ARS Weather System

version 1.5.1

The ARS Weather System is an add-on for the excellent dynamic skydome system Time of Day by Mod Monkeys (http://modmonkeys.net/). The ARS Weather System allows for drag-and-drop weather effects including Thunder, Lightning, Rain, Fog, and Dust. Each weather element is fully adjustable and dynamically synchronized to the Time of Day skydome and atmospheric conditions.

Installation is simple. Import the ARS Weather System package into any project containing the Time of Day system and drag the WeatherSystem prefab to the hierarchy panel (see Fig.1). The ARS Weather System will gather the necessary data from the Time of Day System and utilize this data to automatically setup internal values necessary to synchronize the two systems.

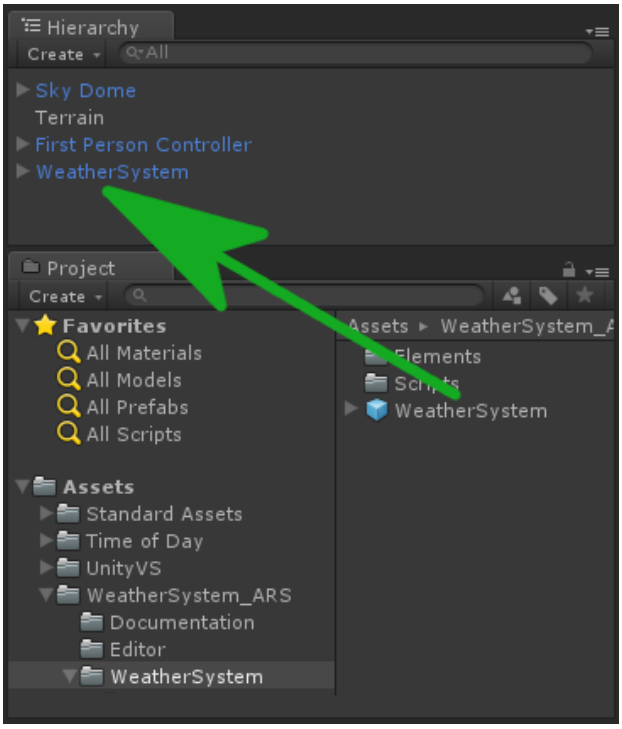

Figure 1

Figure 2.

Be sure to add the TOD_Camera Script to the Main Camera and adjust settings as shown in Figure 2 above (Drag and drop TOD_Camera script on Main Camera gameobject).

