AI Playground Users Guide. v 2.0a

Welcome to AI Playground v.2.0 alpha. This application and an AI PC starter experience for AI image creation, image stylizing, and chatbot on a PC powered by Intel® Core™ Ultra with built-in Intel Arc GPU or Intel Arc™ dGPU Series A or B with 8GB+ of vRAM

Quick Links

Min Specs and Installation

AI Playground is currently available as a packaged installer, or available as a source code from our Github repository. To run AI Playground you must have a PC that meets the following specifications

- Windows OS
- Intel Core Ultra-H processor, Intel Core Ultra Series 2 processors OR Intel Arc GPU (discrete) Series A or B with 8GB of vRAM
- 82GB+ of Hard Disk Space: AI Playground application takes up roughly 6GB of space. Models can take as much 75GB of space.

Packaged Installer: AI Playground 2.0 has a single installer that supporting all currently supported hardware. You only need download this single installer (previous version had installers specific to hardware skus and are still available from our repository). Version 2.0 beta will install all components (other than models) directly. You will be presented with installation options at first run of the application.

New To AI Playground 2.0

Single Installer: We deployed AI Playground now as a single installer for all supported hardware skus.

Backend Installation Manager: We have a new installer that moves the online installation portion to AI Playground application. At first run you will be given options for the installation. This installation manager is also available in the Basic Settings where you can repair or restart any of these backend components

Workflow Modes: New to AI Playground 2.0 is an option to switch between the Default Image Generation mode vs the Workflow Image Generation mode. The Workflow mode is a new feature that embeds the ComfyUI backend allowing you to select custom-built workflows that provide access to more types of models and features than the build into the Default Mode.

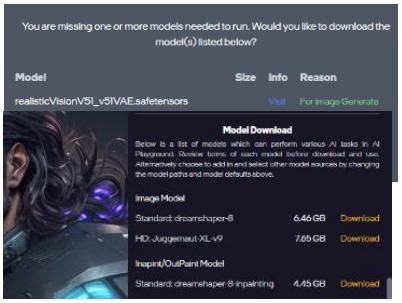
See the Workflow section for specifics on this new feature

Installation Manager, available at first run, or in Basic Settings

Chat GGUF / Llama.cpp Support: *(Experimental feature - RAG capability not yet supported)*
We've added Llama.cpp support to AI Playground as an optional back-end solution for your Answer experience. This allows for GGUF single file format model support for our Answer tab, meaning users now have access to more models, and likely sooner, as GGUF file formats tend to come at or around day of launch. See info on the Answer under the User Interface section to learn more

Getting Started

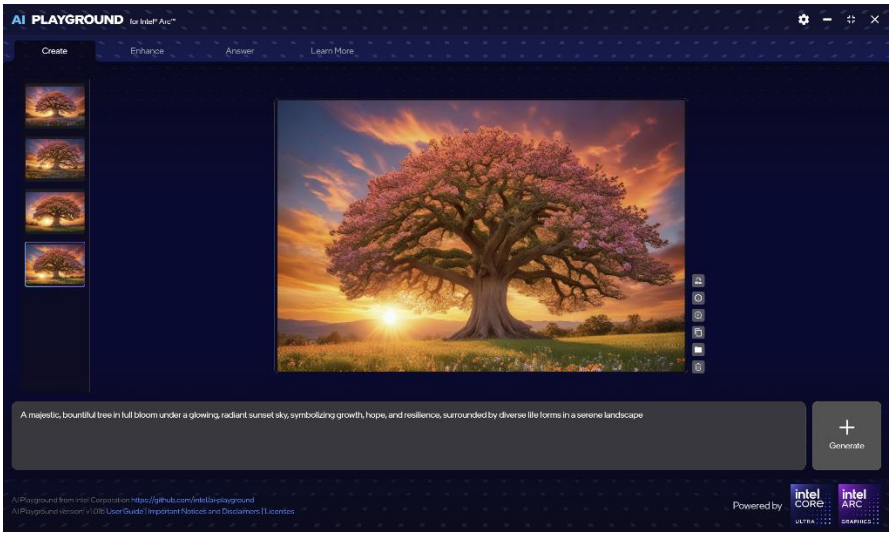
Installing Models: AI Playground **does not ship with Generative AI models**, however we have made the model process easy, and flexible for you to download and install models for any function of AI Playground. Three methods for downloading and working with models



