

Moon Deception - Unity Setup Guide

Prerequisites

- **Unity 2022.3 LTS** or newer
 - **Universal Render Pipeline (URP)** — already configured
 - Basic Unity knowledge
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Quick Start

Option A: Automatic Setup

1. Open the project in Unity
2. Go to menu: **Moon Deception > Setup Phase 1**
3. Press **Play** to test

Option B: Manual Setup

Follow the detailed steps below.

Manual Setup Steps

Step 1: Player Setup

1. Create Player GameObject

- `GameObject > Create Empty` → name it `Player`
- **⚠️ IMPORTANT: Position:** `(0, 2, 0)` — Player must spawn ABOVE ground, not inside it!
- The CharacterController center is at `(0, 1, 0)`, so total player center will be at `Y=3`

2. Add Components to Player

- `Add Component > Character Controller`
 - Height: `2`
 - Radius: `0.5`
 - Center: `(0, 1, 0)`
 - `Add Component > PlayerMovement`
 - `Add Component > PlayerShooting`
 - `Add Component > StressSystem`
 - `Add Component > SimpleCrosshair` (for visible crosshair)

3. Setup Camera

- Drag `Main Camera` as child of `Player`
 - Camera Position: `(0, 1.6, 0)` (eye level)
 - Camera Rotation: `(0, 0, 0)`
 - In `PlayerMovement`, assign the camera to `cameraTransform`
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Step 2: Layer Configuration

1. Create Layers (Edit > Project Settings > Tags and Layers)

- Layer 8: NPC
- Layer 9: Alien
- Layer 10: Environment

2. Configure PlayerShooting

- Set hitLayers to include: NPC, Alien, Environment
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Step 3: Test Environment

1. Create Ground

- GameObject > 3D Object > Plane
- Scale: (10, 1, 10)
- Add a material for visibility
- Layer: Environment

2. Create Test NPC

- GameObject > 3D Object > Capsule → name it TestNPC
 - Add NPCBehavior script
 - Layer: NPC
 - Duplicate a few times and spread around
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Step 4: GameManager Setup

1. Create GameManager

- GameObject > Create Empty → name it GameManager
 - Add GameManager script
 - Assign player reference
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Step 5: UI Setup (Stress Bar)

1. Create Canvas

- GameObject > UI > Canvas
- Render Mode: Screen Space - Overlay

2. Create Stress Bar

- Under Canvas: UI > Slider → name it StressBar
- Anchor: Top-left
- Position: (120, -30, 0)
- Width: 200, Height: 20
- Uncheck Interactable

3. Style the Bar

- Background: Dark gray
- Fill: Red gradient (low=green, high=red)
- Delete Handle

4. Connect to StressSystem

- Select Player
 - In `StressSystem`, assign the Slider to `stressSlider`
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Testing Checklist

Movement Tests

- [] WASD moves player correctly
- [] Mouse look works (horizontal + vertical)
- [] Vertical look is clamped (-90° to 90°)
- [] Space bar makes player jump
- [] Gravity pulls player down
- [] Cursor is locked and hidden

Shooting Tests

- [] Left-click fires raycast
- [] Debug rays visible in Scene view (yellow=miss, red=hit)
- [] Console shows hit messages with target name
- [] Hitting NPC triggers damage (if IDamageable)

Stress System Tests

- [] Stress bar visible in UI
- [] `AddStress(float)` increases bar
- [] `ReduceStress(float)` decreases bar
- [] Stress clamped between 0-100
- [] Reaching 100 triggers `OnStressMaxed` event
- [] Passive recovery works when below threshold

NPC Tests

- [] NPCs patrol between waypoints
- [] NPCs are on correct layer
- [] NPCs can receive damage

GameManager Tests

- [] Game starts in `Playing` state
 - [] Stress max triggers `Chaos` phase
 - [] Win/Lose conditions trigger correctly
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Common Issues

Player falls through floor / feels inside ground

- Ensure ground has a `Collider` component
- Check `CharacterController` height and center

- **⚠ Set Player Y position to 2 or higher** — The CharacterController center is offset by (0, 1, 0), so if Player is at Y=0, the feet will be at Y=0 (inside ground)
- If using the scene from the repo, select Player in hierarchy and set Transform Position Y = 2

No crosshair visible

- Add the `SimpleCrosshair` script to any GameObject (e.g., Player or MainCamera)
- The script draws a crosshair using OnGUI, no Canvas needed

Mouse look not working

- Verify `cameraTransform` is assigned in `PlayerMovement`
- Check if another script is controlling cursor

Shooting doesn't hit anything

- Verify `hitLayers` includes target layers
- Ensure targets have `Collider` components
- Check raycast range in `PlayerShooting`

Stress bar not updating

- Ensure `stressSlider` is assigned in `StressSystem`
- Check Slider min/max values (should be 0-1 for normalized)
- The updated `StressSystem.cs` auto-finds the slider by name "StressBar" if not assigned
- Check console for "[StressSystem] Initialized. Slider found: true/false"

NPCs don't move/patrol

- NPCs now have **Auto Patrol** enabled by default (no waypoints needed)
- They patrol randomly within `patrolRadius` (default 5m) from start position
- Check console for "[NPC] name state: Idle -> Walking" logs
- Verify NPCs have `NPCBehavior` script attached
- If adding waypoints manually, ensure waypoint Transforms are assigned in inspector

Play Test Procedure

1. **Enter Play Mode** (Ctrl+P)
2. **Test Movement:** Walk around, jump on objects
3. **Test Shooting:** Aim at NPCs, check console for hits
4. **Test Stress:** Call `player.GetComponent<StressSystem>().AddStress(20)` in console
5. **Test Stress Max:** Add stress until 100, verify chaos phase triggers

📁 Script Dependencies

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GameManager
└ StressSystem (listens to OnStressMaxed)

PlayerMovement
└ CharacterController (required)
└ Camera (child transform)

PlayerShooting
└ Camera.main
└ IDamageable targets

StressSystem
└ UI Slider (optional)

NPCBehavior
└ NavMeshAgent (optional, for advanced AI)
└ IDamageable interface
```

🚧 Next Steps (Phase 2)

1. Implement `AlienController` for TPS gameplay
2. Add `HungerSystem` mechanics
3. Expand NPC AI with behavior states
4. Create chaos event system
5. Build out map sections

Happy developing! 🚀