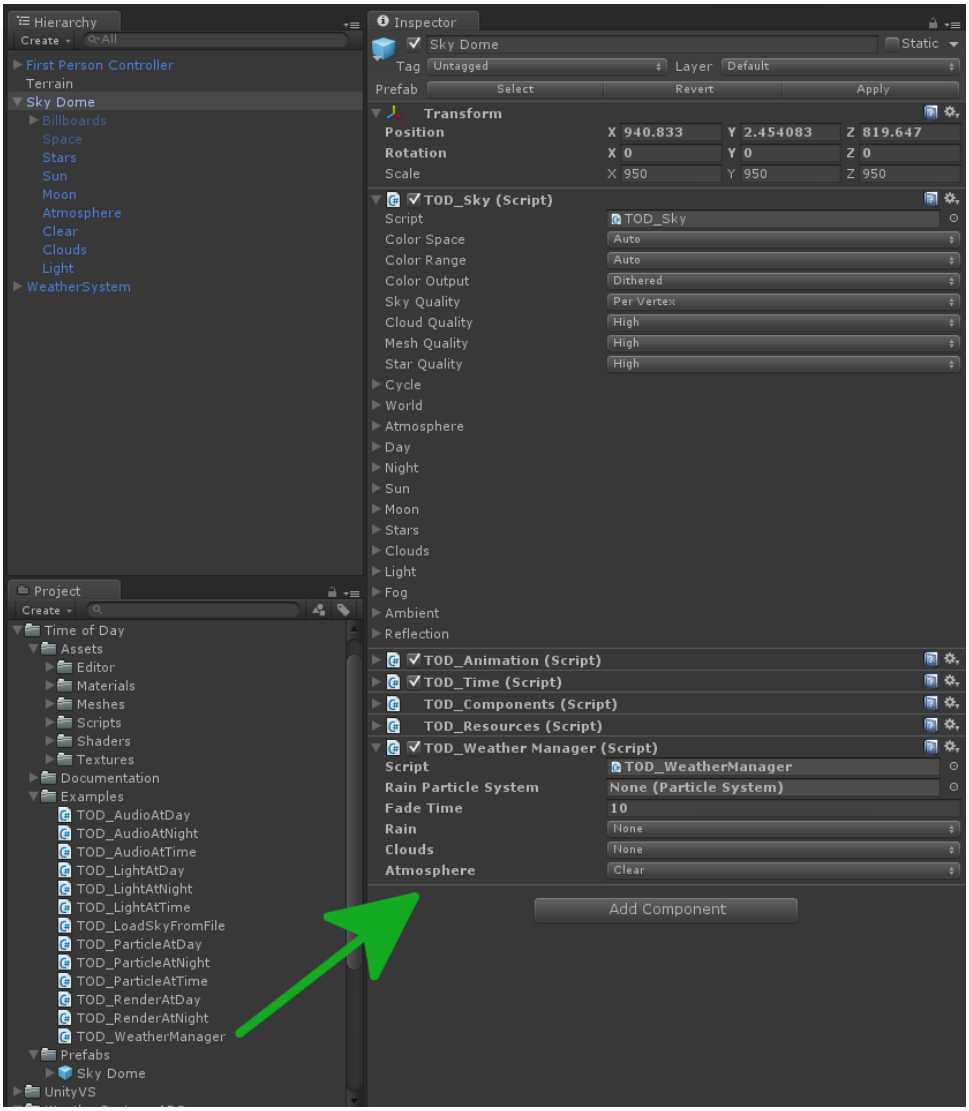

Figure 3

Add the TOD_WeatherManager Script to the SkyDome as shown in Figure 3 above (Drag and drop TOD_WeatherManager script on the SkyDome gameobject).

General Settings

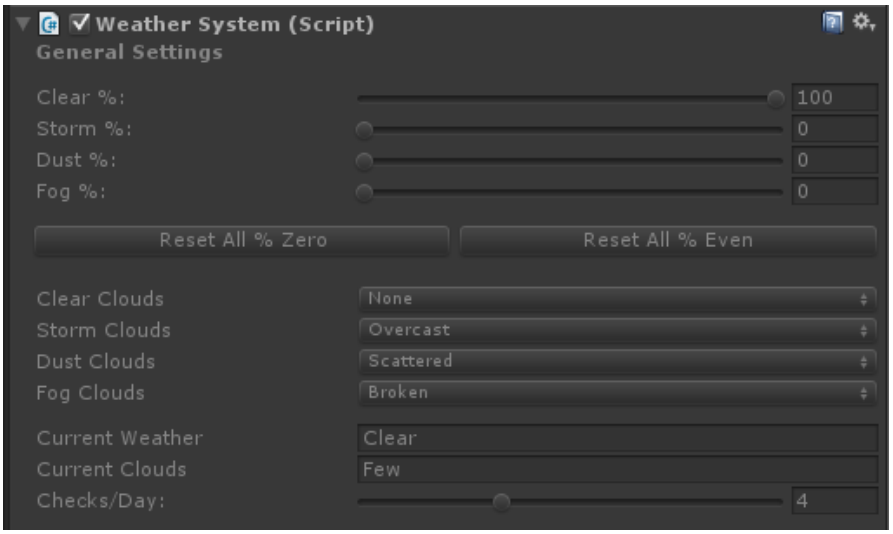

Figure 4

The General Settings include the chance percentages of each type of weather condition occurring and the associated cloud cover shown during each weather condition.