1) **Automated Downloads**: When you first run any task on AI Playground requiring a model, that is not present, AI Playground will provide the option to download a model for that task. To download you must first visit the site for the model, then confirm you acknowledge the terms of use for the model. After download the process to run the task will continue. Alternatively, you can cancel and install a model of your choice. See **Manual Download**
2) **Download from Model Settings**: Before you run a task that requires a model, you can review a list of models to use in AI Playground. Models from the **Models Settings** under the Settings gear icon. See **Models Settings** section for details
3) **BYO Model:** You can also choose to bring your own model, and move models into the models folders where the AI Playground app is stored. See the **Model Paths** feature under **Models Settings** section of this document to know where these folders are. Use the "**Add Model**" icon/tool under the Answer section to add LLMs

User Interface Overview:

Create Tab: Create allows you to generate up to 4 images using a text prompt to guide generation of images. Additional settings are available in the Settings menu under the gear.

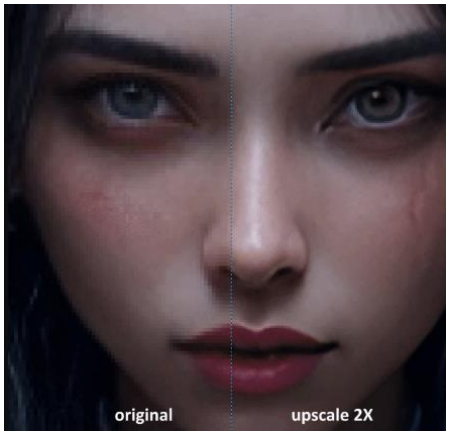


- **Prompt and Generate**: The text prompt and the generate button are the only actions required to generate an image for Create. By default, AI Playground will generate an image on in **Standard Resolution** and **Standard Quality** (See **Image Workflow** section for details) Once an image starts to generate, the Generate button will change to "**Stop**", allowing you to cancel that generation process.
  *See the **Image Workflow** section to know how to configure settings and options for greater control and output in the Create Tab*
- **Image selector:** An image selector is available on the left side of the tab. Click on any of the thumbnail images to preview that image in the viewport
- **Viewport icons:**

  - Enhance: Click this button to copy this image to the Enhance tab, for further creation, editing, and enhancements
  - Info: Gives you information on the prompt, model, and settings used to create this image (This feature is currently not available in for Workflow images)
  - Zoom: Opens the image up in the Photo Viewer application
  - Copy: Copies the image to the clipboard
  - Folder: Opens the Folder where the image is stored and saved
  - Delete: Deletes the image from the viewport

Enhance Tab: Enhance allows you to alter, stylize, upscale and edit images you create in AI Playground or images from your own computer. Either upload an image to this tab or send an image from Create to the Enhance tab using the Enhance Icon.

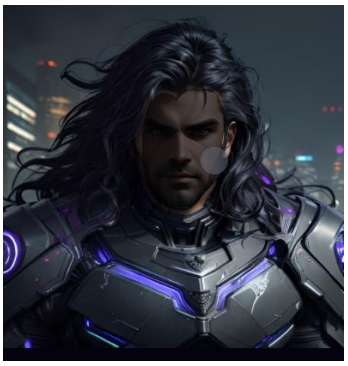
- **Upscale**: You can upscale an image either 1.5X or 2X its original resolution. The variance slider allows you to add creativity to the upscale process. Type information in the prompt on how you'd like add variance to the image potentially adding in more detail or other elements when upscaled.



