



Qube Rendering at CCS

A guide to rendering using the Qube Renderfarm

Table of Contents

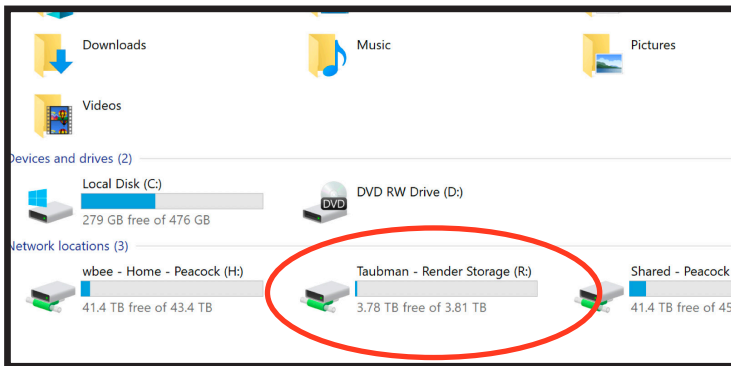
Maya /Qube Renderfarm instructions	4
Adobe After Effects /Qube Renderfarm instructions	10
VRED /Qube Renderfarm instructions	15
Important Points to follow /Qube Renderfarm	22
Using the Qube UI	23

Maya/Qube RenderFarm Instructions

In order for your Maya Project to render successfully through the Qube RenderFarm you must follow the 'Maya Project Structure'.

This means that you must create a 'New Maya Project' when starting a new project. It is important that you place your scenes in the 'Scenes' folder within this Maya project folder, textures in the "SourceImages" folder, and so on. Please use short names and underscores in place of spaces when naming your folders, files, projects, textures, etc.

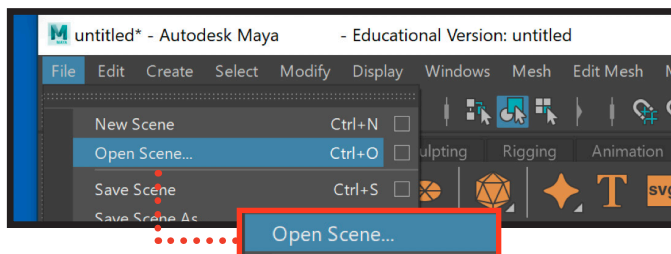
Open "This PC" - open the "Render Storage (R:)" volume.



In the (R:) volume, select File – New Folder. Rename this folder using your CCS username. (ex. Jdoe or Jdoe2)

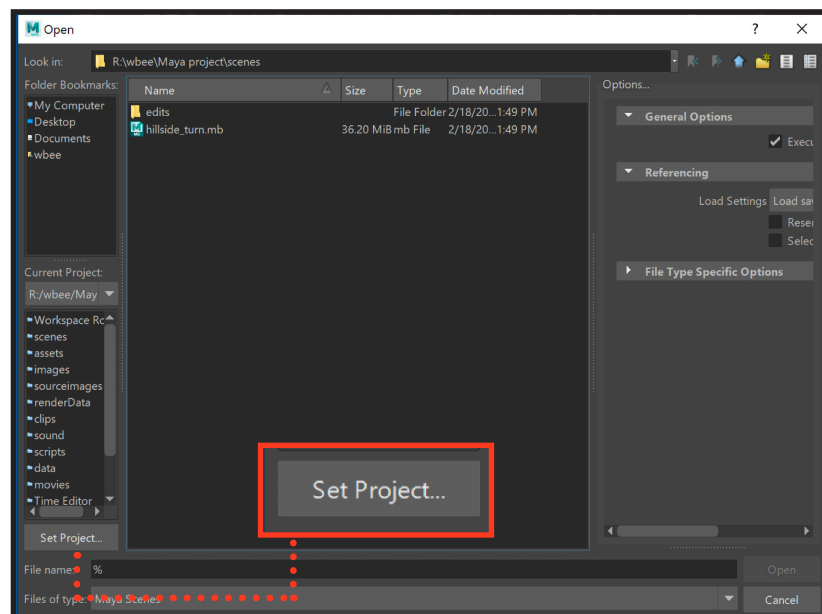
Copy your complete project folder into the folder you just made with your CCS username.

Once your project folder is done copying, disconnect your external drive, or any other external media source.

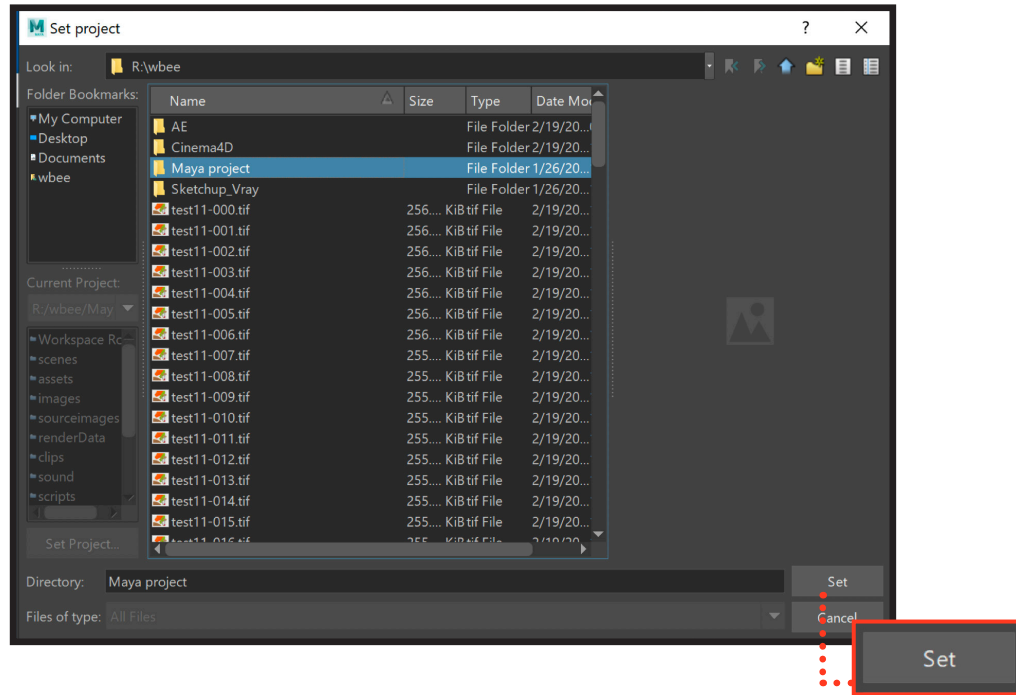


Open Maya. Select 'File', and select 'Open Scene'.

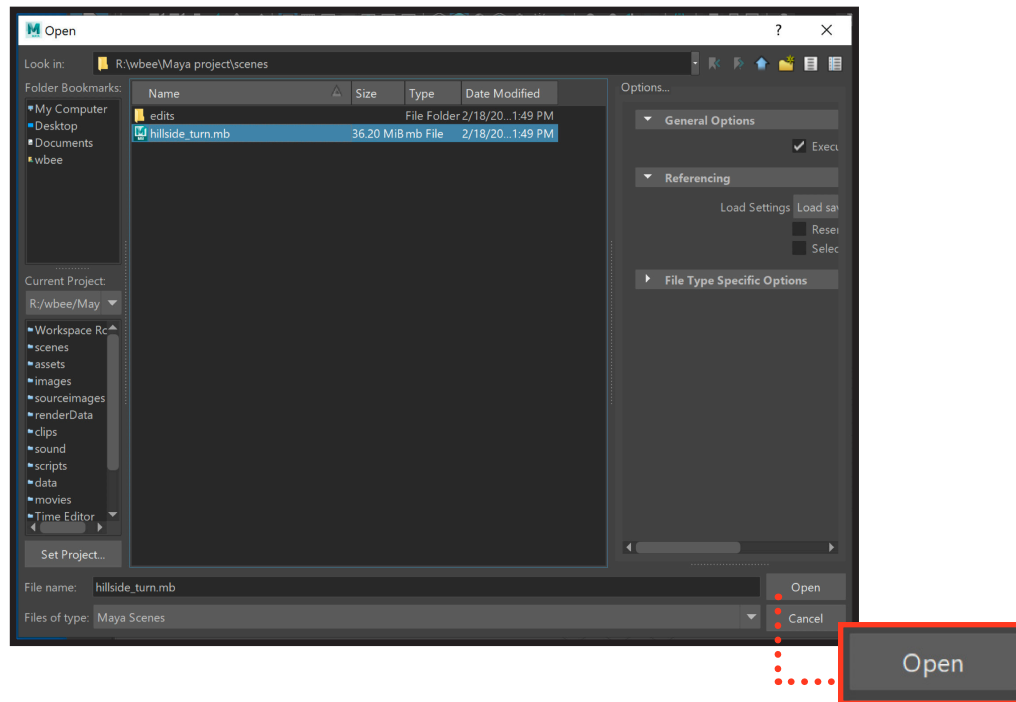
Select 'Set Project' and navigate to your 'Project Folder' on the (R:) directory.



Highlight your
'Project Folder'
and click on 'Set'.



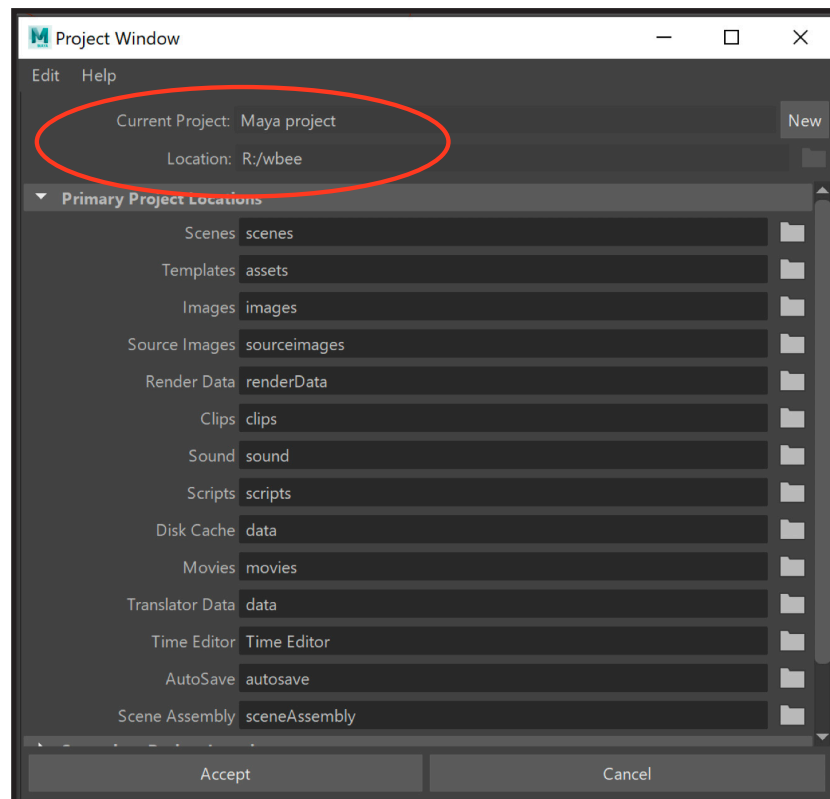
Open the scene
that you want to
render.