The current Time of Day weather conditions include Clear, Storm, Dust, and Fog.

The percentages entered should add up to 100% but will be automatically adjusted internally to compensate for higher or lower sums.

The Current Weather field displays the weather conditions currently active in the scene during runtime.

The Current Clouds field displays the cloud cover currently active in the scene during runtime.

Checks/Day is the number of times that a possible weather change can occur during the course of a game day as defined in the Time of Day settings.

Thunder/Lightning Settings

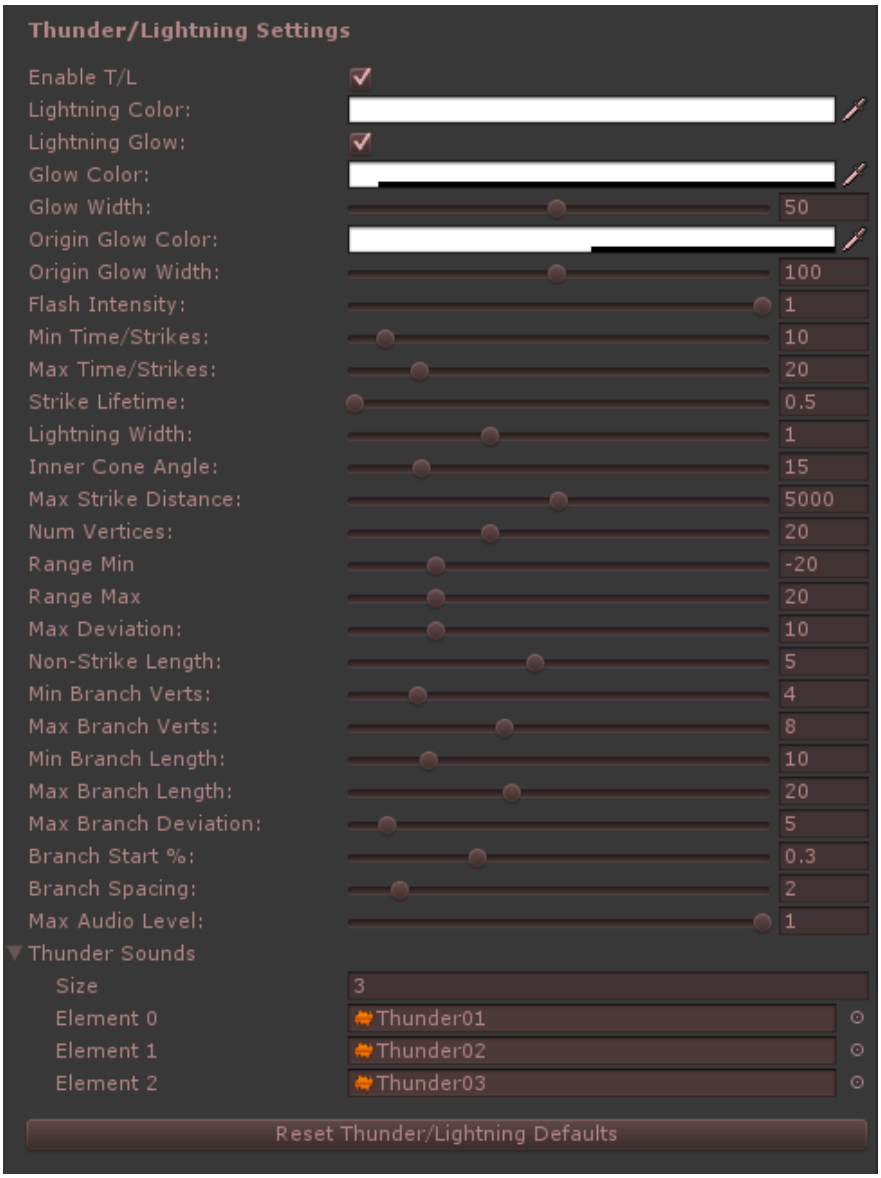

Figure 5

Thunder and Lightning Settings include:

- **Enable T/L** – Enable or disable the thunder/lightning element.
- **Lightning Color** – The color of the lightning bolts.
- **Lightning Glow** – Enable or disable lightning glow.
- **Glow Color** – The color of the lightning glow.