- **Image Prompt**: The image tab allows you to stylize images you have added to this tab. Type in a prompt, describing how you want to stylize the image, then adjust the influence slider on how much the image will look like the original (lower value) or how much it will be guided by the prompt (higher value)

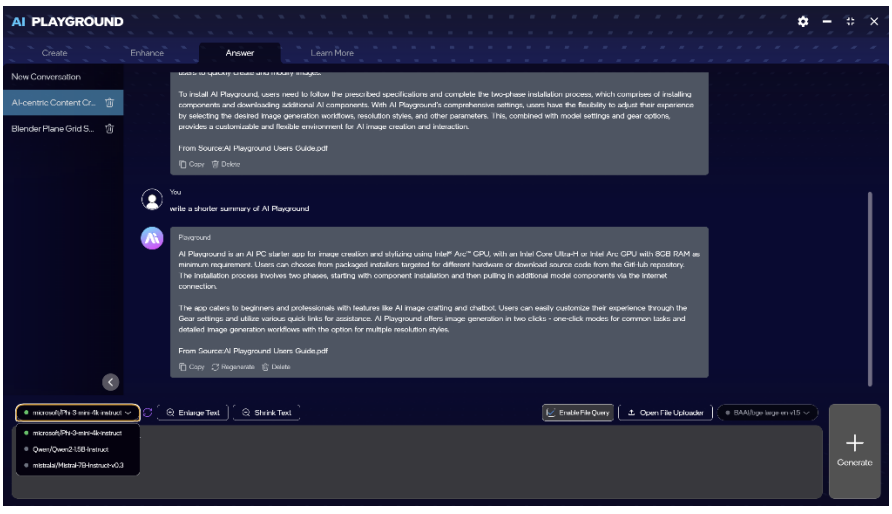
	
input image	generated image from prompt

- **Inpainting**: Here, you can mask parts of the image and fill that area either with something new or you can redo or fix that portion. Use the prompt to define what will be put in the filled area and adjust the slider for how much influence the fill should have.

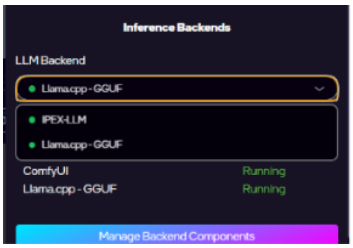
	
face masked	face filled using prompt

- **Outpaint**: Expand your image in any direction using information you describe in your prompt

Answer Tab: The Answer Tab is a comprehensive chatbot. Choose a model to use and ask it generalized questions, ask it to help you write something creative or upload your own text files to have them summarized or to search for specific information.

