Speeding Up Previews and Rendering

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R H E D
P I X E L

Gaining Speed

What you'll find here are a series of tips on gaining back valuable design time. By changing your working habits, you can learn how to preview and render faster. If you are not using the latest version of AE, you won't be able to use all of these tips, but most still apply. These tips are excerpted from a new book called After Effects on the Spot (published by CMP Books). Special thanks to Rachel Max and Marcus Geduld who tackled this challenging, yet fun, task with me.
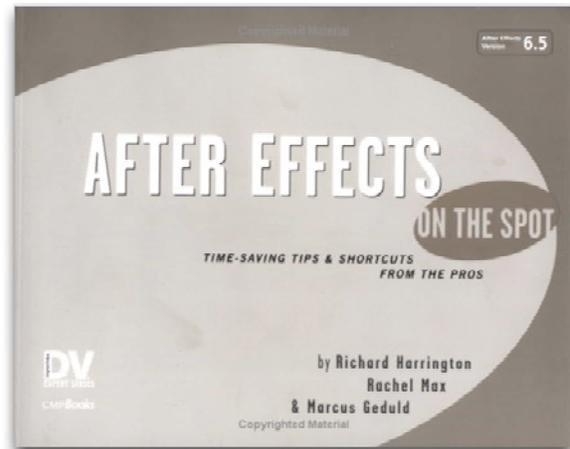
Be Consistent

Want consistent results? Use templates. After Effects comes with several built-in templates that addresses several of the more common production needs. After Effects offers both render setting templates (for establishing quality, resolution, and duration) and output module (for defining file formats). If these built-in options don't do it for you however, you can easily create your own.

1. Choose Edit > Templates> Render Settings… or Output Module….
2. Click New to create a new setting or Duplicate to modify a copy of an existing setting.
3. Modify the settings to match your needs. When finished click OK.
4. If you'd like, you can choose one of your settings to be the default.

Changing Standards

Want to define the default standards for your Render Settings or Output module? Sure you could go all the way up to the Edit menu, but why bother when you can set it in the render queue.

1. Be sure your current setting of choice is saved as a template.
2. Hold down the Command (Control) key as you select the preset name.
3. The default settings are now changed for all future comps added to the render queue.
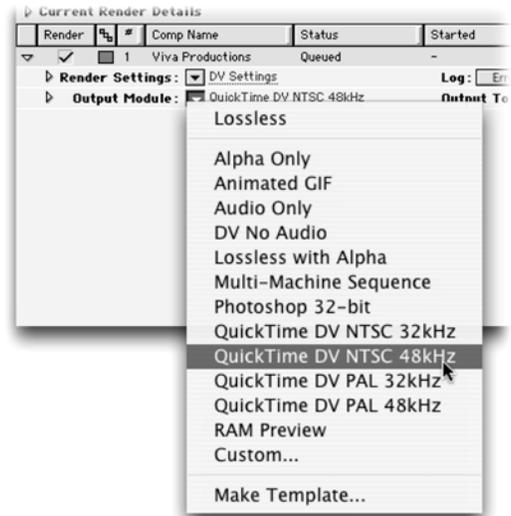
Free Your RAM

Want to give AE more power to devote solely to your render? Try these tips to dedicate your computer's power.

- Choose Edit > Purge > All to release any RAM being held by previews or cache files
- Close the Comp Window (unless you like watching paint dry). This will free up more memory and computer resources for the render. The more layers you have, the bigger benefit in closing this window.
- Quit any other applications running.
- Leave After Effects as the foreground application (in other words if you need to check email or play solitaire, use another machine).

Render Once, Output Many

A common misunderstanding about rendering is that many think you must render for each output that you want. In other words if you need a movie at different compressions and want an image sequence, you must render each separately, Fortunately, this is FAR from true.
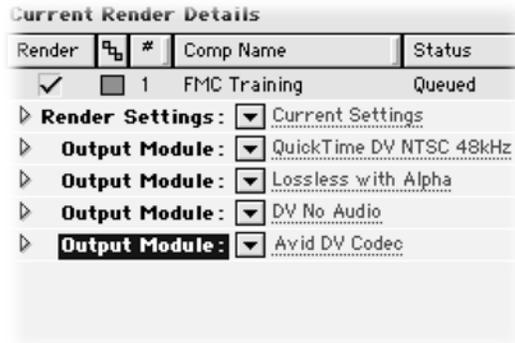

1. Highlight the required sequence in the Render Queue.
2. Choose Composition > Add Output Module.
3. Modify the settings to suit your needs.
4. Save the project.
5. Click Render when you are ready to launch the Render Queue.

