ComfyUI Cheatsheet

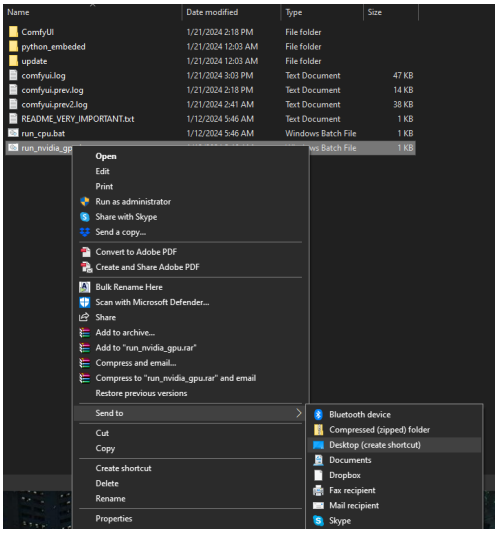
ComfyUI Installation

There are several good broad videos covering installation and basic usage; this is one of them:

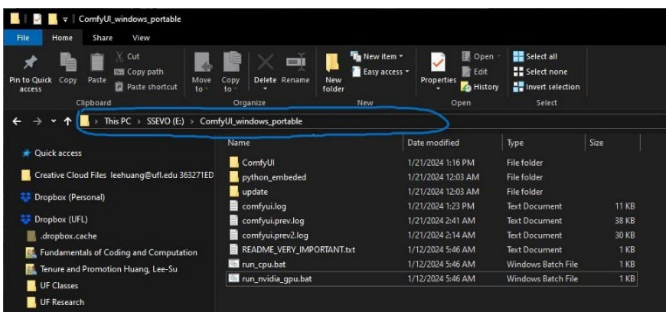
https://www.youtube.com/watch?v=9k-yb83ZHfc

Requirements: Windows 10/11, NVIDIA discrete GPU. 10+ GB of hard drive space

1. Install Git for Windows (64-bit): https://git-scm.com/download/win
2. Install Python 3.11.5 (Windows installer (64-bit)): https://www.python.org/downloads/release/python-3115/
   Make sure you check the "Add to Path" checkbox; everything else can stay default.
3. Install (unpack) ComfyUI Github: https://github.com/comfyanonymous/ComfyUI?tab=readme-ov-file#installing
   You may need to install 7-Zip first for this step if you don't already have something similar: https://7-zip.org/
   This will unzip the contents to a folder: ComfyUI_windows_portable. It is a good idea to unpack this to an easily accessible file path (ex: under C:\ComfyUI_windows_portable).
4. Navigate using Windows Explorer to the installed directory: (C:\ComfyUI_windows_portable). Right click on *run_nvidia_gpu.bat* and Send to>Desktop (create shortcut)



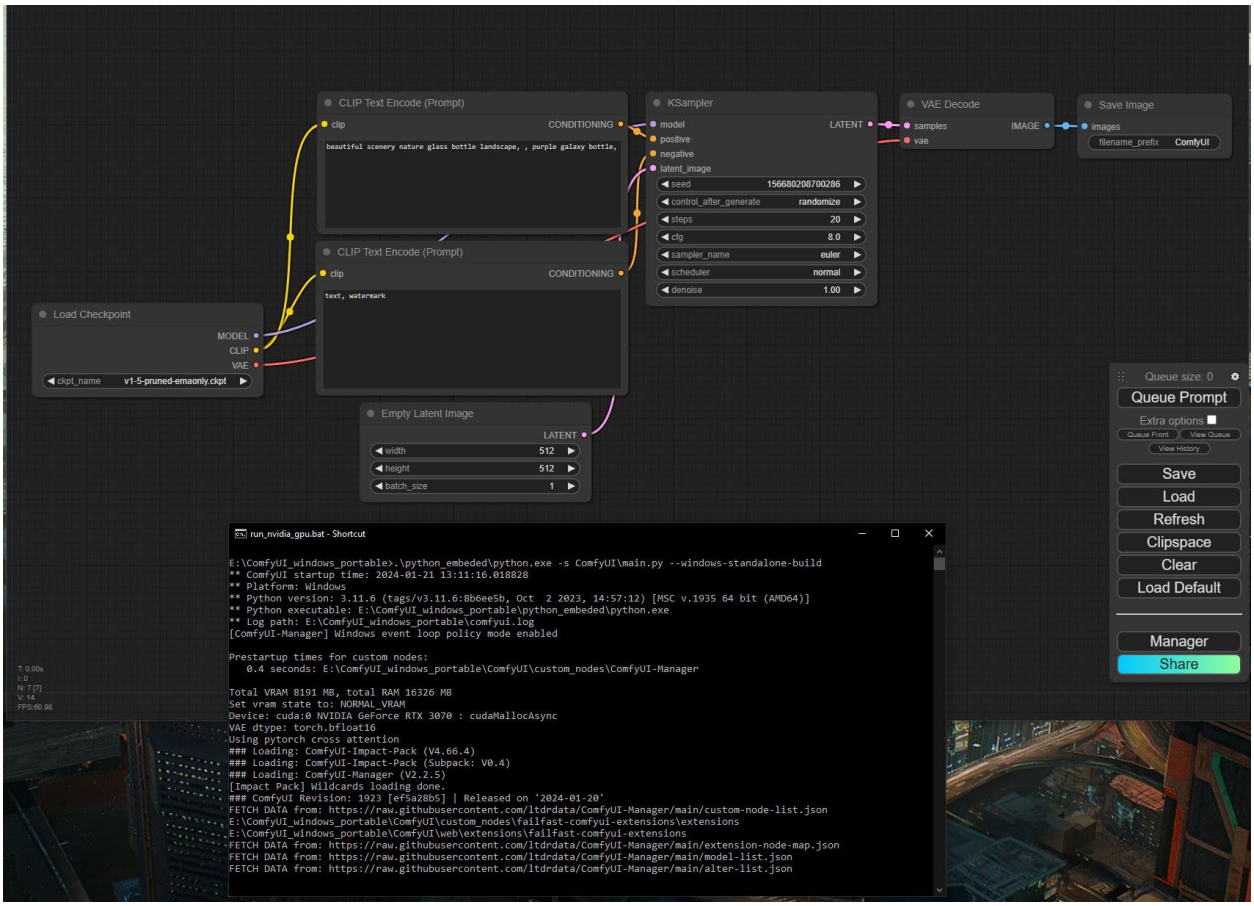
5. While here, click inside the navigation url of Windows Explorer to highlight the file path text and type *cmd* and enter. This should bring up a command prompt terminal.



