

Time-lapse Photography: Introduction for Beginners

Time-lapse photography is a way of showing the change in an environment over time in a fraction of the time it took to change.

It's basically a fast-forward movie, or the opposite of slow motion.

A time-lapse video typically shows hours or even days worth of time in about 10 to 20 seconds.

Kevin Choi

Compared to shooting images, time-lapse photography requires more knowledge and patience. You may find it overwhelming at first, but it is definitely worth learning.

Essentially, time-lapse photography is a video, or a compilation of thousands of still shots. Just like the picture flip books from your childhood, when you play a series of images within a very short time, it becomes a video.

A time-lapse video is a compilation of a sequence of photos taken over a long period of time.

On my Nikon Z50 Camera there are two ways to record Time Lapse images.

The first is called “Time-Lapse Movie”

The camera automatically takes photos at selected intervals to create a silent time-lapse movie.

Selecting **Time-lapse movie** displays the options below.

- **Start:** Start time-lapse recording. Shooting starts after about 3 s and continues at the selected interval for the selected shooting time.
- **Interval:** Choose the interval between shots in minutes and seconds.
- **Shooting time:** Choose how long the camera will continue to take pictures (hours and minutes).

The second is called “Interval Timer Shooting”

Take photographs at the selected interval until the specified number of shots has been recorded. Select a release mode other than **Self-timer** (E) when using the interval timer.

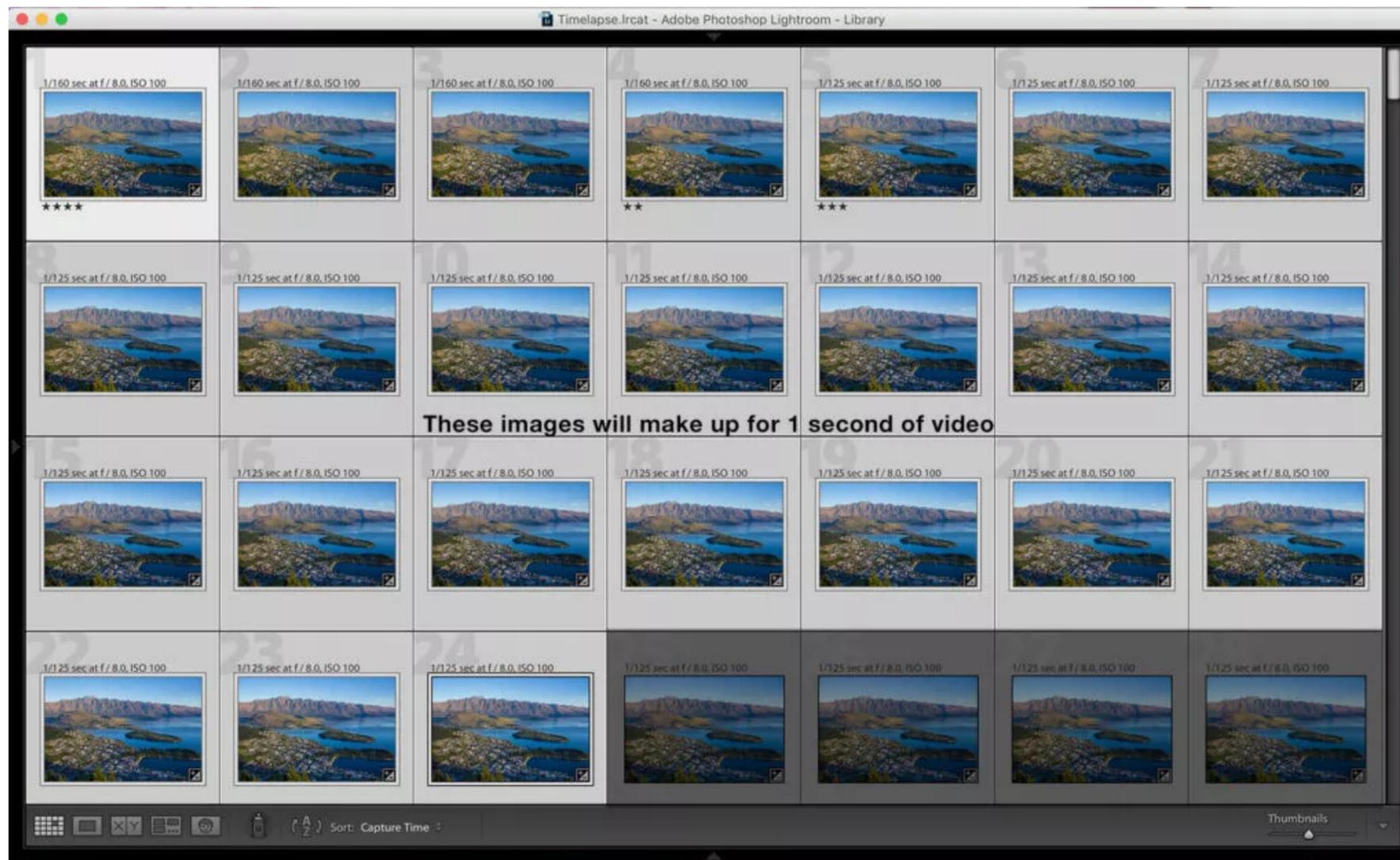
Selecting **Interval timer shooting** displays the options below.