Blurring and Blending Time

Many people are attracted to Frame Blending and Motion Blur. While its true that these settings can generate smoother motion quality, they only do so in specific situations.

- Enable motion blur on a layer if you are animating its position, rotation, scale, or anchor point greatly. This will add realistic blur as the object changes speed. Applying motion blur to slow moving, or static objects has no visible effect (except on your render times). Also, motion blur has no impact for most effects if the motion is created within an effect (such as the Offset or Basic 3D effect). Notably, the Particle Playground effect however is affected by Motion Blur.
- Enable frame blending only if you have changed the speed of a clip. It is most helpful on clips that have been slowed down. However there are some benefits on sped up clips as well. The point here is that frame blending is useless unless there is a speed change in the clip.
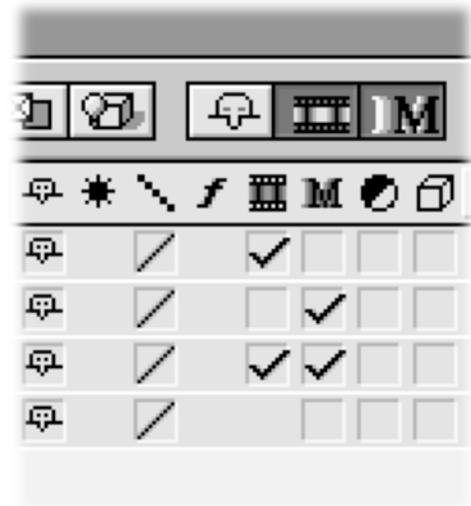
In the Neighborhood

Part of render speed is determined by how quickly your source files can be accessed. Trying to read media files from a network or an optical drive can significantly impact render times. For best results, copy all source files to the local machine. You should always try to run media from internal drives or s high-speed disk array.

Render SD and DV Simultaneously

Are you producing animations for multiple formats? Chances are likely that you'll often need both a DV and a Standard Definition output. Simple enough, right? Render twice… if you like wasting time that is. A better way is to use two output modules.

1.) Set your initial composition up at the larger size, such as 720 X 486.
2.) Add the comp to the render queue and set the Render Settings. For best results choose to Field Render with lower field first.
3.) Next, set your output module for the first video and choose the settings you need.
4.) For the Digital Video render, add a second output module by choosing Composition> Add Output Module.
5.) Set this new output module for DV by choosing the QuickTime DV NTSC 48kHz setting.
6.) In the second output module, the one for DV, we need to remove six lines of information. It is important to preserve field order. Click on the Output Module name to open its settings.
7.) Check the Crop box and specify to crop 2 lines from the top and 4 from the bottom.
8.) Name both output modules, be sure to clearly identify the DV render with a unique name.
9.) Close all open windows except for the render queue.
10.) Save your work.
11.) Click Render
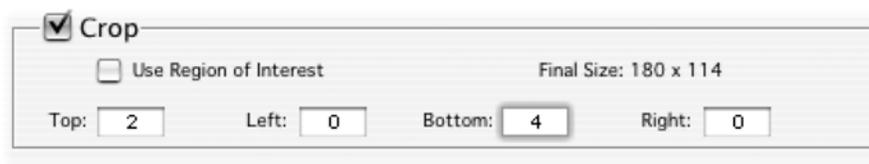
Need to Render Both Field Orders?

Need to render an animation for multiple video systems? Perhaps you need to create a video file for use on older ABVB Avid systems (upper field first) and newer Meridien-based systems (lower field first). Field rendering is set in the Render Settings, not the Output module.

Solution #1: Render twice.

Solution #2: Add a second Output Module. For the upper field first movie, enter +1 in the Top field and –1 in the Bottom field.
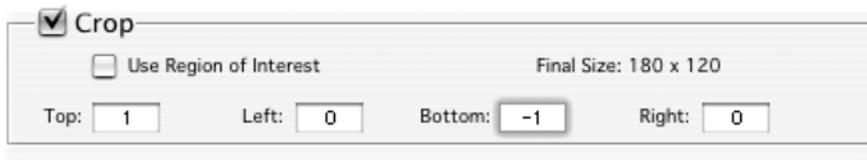
The Power to Adjust

Instead of running a blur or levels command on each layer of your composition, try applying it to all layers simultaneously. One effect can often render faster than 5 effects. The Adjustment layers work very well for global adjustments.

1. Choose Layer > New > Adjustment Layer.
2. Apply any needed filter to the Adjustment Layer
3. All layers below will be affected.
4. To modify the strength of the adjustment, you can change the Adjustment Layer's opacity and blend mode.

