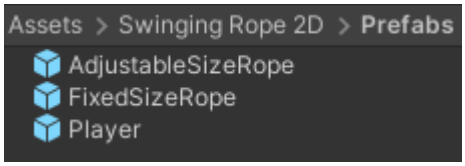
Swinging Rope 2D

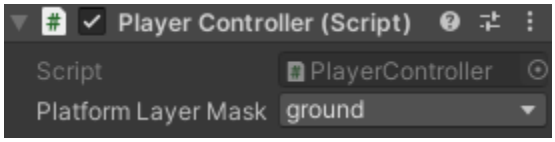
In this documentation, you will learn how to **setup** the rope shown in the screenshots and video provided in the Asset store. You can also check the **Frequently Asked Question (FAQ)** section of this documentation to understand how to implement this asset in your game.

Setup:

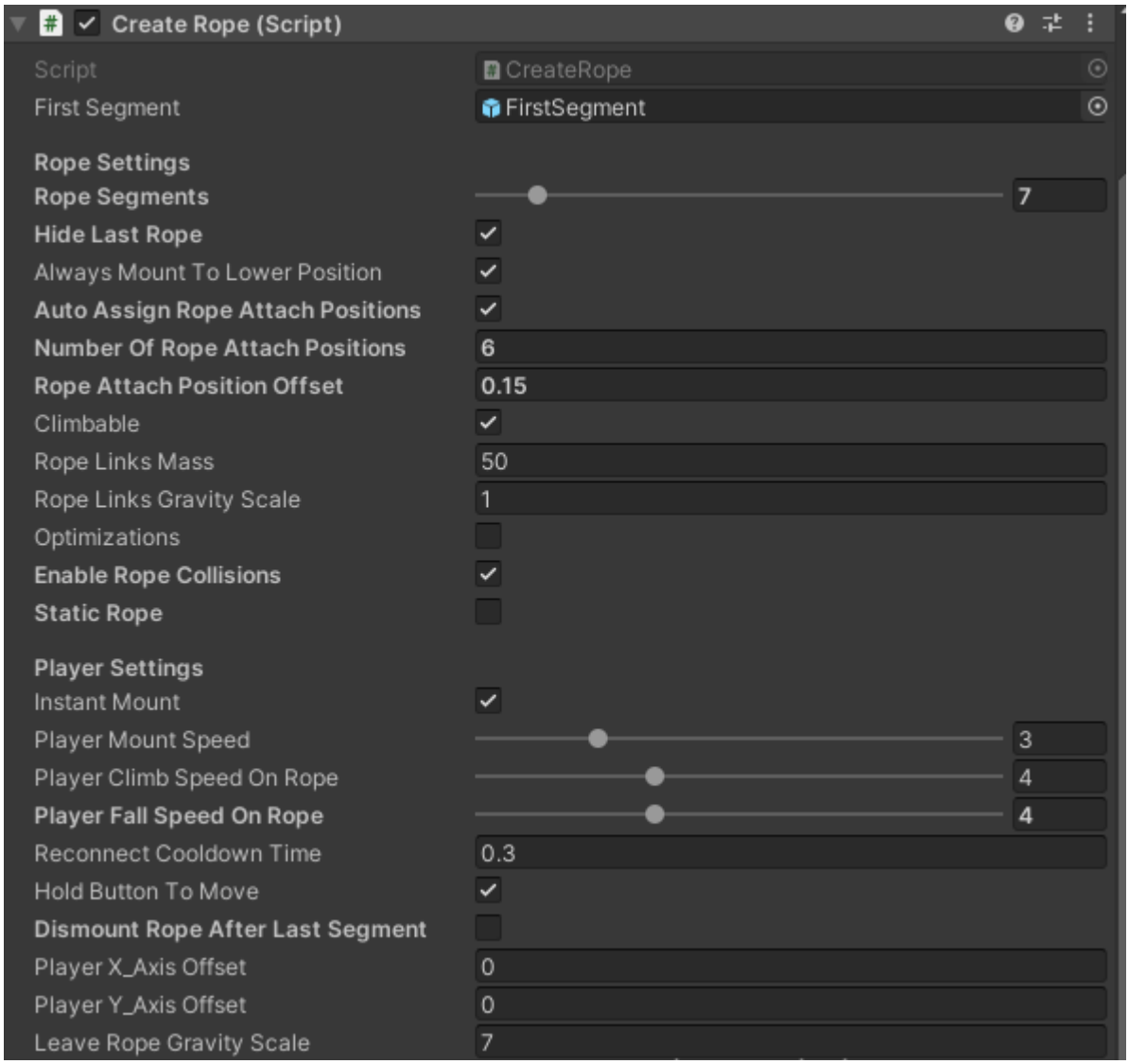
1- Drag any type of rope you want from the **prefabs folder**. I would advise always using the **Adjustable Size Rope** over the Fixed Size Rope all the time. **Read question 10 in the next section if you want to know when you should use the Fixed Size Rope.**