Best Practice: Following the previous instructions is considered a “Best Practice” standard. Opening Maya and setting your project folder first before opening your scene file (rather than double-clicking on your scene file to open Maya) ensures that your project directory will be set to the (R:) volume.

Once your scene has opened, select 'File' – 'Project Window' and check to see that your project settings are correct.

The 'Current Project' field should be set to the name of your 'Project Folder' and the 'Location' field should be set to 'R:/YourUsername'.

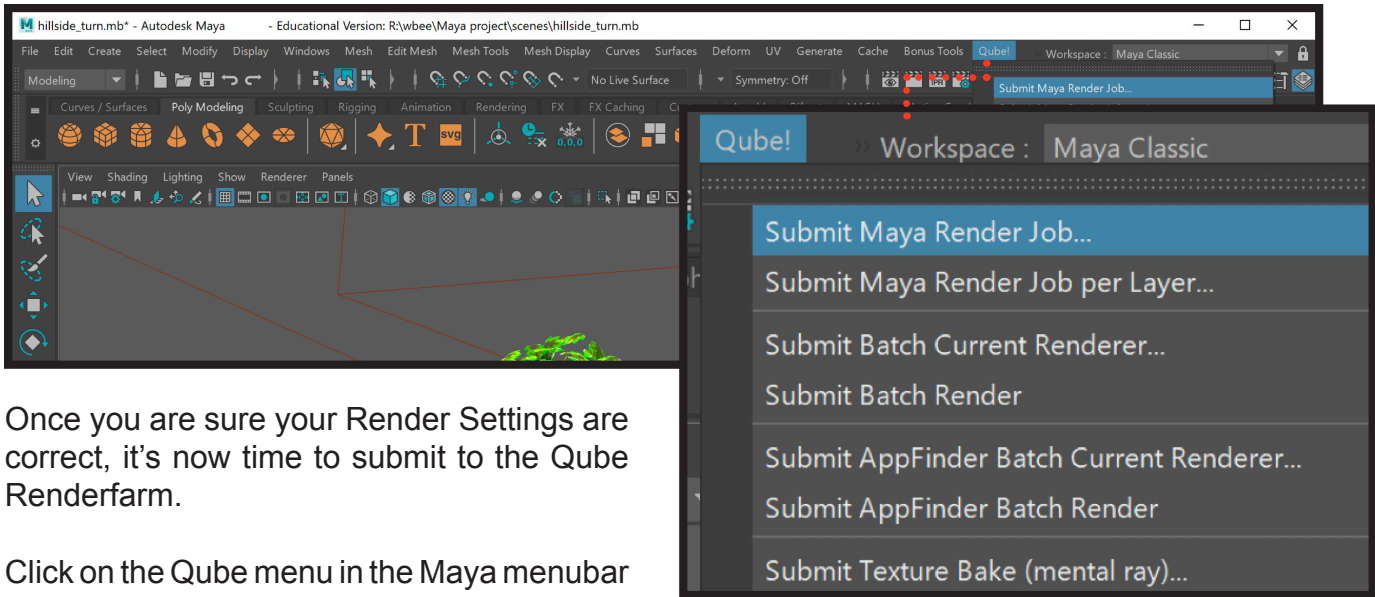


Clean your scene before submitting to the Qube Renderfarm

- Maya's render.exe and batchrender.exe programs do NOT like Unknown or Unused nodes anywhere in your scene. A good method to properly clean a scene is to first IMPORT ALL REFERENCES. While the render farm supports referencing, if your references are not optimized, the render will likely fail. It is easier to import everything then clean the scene, then to go to all your references individually and clean them one at a time.
- After your references are imported, go to your Hypershade and Delete Unused Nodes. After that, clean your scene using File > Optimize Scene Size. Be warned that the Optimize Scene Size function can destroy your scene if you are using customized data structures if this happens simply undo the operation and go through each Optimize function until you eliminate the one that breaks your scene.
- Delete anything in your scene that is not contributing to the render. The farm DOES NOT SUPPORT LIVE DYNAMICS, remove them or Cache / bake everything that is animated with a dynamics solution. The farm will fail with scenes that have references that are themselves referenced (i.e. do NOT build a renderable scene with more than ONE level of referencing!). Beware of overly long (256 character) namespaces. No Spaces in Filenames or file paths!
- We highly recommend that you use the caching technologies that are included with Maya. The two major types are Autodesk Geocache and Alembic Cache. Used properly, either of these caching methods will help to cut down on scene errors, simplify your scene and will also speed up both your viewport and rendering performance. Network rendering works better when you give the renderer less to process. Live rigs, histories and references should be eliminated from the scenes that you wish to submit to render; caching is a way to streamline this process.

Submitting your job to the Qube Renderfarm

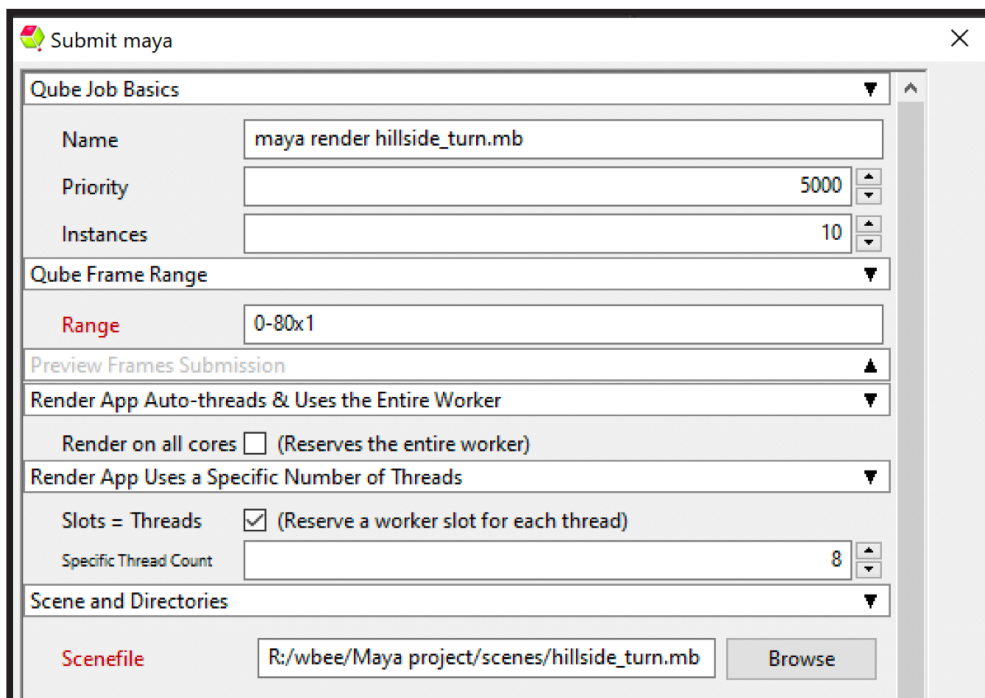
When you are ready to submit your job to the renderfarm, please make sure your Maya Project Structure has been properly set, your Render Globals have been set, and the camera you want rendered checked 'renderable' in the output settings. Make sure all your textures and materials are pointing to your Project on the R:/ volume.

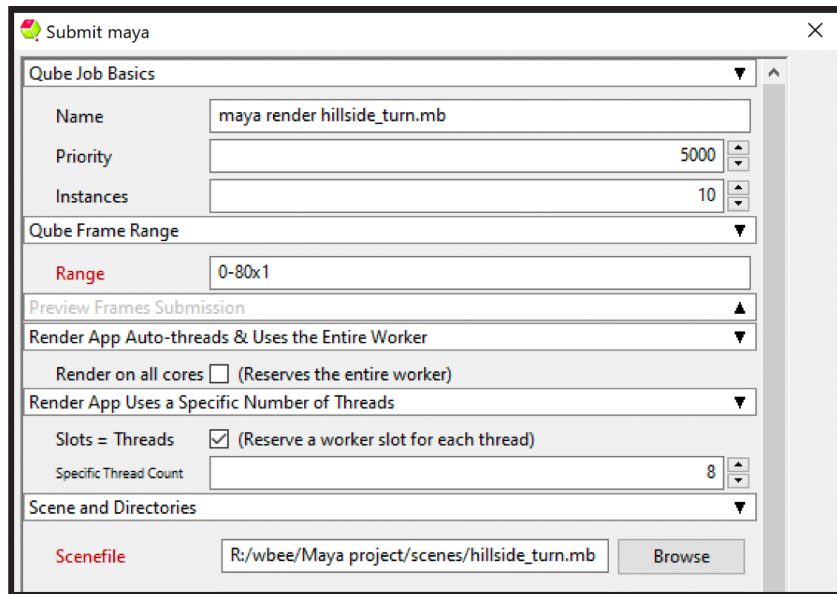


Once you are sure your Render Settings are correct, it's now time to submit to the Qube Renderfarm.

Click on the Qube menu in the Maya menubar and select "Submit Maya Render Job..."

The Qube "Submit maya" window will open.





Notice in the Qube “Submit maya” window that all your project settings have been automatically populated in the appropriate fields.

If these settings are not correct, **DO NOT CHANGE THE SETTINGS HERE**. Close out the Qube “Submit maya” window and make your changes in your “Render Settings”; then save and reopen the Qube “Submit maya” window.

If your settings are all correct, click **Submit**.

Your job has now been submitted to the Qube Renderfarm. The **Submit maya** window will automatically close, and a “job ID” will come up. Record this number for future reference.