6. In the command prompt, copy/paste and execute (enter):
   pip install torch torchvision torchaudio --extra-index-url https://download.pytorch.org/whl/cu121

7. This will run awhile; after it's completed, run the next command for dependencies in the (C:\ComfyUI_windows_portable\ComfyUI) directory using the command prompt terminal.
   pip install -r requirements.txt

This should complete the base installation of ComfyUI; you should be able to run it from the shortcut we made to your desktop earlier, and it will bring up both a command line terminal and the UI window in your default browser Chrome or Edge. There is a default configuration that is brought up immediately; click the "Queue Prompt" button to start the process. The first time will take longer, and subsequent generations will be faster. Ctrl+Enter is the keyboard shortcut for sending a new queue item. You will find all the images generated saved in the output folder: (C:\ComfyUI_windows_portable\ComfyUI\output)

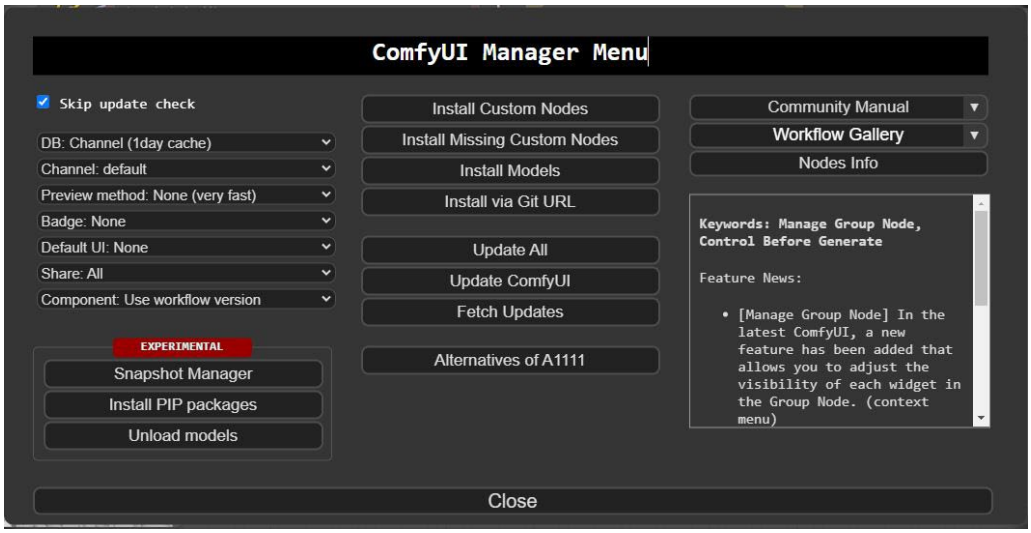


ComfyUI Manager Install

(Note you will need to create a GitHub account beforehand; the install will ask you to sign in)

1. Navigate to the ComfyUI installation directory, and find the custom_nodes directory (C:\ComfyUI_windows_portable\ComfyUI\custom_nodes). Same as before, type *cmd* into the file path to bring up the command line terminal.

2. Copy/paste the following and execute (enter):
   git clone https://github.com/ltdrdata/ComfyUI-Manager.git
3. Restart ComfyUI for changes to take effect.
4. With the manager, you can update ComfyUI, search/install models, and custom nodes/plugins.



Custom Nodes recommended

In the Manager, you can click on “Install Custom Nodes” and search for available nodes. Just click on the “Install” button to the right of the listing and it will install in the background. These may require a restart of ComfyUI.