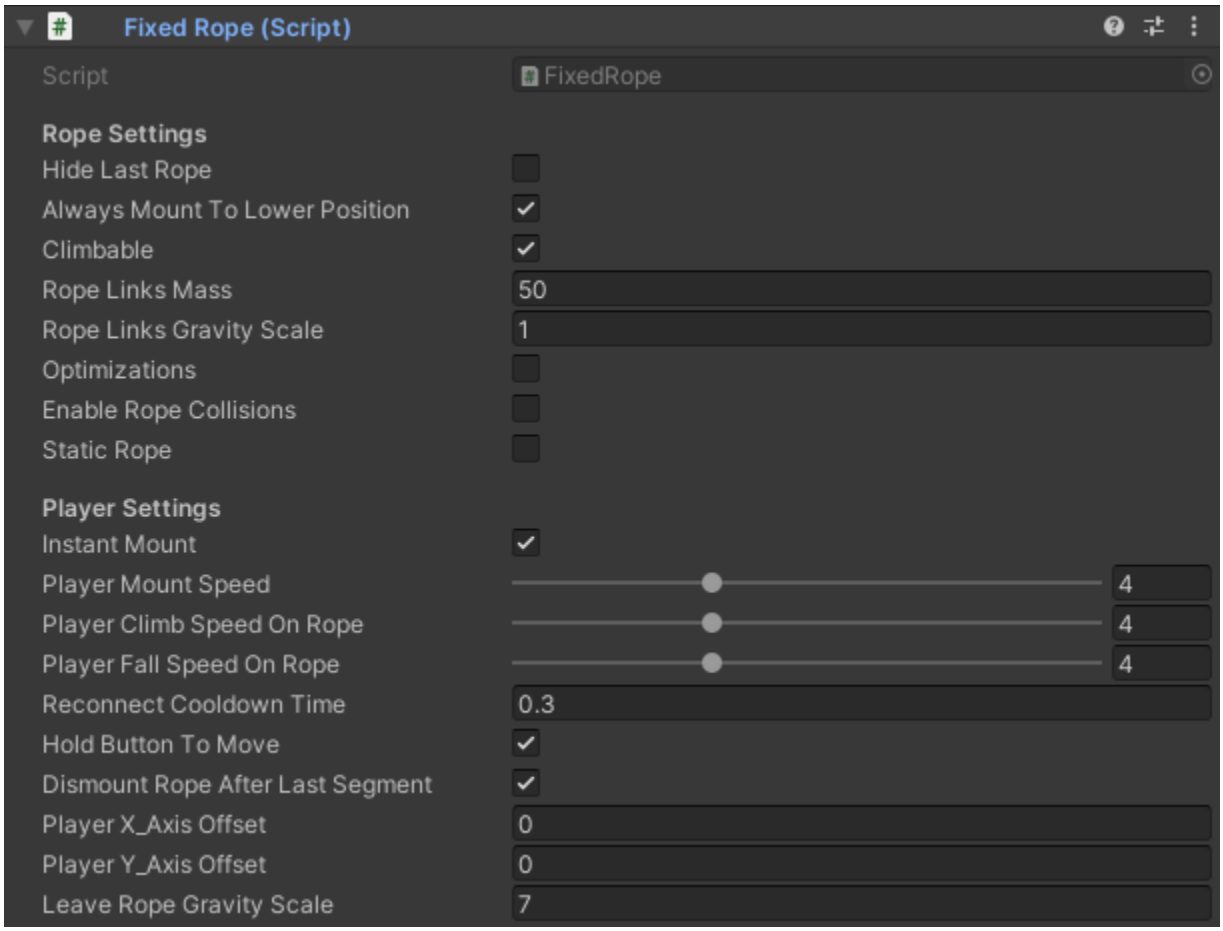
2- Click on the player and expand the player controller script. Make sure that the **Platform layer mask** is set to **ground** and that the ground game objects have their layers set to ground.



