

SMEDGE

# Using Smedge with After Effects

Smedge 2024

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# Introduction

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After Effects from version 6.0 onward has included the capability to be controlled by a command line. This allows it to be controlled by automated render farm management software, like Smedge.

These instructions are designed to get you up and running with After Effects with Smedge. They are designed for the current version of Smedge. Earlier versions work similarly but have subtle differences in the GUI operations described below. These instructions have been tested with After Effects 7, CS and CC, and should work with any version of After effects from 6.0 onward.

For Smedge installation instructions, see the *Installation Guide* included in the Smedge distribution.

We recommend configuring a file server to use for storing your projects and associated image and render files. Configuring a file server is beyond the scope of this manual. There are many resources on the Internet for setting up file servers, or you can consult an IT professional or hardware reseller to configure your file server and networking optimally for your needs and budget.

# Configuring SmedgeEngine to render After Effects

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Follow these steps to prepare your Smedge render farm for controlling After Effects renders:

1. Set up and license After Effects on each machine.
  - You can use either a Full Installation or a Render Engine installation
  - Make sure that any plug-ins and fonts that you require have also been installed and licensed on every render engine.
2. Install and run Smedge on each machine.
3. Generally, Smedge will find the latest version of After Effects installed and use that for rendering by default.
  - If you need to configure which version of AE to use, there are multiple options, including setting the “Path to the Executable” field in a job, setting the path in the Engine product options, updating the Product default on the Master, or even duplicating the After Effects product definition so you can support multiple versions of AE at the same time.

See the *User Manual* for more information about configuring Jobs and Engines in the GUI, and the *Administrator Manual* for more information about configuring products.

4. Make sure your After Effects project files and all referenced source content is available using the same paths on every machine.
  - You can set up path translations between operating systems if you want to support both Windows and Mac at the same time. Be aware there can be subtle rendering differences between the operating systems, especially using fonts.

See the *Installation Guide* for simple instructions for setting up path translations.

5. If you want to configure Pools, use the menu command **Engine > Configure Pools...**
  - Every Engine can belong to zero or more Pools. The Engine orders these pools. Work from Jobs assigned to a Pool that is a higher priority for this engine will get distributed to this engine before work from any Jobs assigned to Pools that are lower in the priority list.

Pool distribution is done before priority distribution. This means that a Job with a higher **Priority** may not actually get priority on this machine if that Job is assigned to a **Pool** that is a lower priority for this engine. This is useful to give different projects priority on machines, so that every project gets some workers.

Note that Pool prioritization can be disabled as a Master option, in the Configure Master dialog box in SmedgeGui.

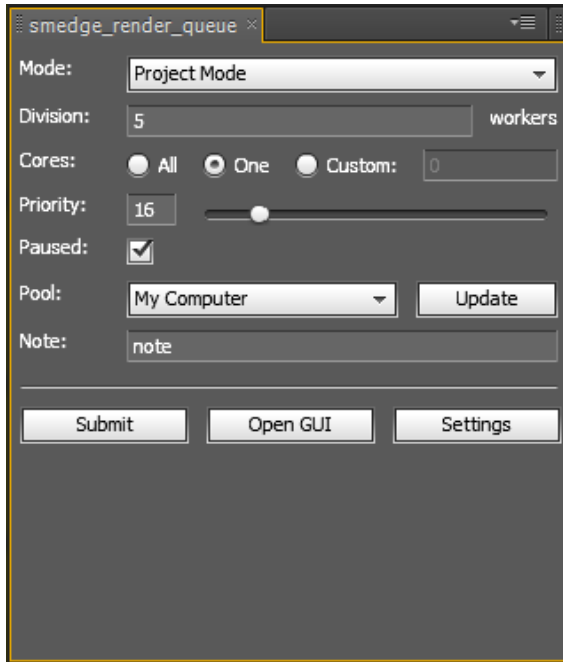
# Preparing your After Effects Project for Rendering

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Create your AE Project. Queue all of the renders you want to queue, and set up all of the queued render settings normally.

