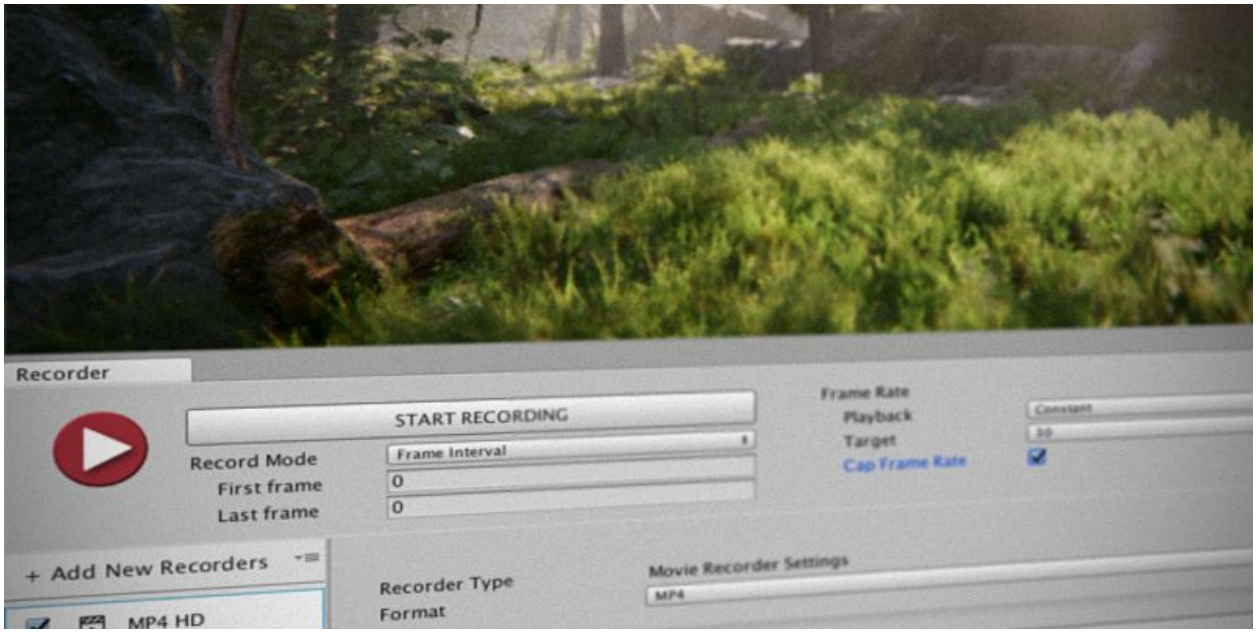
Unity Recorder V1.0 User Manual



Unity Recorder

Use the Unity Recorder to capture and save in-game data during Play Mode. For example, use the Unity Recorder to capture and save gameplay as an MP4 file.

A recorder specifies details for creating a recording, including a data source, resolution, and output format. The Unity Recorder package includes the following recorders:

- **Animation Recorder**: generates an animation clip in ANIM format.
- **Movie Recorder**: generates a video in MP4 or WebM format.
- **Image Recorder**: generates a sequence of image files in JPEG, PNG, or OpenEXR format.
- **GIF Recorder**: generates an animated GIF file.

The Unity Recorder also supports Timeline. Use Recorder tracks and clips to trigger recording sessions from Timeline instances.

Limitations

The Unity Recorder has the following limitations:

- The Recorder window and Recorder properties are not available in standalone Unity Players.

- To use Unity Recorder with Scriptable Render Pipeline (SRP) or High Definition Render Pipeline (HDRP), use only the **Game View**, **360 View**, or **Render Texture** choices in the **Capture** drop-down menu.
- The **Animation Recorder** only records a GameObject in the current Scene. It does not record a GameObject in other scenes.
- The **Movie Recorder** does not support variable frame rates.
- The Unity Recorder does not capture frames at a consistent rate from systems that use a real-time clock, like the Video Player. Data captured from these systems might appear speeded up or slowed down.

