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# **Climbing Pack**

# **Getting Started**

### **Import Errors**

If you receive any import errors after importing the Climbing Pack it is likely for one of the two reasons:

- You don't have one of the Opsive <u>Character Controllers</u> imported. The Climbing Pack requires any of the controllers to first be imported in order for it to work.
- The Opsive/UltimateCharacterController/Demo folder is not imported. This directory is required from the character controllers in order for the Climbing Pack demo scene to work correctly.

# **Climbing Animations**

An editor tool has been created that allows you to easily add the climbing animation states to your existing animator controller. You can create the states for all of the abilities used within the Climbing Pack by opening the Add-Ons Manager (Tools -> Opsive -> Ultimate Character Controller -> Add-Ons Manager) and specifying the character that you want to add the animations to:



After selecting "Add Animations" all of the agility states will be added to the specified animator controller.

# **Free Climb**

The FreeClimb ability allows the character to move in all directions on a climbable object. The character can traverse curved rough surfaces and make 90 degree turns. They are also able to leap in an upwards direction for quicker movement.

# Setup

- 1. Select the + button in the ability list under the "Abilities" foldout of the Ultimate Character Locomotion component.
- 2. Add the "Climbing Pack/Free Climb" ability. This ability should be positioned near the top of the list so it will override any abilities beneath it.
- 3. Add any states to the components that should activate when Free Climb in active. In the demo scene the following states are added:

- The Airborne state added to the Free Climb ability.
- The FreeClimb state added to the Animator Monitor component.
- The FreeClimb state added to the Character IK component.
- The FreeClimb state added to the arm Third Person Object components (only used for first person).
- The FreeClimb state added to the Camera Controller (only used for first person).
- 4. Setup the climbable object that the that the character should climb on. The climbable object should either be in the specified *Layer Mask* or contain the Object Identifier component with the specified *Object ID*. See the <u>Detect Ground Ability Base</u> class for more information on these parameters.
- 5. If the character can start to free climb from the top of the object the <u>Move Towards</u> <u>Location</u> component should be added to the climbable object. The z *Offset* needs to be set as the x and y offset values will be adjusted based on the character's location. The *Yaw Offset* should be set to 0.

# **Troubleshooting Tips**

- The character plays the mounting animation immediately on the top of the object instead of going to the edge. This will occur if the Move Towards Location component can't be found on the climbable object. Ensure you have added this component and adjusted the properties (step 5 from above).
- The character plays the top dismount animation too early. The dismount location is detected by the *Top Dismount Offset* parameter. If the character is playing the dismount animation too early this value should be decreased.

# **Inspected Fields**

#### **Airborne Auto Start**

Can the ability auto start when the character is airborne?

#### **Draw Debug Lines**

Should debug lines be drawn to the editor indicating the location of the horizontal and vertical casts?

#### **Allowed Movements**

Specifies which hang movements the character can perform.

- *InAirMount*: The character can mount while in the air.
- InnerCornerTurn: The character can perform an inner 90 degree turn.
- OuterCornerTurn: The character can perform an outer 90 degree turn.
- *Leap*: The character can leap climb in the upward direction.
- BottomDismount: The character can dismount on the bottom.
- *TopDismount:* The character can dismount on the top.
- *StartFromHorizontalHang:* The character can start climbing from a horizontal position of the Agility Pack Hang ability.
- *StartFromVerticalHang:* The character can start climbing from a vertical position of the Agility Pack Hang ability.

#### **Stop Climb On Jump**

Should the ability stop if the jump button is pressed?

#### **Bottom Mount Distance**

The distance from the climbing object that the character should start mounting.

#### **Climb Offset**

The offset from the character to the climb object.

#### **Move Towards Speed**

The speed that the character moves towards the climbing object.

#### **Horizontal Edge Offset**

Specifies the distance from the character's center position when the character should stop moving horizontally when near the edge of the climb object.

#### **Inner Corner Offset**

Specifies the distance from the character's center position when the character should transition to an inner corner.

#### **Bottom Edge Offset**

Specifies the distance from the character's pivot position when the character should stop moving down near the edge of the climb object.

