

# Endless Runner Template

for Unreal Engine 4

User Guide

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## Basic Game Setup

1. Create a project from the template
2. Replace the default mannequin with your own character
3. Create a physics asset for your character
4. Create your own tiles like the examples provided
5. Configure the game mode with your tiles
6. Configure the character movement
7. Decorate and polish your game

## Blueprints

All relevant Blueprints are contained in the EndlessRunner/Blueprints folder.

## Character Setup

The character settings are contained in the EndlessRunnerCharacter Blueprint.

### Properties

- Camera Boom – Camera spring arm for the character
- Follow Camera – Camera for the character
- Lane Offset – Distance between lanes used for spline movement
- Death Sound – Sound Cue or Audio Event played on character death
- Lateral Movement Mode – One of three movement modes for the character:

Fixed – Character cannot move from side to side (useful for side scrolling)

Spline – Default mode where character follows splines within the tiles

Free – Character can move freely from side to side

- Score – Current character's score within the game
- Distance – Character's distance from the start of the game

## Tile Setup

The tiles are contained within the Tiles Blueprint folder. There are two sets of tiles called Base and Examples. The Base folder contains the base tiles which serve as a starting point for tiles. The Examples folder contains example tiles derived from the base tiles.

New tiles should be derived from one of the base tiles.

### Base Tiles

- EndlessRunnerBaseTile – Default base tile that does not spawn any items or blockers
- EndlessRunnerSideBaseTile – Side scrolling version of the default base tile with no walls
- EndlessRunnerSpawnTile – Base tile that spawns items and blockers
- EndlessRunnerSideSpawnTile – Side scrolling version of EndlessRunnerSpawnTile

### Properties

- Floor – A static mesh for the floor of the tile
- Attach Point – The point at which the tile attaches to the preceding tile
- End Trigger – A box denoting the end of the tile which serves to trigger spawning additional tiles
- Spawn Point – A potential spawning point for a blocker (centre lane)
- Spawn Point L – A potential spawning point for a blocker (left lane)
- Spawn Point R – A potential spawning point for a blocker (right lane)
- Spawn On Sides – Denotes whether the left and right blocker spawns should be used
- Spline – The spline for the centre lane
- Spline L – The spline for the left lane
- Spline R – The spline for the right lane
- Item Area – The area where items can spawn
- Spawn On Splines – Denotes whether item spawning should be constrained to splines
- Items To Spawn – An array of items that could spawn on this tile
- Blockers To Spawn – An array of blockers that could spawn on this tile

### Notes

- Each tile should have a valid floor for splines to work.

- Splines should be separated by the distance specified by Lane Offset in the character.
- Kill Zones can be added to tiles to trigger character death.

### Game Mode Setup

The game mode is configured within the EndlessRunnerGameMode Blueprint. This is where you can configure the spawning of tiles. Safe floor tiles are used at the beginning of the game to avoid immediately running into an obstacle.

#### Properties

- Floor Tiles – An array of tiles that could be spawned within the game
- Safe Floor Tiles – An array of tiles to spawn at the beginning of the game

### Item Setup

All collectible items should derive from the Item C++ class.

#### Properties

- Static Mesh – The mesh which determines the appearance of the item
- Idle Particles Component – The particles which should emit from the item while idle
- Interact Particles – The particles which should emit from the item when picked up
- Score Value – The amount to add to the player's score when the item is picked up

### Blocker Setup

All blockers should derive from the Blocker C++ class.

#### Properties

- Static Mesh – The mesh which determines the appearance of the blocker
- Random Rotation – Denotes whether the blocker should spawn rotated at a random angle

### Moving Platform Setup

Moving platforms can be added to tiles if needed. These platforms should derive from the MovingPlatform C++ class.

#### Properties

- Mesh – The mesh which determines the appearance of the platform
- End Point – The relative location for the platform destination
- Move Speed – The speed at which the platform should move
- Reverse Time – The time after which the platform reverses