Upgrading Unity Recorder

Besides new features, Unity Recorder 1.0 has a few notable changes:

- Use the **Window > General > Recorder** menu to access Unity Recorder features. Features for older versions of Unity Recorder were accessible from the **Window > Recorder** menu.
- Unity Recorder includes new, updated recorders. These recorders take advantage of Unity Editor features and are more stable than previous versions. However, if you must use the legacy recorders, toggle **Window > General > Recorder > Options > Show Legacy Recorders**.

To upgrade to Unity Recorder 1.0 from an earlier version:

1. In Unity Editor, open your Unity Project.
2. Save the current Scene.
3. In the Project window, expand the *Unity Technologies* folder and select the *Recorder* folder.
4. In the main menu, choose **Edit > Delete**.
5. Quit Unity then re-open your project.
6. Use the Unity Asset Store to search for and install Unity Recorder 1.0.

Setting up Recorders

Use the recorder list in the **Recorder** window to add, rename, edit, duplicate, and delete recorders. You can also save and delete your recorder list as an asset to reuse in your project and in other projects.

Tip: You can save a recorder as a Preset. You can also specify a preset for recorder settings as a default when creating new recorders.

Re-opening the **Recorder** window restores the values of the last recording session.

To add a recorder:

1. Open the Recorder from the Unity menu (**Window > General > Recorder**).
2. In the recorder list, click **+ Add New Recorders** to choose from a drop-down menu.
3. Adjust the settings for the new recorder.
4. Optionally rename the new recorder by single-clicking its name.

To delete or duplicate a recorder:

1. Open the Recorder from the Unity menu (**Windows > General > Recorder**).
2. In the recorder list, right-click the recorder and choose **Delete** or **Duplicate**.

Tip: You can also delete and duplicate recorders with the Delete and Ctrl+D/Cmd+D keys, respectively.

To save, load, or clear settings for all recorders:

1. Open the Recorder window from the Unity menu (**Windows > General > Recorder**).
2. In the recorder list, click the drop-down menu.
3. Do one of the following:
    - To save your recorder list as an asset, choose **Save Recorder List**.
    - To load a recorder list, choose **Load Recorder List,** then the list to load.
    - To delete all recorders in your list, choose **Clear Recorder List**.

Recording in Play Mode

When recording in Play Mode, use the **Record Mode** property to specify when to start and stop the recording. You can manually start and stop recording, specify a single frame, a range of frames, or a range of time. You can set up more than one recorder to record the same Scene.

Note: During recording, you cannot modify the properties in the Recorder window.

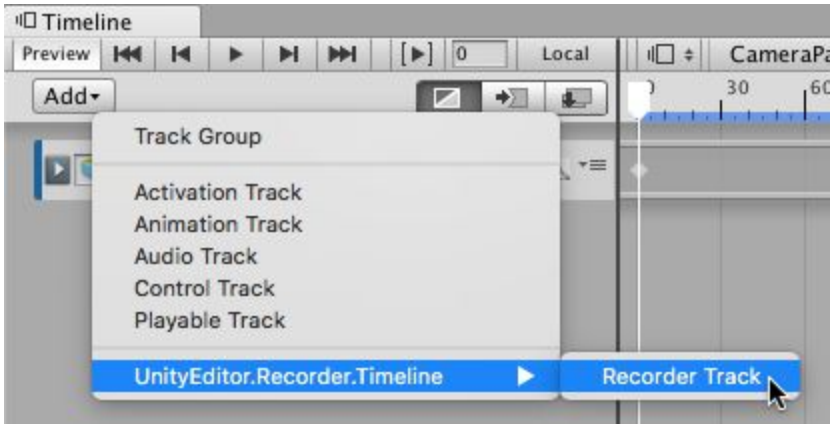
To record a scene in Play Mode:

1. Set up your scene to prepare it for recording.
2. Open the Recorder from the Unity menu (**Window > General > Recorder**).
3. In the recorder list, select then set up the recorder to use.
4. Set the **Record Mode** and **Frame Rate** properties.
5. Repeat steps 3-4 to use other recorders for the same Scene.
6. Click **Start Recording** or press F10. Unity Recorder activates Play Mode if it is not already active. The progress bar displays the number of frames or images recorded.
7. When you are ready to stop recording, click **Stop Recording** or press F10. You only need to stop recording when using the Manual record mode. Your game continues in Play Mode.