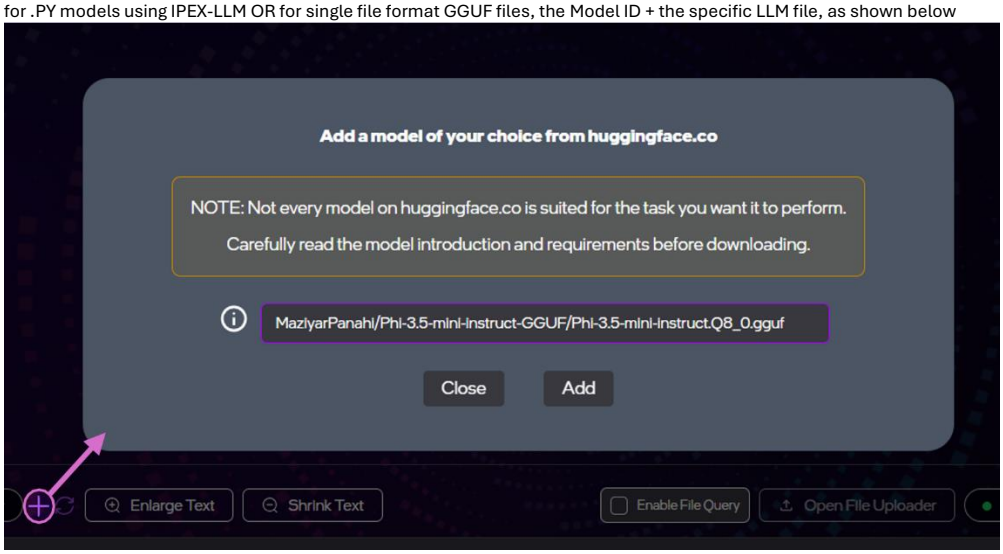


Chat Backend Options and new GGUF Support: New to AI Playground 2.0 is the ability to switch between IPEX-LLM and Llama.cpp [GGUF] options for your chat back-end. This option is found in the Basic Settings. Choose IPEX-LLM to use the models curated for AI Playground. IPEX-LLM is optimized for Intel hardware and will produce fast experience for chat. We've also provided the Llama.cpp option for access and support of single file GGUF models, very popular with the community. Llama.cpp has limited functionality, not supporting Retrieval-Augmented Generation (RAG) in the alpha release,



Other Features

- **Prompt and Generate**: Type in a question then click generate and the AI Chat will provide an answer. *(note accuracy of these answers will depend on the model used. Check for documentation on the specific model to learn more)*
- **Conversation Manager:** (New in v1.21) Save and restore chat conversations
- **Regenerate Icon**: Click this icon to ask the same question
- **Delete**: Delete will remove the question and also remove the discussion from the AI memory and discussion
- **Clear Chat History**: Will clear all of the discussion and remove the discussion from the AI memory
- **Model**: Select from multiple LLM AI model to use in your chat session. Items with a green icon are installed and ready to use. Other items can be used but will download before use. (note in this version models need to support Transformers 4.39 – this may change in future versions)
- **Add Model :** New to 2.0b, this features allows you to add models for use in AI Playground. The format required is the Hugging Face Model D for the model card for .PY models using IPEX-LLM OR for single file format GGUF files, the Model ID + the specific LLM file, as shown below



- **Enlarge or Shrink Text:** (New in v1.21) adjust the size of the fonts displayed in the chat session up or down using these buttons
- **Enable Files**: Turn on to have the chat session use information you've uploaded during the chat session
- **Open File Uploader**: Upload a ".txt" file to be used as data for he chat. When added you can ask questions about the contents from these files. You can add or remove multiple files from its memory. You can have the chatbot ignore these files by unchecking the Enable File option

Learn More: We have more resources to support you, using your Intel Arc GPU for AI. Join our community of AI Playground users, follow our content, try other amazing WebUI tools, or get engaged on our GitHub and help us build on AI Playground

Gear – Settings: Here you can adjust settings to guide your output or customize how AI Playground works. See the **next section** and **Model Settings** section for details

Image Generation & Settings Default Mode

One Click Modes: When using the Default mode, we've provided settings making it easy to switch between common tasks without needing to know about AI image generation. You'll find options for these workflows under the Gear icon in Image Settings, and available under the Default Mode option

Resolution Options:

Standard: Switch to Standard Mode to generate images at roughly 512x512 resolution, using **Stable Diffusion1.5 checkpoint models**

HD: Switch to HD Mode, to generate images and use models at roughly 1024x1024 resolution using **SDXL checkpoint models**. Note this will increase pixel count 4x, so expect the time to do this to be 4 times longer.

Manual: See manual section. This option ignores the defaults and allows you to manually change any of the image generation parameters.

Quality Modes:

Standard: Set this mode when you want standard quality, which will take 20 steps to generate

High Quality: Set this mode when you want to increase the quality and details of your output, to 50 steps

Fast: Set this mode to increase the speed output, (using LCM). This will produce images potentially 5 times faster than Standard, but you will notice less details in the image

Adjustable Settings: The following are adjustable settings withing the One Click Modes.

Image Preview: Image preview is on by default and allows you to see the image as it is being created. You can turn this off which may produce images faster.