Text	⌥⇧⌘T
Solid...	⌘Y
Light...	⌥⇧⌘L
Camera...	⌥⇧⌘C
Null Object	⌥⇧⌘Y
Adjustment Layer	
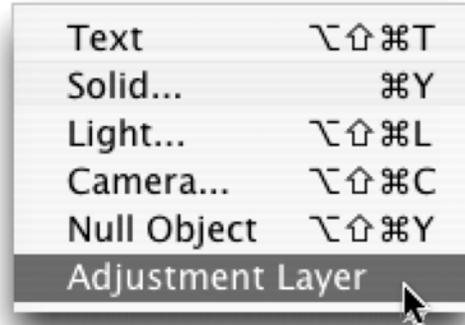
Get it Together

Oftentimes in the middle of a creative session, we get a little sloppy. We find ourselves dragging files in, dumping things on the desktop, or even reading right from a network. That's fine when you are sitting in front of the machine, but we prefer our renders to be autonomous. The best way to ensure a smooth render is to pull all files together into one folder.

Collect Files

Collect Source Files: For All Comps

☐ Generate Report Only
☐ Obey Proxy Settings
☑ Reduce Project
☐ Change render output to Beating the Render folder
☐ Enable "Watch Folder" render
   Maximum Number of Machines: 5
   2 single-machine render items.
   0 multiple-machine render items.

1 file(s) (9.7M) will be collected.

Comments...   Cancel   Collect...

1. Choose File > Collect Files
2. Specify if you want files For All Comps, For Selected Comps, or only for Queued Comps.
3. When ready, click Collect.
4. The needed files will be copied to a new folder that you specify. The original files are still left behind.
5. You can choose to leave the original files around (in case other projects or users need them) or manually erase them.
6. To find stray files, you can also run the Collect Files Feature on the original project, but this time generate a report only.

Where Do You Work?

Setting the Work Area is very important. It allows you to define what portion of your composition is loaded for RAM previews as well as define which portion to render. You can set the Work Area by dragging handles in the Timeline Window, however there is a more precise method.

1. Position your Current Time Indicator at the beginning of the Work Area and press B (for Beginning).
2. Position your Current Time Indicator at the end of the Work Area and press N (for eNd).

Alternately, you can use your selected layers to define the Work Area. Simply press Cmd + Option + B (Ctrl + Alt + B) to set the Work Area to selection.
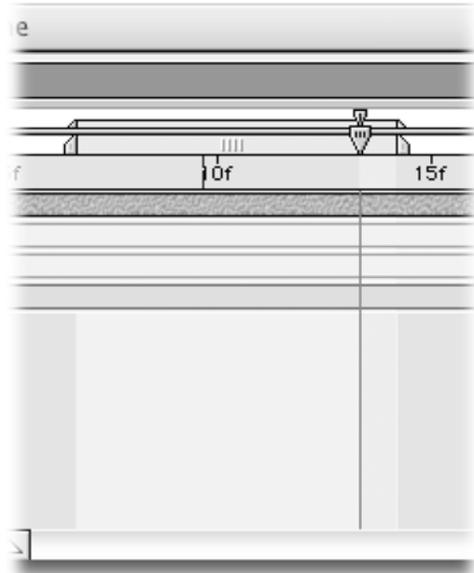
The Most Important Email All Week

After Effects 6 now supports scripts. One of those scripts can actually render a file then email you upon completion. If you're a tech geek, the gears in your head are already spinning. Most pagers and cell phones can receive text messages via the Internet. Just think, the leash has been cut!
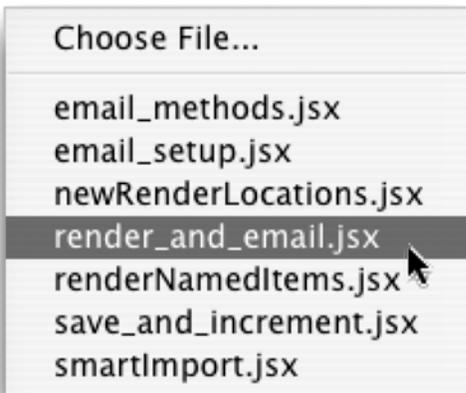
1. Open up your General Preferences and be sure that the Allow Scripts to Write Files and Access Network box is checked.
2. Add your files to the Render Queue like normal.
3. Choose File > Run Script > render_and_email.jsx, you will now be prompted for your email settings.
4. Enter server smtp address: such as mail.mac.com, click OK
5. Enter the reply to address: such as the email you want to use to send the message.
6. If your server required log-in (most do), click YES and enter your ID and password. Click OK.
7. Enter the recipients email address. Click OK
8. An email with the subject AE Render complete will be sent when the queue is finished.