Tip: Closing the Recorder window, or exiting Play Mode and returning to Edit Mode, also stops the recording.

Recording from a Timeline track

You can start and stop recordings from the Timeline. A **Recorder Track** in Timeline contains one or more **Recorder Clips**. Each clip specifies a recording to start and stop while Timeline plays the **Recorder Track**.



Adding a Recorder Track in Timeline.

A **Recorder Clip** has the same properties as a recorder in the Recorder window except for the following differences:

- Recording mode can only be set to Constant. Timeline can only play using a constant frame rate.
- The frame rate of the recording inherits from the Timeline's **Frame Rate** setting.
- The **Clip Timing** section replaces the **Bounds/Limits** section. Instead, use the **Start**, **End**, and **Duration** properties to set when recording occurs.
- Use the **Recorder Category** property to select which recorder the Timeline clip uses.
- The **Recorder Clip** properties are stored in the Timeline Track and do not affect the properties in the Recorder window.

To set up a recording session in a Timeline instance:

1. Select the GameObject in your Scene that is associated with the Timeline Asset.
2. In the Timeline window, click **Add** and select **Recorder Track**.
3. Right-click the **Recorder Track** and select **Add Recorder Clip**.
4. Select the **Recorder Clip** to view and edit its recording properties in the **Inspector** window.

Debugging Recorders

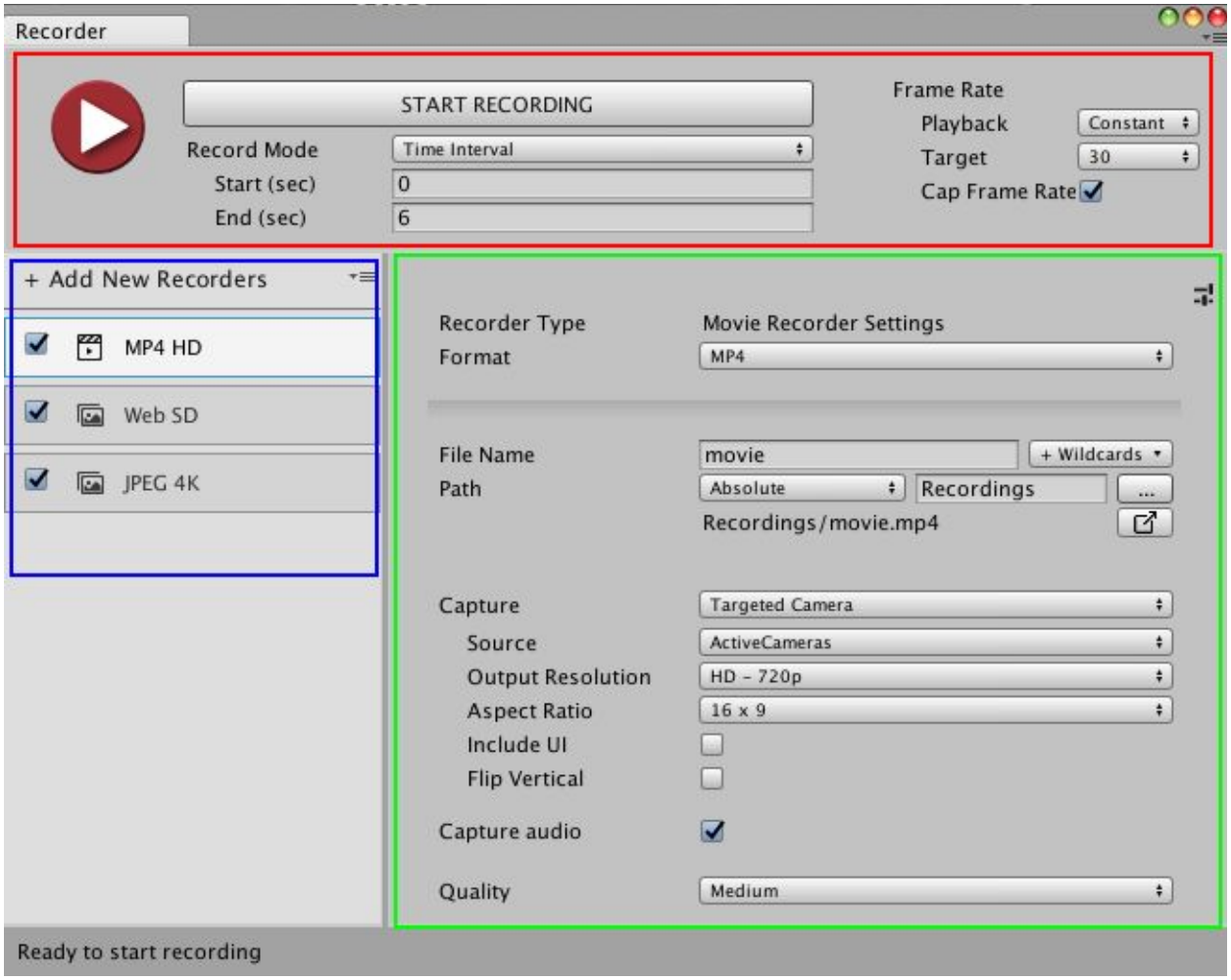
You can view the GameObject that Unity Recorder creates in your Scene. This GameObject is named **Unity-Recorder**. It contains the components and child GameObjects that the Unity Recorder creates to maintain bindings between the Recorder and the GameObjects in your Scene. Also, while recording, the **Unity-Recorder** GameObject contains components that store the progress of current recording session. **Unity-Recorder** is normally hidden from the Hierarchy window.