The Qube Renderfarm manages the different render jobs one at a time. Once you submit a job, the Renderfarm puts it in a queue and begins rendering it once the last job is complete.

You can see the jobs in the queue by opening the **Qube UI** shortcut located in the **Start / Windows** menu.

To learn about **Qube UI**, go to the **Using the Qube UI** section.

Important: Once your render job is completed, please clear out your render files from the R: drive within 48 hours.

If you have any questions regarding the Renderfarm, contact the Help Desk at helpdesk@collegeforcreativestudies.edu.

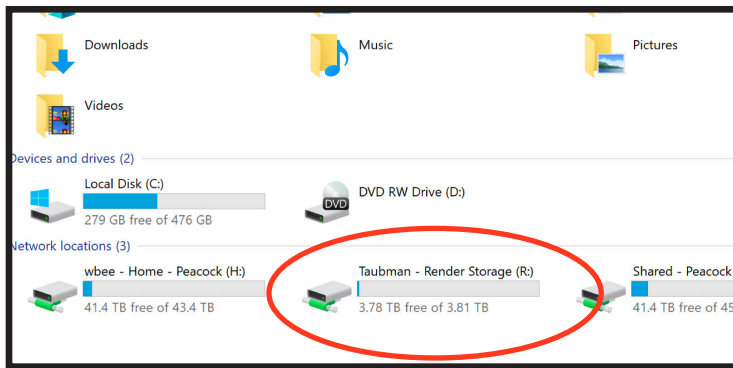
General guidelines for Maya scene submission

- Optimize your scenes regularly. If you've optimized it, but then worked on it again... optimize it again. Caching helps with this.
- Simplify your scene however you can. Caching helps a lot with this.
- If there is something in your scene that is NOT contributing to a render (such as Hidden layers / geometry) then please DELETE IT. Hiding or setting assets to 'nonrenderable' does nothing for optimization. If you don't need it in the render, get rid of it for that scene.
- Save revisions of your scene. Save a "render" version that's been cached, baked and optimized, and a "live" version for continued editing.
- Check your RAM levels when the scene has been loaded and with a rendered frame in the framebuffer.
- No live dynamics. Cache / bake everything that is animated with a dynamics solution.
- Make sure your scene can load & render without having to load it in via openPipeline. OpenPipeline is a great tool, but you have to be sure that the scene can load without it being resident. Before you send a scene to render make sure it can load in via Maya menu: file>open.
- Did you set proper render settings? Check the render directory, file type, frame padding, renderable camera, resolution and renderable layers.
- No spaces in folder names or file names!
- Each shot is unique. Some shots need different render settings. What works great for one shot may not necessarily work for another shot. Don't just "set it and forget it".
- Don't set reflections to be too deep. Don't make mirrors that reflect mirrors that refract through glass that reflect off mirrors, etc.
- Don't reference into references into references. You will end up creating an unrenderable and unrepairable scene if you do this.

General guidelines for Arnold

- Use Arnold's subdivision settings. Look in the object attributes for "Arnold" and then tweak "iterations". Don't crank this up past 4. These settings have a direct link to render times and RAM usage. Too high a setting will crash the renderfarm.
- Under Textures: Uncheck "Auto convert textures to TX"
- Use only the built-in Arnold shaders. If you've found a third-party shader, we can't support it at this time.
- The Sampling and Ray Depth settings are the core of Arnold and are directly related to render times. Use them wisely and carefully. Optimizing these settings on a shot-by-shot basis will greatly improve your efficiency. Start all your shots at value 1 for all sampling settings and only increase them slowly, one by one with a test render for each iteration. Increase AA samples before the other samples. If you can get a good image with low settings, use low settings. Don't increase settings unless you absolutely need to.
- Using lots of AOV's eats up RAM. Being frugal here will pay off in shorter renders. Select what you will actually USE.
- IN Arnold, selecting "tiled" for EXRs will help with RAM usage.

Adobe After Effects/Qube RenderFarm Instructions



Open “This PC” - open the “Render Storage (R:)” volume.

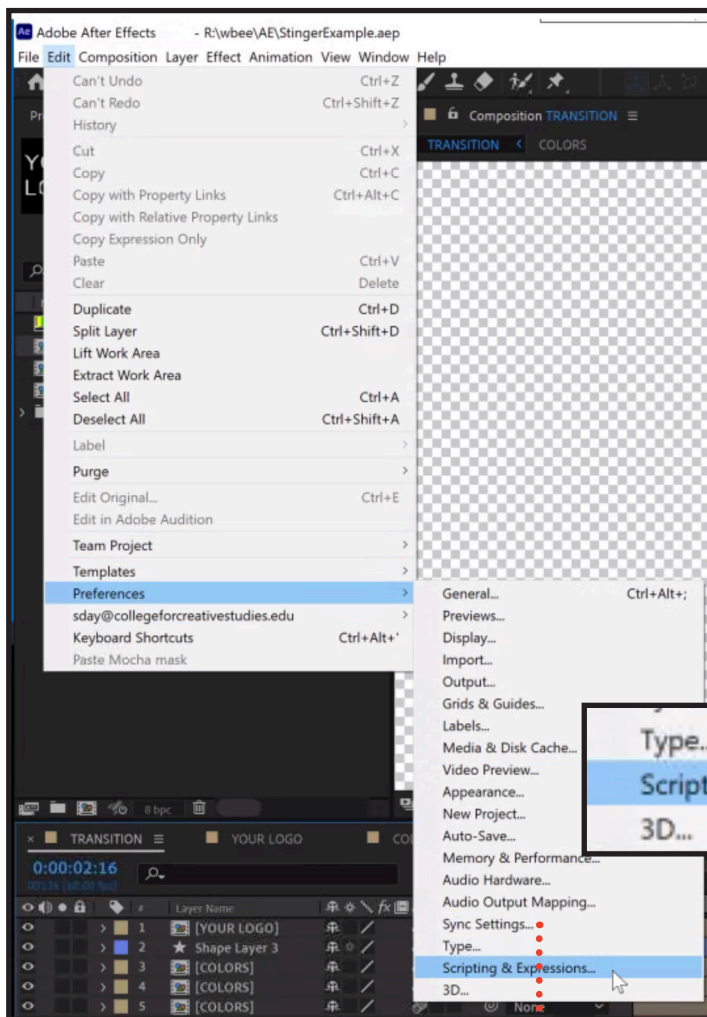
Right-click and select **New --> Folder**. Rename this folder using your CCS username. (ex. Jdoe or Jdoe2).

Copy your complete project folder into the folder you just made with your CCS username.

Once your project folder is done copying, disconnect your external drive, or any other external media source.

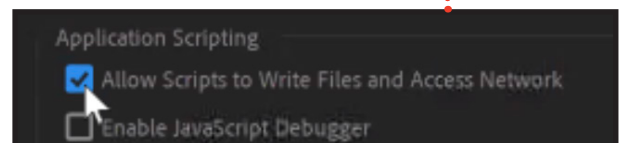
Open **Adobe After Effects**. Select **File**, and select **Open Project**.

Navigate to your project folder on the (R:) directory, and open your After Effects file.



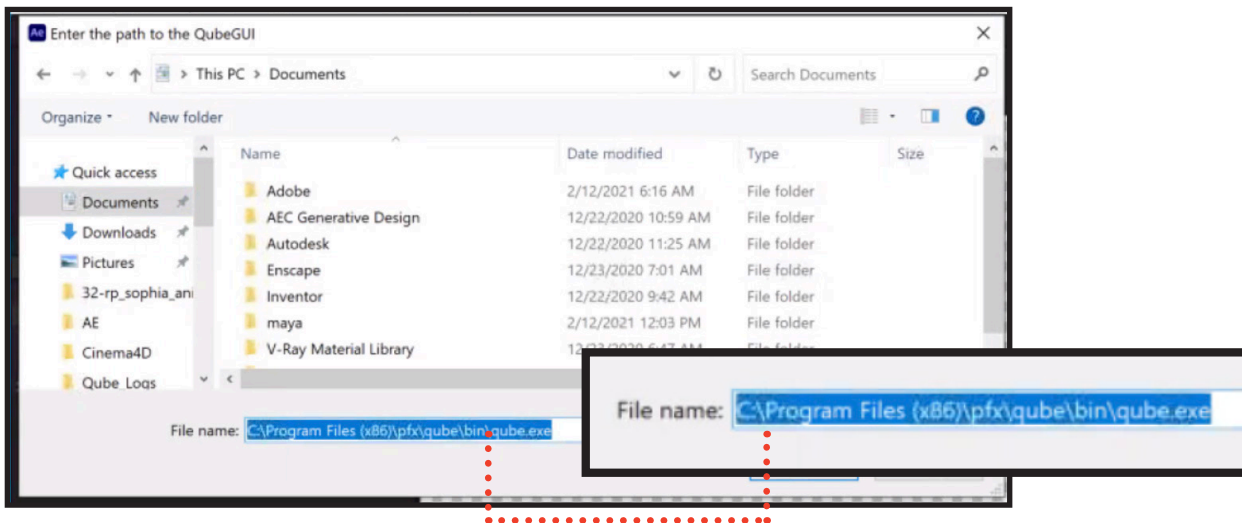
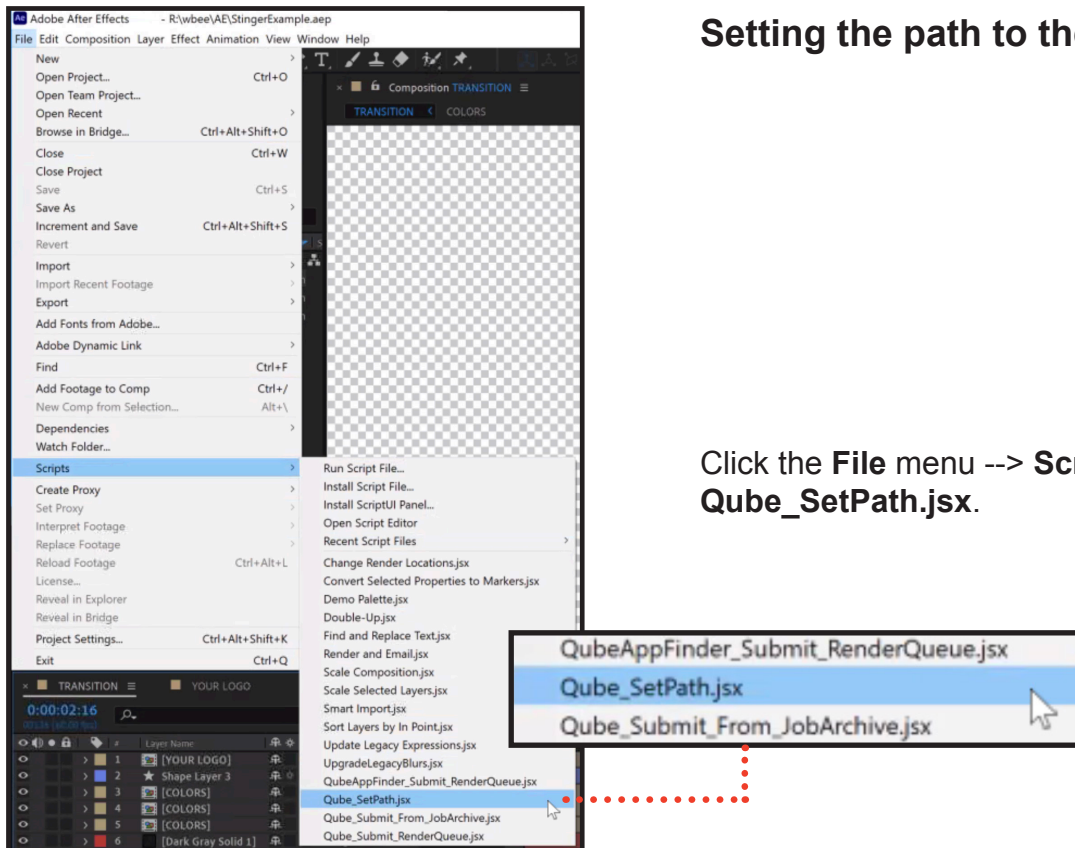
Click the **Edit** menu --> **Preferences** --> **Scripting & Expressions**.

