

# Llama3

## Llama3

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Demo Environment

**Development board:** Jetson Orin series motherboard

**SSD:** 128G

**Tutorial application scope:** Whether the motherboard can run is related to the available memory of the system. The user's own environment and the programs running in the background may cause the model to fail to run

Motherboard model	Ollama	Open WebUI
Jetson Orin NX 16GB	√	√
Jetson Orin NX 8GB	√	×
Jetson Orin Nano 8GB	√	×
Jetson Orin Nano 4GB	×	×

Meta Llama3 is a family of advanced open source Large Language Models (LLMs) developed by the Meta AI division.

## Model size

Model	Parameters
Llama3	8B
Llama3	70B

## Performance

## Meta Llama 3 Instruct model performance

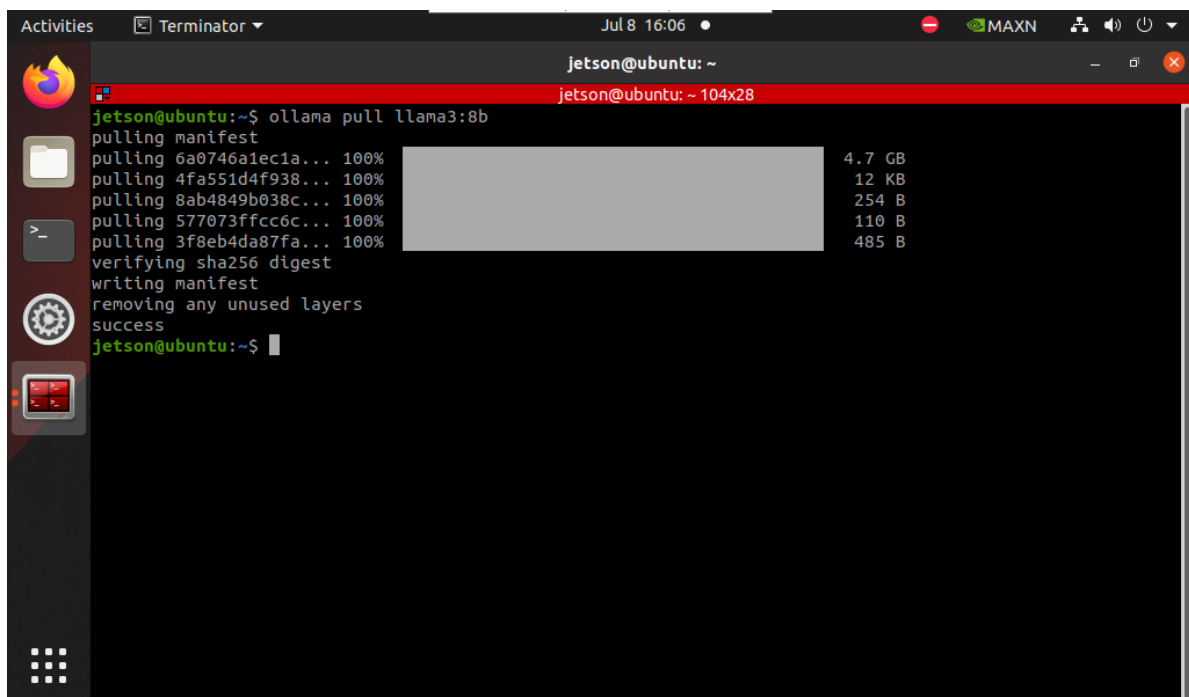
	Meta Llama 3 8B	Gemma 7B - It Measured	Mistral 7B Instruct Measured
MMLU 5-shot	68.4	53.3	58.4
GPQA 0-shot	34.2	21.4	26.3
HumanEval 0-shot	62.2	30.5	36.6
GSM-8K 8-shot, CoT	79.6	30.6	39.9
MATH 4-shot, CoT	30.0	12.2	11.0

	Meta Llama 3 70B	Gemini Pro 1.5 Published	Claude 3 Sonnet Published
MMLU 5-shot	82.0	81.9	79.0
GPQA 0-shot	39.5	41.5 CoT	38.5 CoT
HumanEval 0-shot	81.7	71.9	73.0
GSM-8K 8-shot, CoT	93.0	91.7 11-shot	92.3 0-shot
MATH 4-shot, CoT	50.4	58.5 Minerva prompt	40.5