To toggle the visibility of the **Unity-Recorder**, choose **Window > General > Recorder > Options > Show Recorder GameObject.**

Recorder Window

Manage recorders and control recording in the Recorder window. The Recorder window has these sections:

- Recording controls: Start and stop recordings, and specify their duration and frame rate.
- Recorder list: the recorders you have added or loaded.
- Recorder properties: Specify the recording properties, such as the output format and encoding, file name and location.



The Recorder window: recording controls (red), recorder list (blue), and recorder properties (green).

Recording controls

Use the recording controls to start and stop a recording. Specify when to start and stop a recording with the **Record Mode** properties. Use the **Frame Rate** properties to specify how to constrain the frame rate during recording. The frame rate affects the size and number of the captured output files.

Property:	**Function:**
Start Recording **Stop Recording**	Starts and stops recording. Clicking **Start Recording** also activates Play Mode if it is not already active.
Record Mode	Specifies the frames or time duration to record.
Manual	Start and stop recording when you manually click **Start Recording** and **Stop Recording**, respectively.

Single Frame	Record a single frame. Use the **Frame Number** property to specify this frame.
Frame Interval	Record a consecutive set of frames during Play Mode. Use the **First Frame** and **Last Frame** properties to specify when to start and stop.
Time Interval	Record a specific duration during Play Mode. Use the **Start** and **End** properties to specify when to start and stop.
Frame Number	Specifies the number of the frame to capture when using the **Single Frame** mode.
First Frame **Last Frame**	Specifies the range of frames to capture when in **Frame Interval** mode.
Start **End**	Specifies the time, in seconds, to begin and finish recording.
Playback	Specifies how to control the frame rate during recording.
Constant	Limit the recorder to a specific frame rate. Use the **Target** property to specify this rate.
Variable	Use the frame rate of the game. Specify the upper limit of the rate of the game during recording with the **Max Frame Rate** property. **Note:** The **Movie Recorder** does not support a variable frame rate.
Target	The frame rate to capture when using the **Constant** setting in **Playback**. The Unity Recorder captures at this rate regardless of whether the game is played at a higher or lower frame rate. For example, if **Target** is set to a custom value of 30 fps but the game plays at 60 fps, the recording is captured at 30 fps.
Max Frame Rate	Limit the rate of updates in Play Mode. This property is available when **Playback** is **Variable**. To prevent your game from exceeding this frame rate, the Unity Recorder inserts delays during game play. Use this property to reduce the size of the output.
Cap Frame Rate	Check this property when the frame rate of your game is faster than the **Target** frame rate. This property is available when **Playback** is **Constant**.