How cool is that?

Got Transparency?

Need to render your file so you can composite it in another application such as an editing application? Be sure to choose a codec (compressor decompressor) that supports embedded alpha channels. Many users will prefer the animation codec as it provides a good balance of quality to size.

1. Click on the Output Module in the Render Queue
2. Choose Animation codec by clicking on the Format Options button and selecting it from the next window.
3. While there specify Millions + colors. Click OK.
4. The Channels menu should now say RGB + ALPHA and depth set to Millions of Colors +. If not, adjust them so they are properly set.
5. Your animation is likely pre-multiplied against Black so change it to set the color to Straight (Unmatted).
6. Click OK and Render when ready.
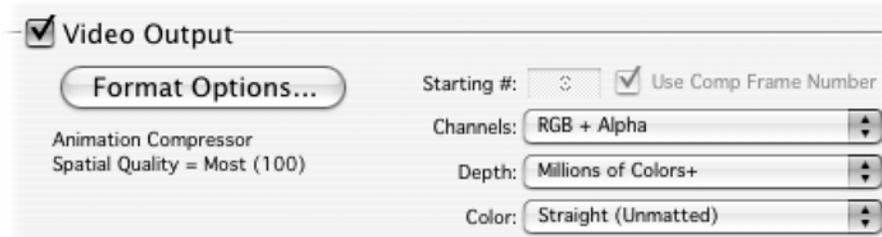
Need to Re-render?

For one reason or another, it always happens, the need to re-render. Perhaps a small tweak to a keyframe or a timing issue. Chances are while your animation may have needed refining, the render queue was perfect. Save yourself some time and Re-Queue that animation.

1. Select a previously rendered animation.
2. Press Command + Shift + D (Control + Shift + D) to duplicate the render item with the same settings and output name. This will rewrite over the previous file to the exact same destination.

3. Save your work, then click Render when ready to output.
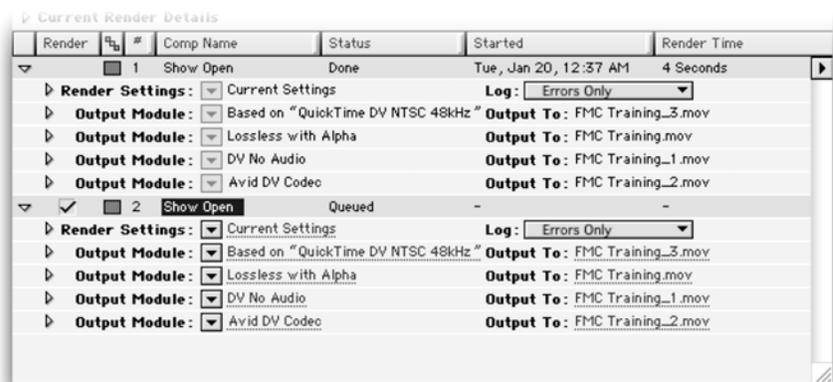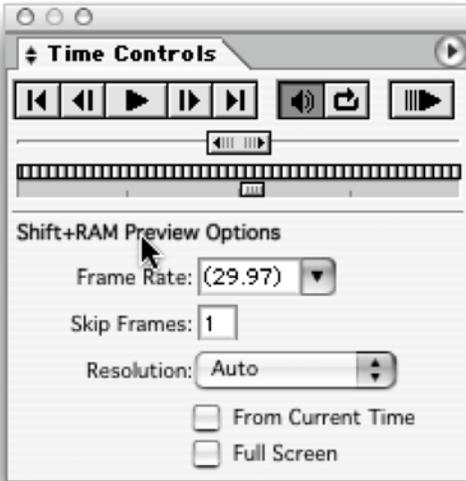
More RAM Previews

By now you've probably noticed that the importance of RAM previews. There is the standard one which you normally see in the Time Control Palette and can be invoked by pressing 0 on the numeric keypad.

The other RAM Preview controls can be accessed by click on the words "RAM Preview Options." This preview is usually a lower quality method, but can be configured to the user's preference. To launch this alternate preview, Shift + click on the Preview button or press Shift + 0 on the numeric keypad.