Click the checkbox next to **Allow Scripts to Write Files and Access Network**, then click **OK**.



Setting the path to the Qube GUI

Click the **File** menu --> **Scripts** --> **Qube_SetPath.jsx**.

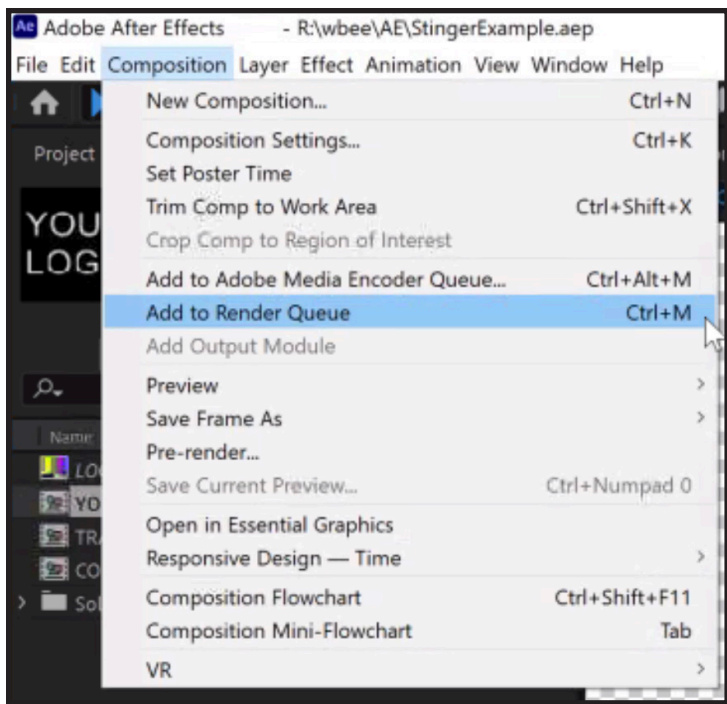


Enter the following text exactly **OR** copy and paste it from this guide:

C:\Program Files (x86)\pfx\qube\bin\qube.exe

Click **OK**. It will confirm with a window confirming that the Qube path has been set.





Add to Render Queue

In your project window, select the composition you want to render, then click the **Composition** menu --> **Add to Render Queue**.

The **Render Queue** window will pop up.

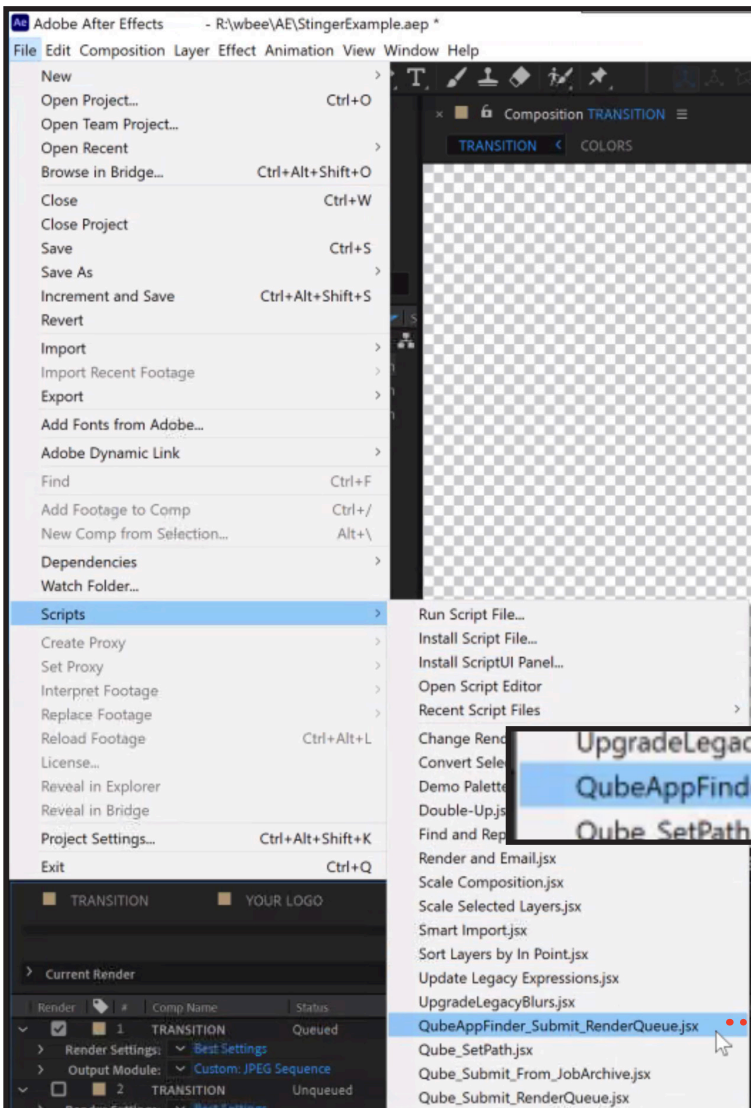
The composition should now be added in the **Render Queue** window of your project.

Ensure that the **Render** checkbox on the left of the composition you want rendered is **checked**, and all other compositions that you don't want rendered are **not checked**.

Double-check that all of your render settings are correct.

Important Note: Qube will not render After Effects '.tif' files.

When you're ready to submit the job, click the **File** menu --> **Scripts** --> **QubeAppFinder_Submit_RenderQueue.jsx**.



The **Submit aerender** window will pop up.

Notice that all your project settings have been automatically populated in the appropriate fields.

If these settings are not correct, **DO NOT CHANGE THE SETTINGS HERE.**

Close and make your changes in After Effects, then re-submit by going to the **File** menu --> **Scripts** --> **QubeAppFinder_Submit_RenderQueue.jsx**.

If your settings are all correct, click **Submit**.

Note: If you had more than one composition checked, the **Submit aerender** window will pop up for every composition that was checked. If you didn't mean to submit more than one, click **Cancel** for each window.

Your job has now been submitted to the Qube Renderfarm. The **Submit aerender** window will automatically close, and a "job ID" will come up. Record this number for future reference.

Close your After Effect project file. Do NOT open it again from the R: drive until it's finished rendering.

The Qube Renderfarm manages the different render jobs one at a time. Once you submit a job, the Renderfarm puts it in a queue and begins rendering it once the last job is complete.

You can see the jobs in the queue by opening the **Qube UI** shortcut located in the **Start / Windows** menu.

To learn about **Qube UI**, go to the **Using the Qube UI** section.

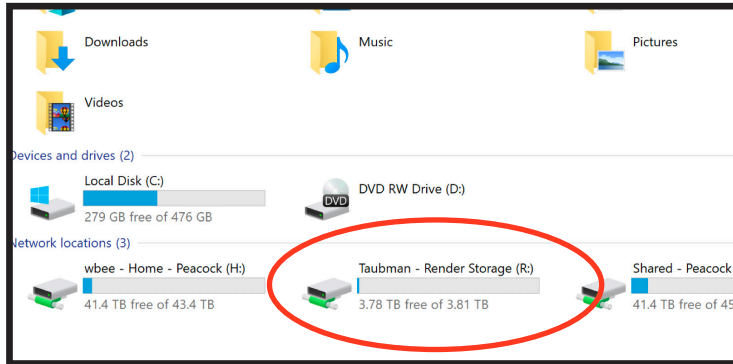
See next page for important information when your rendered job has finished -->

Important: Once your render job is completed, please clear out your render files from the R: drive within 48 hours.

If you have any questions regarding the Renderfarm, contact the Help Desk at helpdesk@collegeforcreativestudies.edu.

VRED/Qube RenderFarm Instructions

(Note: Use Qube Renderfarm for rendering stills and one-camera animations.
If rendering more than one camera animation, **DO NOT** use Qube.
Instead, refer to the VRED Cluster Rendering Guide.)

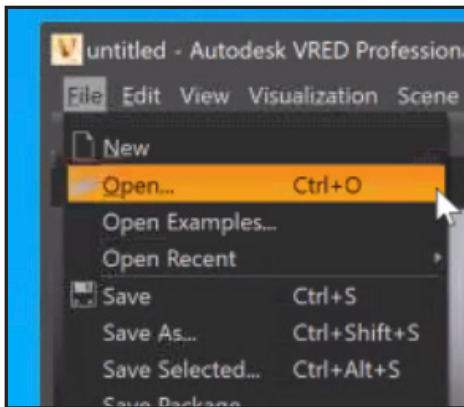


First, navigate to **This PC**, then open the (R:) volume (called **Render Storage**).