Recorder properties

These properties specify the file name and location to store the output from a recorder. These properties are available for all recorders.

Some recorders, like the **Animation Recorder**, can only record inside the Assets folder.

Tip: Click  to reveal the output files in Windows Explorer/Mac OS Finder.

Property:	Function:
File Name	The name of the output file. Use the text field to specify the pattern to use for recording many files. Choose placeholders from the **+Wildcards** drop-down menu.
+Wildcards	The placeholder text to insert in **File Name**. The recorder replaces these placeholders when saving the output file. You may combine wildcards.
Path	The folder where output files are saved. Use the drop-down menu to choose a pre-defined Unity folder. Choose **Absolute** to specify a custom directory or click **...** to navigate to a custom directory.

Movie Recorder properties

The **Movie Recorder** generates a video in MP4 or WebM format. It does not support variable frame rates.

Property:	Function:
Format	The encoding format of the output of the recorder. Choose **MP4** or **WEBM**.
Capture Alpha	Check to include the alpha channel in the recording. Uncheck to only record the RGB channels. This property is only available when **Format** is **WEBM**. This property is not available when **Capture** is **Game View**.
Capture	The input for the recording.
Game View	Record the frames that are rendered in the Game View.
Targeted Camera	Record the frames captured by a specific camera, even if it is not used in the Game View.
360 View	Record a 360-degree video. Use the **Source** camera as the point of view for the video. The recorder captures 360 degrees on the y-axis of the **Source** camera.
Render Texture Asset	Capture the frames that are rendered in a Render Texture.

Texture Sampling	When capturing, supersample the **Source** camera to generate anti-aliased images in the output. Use this capture method when the **Rendering Resolution** has the same or higher resolution than the **Output Resolution**.
Render Texture	The **Render Texture** asset to use as the source for frames. Available when **Capture** is set to **Render Texture Asset**. The output resolution of the recording is fixed to the resolution of the **Rendure Texture**.
Super Sampling	The size of the grid from which to sample. This property is available when **Capture** is **Texture Sampling**.
Source	The camera to use for recording. Choose **Active Cameras**, **Main Camera**, or **Tagged Camera**. The **Main Camera** option specifies the camera with the **MainCamera** tag. Available when **Capture** is set to **Targeted Camera**, **360 View**, or **Texture Sampling**.
Tag	The tag of the camera to record. Available when **Capture** is set to **Targeted Camera** and **Source** is **TaggedCamera**.
360 View Output	The width and height, in pixels, of the 360-degree video. This property is available when **Capture** is **360 View**.
Cube Map	The dimension of the cube map, in pixels, for the 360-degree video. This property is available when **Capture** is **360 View**.
Stereo	Check to generate both a left and right stereoscopic view for a 360-degree video. This property is available when **Capture** is **360 View**.
Stereo Separation	The angle to separate the left and right views. This separation is along the y-axis of the **Source** camera. This property is available when **Capture** is **360 View**.
Rendering Resolution	The dimensions of the input from which to sample. This property is available when **Capture** is **Texture Sampling**.
Output Resolution	The dimensions of the video recording. This property is available only for applicable **Capture** choices.
Aspect Ratio	The width:height ratio to format the output to.
Flip Vertical	Check to flip the images in the output to make it upside-down. Use this property to restore up and down when your system generates video that is flipped vertically.
Capture Audio	Check to include audio in the recording.