A Better Stop

Normally when you click Stop on an item in the render queue, it adds it to the bottom of the list and will pick up where it left off. That may be what you want, but often you intended to bust the render, tweak it, and re-render. To stop a render and re-queue it to begin at the beginning, hold down the Option (Alt) key when clicking Stop Render. This will avoid the pickup and add the item to be re-rendered from the start of the original output settings.
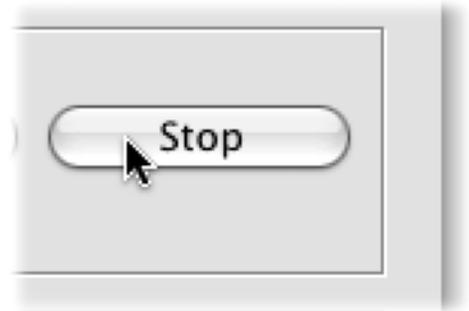
Network, O' Network

In theory network rendering is great, if you own AE Pro you can use multiple machines to get your project rendered faster. In practice the After Effects team could learn a thing or two by looking at more advanced Network Rendering engines (such as Shake). With that said, if you have multiple machines in your office (even a WiFi network or an Ethernet Crossover cable for two machines will work) you should try network rendering out. On the AE install disc you must install the Render Client onto other machines.

If DV is the Place to Be…

Need to output a QuickTime movie from AE for use in a DV based editing system (DV/DVCAM/DVCPRO)? Use the following settings when designing for NTSC DV video.

Render Settings

Quality	Best
Resolution	Full
Field Render	Lower Field First
Frame Rare	29.97

Output Template

Format	QuickTime Movie
Format Options/Codec	DV/DVCPRO – NTSC
Quality	Best
Channels	RGB
Depth	Millions of Colors
Color	Pre-multiplied
Audio	48.000 kHz
Size	16 Bit
Channels	Stereo

How to Gang Up a Render

It is possible to set up a render farm to render a single composition. The trick is that you have to write an Image Sequence. Here's how to pull it off:

1. Install the AE render engine on all the machines that will participate in network rendering. Make sure that any needed plug-ins or fonts are also installed on those machines.

2. You must create a watch folder on one of the systems (better yet a server) that can be seen by all others. You should name it AE Watch Folder.

3. On each node of the render farm you need to set the watch folder by choosing File>Watch Folder.

4. Create your project; add items to the render queue, set up render settings and output modules. Be sure to write an image sequence, not a movie file.

5. You should now ensure that all the source files are pulled together. Use the collect Files feature (File > Collect Files) to move a copy to the Watch Folder. You must make sure that all items in the Render Queue have output names before collecting files. Then select Enable Watch Folder Render. You will also want to select the Change Render Output To option so the output directory is mapped to the watch folder.

6. Make sure that all items are set to Skip Existing Files (it's a Render Settings option). This way the render nodes will skip existing frames and go to the next.

7. You can monitor the progress through a web browser (sophisticated we agree). After Effects will generate HTML pages and place them in the Watch folder. Navigate to that folder and open the HTML page. You can click refresh to update the page periodically.
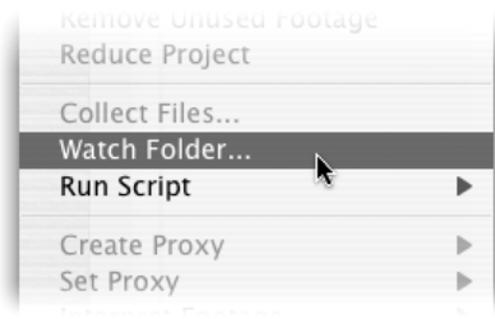
After Thoughts

After Effects offers you a powerful feature called Post-Render Actions. These allow you to choose from a list of pre-defined actions that you'd like to happen after the file is rendered.

1. Choose Composition>Pre-render or flip down the triangle next to the Output Module of an existing item in the render queue.
2. Choose one of the following Post-Render Actions
    *   **None –** Does Nothing (the default)
    *   **Import –** Adds the rendered file into the project window when rendering is complete
    *   **Import & Replace Usage –** Imports the file into the project and replaces usage for specified items. You determine which files will be replaced via the pickwhip. We find this most useful to replace precompositions that appear in multiple comps (such as the motion background in a group of show bumpers).
    *   **Set Proxy –** Allows you to use the rendered file as a proxy for a specified project item (again use the pickwhip). This will speed up previews.
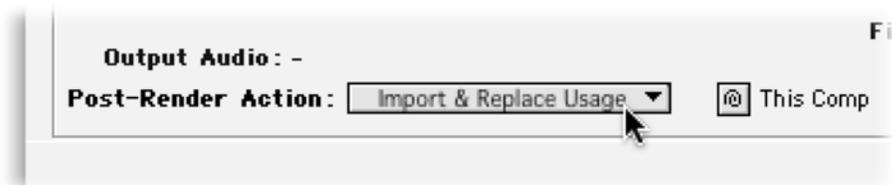
Instructor: Richard Harrington

Richard Harrington is a certified Project Management
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