- ✓ Make sure to only render image file sequences when rendering on a network. Rendering movie files will not work correctly. Also, make sure to check the **Use Comp Frame Number** check box in the Output Module Settings.
- ✓ Make sure that the source and destination image paths in your project are capable of being accessed by the render engines. Paths relative to the local hard drive may have unexpected results.
- ✓ If you have checked the **Skip Existing Frames** check box in the Render Settings dialog, this option cannot be overridden at render time from the command line. This means that your render will not overwrite any previously rendered image files in the final render location when you start the job. See the [Alternate Manual Method](#) for how you can use this as part of your work flow.
- ✓ If you have checked the **Use Storage Overflow** in the Render Settings dialog, After Effects may report successful renders even when it fails, for example from a full disk. We generally recommend leaving this unchecked.
- ✓ Save the AE Project in a path that can be accessed by the render engines. We recommend using a file server for storing your projects and the rendered images. Make sure that every Engine can access the file server in the same manner.
- ✓ Smedge does not copy either the After Effects project or any of the source images/clips. All files must be accessible through the same path from every Engine.
- ✓ Note that using movie files as source images may slow down your rendering, depending on how large the movie file is, and what format it is. In general, we recommend using image sequences for source clips, because only the frames actually needed will be loaded, which can speed up rendering. After Effects also has known issues when you use Quicktime movies as sources and try to render on a farm.
- ✓ AE sometimes can ignore your Output Module settings. This seems to happen most if you customize the settings. We strongly recommend setting up a preset with your favored settings, and always using it, without customizing. This seems to reduce the occurrence of this AE bug.

# Automatic Submission



Be sure to have set up your After Effects project as described in [Preparing your After Effects Project for Rendering](#).

Use the **smedgeRender\_AE.jsx** script to automatically submit every queued render in your After Effects project as a new Job in Smedge. This script is located in the Utilities folder of the Smedge distribution. You can execute the script from the After Effects interface by selecting **File > Scripts > Run Script File...**. You can also install the script to be available by default by putting it into your scripts folder.

The script is capable of creating a graphical panel to allow you some control over how it works. In order for this to work, you should put the script in the “ScriptUI Panels” folder in your Scripts folder. Then the script will appear in the Window menu and you can select it there to show the dockable panel.

The script allows you to configure the path to the Submit executable if you need. Click on the “Settings” button to make that work. The script lets you choose between submitting in “Comp mode”, which automates the [Manual Submission](#) method below, or submitting in “Project mode” which automates the [Alternate Submission](#) method below.

You can use the interface to download the Pools from the Master, and then select which pool you would like to submit the job to. Note that this script can make use of the new “My Machine” pool to submit to your local machine without having to create a custom pool or know your machine's Smedge ID.

You can also use the “Open GUI” button to open the SmedgeGui component application.

**Note:** Because this script creates a dockable graphical interface, it requires After Effects CS3 or later. The basic submission command will work with any version of AE that supports command line rendering (6.0+), and can be modified for use with older versions if you need.

# Manual Submission

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Be sure to have set up your After Effects project as described in [Preparing your After Effects Project for Rendering](#).