## Pull Llama3

Using the pull command will automatically pull the model from the Ollama model library:

```
ollama pull llama3:8b
```



```
jetson@ubuntu: ~$ ollama pull llama3:8b
pulling manifest
pulling 6a0746a1ec1a... 100% 4.7 GB
pulling 4fa551d4f938... 100% 12 KB
pulling 8ab4849b038c... 100% 254 B
pulling 577073ffcc6c... 100% 110 B
pulling 3f8eb4da87fa... 100% 485 B
verifying sha256 digest
writing manifest
removing any unused layers
success
jetson@ubuntu: ~$
```

## Use Llama 3

### Run Llama 3

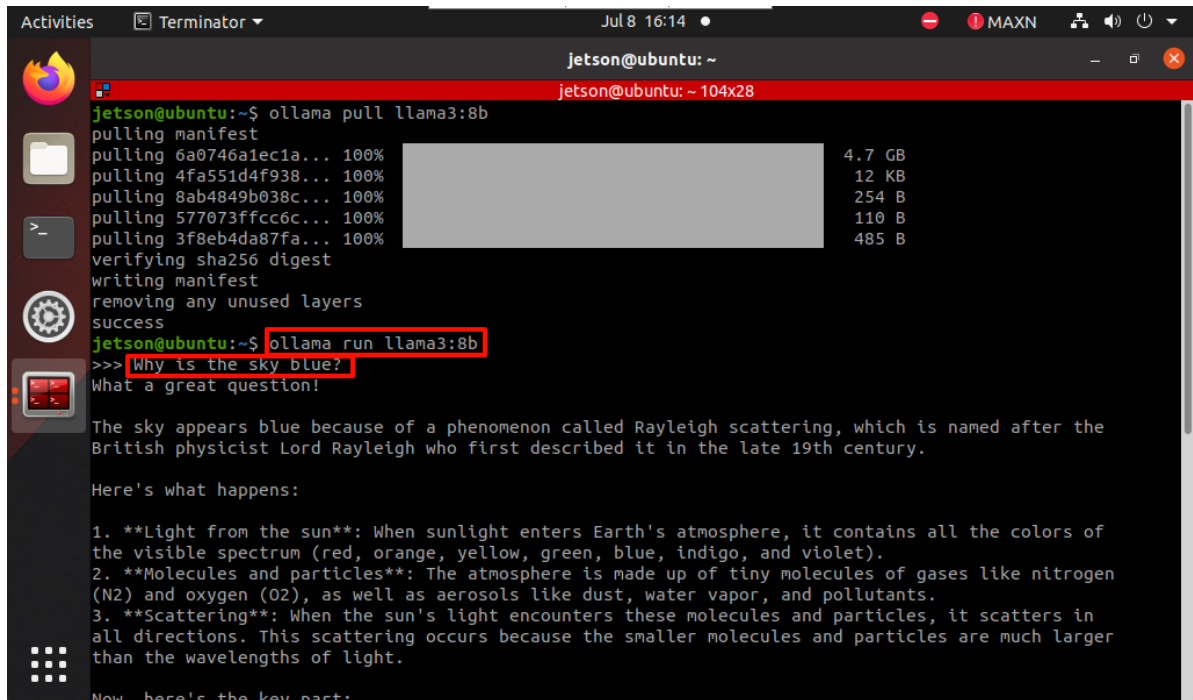
If the system does not have a running model, the system will automatically pull Llama3 8B model and run:

```
ollama run llama3:8b
```

## Start a conversation

why is the sky blue?

