



Natural Locomotion

The Freedom to Explore Virtual Worlds

Product Description

Natural Locomotion is a VR movement system aimed at enabling a seamless unrestricted form of movement in VR.

Social Media

[Website](#) | [Twitter](#) | [Facebook](#) | [LinkedIn](#) | [Discord](#)

Documentation

All documentation is stored in the docs directory. In addition to guides and walkthroughs the code base is fully documented with XML docs.

- Installation: Preparing, downloading, installing and trying the sample scenes.
- Getting Started: How to get started using Natural Locomotion in your game.
- Locomotion Hub: What does the locomotion hub do and why does it do it.
- Natural Input: How to gather player inputs, looking mainly at our recommended method.
- Movement: How to actually move the player.
- Modifiers: How to take raw input and apply modifications based on anything your game needs.

Contributing

A more in depth guide will be written soon. But any of the following:

1. Spreading the word!
2. Reporting issues, concerns or features in the Issue Tracker
3. Pull requests for bug fixes, automated tests or improvements
4. Helping out others

Natural Locomotion Installation

This document serves as a walkthrough to getting your project ready to go for natural locomotion.

Steam VR

In order to use natural locomotion you will first need to download and import the steam VR plugin. The easiest way is to download the plugin from the unity asset store and import it into your existing or new project.

(<https://assetstore.unity.com/packages/templates/systems/steamvr-plugin-32647>)

Downloading Natural Locomotion

There are three methods of downloading the natural locomotion package.

1. Unity asset store here
2. Github releases page
3. Just clone the repo or a forked repo and be on the bleeding edge.

Unity asset store will be easier to update but may be delayed for approvals. Cloning the repo will require manual updates but may be required if you need to make local changes.

Importing Natural Locomotion

After downloading the unity package you can open your project and then double click the downloaded package file to import it into your project. You can also use the Assets > Import Package > Custom Package... menu option. In the importing window selection import everything.

Samples

We have a few sample scenes allowing you to try out the system before implementing it yourself. Below is a brief explanation of each sample scene.

Basic Movement

This sample takes the preferred method of using the grip button and using the starting point input system to move the player. Movement is handled by simply translating the play area, this means there are no physics in the scene and you will not collide with barriers.

Physics Movement

Uses the same inputs as the basic movement sample except that instead of translating the player we use a rigidbody allowing for physics to take place.

Getting Started

This document goes over getting started using our plugin and does assume you have followed the installation guide, if not you should do that first.

Prefabs

The quickest way to get started is by using one of the provided prefabs inside the Prefabs folder. Each prefab is very basic and will most likely need to be extended but can be used as a starting point.

Currently there are two prefabs that only differ by having physics enabled or disabled:

- Translate Camera Rig does not use physics
- Rigidbody Camera Rig does use physics

The prefabs are setup to use our standard input method activated by the grip buttons.

After determining your prefab you can just drag and drop the prefab into your scene like any other. You will need to remove the Main Camera if you are using an empty scene as the Camera Rig has its own camera. You will also probably need to include some sort of ground or environment.

Manually

In order to build a proper locomotion system you need a few pieces.

1. If you have an existing VR camera rig you can use that, if not the SteamVR Camera Rig prefab is a good place to start.
 - The SteamVR prefab is located at SteamVR > Prefabs > [CameraRig].
2. On the root of your camera rig attach the LocomotionHub script.
3. Also on the root you will need some sort of Movement script to handle the input and move the player.
 - Look in the Natural Locomotion > Movements folder for provided scripts.
4. Finally you will need to provide input to the system, this is usually handled by attaching an Input script to each hand.
 - Look in the Natural Locomotion > Inputs folder for provided scripts.
5. You can optionally include modifiers such as sprinting, there is no requirement for where these are placed as long as they can get to the locomotion hub to listen and register for events.
6. Note that not all movement scripts will work with all inputs and that your game will most likely need to make your own. Don't worry though, it is pretty easy and will be explained in depth in other tutorials.

Natural Locomotion System

This document details each of the subsystems that make up the overall Natural Locmotion system.

Locomotion Hub

The locomotion hub acts as a midway point between inputs and events. As well as calculating modifiers values.

This is usually placed directly on your VR camera rig.

Natural Input

Input components handle calculating the current direction and speed. Typically you will probably have one on each hand.

You will need to make your component inherit from NaturalInput to make an input component.

In order to activate your input you have to tell the locomotion hub by calling BeginInput with your input as the parameter. To deactivate call EndInput on the locomotion hub.

The GetVector function will only be called when the input is active so you do not need to check for that.

A good example is the Grip Input located in Scripts / Inputs.

Movement

Movement components handle the actual movement of the play area. Typically you will attach this to the VR camera rig and move yourself.

In order for your movemvnt component to get input vectors you will need to subscribe to the onInput event from the locomotion hub. This event is not exclusive to movemvnt scripts and can be used for other things as well.

A good example is the Translation Movement located in Scripts / Movements.

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Modifiers

Modifier components allow you to adjust the raw normalized input vectors before they are sent to movement scripts. Modifier scripts can be placed anywhere in your scene as long as they have access to the locomotion hub.

Controlling your modifier can be done by calling AddModifier, RemoveModifier and ToggleModifier on the locomotion hub.

A good example is the Toggle Sprint modifier located in Scripts / Modifiers.