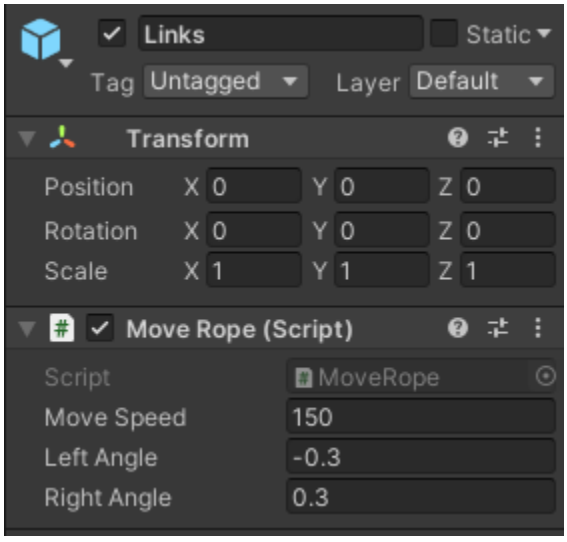
3- As of **version 1.1.3**, the Create Rope and Fixed Rope scripts have been moved to the **parent game object** instead of the first and last segments for easier accessibility. So they can be found in the inspector window directly after selecting either Adjustable Size Rope or Fixed Size Rope respectively. Make sure you have a layer called **Rope** (**with capital R**) before checking the “Enable Rope Collisions” option.



If you chose the **Fixed Size Rope** then you can access the Fixed Rope script:



If you chose the Fixed Size prefab and/or Adjustable Size Rope prefabs then you can also make both of them **move autonomously** by enabling the **Move Rope script** found in **Links** game object even during runtime but it will reset the rope's rotation and dismount the character to avoid glitches.



4- **Run the code** and everything should be working correctly as long as you didn’t mess with anything else.

5- **You should read the section below before making any changes to the rope or if you are having any trouble**.

Frequently Asked Questions (FAQ):

Q1. How can I use my own character?

You can change the player controller script to your respective movement script for your game and replace everything related to that script with your scripts method (you can right-click on the player controller class name inside the player controller script provided and choose find all references to help you with that). Note that all scripts provided have detailed comments in them if you want to use them or edit them to suit your scripts.(**Make sure your player is tagged as Player**).Also make sure that **your player controller script has the public boolean called “alreadyConnected”.**

Q2. How can I change the rope sprite of Fixed Size Rope?

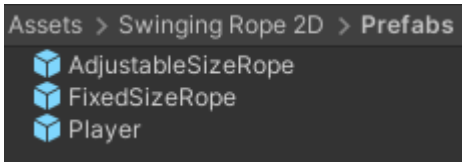
The new sprite must have an upright rotation and has center pivot before applying it (don’t manually rotate the rope from the hierarchy). You just need to manually change the sprite of each segment from the sprite renderer and adjust the capsule collider size accordingly.

Q3. How can I change the rope sprite of Adjustable Size Rope?

I would also advise using the **“Adjustable Size Rope”** if you want to change the sprite of the whole rope because it’s much faster to setup. **The new sprite must have an upright rotation and has center pivot before applying it (don’t manually rotate the rope from the hierarchy)**. You just need to change the sprite of the **first link (Rope)** found under links as well as adjust the capsule collider size accordingly and the rest of the rope segments will be adjusted automatically.

Q4. Can I use multiple ropes in the same scene?

Yes, you can add multiple ropes to the same scene (using the prefab provided in the **prefabs folder)**.



Q5. How can I make the player appear in front of the rope?

You can change the sorting layer of the rope from the sprite renderer of the prefabs found in both the resources and prefabs folders.

Q6. How can I move the character by holding down the button instead of constantly tapping it?

Enable the “Hold Button To Move” option in the Create Rope script or Fixed Rope script from the inspector window.

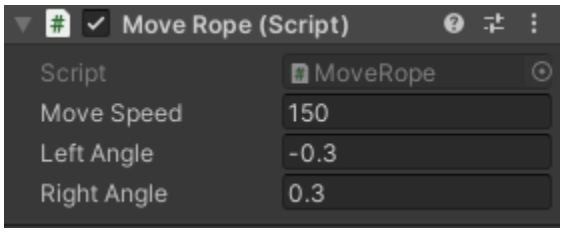
Q7. Can I add more segments to the Fixed Size Rope?