Image Size: The image size tool allows you to pick an aspect ratio and resolution scale. The following scale settings are recommended and preset by default

- Standard Resolution: Image scale is set to .25MP (megapixel) or 512x512 when square
- HD resolution: Image scale is set to 1MP or 1024x1024 when square
- Flux.1 workflows: Image scale is recommended at 0.5 - 0.8MP

Steps: Steps will automatically be set to 20 on Standard or 50 for High Quality, however you can adjust that number from 1 to 50

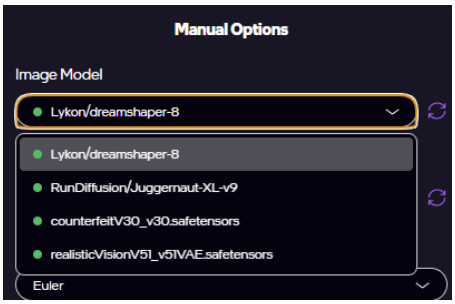
Number of images: You can set the number of images to generate from 1 to 4

Seed: By default, this value is set to –1, which means it will be a random value, meaning the output will be random. If you choose to put in a specific seed number, you enter it and that settings will hold the number in the settings. Each image count past the first image will be the seed of the last image +1

Negative Prompt: Use negative prompt to add terms and words that describe what should not be in the image. Any changes here will hold and be used on the next set of images.

SafetyChecker: By default Safety Checker is on. If an image is sensitive and unsafe it will result in a solid black image. You can choose to disable this feature if desired

Manual Settings: This option allows you to fine tune your settings for the following:



Checkpoint Models: Select a model from the list of installed models, in the defined Checkpoint folder. If you have recently downloaded a model to this director, click the refresh button to see it. If selecting a Stable Diffusion 1.5 model you must set resolution to no more than 768x768 otherwise you will get poor image results

Inpaint/Outpaint Models: Here you can select a specific Inpaint model to use for the inpaint/outpaint features.

Width / Height: In manual mode you can set your own resolution, and are not restricted to the preset ratios, but be certain your resolution is divisible by 8 and appropriate for the model you are using

Scheduler: Schedulers can achieve different results and some schedulers are best used for some specific checkpoints. Check documentation on the model you are using to know the best Schedulers to use

LoRas: By default AI Playground will suggest LCM LoRas to download, however you can also choose to use LoRas that guide the style and quality of your output. However in the current version of AI Playground you cannot use more than one LoRa at a time

CFG: Set this to guide the image generation to be more creative – lower number or more adhered to your prompt – higher number. Check documentation on the model you are selecting to know the best CFG values

Model Settings: This is where you fine tune information and control how you work with Models in AI Playground. We suggest you proceed with caution on changing any settings as it incorrect changes could result in the app not functioning as intended

- **API Token:** New to v1.21b is the API token setting, which allows you to input your HuggingFace user access token. This will be used to confirm with HuggingFace you have permissions and access to any restricted use models.
- **Model Paths**: By default we have established specific folders where models for various functions are located for AI Playground. You can choose to change these locations if you have another folder where you are storing models. However we warn that changing this folder could results in the app failing if done incorrectly. Proceed with caution
- **Default Models**: use this to change the defaults model used by AI Playground. This will change what models are used for Standard vs HD quality settings in the One Click Modes. Proceed with caution and reset to installation defaults if you have problems after changing these settings
- **Install Models**: Models for all the various functions are listed here and available for download from this section of AI Playground. By downloading here, you can avoid the automated prompts to download models

Using Other Models:

A key feature of AI Playground is the ability to use other models not provided directly from the AI Playground application.