Right-click and select **New --> Folder**. Rename this folder using your CCS username. (ex. Jdoe or Jdoe2).

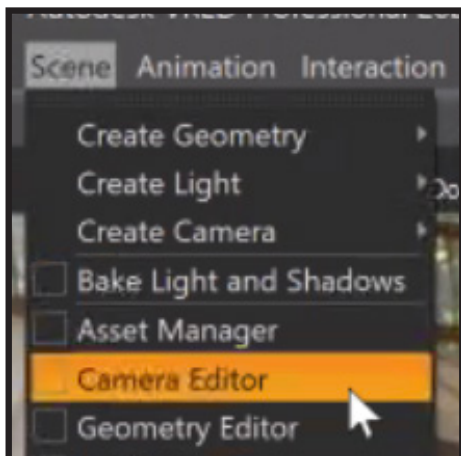
Copy your complete project folder into the folder you just made with your CCS username.

Once your project folder is done copying, disconnect your external drive, or any other external media source.

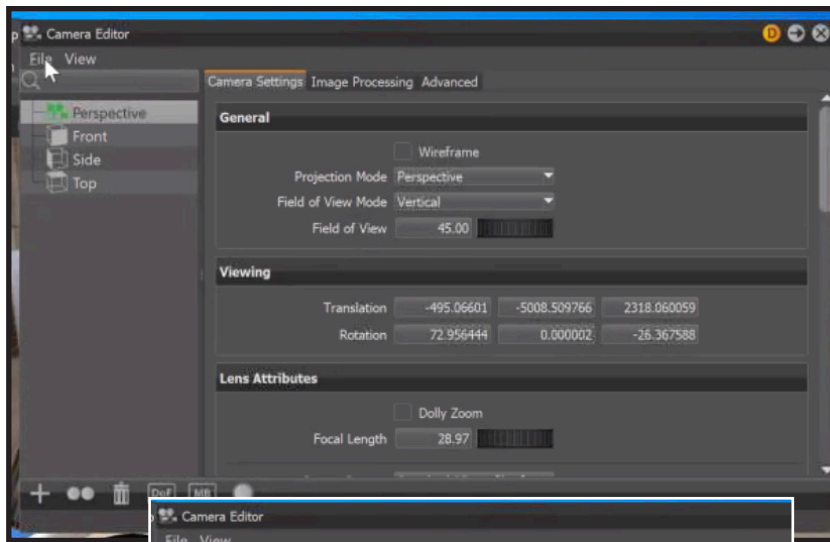


Open **VRed**. Select the **File** menu --> **Open**.

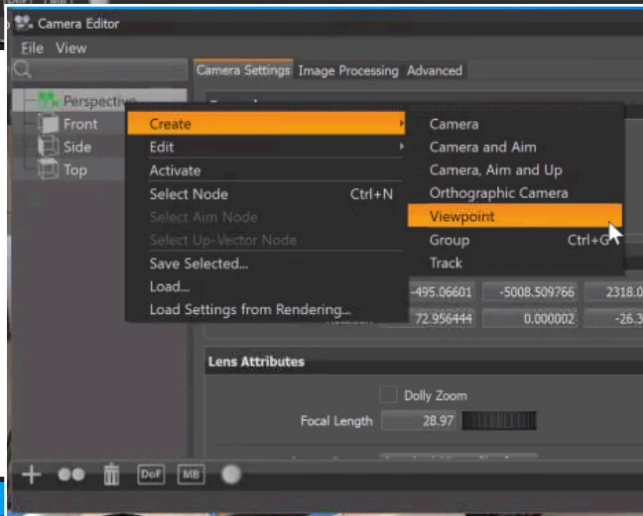
Navigate to your project folder on the (R:) directory, and open your VRed file.



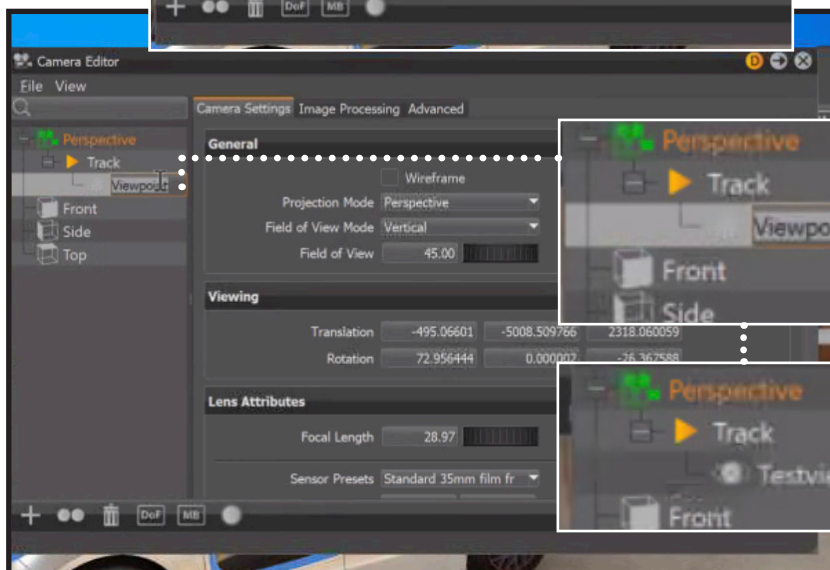
With your project file opened, first click the **Scene** menu and select **Camera Editor**.



In the **Camera Editor** window, select the camera that you want to render.



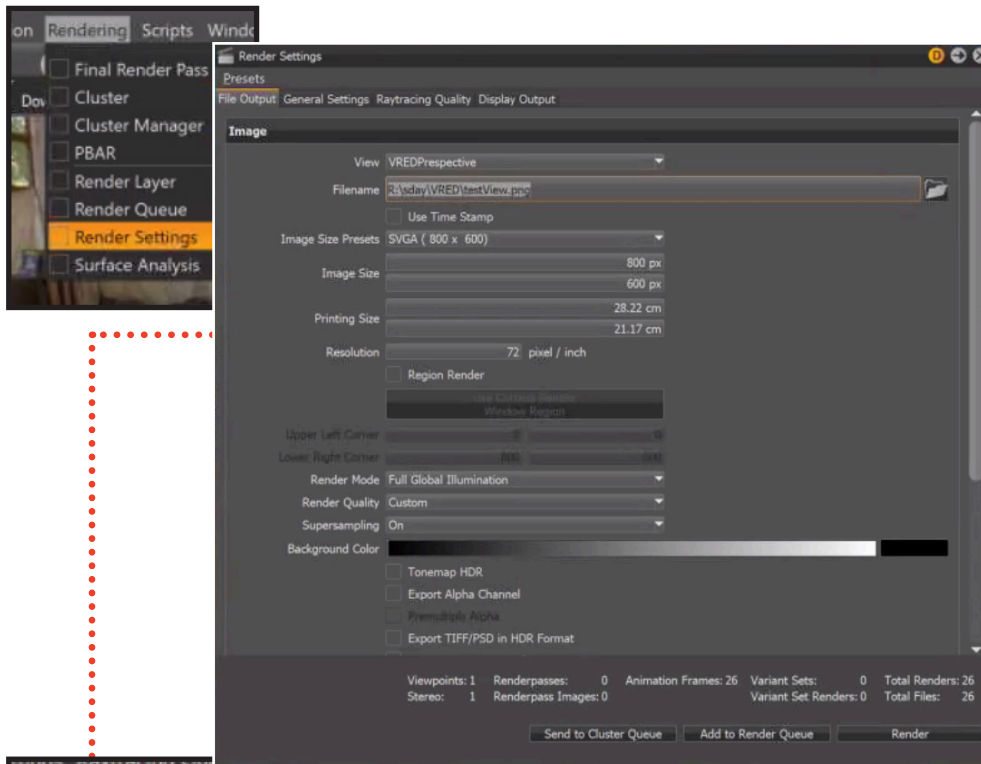
You need to create a new viewpoint. To do this, right-click on the camera you selected and select **Create** --> **Viewpoint**.



You can rename the new *viewpoint* you've created.

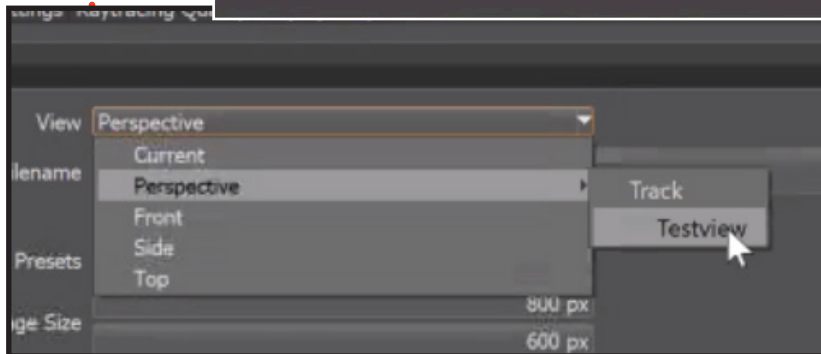
Set and adjust all necessary viewpoint settings throughout this window to properly visualize how you want your rendering to be viewed.

When finished, close the window to confirm.

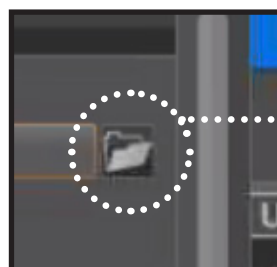
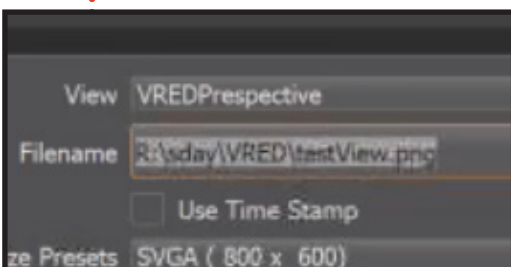


Next, click the **Rendering** menu --> **Render Settings**.

The Render Settings window will open.