- **Glow Width** – The width of the lightning glow.
- **Origin Glow Color** – The color of the glow at the lightning bolt origin.
- **Origin Glow Width** – The width of the glow at the lightning bolt origin.
- **Flash Intensity** – The intensity of the global flash that occurs from the strike.
- **Min Time/Strikes** – The minimum time allowed between lightning strikes.
- **Max Time/Strike**s – The maximum time allowed between lightning strikes.
- **Strike Lifetime** – The time in which the lightning strike is visible on screen.
- **Lightning Width** – The width of the lightning bolt.
- **Inner Cone Angle** – The angle of the cone projected upwards from the camera that excludes lightning from originating on the skydome. A larger angle forces more distant lightning strikes. A smaller angle allows closer lightning strikes.
- **Max Strike Distance** – The maximum distance between the strike origin (point on atmosphere dome) and the strike endpoint (terrain, ground plane, etc.).
- **Num Vertices** – The number of vertices that composes each lightning bolt. The more vertices the more jagged the lightning bolt will appear.
- **Range Min / Range Max** – The minimum and maximum random range in the X and Z axis from the lightning bolt start point and end point. A greater difference between these values will result in a more angled lightning strike. Closer values will result in lightning strikes that occur more vertical.
- **Max Deviation** – The maximum random deviation between the lightning bolt segment positions. Higher values result in a more jagged lightning bolt appearance.
- **Non-Strike Length** – If no strike endpoint is found with the current settings, this is the default length for a lightning strike.
- **Min / Max Num Branch Verts** – The minimum and maximum number of lightning branch vertices.
- **Min / Max Branch Length** – The minimum and maximum length of the lightning branches.

- **Max Branch Deviation** – The maximum of the lightning branches in the X and Z axes.
- **Branch Start Percentage** – The percentage down the lightning bolt in which branches will start.
- **Branch Spacing** – The spacing of the branches along the main lightning bolt.
- **Max Audio Level** – The maximum level for thunder sounds.
- **Thunder Sounds** – The audio clips used for each thunder sound. More than one clip will result in a random clip being played from among the group of clips.

Rain Settings

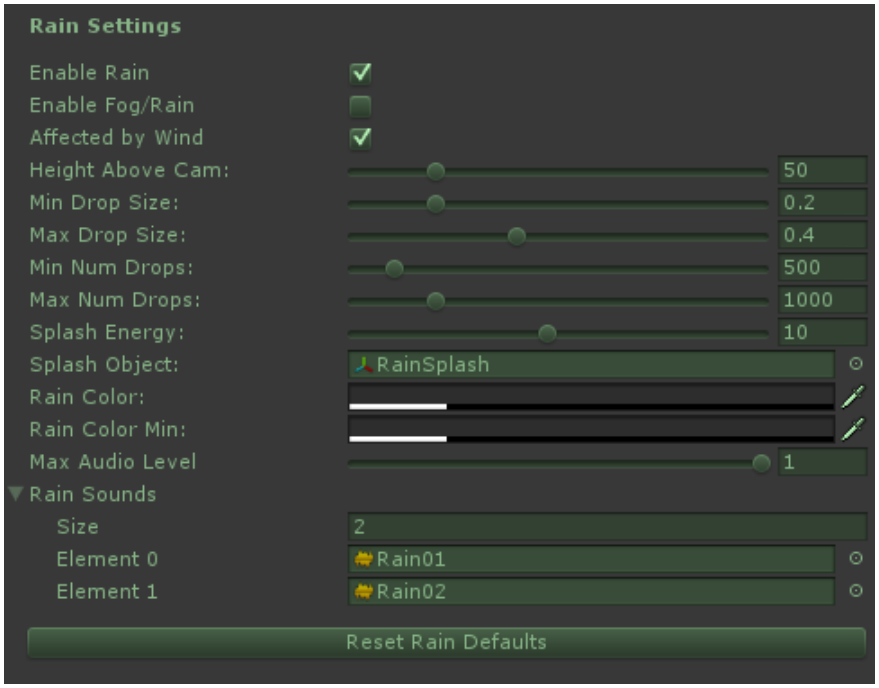

Figure 6

Rain Settings include:

