndSnowy' shader)
- Weather Particles
- Audio clips to select from during weather condition
 - Pitch of audio clip
 - Volume of audio clip

Cloud Renderer - a reference to the renderer component of the cloud plane

Weather Audio - a reference to a CrossFadeAudio component



Set Up

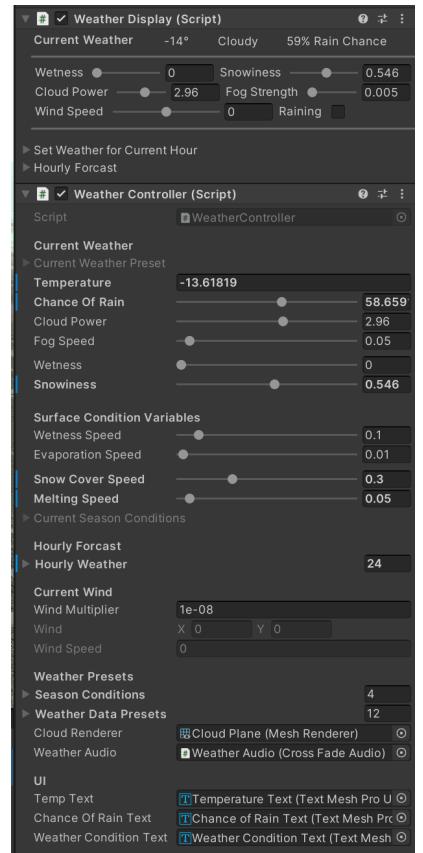
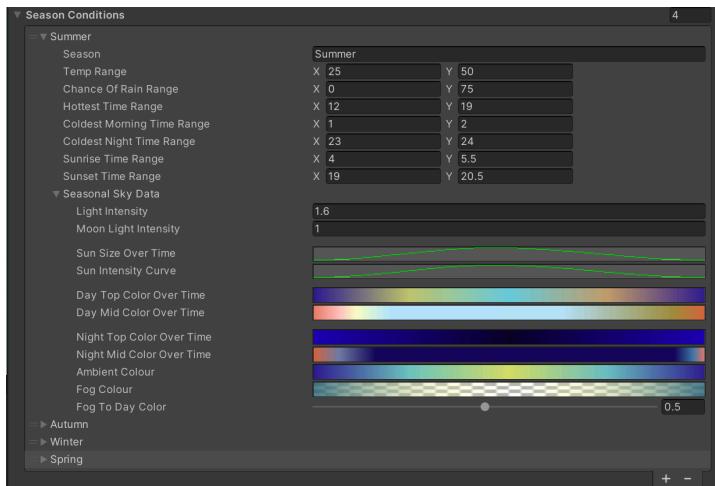
The Current Weather and Hourly Forecast Headers are for debug purposes and don't need to be set. They are equivalent to the Weather Display.

1. Set the Surface Condition Variables

Only applicable if using the 'Wet', 'Snowy', or 'WetAndSnowy' Shader
 Wetness & Snow Cover Speed are how quickly wetness and snowiness will increase on surfaces
 Evaporation and Melting Speed are how quickly wetness and snowiness will decrease on surfaces

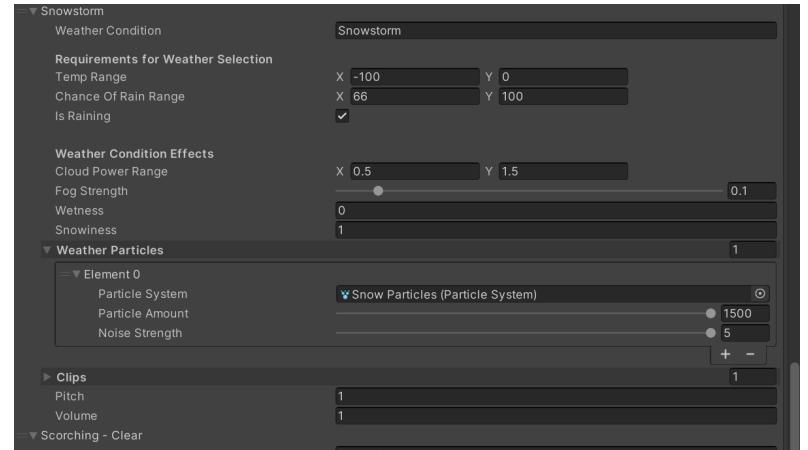
2. Set the Season Conditions

- Create an element for each season named in the Month Preset list of the Time Controller.
- Fill out the variables as detailed above for each season.
- Seasonal Skybox Data will overwrite the Time Controller's Skybox Data at runtime based on the current season.



3. Set the Weather Data Presets

- These are the variables defining each weather effect
- For each desired weather effect set the variables defined above.
 - Requirements for Weather Selection variables are used to set when the weather condition will occur. Ensure there are no gaps in weather conditions as this may cause errors.
 - Weather Condition Effects variables define how the environment is affected if the requirements of this condition are met



Additional Assets:

- Procedural Skybox Package:



- <https://github.com/shadowlenz/Procedural.SkyBox/tree/master>
 - by Eugene Chu ;3 Twitter: @LenZ_Chu https://twitter.com/LenZ_Chu
- Lunar Cycle Script
 - Tracks the moon's current phase and changes its sprite after a set number of days
- Lunar Phase Sprites: <https://moonsuncalendar.com/phases>
- CrossFade Audio
 - Controls two audio sources (one created at runtime) to dynamically fade between audio clips
- Fade Audio
 - Fades Audio in and out
- Particle Audio
 - Plays an audio clip randomly from a list at the birth and death of a particle
- Weather Audio
 - Wind
 - <https://freesound.org/people/MrLindstrom/sounds/135035/> by MrLindstrom
 - <https://freesound.org/people/willstepp/sounds/188288/> by willstepp
 - <https://freesound.org/people/Mjeno/sounds/405140/> by Mjeno
 - Rain
 - <https://freesound.org/people/Snoopy20111/sounds/399072/> by Snoopy20111
 - Lightning Strike
 - <https://freesound.org/people/Josh74000MC/packs/26811/> by Josh74000MC