1. ComfyUI Impact Pack
2. failfast-comfyui-extensions
3. Derfuu_ComfyUI_ModdedNodes
4. Efficiency Nodes for ComfyUI Version 2.0+
5. ComfyUI's ControlNet Auxiliary Preprocessors
6. ComfyUI_Comfyroll_CustomNodes
7. ComfyUI-Advanced-ControlNet
8. UltimateSDUpscale
9. Comfyui-popup_preview
10. Comfyui-photoshop

Please note that, images created using ComfyUI can be dragged and dropped into ComfyUI and it will replicate the nodes used to create that image; this information is saved as metadata with the image. If there are missing Custom Nodes, you will get a warning message and the missing nodes will show up in red. Simply go to the Manager and click “Install Missing Custom Nodes”; it will search for what’s missing, and you can install from the Manager. If that fails, you can always hover your mouse over the missing node and see what it is named; use that to search for it in the search box of the “Install Custom Nodes” in the Manager.

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Where to find Models and where to put them:

These are pre-trained models that are tuned for specific attributes. Sometimes called a safetensors file, sometimes called a checkpoint (ckpt) file. When you download them, they will want to be placed in the following folder: (C:\ComfyUI_windows_portable\ComfyUI\models\checkpoints). Note they can be quite large, 4-5 GB commonly. You will be able to select from all your downloaded models in ComfyUI from the "Load Checkpoint" node.

1. https://huggingface.co/runwayml/stable-diffusion-v1-5 (base SD 1.5)
2. https://huggingface.co/stabilityai/stable-diffusion-xl-base-1.0 (base SDXL)
3. https://civitai.com/ (trained models mostly based on SD)
4. https://huggingface.co/models (a wide variety of base models)
5. https://openmodeldb.info/ (for upscaling models)

Notes on Models

1. Different models have different optimal resolutions due to their training date; SD 1.5 works best with 512x512 resolution, while SDXL works best with 1024 x 1024. You can resize your input image first in Photoshop, but the Derfuu custom node enables you to resize the image dimensions within ComfyUI as well. Use the Derfuu "Image scale to side" custom node to set the max pixel dimension to fit the model you are using.
2. Be sure to read any notes the creator mentions; there are often hints or "trigger words" that you need to include in the text prompts for some models to work properly.

KSampler Settings

You can find more description of the settings here:

https://blenderneko.github.io/ComfyUI-docs/Core%20Nodes/Sampling/KSampler/

The following are the most common settings you may need to adjust:

1. **denoise:** The "denoise" setting in all of the KSampler or similar nodes specify how aggressive you want the AI to fill in the blanks from the base image; think of it as deviation from the source. 1.00 means totally ignore the base image, 0 means totally follow the base image. While this will vary from image to image, usually you'll find a balance from 0.4 – 0.65.
2. **cfg:** The classifier free guidance (cfg) scale determines how aggressive the sampler should be in realizing the content of the prompts in the final image. Higher scales force the image to better represent the prompt, but a scale that is set too high will negatively impact the quality of the image. This is usually between 7.0 – 9.0.
3. **steps:** The number of steps to use during denoising. The more steps the sampler is allowed to make the more accurate the result will be.

Prof. Lee-Su Huang
Last updated 2/15/2024

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Upscaling Images

There are a variety of upscaling models (pth files) on (https://openmodeldb.info/); once downloaded they are put in the C:\ComfyUI_windows_portable\ComfyUI\models\upscale_models folder. Click "Refresh" in the ComfyUI panel to load them when you first place them into the folder, no restart required. Nodes that use them will link automatically and allow you to select/change between them. Some good ones to start with are:

1. Ultrasharp: https://openmodeldb.info/models/4x-UltraSharp
2. 4xLSDIRDAT: https://openmodeldb.info/models/4x-LSDIRDAT
3. 4xLSDIRplus: https://openmodeldb.info/models/4x-LSDIRplus
4. LSDIR Compact v2: https://openmodeldb.info/models/4x-LSDIRCompact-v2

ControlNet Models

https://huggingface.co/docs/diffusers/en/using-diffusers/controlnet\

ControlNet is a type of model for controlling image diffusion models by conditioning the model with an additional input image. There are many types of conditioning inputs (canny edge, user sketching, human pose, depth, and more) you can use to control a diffusion model. This is hugely useful because it affords you greater control over image generation, making it easier to generate specific images without experimenting with different text prompts or denoising values as much.

Note that you can mix multiple ControlNet models in the same workflow (Depth and Canny simultaneously) and change the strength of each model to adjust their relative weighting. Here are a couple common/useful ones, but you can search for a much wider variety at: https://huggingface.co/models

1. https://huggingface.co/briaai/ControlNet-Canny
2. https://huggingface.co/lllyasviel/sd-controlnet-scribble
3. https://huggingface.co/lllyasviel/sd-controlnet-depth
4. https://huggingface.co/lllyasviel/control_v11p_sd15_inpaint

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