Yes, you can add more segments to the **Fixed Size Rope** to make it longer. You will just need to duplicate (**link3**) as many times as you want and move the duplicates’ positions in the scene under each other (**Make sure they all have the same x position**). Now open every new link you made and expand the hinge joint 2D component in the inspector and attach each link to the link below it in **the connected rigid body box** for example link2 should have link3 attached to it. Last of all make sure that the last link has its hinge joint 2D component **unchecked** and has nothing attached to it in the connected rigid body box. **Or just use the “Adjustable Size Chain”** if you want a lot of extra segments as you don’t need to adjust anything.

Note: Make sure that only the last link has the **Last Rope** script attached to it and that all the capsule colliders have **“is Trigger” checked**. Also make sure that the distance joint 2D found in the anchor game object is attached to the last link and the anchor’s rigid body is **static** while the links’ rigid bodies are **dynamic**.

Q8. How can I make the rope move autonomously?

You can make the chain **move autonomously** by enabling the provided **Move Rope** script found in the **Links** game object. Now adjust the values of the move script as you want but these are the values that I tested:



Note that activating the script during runtime will reset the rope's rotation and dismount the character in order to avoid glitches.

Q9. How can I change the scale of the rope?

I would advise using the **Adjustable Size Rope** if you want to change the scale of the whole rope because it's way faster to setup. Just change the scale of the **first link (Rope)** found under links and the rest of the rope segments will be adjusted automatically. But if you are using the **Fixed Size Rope,** you will need to scale every segment yourself.

Q10. When should I use the Fixed Size Rope over the Adjustable Size Rope?

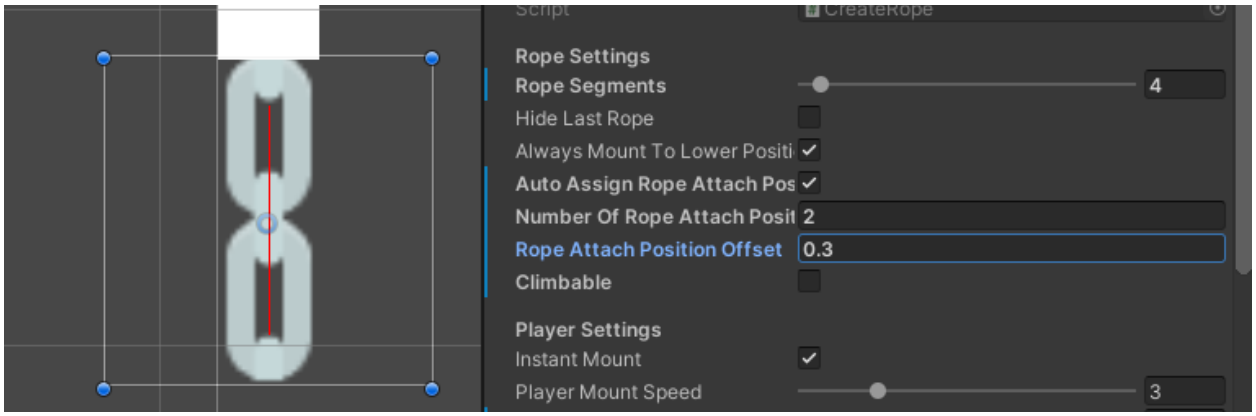
You should only use the **Fixed Size Rope** over the **Adjustable Size Rope** if you want each segment to have a **different sprite** or **different size (length or scale) than the other segments** or if you are experiencing any **lag spawning the rope**.

Q11. How can I add an offset to my player's position?

You can edit the player x-axis and y-axis offsets from the inspector under the create rope (or fixed rope if using fixed size rope) script by changing "Player X-Axis Offset" and "Player Y-Axis Offset".

Q12. How can I add more player positions per rope segment automatically?

You can edit the number of player positions per segment automatically from the inspector under the create rope script. **You must make sure that you don't have any child game objects under the first rope segment (in the hierarchy window), the AutoAssignRopeLink prefab (in Resources Folder), AutoAssignLastRope prefab (in Resources Folder), and AutoRopeAttachPosition prefab (in Resources Folder)**. Now enable the "Auto Assign Rope Attach Positions" then enter the number of positions you want to create in the "Number Of Rope Attach Positions". The "Attach Rope Position Offset" is used to set an offset for the starting and ending positions of the rope attach position which is displayed by a red gizmo.