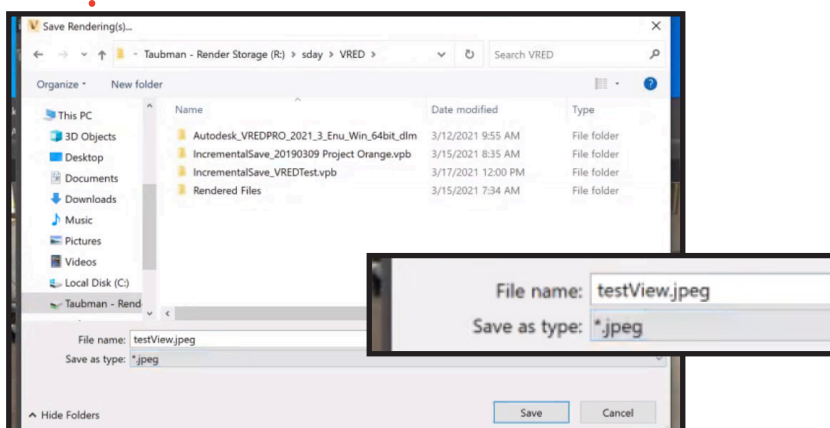


Click the **View** field to select the *camera* you created your viewpoint in, then select the *viewpoint* you created.



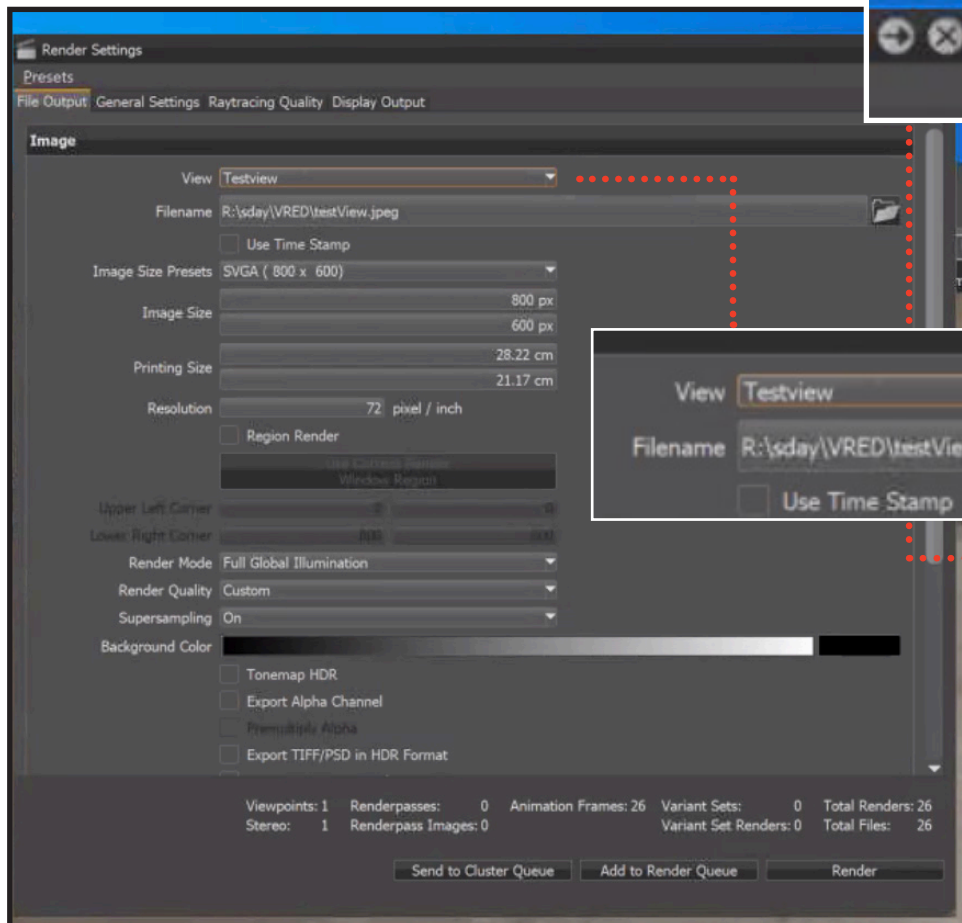
In the **Filename** field, click the folder icon to navigate to your VRed file on the **R:** drive.

Note: This provides the path where your files will render to.

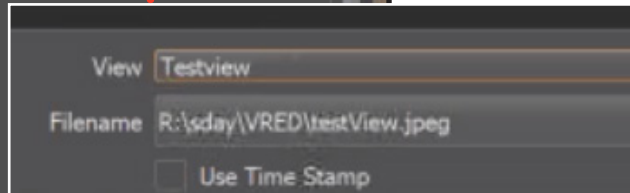


Enter in the **File name** field what you would like your rendered files to be named and image type.

Click **Save** to confirm and return to the **Render Settings** window.

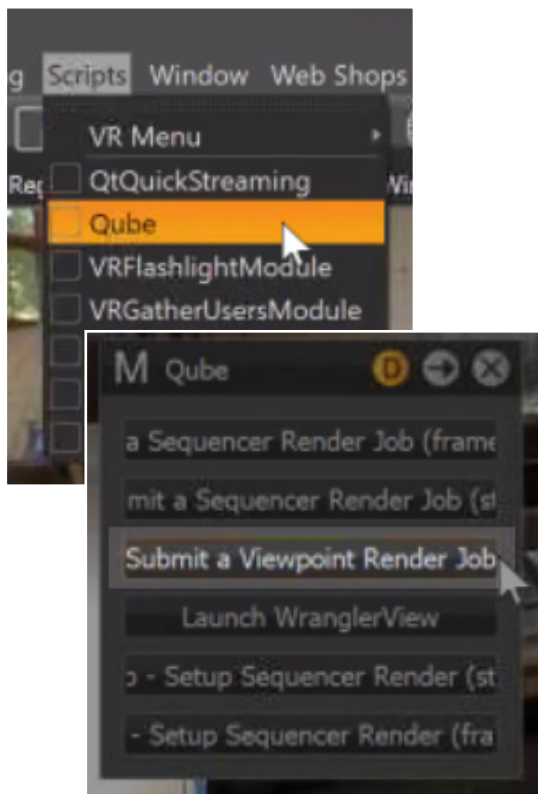


Once your viewpoint and output destination are set, set and adjust any other settings throughout the **Render Settings** window.



Confirm all settings, then click the **x** button at the top-right corner to close the window.

Note: DON'T click any of the Render buttons on the bottom.



To submit your render job to the Qube Renderfarm, click the **Scripts** menu --> **Qube**.

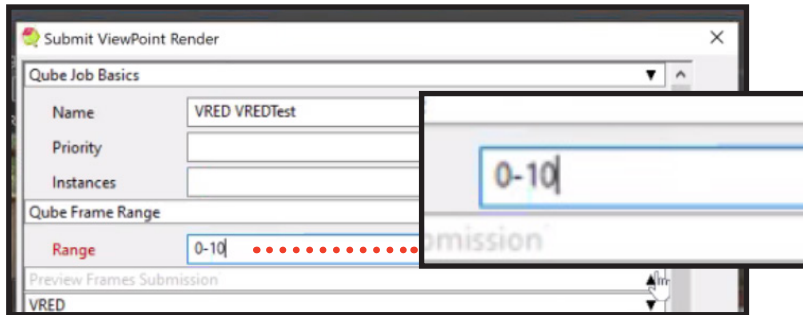
In the small window that pops up, click on **Submit a Viewpoint Render Job**. Do **NOT** select any other choices in this submenu. Qube can only render a **Viewpoint render job**.

This will bring up the Qube **Submit ViewPoint Render** window.

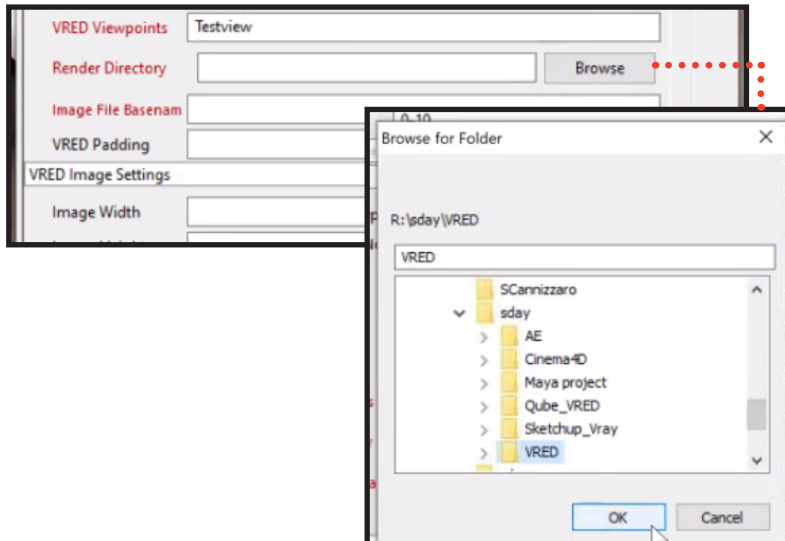
Some fields (in **red**) are *automatically* populated, specifically the **VRED Path**, **VRED Project**, and **VRED Viewpoints**.

You **need** to populate the other fields in **red**, specifically:

- Qube Frame Range
- Render Directory
- Image File Basename



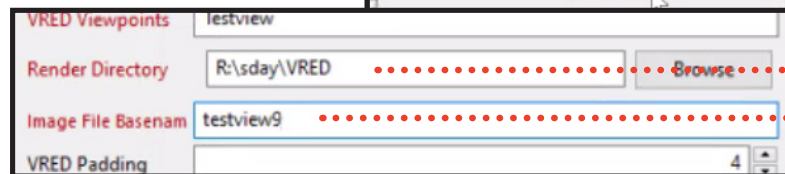
In the **Qube Frame Range** --> **Range**, enter the number of frames you want rendered.