- **Start:** Start interval timer shooting, either after 3 s (**Now** selected for **Choose start day/time**) or at a selected date and time (**Choose day/time**). Shooting will continue at the selected interval until all shots have been taken.
- **Choose start day/time:** Choose a start option. To start shooting immediately, select **Now**. To start shooting at a chosen date and time, select **Choose day/time**.
- **Interval:** Choose the interval (hours, minutes, and seconds) between shots.
- **Intervals×shots/interval:** Choose the number of intervals and the number of shots per interval.

To Begin...

Your first task in creating a time-lapse photography video is to calculate how many frames you need for the video.

Normal video is shot at 24 frames per second; you need 24 photos to create 1 second of video.



Interval Between Shots

When shooting a time-lapse sequence, you have to decide the interval between each frame.

Intervals can vary widely, depending on [your subject](#).

For example, I will use a 2-5 second interval when shooting a fast moving subject like daytime cloud changes, a 10-15 second interval when shooting a longer period change like sunrise or sunset, and a 30-40 second interval when shooting slow moving subjects like stars or the [Milky Way](#).

There are two main calculation methods to determine your interval between shots and time required: interval based calculation and total time based calculation.

Interval Based

With an interval based calculation, you decide the interval of frames and the length of the video first. From that, you can calculate how many frames you need and the total time you'll need to shoot.

If you have a rough idea of how fast your scene is moving, you can estimate the length of your interval. With a fast moving scene, like a moving cloud, you need a short interval; about 3 seconds. For a slow moving scene, like moon rise, use a longer interval; around 20 seconds.

Once you determine your interval, you can then calculate the total time you need to shoot to create a video of your desired length.

Let's say you want to create a 15-second time-lapse video, using 24 frames per second, with a 3-second interval.

First, you need to figure out how many frames you will need:

$24 \text{ frames per second} \times 15 \text{ seconds} = 360 \text{ total frames}$

From this you can calculate the total time you'll need to capture 360 frames:

$360 \text{ frames} \times 3 \text{ seconds} = 1080 \text{ seconds, or } 18 \text{ minutes}$

You will need 18 minutes of shooting, using a 3-second interval, to create a 15 seconds video.

Total Time Based

Total time based calculation is the opposite of interval based. You are going to calculate the interval required to capture a certain time range for you desired length of video.

This method is great when you have an idea of how long you are going to shoot.

For example, you want to shoot 2 hours of sunset and make it into a 15-second video, using 24 frames per second.

Again, you need to know how many frames you'll need:

$24 \text{ frames per second} \times 15 \text{ seconds} = 360 \text{ frames}$

Then you can calculate the interval between shots:

$2 \text{ hours, or } 7200 \text{ seconds} / 360 \text{ frames} = 20 \text{ seconds between shots}$

You should set a 20-second interval to capture 2 hours of sunset in a 15-second video.