1. In SmedgeGui, select **Job > New Job**
2. Select **After Effects** as the **Product**.
3. In the *Type Specific Parameters* section, set the **Project File**. You can use the browse button to find it.
  - When you select the project file, Smedge automatically generates a job name with the project filename. This will overwrite anything you may have previously typed into the **Name** field. You can disable this automatic detection in the SmedgeGui Options dialog.
  - Remember to browse to the network location, not the location on a local hard drive.
4. Enter the frame range of the comp in the **Range** field.
5. Set the number of frames that each render engine will render at one time in the **Packet Size** field.
6. Set the name of the comp you want to render in the **Comp Name** field. You must create a separate Smedge Job for every comp in a project. Smedge's Find and Replace system makes this easy. See below.
  - When you change the comp name, Smedge automatically generates a job name with the project file and the comp name together. This will overwrite anything you may have previously typed into the **Name** field. You can disable this automatic detection in the SmedgeGui Options dialog.
  - If you do not type the comp name, After Effects will ignore the frame range and packet size parameters that Smedge supplies. Instead, it will try to render every frame from every comp in the project's render queue. This may cause excessive re-rendering and slow operation. It is possible to use Smedge to render without supplying the comp name in an efficient manner. See the [Alternate Manual Method](#) below.
7. Adjust any of the settings in the *Basic Job Info* area, if you wish. You can adjust the details of how After Effects will operate with the **Extra Parameter** field, if you wish, but this is not recommended unless you know how the aerender program operates. Leave the other tabs in the Submit Job window in their default state unless you have a specific reason to adjust them, or are instructed to by Überware technical support.
  - Some *Advanced Parameters* that may come in handy:
    - Stagger Start** is useful if your network is slow and you have large project files. This will have Smedge automatically stagger the actual render start in order to ease network traffic
    - Job Usage Limit** will allow you to limit the job from taking up all available nodes. For instance, if you have a long render that is a low priority, set it to use only 2 machines at a time, leaving the other machines available for other more pressing work that may come up. You can accomplish more sophisticated queuing with Pools.

**Overtime Kill Ratio** if you have a machine that seems to hang sometimes, this will catch it and restart the work if it goes over this many times the average work time for the job. If you have a project that has frame render times that vary widely, or if you have a wide variety of speed machines in your network, you may need to increase this number.

**Image Format** allows you to specify ahead of time what the expected output image format is. This field uses “printf” style formatting like “/path/to/a/file.%04d.exr”. If you want to list multiple formats, use a semicolon to separate them. Specifying the formats ahead of time ensures that the Smedge validation system will work, even on the first work unit from a job, before any output has been seen from the renderer that could be used to detect the file format automatically.

- What *Event Commands* do

You can attach a command line that will execute at specific points during the Smedge work processing, on both the Engine and the Master. These command lines can use parameter values from the Job or Work being processed, and substitute those values into the command line when it is executed. This is useful if you want to save logs of your network usage or work operations, or can be used to perform pre- or post-processing of your jobs.

- What the *Custom Pool* does

You can single out machines here that will be included or excluded from the Job. Note that if you are using the “Whole System” feature (which is on by default) and have selected “Whole System” as the Pool for the job all machines will automatically be included for work, so anything selected in the *Include Engines* list will be ignored. You may find this tab useful if you have a machine that is crashing with a specific Project. Pools provide more sophisticated control over distribution.

If your AE Project has only 1 comp to render, you are done. Click **Submit and Close** to submit the Job to Smedge.

If you want to submit other comps from the same project file, click the **Submit Copy** button to enter the Job as it is shown. Now you can adjust any settings you need for the next comp to render from this project.

If you have more than one setting that is changing in the same manner, you can use the Find and Replace feature by clicking the **Replace** button. You can then put in the text you want find, and what you want to replace it with. Smedge will then perform the replacement in every field on every tab. Click **Submit Copy** again to submit the second job, and repeat for every comp.

Alternatively, you can click the **Copy** button to open up a second Submit Job window with all the same settings. Adjust this dialog, and press **Copy** as many times as needed, then click **Submit and Close** on each one.



New Job: sc15\_EndTag\_v02 (AfterEffects)

Basic Info | Render Overrides | Advanced Info \* | Event Commands | Custom Pool

Type: AfterEffects

Filter:

Basic Info

Name: sc15\_EndTag\_v02: FINAL COMP

Note: Animation test for character motion approval

Current Status

Status: Pending

Resource Allocation

CPU	One per Engine	0
RAM	None	-1
GPU	None	-1

Job Prioritization

Priority: 50

Pool: Whole System

Wait For Job: None

Wait For Whole Job: Whole Job

Render

Project File: J:\Projects\Lincoln\sc15\_EndTag\_v02.aep

Distribution

Range To Process: 1-360

Packet Size: 25

After Effects Job Settings

Comp Name: FINAL COMP

Submit and Close

Submit

Submit Copy

Cancel

Repeat...