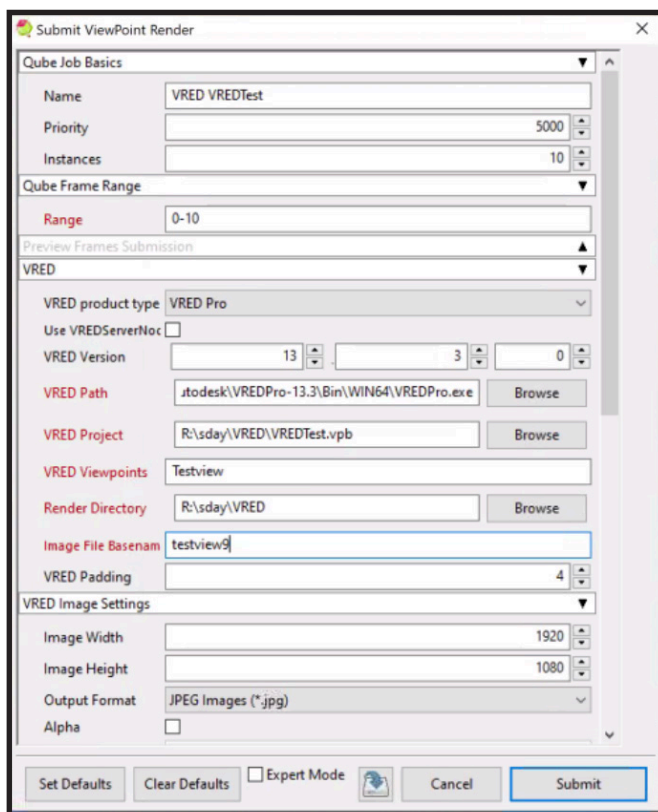
In the **Render Directory** field, click **Browse** to navigate to your username folder on the **R:** drive, where the frames will output to.

Highlight the folder and click **OK**.

The **Render Directory** field is now populated.



In the **Image File Basename** field, enter the desired output filename.



If your settings are all correct, then click the **Submit** button.

Your job has now been submitted to the Qube Renderfarm. A "job ID" will come up. Record this number for future reference.

Close your VRed project file. Do NOT open it again from the R: drive until it's finished rendering.

The Qube Renderfarm manages the different render jobs one at a time.

Once you submit a job, the Renderfarm puts it in a queue and begins rendering it once the last job is complete.

You can see the jobs in the queue by opening the **Qube UI** shortcut located in the **Start / Windows** menu.

To learn about **Qube UI**, go to the **Using the Qube UI** section.

Important: Once your render job is completed, please clear out your render files from the R: drive within 48 hours.

If you have any questions regarding the Renderfarm, contact the Help Desk at helpdesk@collegeforcreativestudies.edu.

IMPORTANT POINTS TO FOLLOW TO ENSURE SUCCESSFUL USE OF THE QUBE RENDERFARM

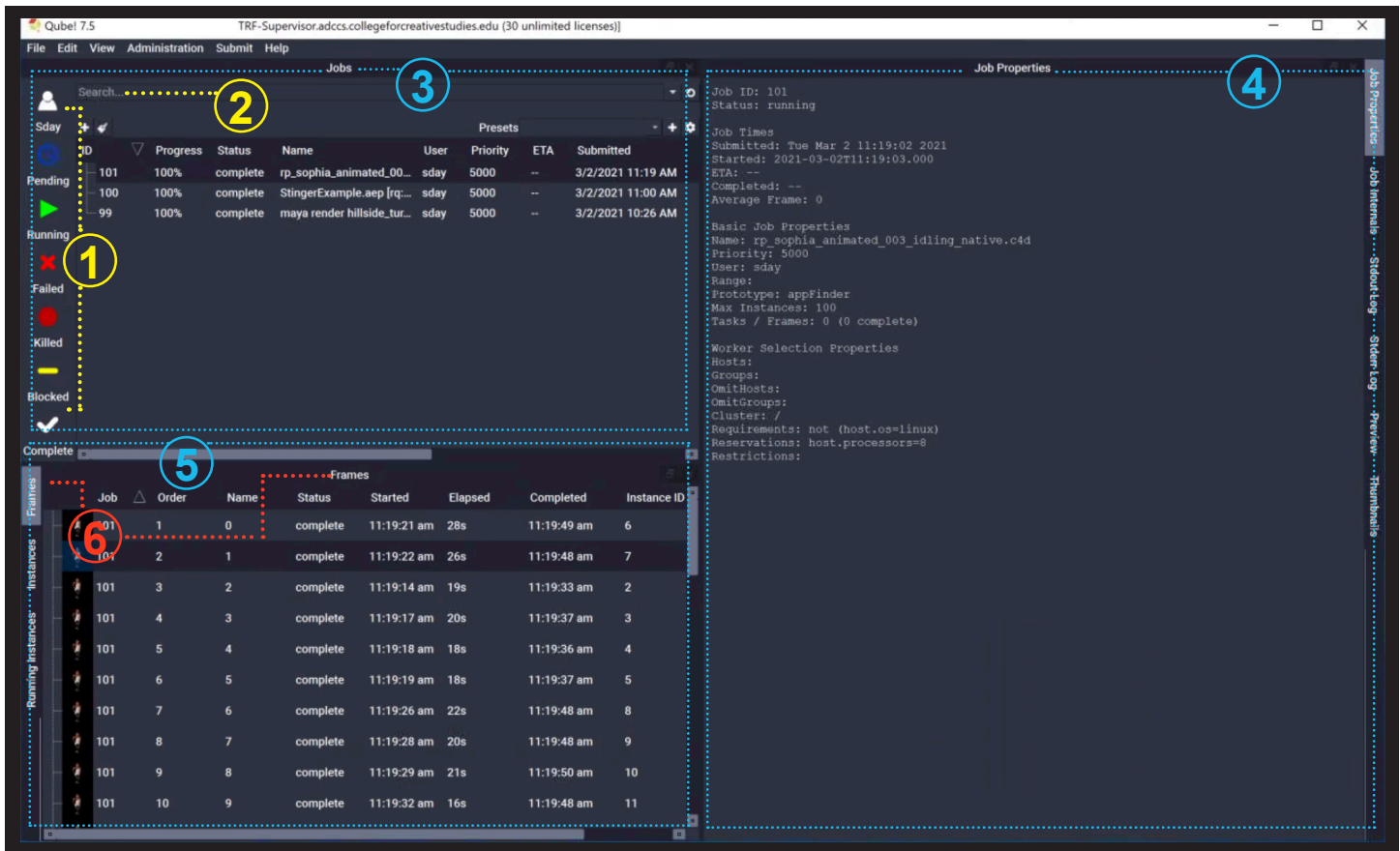
- Best Practice: After copying your file or project folder to the **R:** volume, open the application first and then your file or project folder. (Do not double-click on your file to open it.)
- Before you submit your job to the Renderfarm, ensure all your scene images, textures and other assets are in your folder labeled with your username on the **R:** volume.
- Once you have copied your file or project folder to the **R:** volume, be sure to disconnect your external drive, or any other external media source before doing any test rendering.
- **TEST** render a few individual frames from your file located on the **R:** volume to the local computer before sending your full job to the Qube Renderfarm. This will ensure that you are not missing any textures, assets, etc.
- **IF YOUR LOCAL COMPUTER CANNOT RENDER THE FILE, THE RENDERFARM WON'T BE ABLE TO EITHER!**
- If you are satisfied with the results of a local render from the **R:** volume, **FIRST** submit a test render of a few frames on the Qube Renderfarm before submitting your whole job to ensure that the output is what you expect.
- If no frames rendered at all, there is a problem with your animation file. If the same frames are failing over and over again, there might be a problem in the animation settings or possibly missing textures that are not in the correct folder.
- **SUBMIT EARLY.** There may be a lot of students using the Renderfarm. The Qube Renderfarm renders jobs on a first-come, first-serve basis. Towards the end of the semester there will be heavy use and submitting jobs late will not guarantee that your job will be finished in time.

It is imperative that you follow the instructions closely in the Qube Renderfarm instructions booklet. Do not set or change any settings unless specifically required in the instructions. To do so may cause your render job to fail or take a much longer time to process than expected.

Using the QUBE UI

Qube UI is software used to monitor the status of the job you submitted to the Qube Renderfarm.

Open **Qube UI** by clicking on the Start / Windows menu --> **PipeLineFX** --> **Qube UI**.



1. Filter Bar - Click your **User** icon to only see **your** jobs. Click **Pending**, **Running**, etc. to see only jobs that are pending, running, etc.

2. Search - Enter keywords to narrow down the jobs.

3. Jobs Pane - Section of window that shows a summary of jobs submitted to the Renderfarm.

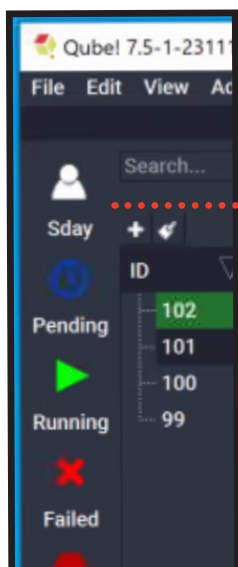
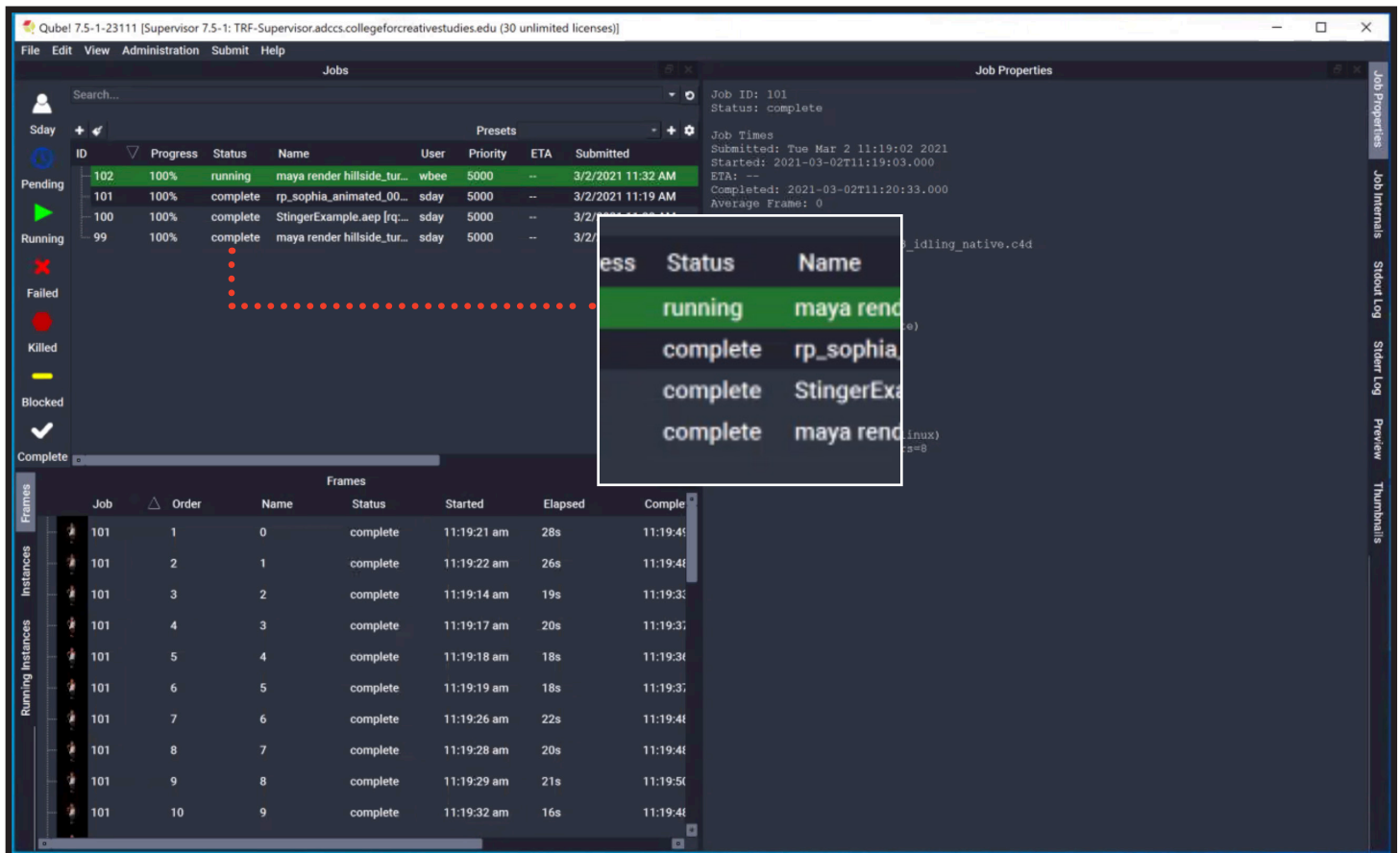
4. Details Pane - Section with tabs such as **Job Properties**, **Job Internals**, etc. to get specific details of each job.