Quality	The quality of the output: **Low**, **Medium**, or **High**. The lower the quality, the smaller the size of the output file.

Animation Recorder properties

The **Animation Recorder** generates an animation clip in ANIM format.

Property:	Function:
Game Object	The GameObject to record.
Recorded Target(s)	The components of the GameObject to record. Choose more than one item to record more than one component.
Record Hierarchy	Check to record children of the **Game Object** too.

Image Recorder Properties

The **Image Recorder** generates a sequence of image files in JPEG, PNG, or OpenEXR format.

Property:	Function:
Format	The encoding format of the output of the recorder. Choose **PNG**, **JPEG**, or **EXR** (for OpenEXR).
Capture Alpha	Check to include the alpha channel in the recording. Uncheck to only record the RGB channels. This property is only available when **Format** is **PNG** or **EXR**. This property is not available when **Capture** is **Game View**.
Capture	The input for the recording.
Game View	Record the frames that are rendered in the Game View.
Targeted Camera	Record the frames captured by a specific camera, even if it is not used in the Game View.
360 View	Record a 360-degree video. Use the **Source** as the point of view for the video. The recorder captures video 360 degrees on the y axis of the **Source** camera.
Render Texture Asset	Record the frames that are rendered in a Render Texture.

Texture Sampling	When capturing, supersample the **Source** camera generate anti-aliased images in the recording. Use this capture method when the **Rendering Resolution** has the same or higher resolution than the **Output Resolution**.
Source	The camera to use for recording. Choose **Active Cameras**, **Main Camera**, or **Tagged Camera**. The **Main Camera** option specifies the camera with the **MainCamera** tag. Available when **Capture** is set to **Targeted Camera** or **Texture Sampling**.
Tag	The tag of the camera to record. Available when **Capture** is set to **Targeted Camera** and **Source** is **TaggedCamera**.
Output Resolution	The dimensions of the video recording. This property is available only for applicable **Capture** choices.
Include UI	Check to include UI GameObjects in the recording.
Flip Vertical	Check to flip the images in the output to make it upside-down. Use this property to restore up and down when your system generates video that is flipped vertically.

GIF Recorder properties

The **GIF Recorder** generates an animated GIF file.

Property:	**Function:**
Capture	The input for the recording.
Targeted Camera	Record the frames captured by a specific camera, even if it is not used in the Game View.
Render Texture Asset	Record the frames that are rendered in a Render Texture.
Texture Sampling	When capturing, supersample the **Source** camera generate anti-aliased images in the recording. Use this capture method when the **Rendering Resolution** has the same or higher resolution than the **Output Resolution**.
Source	The camera to use for recording. Choose **Active Cameras**, **Main Camera**, or **Tagged Camera**. The **Main Camera** option specifies the camera with the **MainCamera** tag. Available when **Capture** is set to **Targeted Camera** or **Texture Sampling**.

Tag	The tag of the camera to record. Available when **Capture** is set to **Targeted Camera** and **Source** is **TaggedCamera**.
Output Resolution	The dimensions of the video recording. This property is available only for applicable **Capture** choices.
Aspect Ratio	The width:height ratio to format the output to.
Include UI	Check to include UI GameObjects in the recording.
Flip Vertical	Check to flip the images in the output to make it upside-down. Use this property to restore up and down when your system generates video that is flipped vertically.
Encoding	Properties for controlling the quality and size of the GIF output.
Num Colors	The number of colors to use in the GIF palette table. The maximum is 256 colors. Specify a smaller palette to reduce the size of the GIF file while reducing image quality.
Keyframe Interval	The number of frames that share the same color palette. Increase this number to reduce the size of the GIF file while reducing image quality.
Max Tasks	The number of frames to encode in parallel. Increasing this number may reduce the length of time Unity takes to encode the GIF.