### **Top Edge Offset**

Specifies the distance from the character's pivot position when the character should stop moving up near the edge of the climb object.

#### **Hang IK Cast Offset**

The offset between the character's hand and the IK raycast target.

#### Foot IK Cast Offset

The offset between the character's foot and the IK raycast target

#### **Hang IK Offset**

The offset to apply to the hand position relative to the object hit at the hand position.

#### **Foot IK Offset**

The offset to apply to the foot position relative to the object hit at the foot position.

#### **Bottom Dismount Offset**

Specifies the distance from the character's pivot position when the character should dismount when near the bottom of the climb object.

#### **Top Dismount Offset**

Specifies the distance from the character's pivot position when the character should dismount when near the top of the climb object.

#### **Leap Edge Offset**

Horizontal and vertical distance specifying the edge offset when the character is leaping.

#### **Start Hang Offset**

The offset used to check for a climbable object if the hang ability is active.

### Ladder Climb

The LadderClimb ability allows the character to move up and down a ladder. The character can mount/dismount on the ladder from either direction and can mount while in the air.

# **Setup**

- 1. Select the + button in the ability list under the "Abilities" foldout of the Ultimate Character Locomotion component.
- 2. Add the "Climbing Pack/Ladder Climb" ability. This ability should be positioned near the top of the list so it will override any abilities beneath it.
- 3. Add any states to the components that should activate when Free Climb in active. In the demo scene the following states are added:
  - The Airborne state added to the Ladder Climb ability.
  - The LadderClimb state added to the Animator Monitor component.
  - The LadderClimb state added to the Character IK component.
  - The LadderClimb state added to the arm Third Person Object components (only used for first person).
  - The LadderClimb state added to the Camera Controller (only used for first person).
- 4. Setup the ladder object that the that the character should be able to climb on. The ladder should either be in the specified *Layer Mask* or contain the Object Identifier component with the specified *Object ID*. See the <u>Detect Ground Ability Base</u> class for more information on these parameters.
- 5. Add the Ladder component to the ladder object that the character can climb on.
  - 1. A bottom and top Move Towards Location should be specified so the character can move into the correct location before mounting.
  - 2. The top and bottom dismount offset should be specified allowing the character to dismount in the correct location. These offsets are measured from the ladder's pivot position.
  - 3. The rung offset and separation should be specified if the character can mount on the ladder while in the air.

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# **Inspected Fields**

#### **Airborne Auto Start**

Can the ability auto start when the character is airborne?

#### **Draw Debug Lines**

Should debug lines be drawn to the editor indicating the location of the horizontal and vertical casts?

#### **Allowed Movements**

Specifies which hang movements the character can perform.

- *InAirMount*: The character can mount while in the air.
- BottomDismount: The character can dismount on the bottom.
- *TopDismount:* The character can dismount on the top.
- StartFromHang: The character can start climbing from the Agility Pack Hang ability.

#### **Airborne Move Towards Speed**

Specifies the speed that the character moves towards the ladder if mounting in the air.

#### **Stop Climb on Jump**

Should the ability stop if the jump button is pressed?

### **Start Hang Offset**

The offset used to check for a ladder if the hang ability is active.

# **Short Climb**

The Short Climb ability allows the character to climb up short objects. Short Climb will specify the object height in the Ability Float Data parameter so animations can be played for different heights.

# Setup

- 1. Select the + button in the ability list under the "Abilities" foldout of the Ultimate Character Locomotion component.
- 2. Add the "Climbing Pack/Short Climb" ability. This ability should be positioned near the top of the list so it will override any abilities beneath it.
- 3. Add any states to the components that should activate when Short Climb in active. In the demo scene the following states are added:
  - $\circ$  The ShortClimb state added to the arm Third Person Object components (only used for first person).
  - $\circ$  The ShortClimb state added to the Camera Controller (only used for first person).
- 4. Setup the object that the that the character can climb over. The object should either be in the specified *Layer Mask* or contain the Object Identifier component with the specified *Object ID*. See the <u>Detect Ground Ability Base</u> class for more information on these parameters.

# **Inspected Fields**

#### Max Height

The maximum height of the object that the character can climb over.