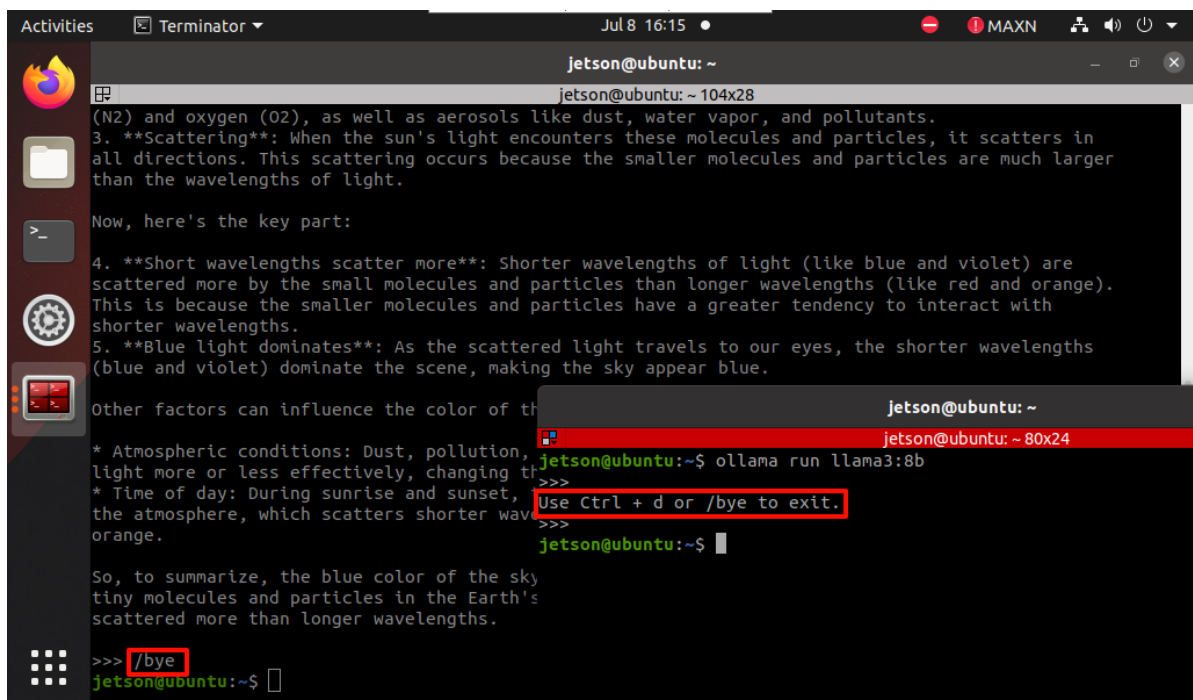
The time to reply to the question depends on the hardware configuration, please be patient!



```
jetson@ubuntu: ~  
jetson@ubuntu: ~ 104x28  
jetson@ubuntu:~$ ollama pull llama3:8b  
pulling manifest  
pulling 6a0746a1ec1a... 100% 4.7 GB  
pulling 4fa551d4f938... 100% 12 KB  
pulling 8ab4849b038c... 100% 254 B  
pulling 577073ffcc6c... 100% 110 B  
pulling 3f8eb4da87fa... 100% 485 B  
verifying sha256 digest  
writing manifest  
removing any unused layers  
success  
jetson@ubuntu:~$ ollama run llama3:8b  
>>> Why is the sky blue?  
What a great question!  
  
The sky appears blue because of a phenomenon called Rayleigh scattering, which is named after the British physicist Lord Rayleigh who first described it in the late 19th century.  
  
Here's what happens:  
  
1. Light from the sun: When sunlight enters Earth's atmosphere, it contains all the colors of the visible spectrum (red, orange, yellow, green, blue, indigo, and violet).  
2. Molecules and particles: The atmosphere is made up of tiny molecules of gases like nitrogen (N2) and oxygen (O2), as well as aerosols like dust, water vapor, and pollutants.  
3. Scattering: When the sun's light encounters these molecules and particles, it scatters in all directions. This scattering occurs because the smaller molecules and particles are much larger than the wavelengths of light.  
  
Now, here's the key part:
```

## End the conversation

Use the `Ctrl+d` shortcut key or `/bye` to end the conversation!



```
(N2) and oxygen (O2), as well as aerosols like dust, water vapor, and pollutants.  
3. Scattering: When the sun's light encounters these molecules and particles, it scatters in all directions. This scattering occurs because the smaller molecules and particles are much larger than the wavelengths of light.  
  
Now, here's the key part:  
  
4. Short wavelengths scatter more: Shorter wavelengths of light (like blue and violet) are scattered more by the small molecules and particles than longer wavelengths (like red and orange). This is because the smaller molecules and particles have a greater tendency to interact with shorter wavelengths.  
5. Blue light dominates: As the scattered light travels to our eyes, the shorter wavelengths (blue and violet) dominate the scene, making the sky appear blue.  
  
Other factors can influence the color of the sky:  
* Atmospheric conditions: Dust, pollution, and water vapor can scatter light more or less effectively, changing the color.  
* Time of day: During sunrise and sunset, the sun is lower in the atmosphere, which scatters shorter wavelengths more effectively, making the sky appear orange.  
  
So, to summarize, the blue color of the sky is due to the fact that the tiny molecules and particles in the Earth's atmosphere scatter shorter wavelengths of light more effectively than longer wavelengths.  
  
>>> /bye  
jetson@ubuntu:~$
```

## References

### Ollama

Official website: <https://ollama.com/>

GitHub: <https://github.com/ollama/ollama>

## Llama 3

GitHub: <https://github.com/meta-llama/llama3>

Ollama corresponding model: <https://ollama.com/library/llama3>