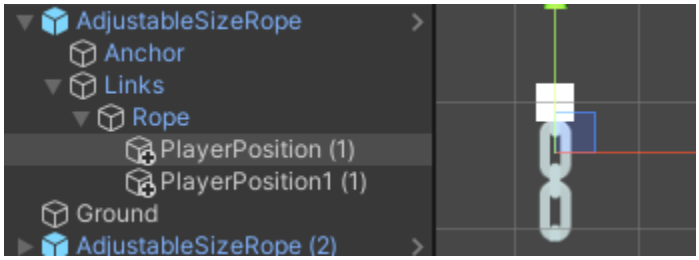


Q13. How can I add more player positions per rope segment manually?

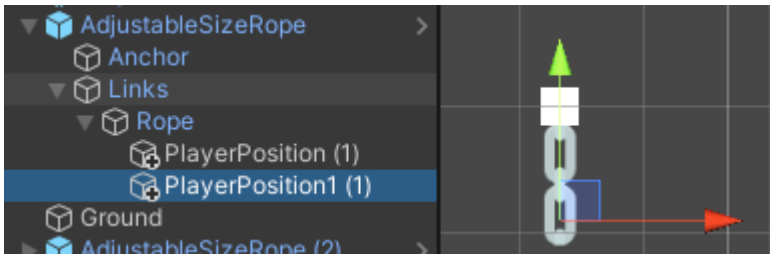
Make Sure that Auto Assign Rope Attach Positions is off.

Now, you can add more player rope attaching positions to the prefabs in Prefabs folder by **creating empty game objects inside each link** (for both Fixed and Adjustable ropes - knowing that the Adjustable rope only has one link in links) in links and adjusting their locations so that the player has more points to connect to on the rope. When using the **Adjustable Size Rope,** you just need to create and adjust the position of the empty game objects of the **first link** then create the same number of empty game objects for the “Rope Links” and “Last Rope” prefabs found in the **Resources folder** without adjusting their locations (the Create Rope script will automatically match the empty game objects positions to the first link’s empty game object positions). Just make sure that the game object positions in the scene and hierarchy are **ordered from top to bottom** for example the first empty game object’s transform’s position should be above the second’s transform’s position in the scene and the second should be above the third and so on like this:

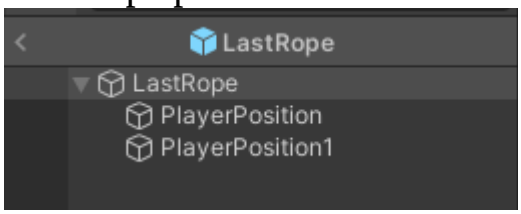
First Position:



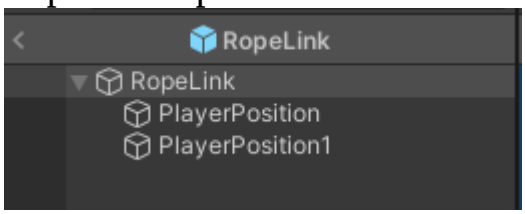
Second Position:



Last Rope prefab in Resources folder:



Rope Links prefab in Resources folder:



All positions must have **zero X-Axis**.

All segments must have the **same number** of empty game objects.

Q14. Can I change the climbability and number of rope segments during runtime?

Yes, the number of rope segments can be changed **during runtime** with no trouble as well as the ability to set the **climbability** of the rope by changing their values from the inspector. Make sure Optimizations is **off** if you want to make changes during runtime. Note that **disabling** the climbability will make the player slide down the rope using the "Player Mount Speed" not the "Player Fall Speed On Rope".

Q15. Why is the last rope segment acting weird?

This issue occurs when you use a lot of rope segments at once, so the distance joint 2D attached to the anchor game object starts pulling the last rope. In order to fix it, just enable "Hide Last Rope" from the inspector window **before runtime**.

Q16. How can I change the rope resistance to player swing movement?

You can change **the masses and gravity scales** of the ropes' rigid bodies if you want to adjust the rope resistance to the player swing movement. These options can be found under the create rope script (or last rope script in case of fixed size rope).

Q17. What does the "Optimization" option do?

It disables your ability to change settings **during runtime** in order to slightly boost performance.

Q18. What does “Always Mount To Lower Position” option do?