Load from File

Save to File

Copy

Replace...

Reset to Default

Save as Default

A sample Submit Job window for submitting a comp from an After Effects project to Smedge. This will render a 360 frame comp named “FINAL COMP” in packets of 25 frames at a time on each Engine.

# Alternate Manual Method

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As noted in Step 6 of the [Manual Submission](#) instructions, leaving the comp name field blank will cause After Effects to render every frame from every render in the project's render queue. If you are trying to use packet style rendering like the way that most 3D renderers work, you must set the comp name. However, it is possible to efficiently utilize a render farm without supplying the comp name. This can make submitting AE projects to Smedge much simpler, because you can just submit a single job for the whole project.

This method works well if your Engines will be used only for rendering After Effects. If you are also rendering other products, this method may not work as efficiently, but it will not massively over-render your project. Instead, it may be possible for a job to be fully rendered before Smedge is able to determine that it is complete.

1. Be sure to have set up your After Effects project as described in [Preparing your After Effects Project for Rendering](#).
  - Make sure to check the **Skip Existing Frames** check box in the Render Settings dialog box for each queued render.
2. Follow Steps 1 through 3 of the [Manual Submission](#) instructions.
3. For the **Range**, enter a range from 1 through the number of machines you want to work on this render at one time.
  - For example, if you have a farm of 8 machines, you may want to use the range “1-8” so that all 8 machines will work on every job at the same time.
4. For the **Packet Size** enter 1.
5. Leave the **Comp Name** blank.
6. Make any other adjustments to the Job that you want. See the Step 7 of the [Manual Submission](#) instructions for more details.

You only need to submit a single Smedge Job for every After Effects project. As soon as a machine starts working on the project, it will just start rendering from the beginning. It will skip over any existing frame files. Because it creates a placeholder file when it starts rendering, the next machine will think the frame is finished, and skip to the next frame while the first machine works on that first frame.

Smedge will assign 1 unit of the 8 total units from the **Range** parameter to each Engine. If nothing is currently running on the farm, all Engines will start at more or less the same time, and will evenly divide the frames between them automatically, so they should also all finish at more or less the same time.

Note that Smedge will not consider the Job as finished until all 8 workers have successfully finished from it. If one of your machines is offline, then the 7 remaining machines will have finished rendering every frame before the 8<sup>th</sup> packet could be sent to work. One of the Engines would then pick up this 8<sup>th</sup> worker, open the project, and check every frame from every queued render. This may not be a long process, but during this period, this machine will be unable to do any other more useful work, and the Job will not be reported as finished until it has finished checking the frames, even though every frame is already rendered.

That is why it is important **not** to use the actual frame range you want to render when you are using this technique. Using the frame range could lead to a whole lot of wasted time as each machine checked the rendered frames over and over. Think of the “range” as the “range of machines to utilize” instead.

Besides the obvious advantage of not having to submit a Job for every comp you have queued to render, another advantage of this method is that each queued render can be a different frame count. Because each worker will try to render every frame of every queued render, the individual render settings are irrelevant to Smedge.

Note that because this method uses the **Skip Existing Frames** functionality of After Effects, you cannot simply re-submit the Job in Smedge if you want to render again. You need to either move or delete the files created by the last render of the project, or update either the project or the Job parameters to save the files into a new location.