5. Component Pane - Section that shows information associated with the frames with the jobs selected in the **Jobs Pane**.

6. Frames Tab - Tab within the **Component Pane**, used to show specific frame output information.

The **Jobs Pane** shows a column summary of the jobs submitted to the Renderfarm. Here you will see the jobs that you have submitted.

Notice the **Status** field for each job. The **Status** indicates if the job is **running**, **complete**, **failed**, or if a job has been **killed** due to issues.



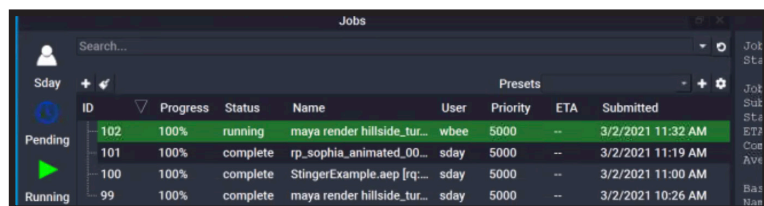
The column of buttons along the left side of the **Jobs Pane** is a set of filters which will show or hide jobs.

When you click **your** user icon, you will only see your own jobs.

Click on it again and you will see all jobs that have been submitted by other users.

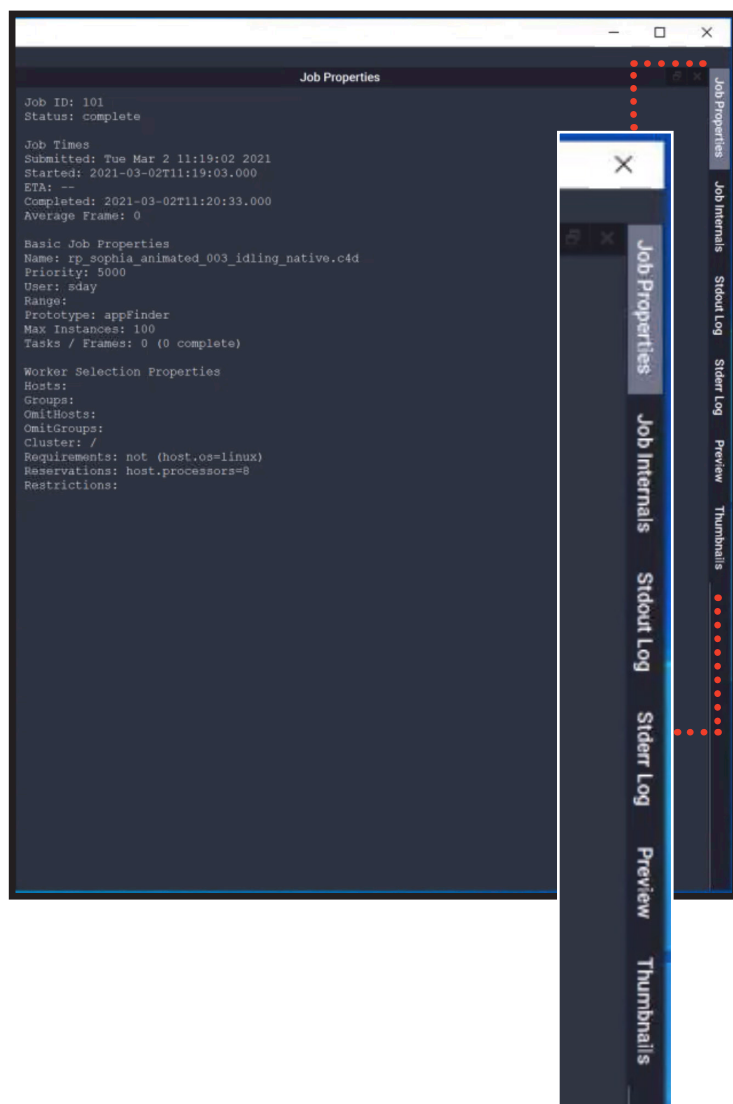
Click **Pending**, **Running**, **Failed**, etc. to show only jobs that are pending, running, failed, etc.

The series of tabs in the **Details Pane** offer information about the currently highlighted job.



	ID	Progress	Status	Name	User	Priority	ETA	Submitted
Pending	102	100%	running	maya render hillside_tur...	wbee	5000	--	3/2/2021 11:32 AM
	101	100%	complete	rp_sophia_animated_00...	sday	5000	--	3/2/2021 11:19 AM
Running	99	100%	complete	maya render hillside_tur...	sday	5000	--	3/2/2021 10:26 AM

Click on your job in the **Jobs Pane** to highlight it, then click one of the following tabs in the **Details Pane**:



Job Properties: This contains basic information about the job.

It displays start time, when your job completed and an average time it took to render a frame. It also displays the fields specified in the submission form.

Job Internals: This shows very detailed information about the job, from submission parameters to dispatch history.

Stdout Log: This shows the Stdout (standard output) text output from the job highlighted in the **Jobs Pane**.

To show the output for a specific frame, highlight the specific frame in the **Frame Tab**. The search bar underneath allows searching for text in the log.

Stderr Log: This shows the Stderr (standard error) text output from the job highlighted in the **Jobs Pane**.

To show the output for a specific frame, highlight the frame in the **Frame Tab** to the right. The search bar underneath allows searching for text in the log.

Preview: This shows a scrubbable preview of the selected job's output.

Thumbnails: This feature is not available for all image formats at this time, such as ".exr" files.

- It is imperative that you follow the instructions closely in the Qube Renderfarm instructions booklet.
- Do not set or change any settings unless specifically required in the instructions. To do so may cause your render job to fail or take a much longer time to process than expected.

Presets				
Status	Name	User	Priority	ETA
running	maya rende			--
complete	maya rende			--
complete	maya rende			--
complete	maya rende			--
complete	StingerExa			--
complete	maya rende			--
complete	maya rende			--
complete	rp_sophia_			--
complete	StingerExa			--
complete	maya rende			--
<div> Copy IDs to clipboard Filter by PGRP Interrupt Modify Job Open log directory Prioritize Remove Shove Zip log directory Block Job (+ Finish Current) Block Job (+ Purge) Kill Job Preempt Job Resubmit Job Retry Failed Frames Retry Job Browse Job Output Dir(s) </div>				
Order	Name	Status	Started	

If after submitting your job to the Renderfarm, you notice in the **Details Pane** that there are problems with your job (such as missing textures, etc.), you can stop your job.

Right-click on the job and select **Kill Job**.

Once you have fixed the problem in your project, you will have to re-submit the job.

If you have any questions regarding the Qube Renderfarm, contact the Help Desk at helpdesk@collegeforcreativestudies.edu.

NOTES

Important: Once your render job is completed, please clear out your render files from the R: drive within 48 hours.

If you have any questions regarding the Renderfarm, contact the Help Desk at helpdesk@collegeforcreativestudies.edu.

IMPORTANT POINTS TO FOLLOW TO ENSURE SUCCESSFUL USE OF THE QUBE RENDERFARM

- **Best Practice:** After copying your file or project folder to the **R:** volume, open the application first and then your file or project folder. (Do not double-click on your file to open it.)
- Before you submit your job to the Renderfarm, ensure all your scene images, textures and other assets are in your folder labeled with your username on the **R:** volume.
- Once you have copied your file or project folder to the **R:** volume, be sure to disconnect your external drive, or any other external media source before doing any test rendering.
- **TEST** render a few individual frames from your file located on the **R:** volume to the local computer before sending your full job to the Qube Renderfarm. This will ensure that you are not missing any textures, assets, etc.
- **IF YOUR LOCAL COMPUTER CANNOT RENDER THE FILE, THE RENDERFARM WON'T BE ABLE TO EITHER!**
- If you are satisfied with the results of a local render from the **R:** volume, **FIRST** submit a test render of a few frames on the Qube Renderfarm before submitting your whole job to ensure that the output is what you expect.
- If no frames rendered at all, there is a problem with your animation file. If the same frames are failing over and over again, there might be a problem in the animation settings or possibly missing textures that are not in the correct folder.
- **SUBMIT EARLY.** There may be a lot of students using the Renderfarm. The Qube Renderfarm renders jobs on a first-come, first-serve basis. Towards the end of the semester there will be heavy use and submitting jobs late will not guarantee that your job will be finished in time.

It is imperative that you follow the instructions closely in the Qube Renderfarm instructions booklet. Do not set or change any settings unless specifically required in the instructions. To do so may cause your render job to fail or take a much longer time to process than expected.