It makes sure that the player prioritizes moving to the closest rope attach position that is **under** him (if any) when first colliding with the rope.

Q19.What does “Instant Mount” option do?

It **instantly teleports** the player to the correct rope attach position upon first contact with the rope. If you disable it, the player will smoothly move to the correct rope attach position based on the **Player Mount Speed**.

Q20.Why is my character flipped incorrectly after dismounting the rope?

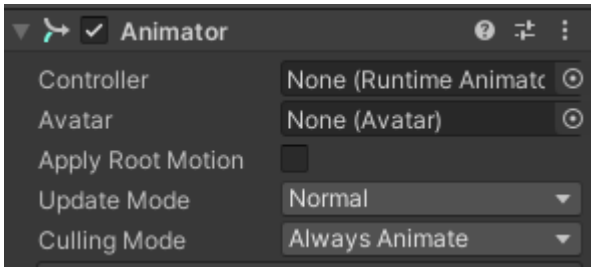
This is because your custom player controller script doesn’t flip the character correctly. You will need to make sure that you use **Mathf.Abs()** for the X-scale of the player before multiplying it by -1 like this: (picture taken from the player controller script provided with the asset)

```
/// <summary> Changes the local scale based on user input
1 reference
void AdjustDirection()
{
    if (facingRight)
    {
        // Change the X value of the transform scale to its positive value when facing right
        transform.localScale = new Vector2(Mathf.Abs(transform.localScale.x), transform.localScale.y);
    }

    else
    {
        // Change the X value of the transform scale to its negative value when facing left
        transform.localScale = new Vector2(-Mathf.Abs(transform.localScale.x), transform.localScale.y);
    }
}
```

Q21.How to add player animations?

First, open the player's animator component in the inspector window and assign the **controller** you want to use:



Then open the player controller script and locate the **HandleRopeAnimationsAndSoundEffects** method. Now, type the name of the correct animation clip to play in **animator.Play("")** :

```
switch (playerMovementOnRope)
{
    case PlayerMovementOnRope.notMoving:
        // Play the player idle animation and sound effect on rope here
        Debug.Log("Not Moving");
        animator.Play("");

        break;
    case PlayerMovementOnRope.climbing:
        // Play the player climbing animation and sound effect on rope here
        Debug.Log("Climbing");
        animator.Play("");

        break;
    case PlayerMovementOnRope.falling:
        // Play the player falling animation and sound effect on rope here
        Debug.Log("Falling");
        animator.Play("");

        break;
}
```

Finally, open the last rope script and in the **update method** do the same thing for **playerController.animator.Play(“”)** in these **if conditions**:

```
// Check for keyboard input to make the player dismount the rope
if (Input.GetKeyDown(KeyCode.Space) && connected)
{
    DismountRope();

    // Adjust the gravity scale to get a floating effect
    player.GetComponent<Rigidbody2D>().gravityScale = leaveRopeGravityScale;

    // Call the jump method in the player controller script and give it a jump height value
    playerController.Jump(playerController.jumpHeight);

    // Play the correct animation after dismounting
    playerController.animator.Play("");
}

// Dismount the player from the rope if he tries to go even lower than the last attach position
if (Input.GetKey(KeyCode.DownArrow) && positionNumber == newPlayerRopePositions.Count - 1 - numberOfTransformsPerSegment
    && dismountRopeAfterLastSegment && connected)
{
    DismountRope();

    // Play the correct animation after dismounting
    playerController.animator.Play("");
}
```

Q22.How to make the rope stationary?

You can make the rope stationary by enabling the “Static Rope” option in the Create Rope or Fixed Rope script from the inspector window.

Q23.How to enable the rope collisions with other game objects?

You must create a new layer called **Rope** by going to Edit → Project Settings → Tags and Layers → Expand Layers (not sorting layers just layers) → type **Rope** in any empty field. (**Rope** must have a **capital R**). Now, check the “Enable Rope Collisions” option in either the Create Rope or Fixed Rope scripts in the inspector window.

Q24.Why does my rope breakdown?

The rope uses unity’s built-in physics system, so it has its limitations when it comes to the number of segments used per rope. I would advise making longer rope sprites or scaling up the segments if you want a longer rope instead of adding multiple segments. I don’t advise going over 15 segments per rope.

Q25. How can I contact the publisher if I need more help?

If you still have any questions, please email me at:

HardcoreBudget@gmail.com . I’ll be more than happy to help!