- **Enable Rain** – Enable or disable the rain element.
- **Enable Fog/Rain** – Enable or disable fog effect during rain.
- **Affected by Wind** – Enable or disable the effects of wind on rain particles.
- **Height Above Cam** – The height the particle emitter is placed above the main camera.

- **Min Particle Size** – The minimum rain emitter particle size.
- **Max Particle Size** – The maximum rain emitter particle size.
- **Min Num Particles** – The minimum number of rain emitter particles.
- **Max Num Particles** – The maximum number of rain emitter particles.
- **Splash Energy** – The amount of energy necessary for rain particles to create splash.
- **Splash Object** – The splash prefab object.
- **Rain Drop Color** – The color of the rain drops.
- **Rain Absorption Color** – The color of the rain at collision.
- **Rain Splash Color** – The color of the rain splash.
- **Day Rain Alpha** – The alpha value of the rain during the day.
- **Night Rain Alpha** – The alpha value of the rain during the night.
- **Max Audio Level** – The maximum level for rain sounds.
- **Rain Sounds** – The audio clips used for rain sounds. More than one clip will result in a random clip being played from among the group of clips.

Fog Settings (Unity 4 and Unity 5 Standard Fog)

Figure 7

Fog Settings (Unity 4 Pro Global Fog)

Figure 8

Fog Settings (Unity 5 Global Fog)

Figure 9

Fog Settings will depend on the version of Unity that is being used for the implementation.

Standard Fog settings for Unity 4 Free and Unity 5 include:

- **Enable Fog** – Enable or disable the fog element.
- **Fog Mode** – Sets available Unity Standard fog modes. Modes include Linear, Exponential, and Exponential Squared.
- **Fog Start Distance** – The distance at which fog starts. Only used in Linear mode.
- **Fog End Distance** – The distance at which the fog ends. Only used in Linear mode.
- **Fog Density Min** – The minimum density of the fog. Only used in Exponential and Exponential Squared modes.
- **Fog Density Max** – The maximum density of the fog. Only used in Exponential and Exponential Squared modes.
- **Fog Fade Scale** – The time scale at which the fog fades in and out relative to the Time of Day weather fade time. Higher values result in a slower fog transition.
- **Max Audio Level** – The maximum level for fog sounds.
- **Fog Sounds** – The audio clips used for fog sounds. More than one clip will result in a random clip being played from among the group of clips.

Global Fog settings for Unity 4 Pro include:

- **Enable Fog** – Enable or disable the fog element.
- **Global Fog Mode** – Sets available Unity Pro global fog modes. Modes include Absolute YAnd Distance, Absolute Y, Distance, and Relative YAnd Distance.
- **Fog Height Scale** – The degree to which the fog density reduces with height (when height-based fog is enabled).
- **Fog Height** – The world space Y coordinate where fog starts to fade in.
- **Fog Start Distance** – The distance at which the fog starts fading in, in world space units.
- **Fog End Distance** – The distance at which the fog starts fading out, in world space units.
- **Fog Density Min** – The minimum density of the fog.
- **Fog Density Max** – The maximum density of the fog.

- **Fog Fade Scale** – The time scale at which the fog fades in and out relative to the Time of Day weather fade time. Higher values result in a slower fog transition.

- **Max Audio Level** – The maximum level for fog sounds.

- **Fog Sounds** – The audio clips used for fog sounds. More than one clip will result in a random clip being played from among the group of clips.