Shooting Setup

When shooting time-lapse photography sequences, a tough tripod is a must.

You'll be shooting for hours and your camera cannot be moved. Any movement, or even vibration of your camera can ruin your video.

During my trip to New Zealand, my friends and I set up 5 different cameras to capture the cloud movement in Mt. Cook. The smallest camera, an iPhone on a flimsy tripod, was blown over by strong winds and captured nothing.

You will also need a shutter control tool. Most newer model cameras come with an interval shooting function.

If not, you will need an electronic shutter release cable that can release the shutter continuously.

Shooting Mode

With your interval timer ready and your camera set on a rock-solid tripod, your next step is to select your shooting mode.

The light conditions of the environment you are shooting will determine which mode you use, either Manual or Aperture Priority mode.

Manual Mode

If you are shooting in an environment with a fairly constant light condition, I suggest using M mode.

If you plan to shoot cloud movement for 30 minutes in the morning, the light condition will not change very much over the course of your shoot. You can shoot in M mode so the entire sequence will be shot with the same exposure.

Aperture Priority Mode

However, if you are shooting in a light-changing condition like sunrise or sunset, you'll want to use A Mode. A Mode allows the camera meter to choose the right exposure for each interval during the 1-2 hour shoot of rapidly changing light.

Time-Lapse Photography Post Processing

Once you've shot all your frames, you can put them into a video. But to make a great time-lapse video, some post processing is needed.

I suggest using both LRTimelapse and Adobe Lightroom to do your post processing.

[LRTimelapse](#) is a plug-in that is used in conjunction with Adobe Lightroom to create time-lapse videos. It also calculates exposure changes in a sequence and balances light changes smoothly.

The free version of LRTimelapse can render a 1080-second video with up to 400 images, which is more than enough for most photographers. There's a paid version if you need higher resolution or more sequence images.

Here's a time-lapse Video example from Kevin Choi's in New Zealand.



Some time ago I experimented with Time Lapse Photography using a DSLR Camera and a light source to capture a bunch of Daffodils coming into Bloom.

The camera was set up on a Tripod and had the Shutter timer set to take a frame every 5 minutes for a 24 hour period. (12 frames / hour x 24 = 288 Frames)

The resulting still photos frames were then processed to produce a finished Time Lapse Video using Picasa, which had a easy way to convert multiple frames into a Video with Sound

Here is the Video.

time lapse photos

Time Lapse Daffodils

This is my latest attempt at recording a bunch of Daffodils using my Nikon Z50 and the **Time-lapse movie option**.

I set it to record 1 frame every 5 minutes for about 3 hours , but Unfortunately the battery did not last very long !!