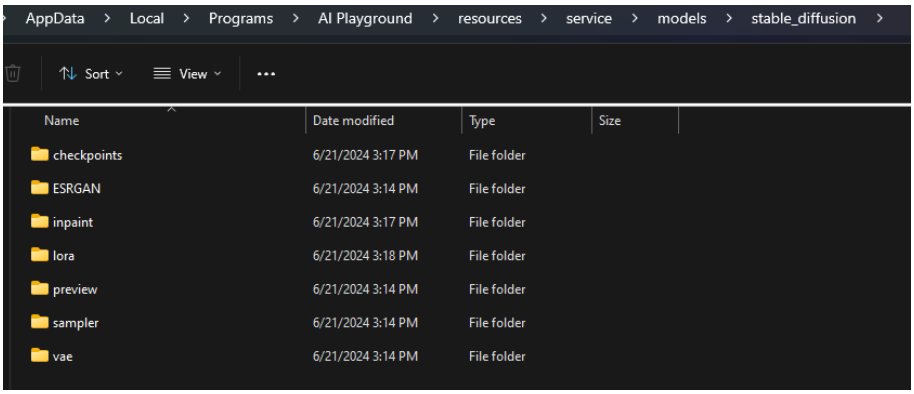
Example Outputs using different Checkpoint Models

Lykon/dreamshaper-8	realisticVisionV51_v51VAE.safetensors	counterfeitV30_v30.safetensors
		
Prompt: close up of an adorable anime bobble head character, detailed eyes, animated film, atomic space age hero, excited, open mouth, swanky, cute, funny, brown hair, wide angle, action pose, fantastic landscape, rocket, red, gold, space, planets purple glow **Seed**: 3027545586 **Scheduler**: Euler		

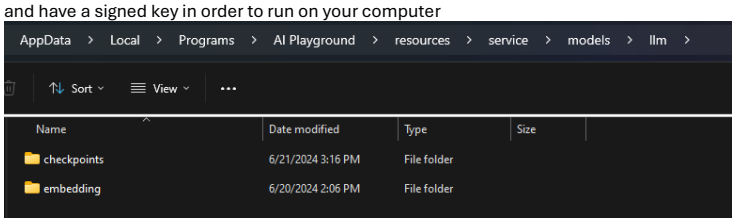
Where to find models: These websites host models you can models and use in AI Playground.

- **Huggingface**: Huggingface is a website that hosts AI models for both AI chat and image generation. You can search huggingface for specific types of models or if you have a model ID you can use that to find a model. https://huggingface.co/
  For LLM models, AI Playground v2.0a current supports PyTorch models supporting Transformers 4.39.
- **CivitAI**: CivitAI is a website with community defined and refined models for image generation. Here you can find models that are fine tuned to create outputs for specific styles – illustration, photography, anime, game design, architecture, etc. You will find models that work in AI Playground such as checkpoints for Stable Diffusion 1.5 (our standard mode), SDXL (our HD mode), LoRAs used to stylize or adhere output to a specific feature, Inpainting models and more. https://civitai.com/models

Where to put models: Making use of models from Huggingface or CivitAI is as simple as putting them in the right folder. In the destination folder you installed AI Playground, there is a models folder which and that folder describes where to put models of certain types. Simply download models and place them in the appropriate folder for their model type. Model types are as follows:



- **Checkpoints**. Checkpoints are the primary Stable Diffusion models used to create an image. You can download either Stable Diffusion 1.5 models or SDXL models and put them into the Checkpoints folder. When using SD 1.5 model make your images around 512x512 resolution. When using SDXL models keep those images around 1024x1024 resolution.
- **LoRas**. LoRas are models that allow you to customize the output for a specific look or style.
- **Inpaint**: Inpaint models are for helping the inpaint and outpaint more effectively fill and blend content into your masked or outpainted areas
- **LLMs**: LLM folder is located in the Models LLM location. These are models for doing AI Chat. You can find these on Huggingface. Some of these models require you register and have a signed key in order to run on your computer



- **Embedding:** Embedding models allow you to upload text content from your PC to the AI chatbot, where you can summarize, search and get answers on that content

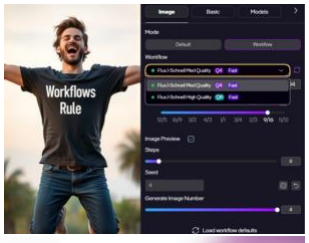
Workflow Mode

Workflow Mode differs from the default mode by provide defined workflows powered by ComfyUI backend rather than the Diffusers back end built into AI Playground,

Using Workflows:

1. Go to Create Tab, clicking the gear icon, and select the Image settings
2. Select the "Workflow" button under Mode section.
3. Select a workflow from the drop-down list. (workflows will be refreshable in future releases, allowing you to get new workflows between releases)
4. Edit parameters from the settings area. Each workflow may have a different set of settings options you can edit. (seed, steps, resolution, or even model options)
5. Close settings, then enter your prompt from the Crate Tab, then click generate.

