🛠️ Moon Deception - Unity Setup Guide

Prerequisites

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

🚀 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`
   - Position: `(0, 1, 0)`

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`

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`

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`

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

Step 4: GameManager Setup

1. **Create GameManager**
   - `GameObject > Create Empty` → name it `GameManager`
   - Add `GameManager` script
   - Assign player reference

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`

✅ 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

🔧 Common Issues

Player falls through floor

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

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)

🎮 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

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📁 Script Dependencies

```
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! 🚀