Global Fog settings for Unity 5 include:

- **Enable Fog** – Enable or disable the fog element.

- **Use Distance Fog** – Apply distance-based fog.

- **Use Radial Distance** – Distance fog is based on radial distance from camera when checked.

- **Use Height Fog** – Apply height-based fog.

- **Fog Height Density** – The density of the height fog.

- **Fog Start Offset** – Push fog away from the camera by this amount.

- **Fog Height** – The world space Y coordinate where fog starts to fade in.

- **Fog Start Distance** – The distance at which the fog starts fading in, in world space units.

- **Fog End Distance** – The distance at which the fog starts fading out, in world space units.

- **Fog Density Min** – The minimum density of the fog.

- **Fog Density Max** – The maximum density of the fog.

- **Fog Fade Scale** – The time scale at which the fog fades in and out relative to the Time of Day weather fade time. Higher values result in a slower fog transition.

- **Max Audio Level** – The maximum level for fog sounds.

- **Fog Sounds** – The audio clips used for fog sounds. More than one clip will result in a random clip being played from among the group of clips.

Dust Settings

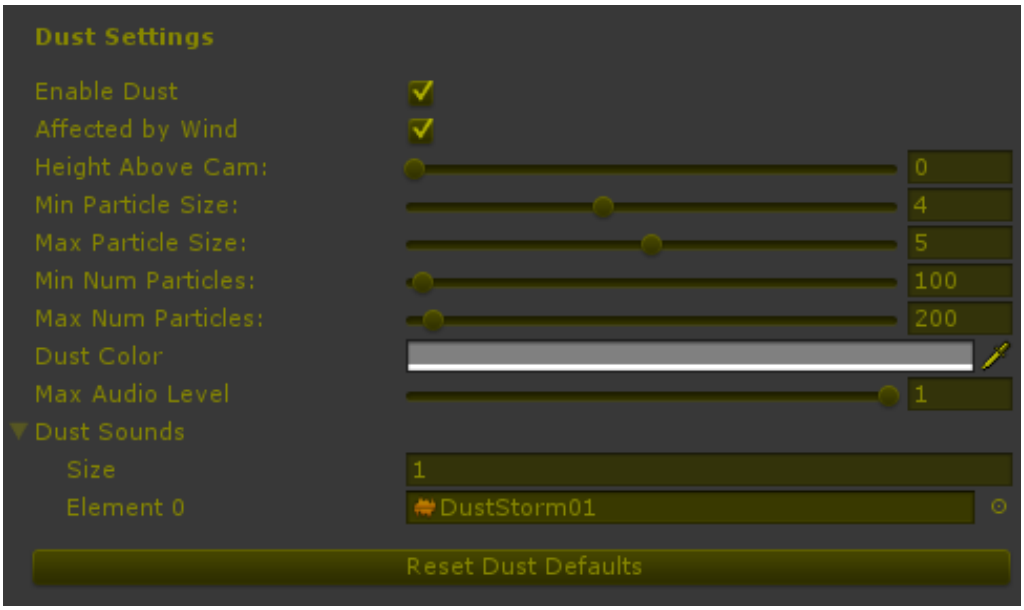

Figure 10

Dust settings include:

- **Enable Dust** – Enable or disable the dust element.
- **Affected by Wind** – Enable or disable the effect of wind on dust particles.
- **Height Above Cam** – The height above the main camera that dust particles will be emitted.
- **Min Particle Size** – The minimum dust emitter particle size.
- **Max Particle Size** – The maximum dust emitter particle size.
- **Min Num Particles** – The minimum number of dust emitter particles.
- **Max Num Particles** – The maximum number of dust emitter particles.
- **Max Audio Level** – The maximum level for dust storm sounds.
- **Dust Color** – The color of the dust particles.
- **Dust Sounds** – The audio clips used for dust storm sounds. More than one clip will result in a random clip being played from among the group of clips.