Workflow Tips: Workflows marked "HD" are high memory workflows and may not be ideal for lower sku iGPUs or dGPUs with less than 12GB of vRAM. If you experience degrading performance restart the ComfyUI backend using the Backend Installation Manger in Basic Settings



Workflows and Options with AI Playground 2.0
Workflows may require additional models and nodes to be installed. Before installing, review component terms

- **Flux.1-Schnell:** Two workflows are provided using Flux.1-Schnell model from Black Forest Labs. This model has gained popularity and a reputation for producing higher quality output, with strong prompt adherence, and support for text in the image. With this workflow you can specify where objects are to be located, their color and texture, as well as words and phrases that should be in the final image. We've provided two workflows, one for medium quality and one at high quality. The high-quality version uses a higher precision model, which may result in higher quality output, adherence and accuracy for text compared the medium quality workflow
- **Line to Photo HD:** Two workflows are available for to control the output of an image for image previsualization and stylization. This workflow allows you control the look of an image through the structure and form of a reference image. The usages are to previsualize simple line art, design wireframes, or architectural drawings into fully realized photographic images, where through the text prompt you can define the location, weather, period, and other elements in the image, while retaining the structure and composition of the original image. Two workflows are provided. Both use the SDXL JuggenautXL model for HD level imagery plus the Canny ControlNet model to control the output through the structure of a reference image. One also includes a fast LCM model similar to Fast button option in Default image generation.

- **Face Swap**: With this workflow you control the likeness of a text generated image, using the likeness from a sample reference image. Simply upload a reference image (*all images remain local to your PC*), type in a prompt to describe the output image, then generate. The end result is an image guided by your prompts, but with a likeness resembling the original image. *[This workflow has model dependencies with non-commercial restrictions, check terms before using]*
- **Workflow Synch**: The workflow synch button allows you to download updated or new workflows that have been committed to the public AI Playground repository. These can provide new capabilities and features between releases.
- **ComfyUI Editor**: For users interested in diving into ComfyUI, we've provided direct access to its workflow editor, allowing users to edit or create workflows directly from ComfyUI. This will be available via a port dynamically assigned starting at localhost:49000. Check your console (CTRL+SHIFT+i) to find the correct port

Flux.1 Examples.

award winning photo of a high speed purple sports car, hyper-realism, racing fast over wet track at night, The license plate number is "B580" , motion blur, expansive glowing cityscape, neon lights, city lights, high contrast, depth of field, film grain, splashing rain, cool tones, award winning photo, wide angle, glowing lines, fish-eye lens, light trails; Seed:900854841126051, Steps: 6, Res: 1088x704	A yellow canary in a black cowboy hat on the left facing a cat in a white cowboy hat on the right. In the distance is a dog with a sheriff's star hanging from his collar They are in a rustic old west town. Showdown, Cinematic, 8K, highly detailed, film grain, depth of field; Seed:900854841126051, Steps: 6, Res: 1088x704
Flux.1-Schnell Med Quality [Q4] [Fast] 	Flux.1-Schnell Med Quality [Q4] [Fast] 
Flux.1-Schnell High Quality [Q8] [Fast] 	Flux.1-Schnell High Quality [Q8] [Fast] 

Tips and Techniques

Faster Image Generation: You have many options in AI Playground to create images of various resolution and quality. You may find that you are generating dozens of images to get to a good image you like but the time to generate a good composition and look take too long. Here are tips to generate images faster while achieving high quality