New Job: sc15\_EndTag\_v02 (AfterEffects)

Basic Info   Render Overrides   Advanced Info \*   Event Commands   Custom Pool

Type: AfterEffects

Filter:

*Basic Info*

Name: sc15\_EndTag\_v02

Note: Animation test for character motion approval

*Current Status*

Status: Pending

*Resource Allocation*

CPU	One per Engine	0
RAM	None	-1
GPU	None	-1

*Job Prioritization*

Priority: 50

Pool: Whole System

Wait For Job: None

Wait For Whole Job: Whole Job

*Render*

Project File: J:\Projects\Lincoln\sc15\_EndTag\_v02.aep

*Distribution*

Range To Process: 1-8

Packet Size: 1

*After Effects Job Settings*

Comp Name:

Submit and Close

Submit

Submit Copy

Cancel

Repeat...

Load from File

Save to File

Copy

Replace...

Reset to Default

Save as Default

A sample Submit Job window for using 8 Engines to render every frame of every comp queued to render in an After Effects project. Note that the **Range to Process** is unrelated to the frame range of the comp, and is instead related to the number of Engines to use for render. Each comp queued to render in the project could even have a different length.

# After Effects Error Detection in Smedge

After Effects can be temperamental to run in a large networked production environment, due to the combination of the type of source content files often used (movie files are especially challenging on a distributed AE farm), plug-ins and fonts used by the project (often at the mercy of third parties), and issues related to AE's history as a single user product. Smedge provides a lot of settings to help automatically recover from many types of hangs, crashes and failures, and these have been tuned for generate AE rendering.

These are the variables that have been used and their current settings. You can change these values as Engine Product Options or in the Advance Info tab for individual jobs (as well as through command-line tools).

StartupMessage	A message indicating that AE has finished loading and has started rendering. The default looks for a standard startup message from AE reporting that rendering has started.	Starting composition
StartupMessageTimeout	How long (in seconds) for AE to output that message before Smedge assumes there was a start-up failure. The default gives 2 minutes for AE to load itself and the project.	120
SuccessMessage	A message indicting that the last frame has successfully finished rendering. The default determines the last expected frame for the packet using Smedge variable substitution.	\$(ActualPacketSize):
SuccessMessageTimeout	How long (in seconds) after detecting the SuccessMessage for the render process to complete before it is terminated. Default gives AE 10 seconds, but work is still successful even if the process is killed after this timeout elapses.	10

You may need to adjust or disable these tests for certain types of projects or adjust them for certain networks. Please contact [support@uberware.net](mailto:support@uberware.net) if you have any questions about the After Effects options or experience issues getting AE working at your site.

# Optional SmedgeGui Configuration

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Smedge can automatically detect the filenames of the image files rendered from After Effects. If you have an image sequence viewing program installed on your workstation, you can configure SmedgeGui to use it to view the images and image sequences rendered by After Effects Jobs.

1. Select **System > SmedgeGui Options...**
2. In the *Product Options* area, select “AfterEffects” in the **Product** selector.
3. You can configure the command line to start the image viewer for both single frames and for sequences. Smedge uses a variable substitution system to access the Job parameters. See the Parameters chapter in the Administrator Manual for more information on Parameters.

If you use Autodesk Maya, and want to use fcheck, the settings can be copied from the Maya Product, which is configured to use fcheck for both single frames and sequences. If you use another viewer program, you can customize how Smedge will access it by looking at that program’s command line interface.

For single frame viewing, you use the parameter string `$(Note.Enquote)`.

For sequence viewing, you can use the parameter name `$(SequenceName.Enquote)` if you need Smedge to generate a sequence formatting string for the image viewer. The **Sequence Format Specifier** is the string that is substituted for the frame numbers, and the you can specify if the format specifier must be repeated for zero padding by using the **Repeat Format Specifier** option.

To get the frame range of the sequence, use the `$(Range)` parameter to get the range formatted as *start-end*, or you can access the start and end values individually by using the appropriate command version: `$(Range.Start)` or `$(Range.End)`

4. Press **OK**.

When your Jobs render, Smedge can automatically detect the image filenames as they are created. It uses this information to test that the frames are rendering completely, but you can also now use the commands to view the frame or the frame sequence available in the Job and Work menus. This is also used to validate that all expected frames from a job have been completed.