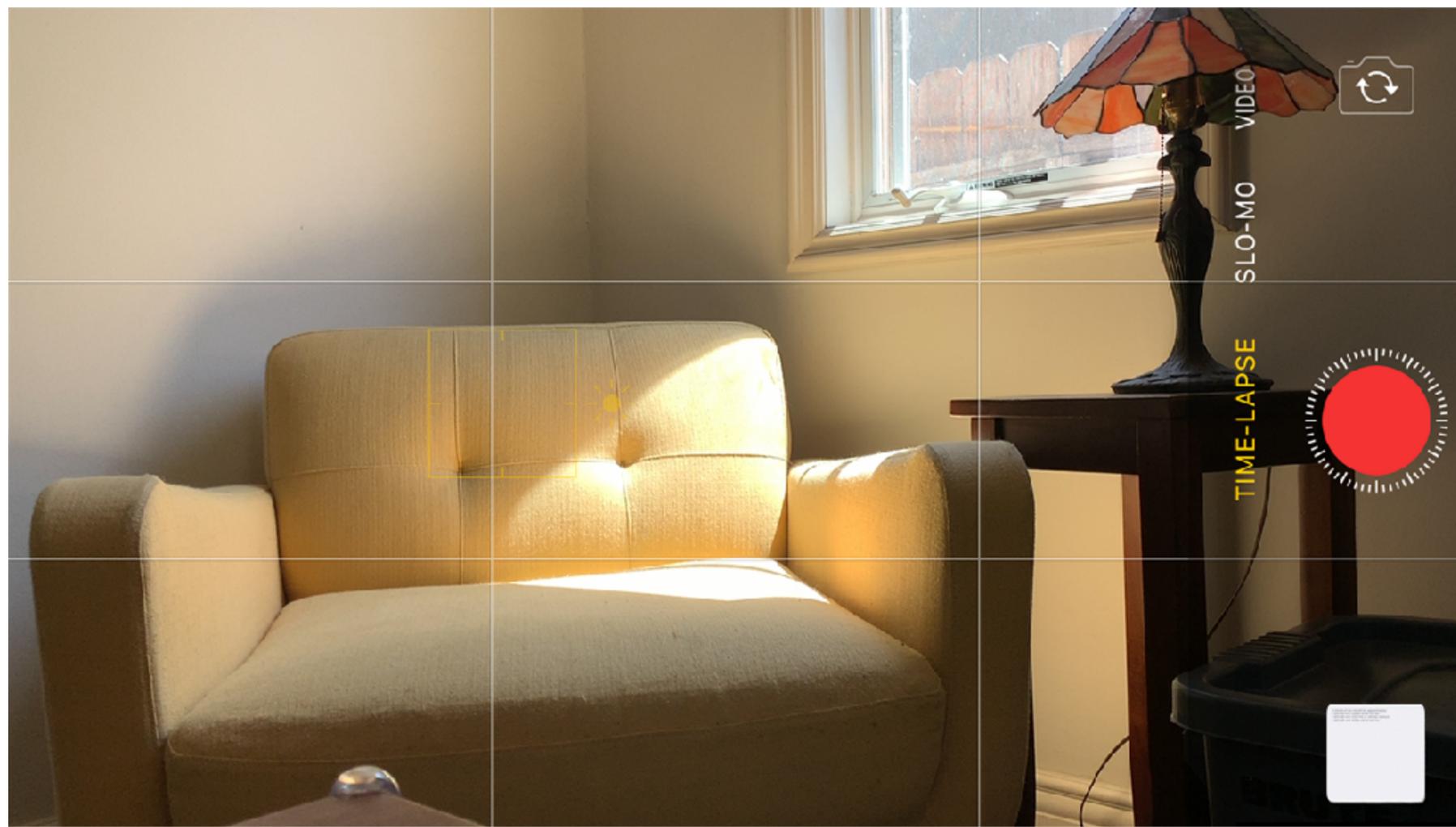


How to shoot a time lapse video on iPhone

Creating a time lapse used to be a very manual process. You'd have to take a picture or two every second and then string them together in an application. But now creating a time lapse on iPhone is just as easy as recording a video.

Here's how to make a time lapse video on your iPhone:

- Open the Camera app.
- Swipe through the options at the bottom of the screen until you get to Time Lapse.
- Press the red record button to start.
- Press the red record button to finish the recording.



A couple of things to keep in mind when you're recording a time lapse on iPhone:

- **Use a tripod or a stand.** For best results, the iPhone should be in the same place the entire time.
- **Give it time.** Filming for about 30 minutes will give you plenty of video to play with.
- **Lock your exposure and focus.** If you leave on the auto-exposure and focus, the brightness and focus will change with each frame.

How many frames per second is iPhone time lapse?

How many frames the iPhone shoots per second is entirely dependent on how long you film your time lapse. Apple calls it dynamically selective intervals.

That means all time lapses shot with the Camera app will always be between 20 and 40 seconds. And the longer you shoot, the fewer frames per second it needs.

So if you shoot for under 5 minutes, your camera will capture 2 frames per second, but if you shoot for 40 minutes, it will capture 1 frame every 4 seconds.

That's why the ideal interval for shooting a time lapse would be about 30 minutes.

How long can an iPhone time lapse last?

There is no time limit for how long you can shoot time lapse videos. The only limitation comes with the iPhone battery.

That being said, all you need to do is make sure you keep your iPhone plugged into power, and you'll be able to let it go on for as long as you'd like.