- **Turn off Image Preview:** Image Preview is a convenient feature for seeing the progression of an image but it does take an additional compute cycle to decode the image diffusion and display images. Turning this off can speed up your image generation
- **Switch to Fast Mode:** Fast mode used a model called Latent Consistency Model, and it will generate images in 1/5 the steps. It is a fantastic way to get faster images that look nearly as good as Standard quality
- **Inpaint then Upscale Fast Mode images:** Fast mode can generate a lot of images very fast. However you may find that details are lacking or facial features are not ideal.
    - Generate a set of images in Fast mode
    - Move the best images from create to Enhance.
    - Use the Inpaint feature to redo or replace parts of an image to get the detail you need.
    - Select the best image, send that image to Enhance
    - Switch to the Upscale tab. Upscale that image 2X and you have a detailed image. From there you can consider inpainting again using either Standard or HD mode for the inpaint
- **Image Prompt Fast Mode Images:** As said above, Fast mode can allow you to iterate and generate many various quickly.
    - Generate images
    - Select the best image then click Send to Enhance
    - Select the Image Prompt tab.
    - Rewrite your prompt from Create but make some changes describing what you want improved.
    - Go to settings and **switch to Standard quality**
    - Generate images to see if you can get more detail out (adjust the influence as needed)
- **Upscale Fast Mode Images:** Like the two examples above use Fast mode to get to images that are close to the end result you desire.
    - Send selected image to Enhance

- Select the Upscale tab.
- Paste in your prompt from the Create Tab. Change the Quality Settings mode from Fast To Standard.
- Adjust the variation from .25 to .55 to get new images with some variation in details of that image

- **Inpaint After Upscale for High Quality:** Using Standard mode will allow you to generate more images faster than HD mode.
  - Select an image fron Standard mode and send that picture to Enhance.
  - Go to Upscale tab and upscale the image 2X with zero variation.
  - Send this image to Enhance and switch to Inpaint Tab
  - Change the Res mode to HD
  - Mask areas you want to improve
  - Describe the area to improve and generate

Better Prompts: Generating good images is often mostly influenced by your prompts. Try these techniques to improve your image generation.

- **Use Answer to Generate Prompts:** Switch the Answer Tab and ask the AI Chat bot to write a stable diffusion prompt to generate as type of picture. It will respond with a prompt. Copy and paste that into generate. You can use the regenerate button in Answer to come up with variations of the prompt
- **Use the Negative Prompt:** Use the Negative prompt field under Settings, to describe things you do not want in your image
- **Regenerate Using the Same Seed:** If you found an image that is close to what you want but something is off. Follow these steps.
  - Select the image then click the Info icon
  - Copy the seed value
  - Go to the settings and paste in that seed value
  - Regenerate to confirm you are getting the same image.
  - Adjust a few words in the prompt to see how the image changes. Repeat until your prompt is driving the image in the right direction

Model Index

AI Playground v2.0a provides download access to the following models, from either the model settings area or directly from feature that requires a model. You are not restricted to these models, and can download image checkpoint models from Civitai.com or LLM models from Huggingface.co

Model	Use	License & Model Card Links
Dreamshaper 8 Model	Create Standard	license | site
Dreamshaper 8 Inpainting Model	Enhance Inpaint - Standard	license | site
JuggernautXL v9 Model	Create and Enhance HD, Workflows: line2image, faceswap	license | site
Flux.1-Schnell GGUF Q4 K_S	Create Workflow Mode	license | site
Flux.1-Schnell GGUF Q8_0	Create Workflow Mode	license | site
Control-lora-canny-rank128	Workflows: Line2Image	license | site
inswapper_128.onnx	Workflows: FaceSwap	license | site
GFPGANv1.4.pth	Workflows: FaceSwap	license | site
Phi3-mini-4k-instruct	Answer Model	license | site
Qwen2-1.5B-Instruct	Answer Model	license | site
Mistral-7B-Instruct-v0.3	Answer Model	license | site
bge-large-en-v1.5	Answer Embedding	license | site
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