

# 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	Run directly with Ollama	Run with Open WebUI
Jetson Orin NX 16GB	√	√
Jetson Orin NX 8GB	√	×
Jetson Orin Nano 8GB	√	×
Jetson Orin Nano 4GB	×	×

Meta Llama3 is a series of advanced open source large language models (LLMs) developed by the Meta AI department.

## 1. Model size

Model	Parameters
Llama3	8B
Llama3	70B

## 2. Performance

## Meta Llama 3 Instruct model performance

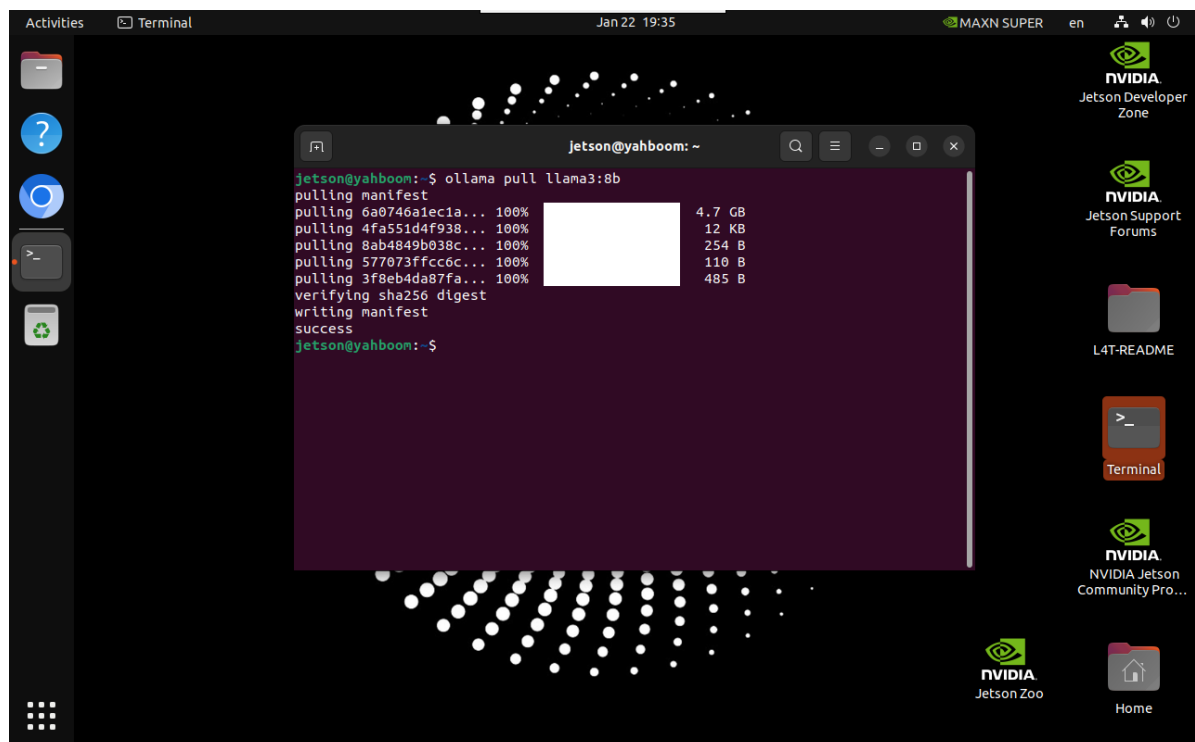
	Meta Llama 3 8B	Gemma 7B - It Measured	Mistral 7B Instruct Measured
MMLU 5-shot	68.4	53.3	58.4
GPQA 0-shot	34.2	21.4	26.3
HumanEval 0-shot	62.2	30.5	36.6
GSM-8K 8-shot, CoT	79.6	30.6	39.9
MATH 4-shot, CoT	30.0	12.2	11.0

	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

## 3. Pull Llama3

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

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



## 4. Use Llama 3

### 4.1. Run Llama 3

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

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

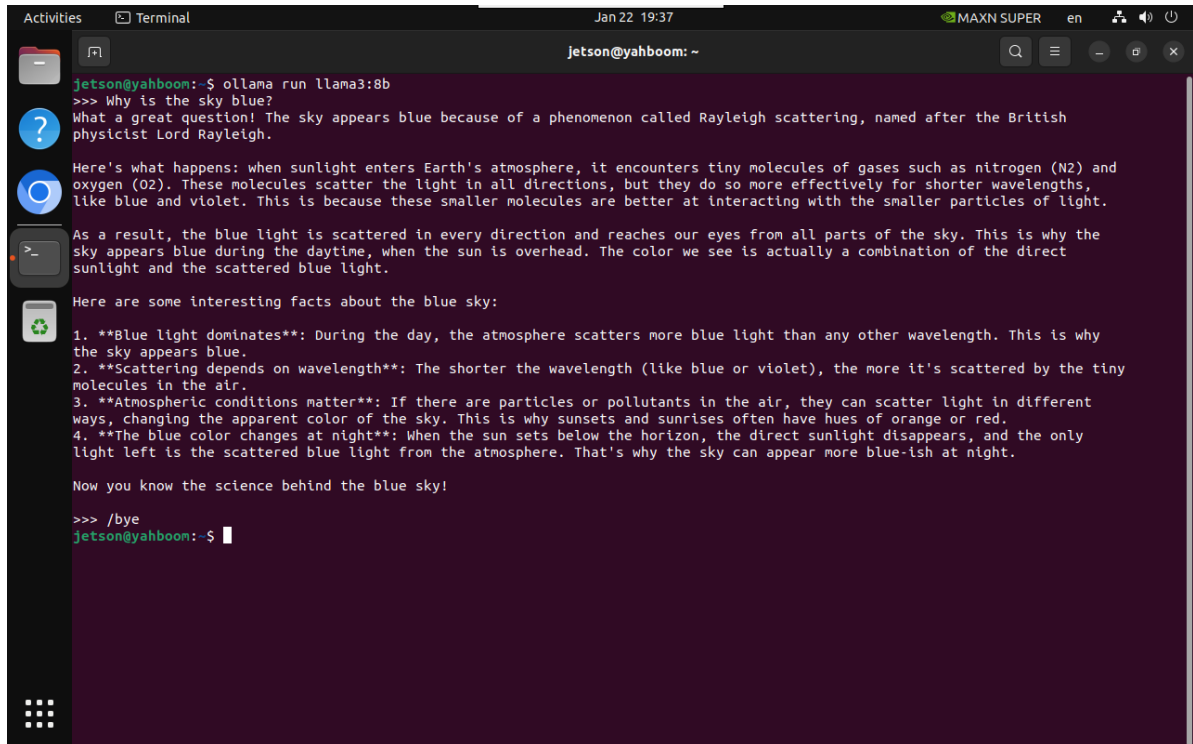
## 4.2. Have a conversation

```
why is the sky blue?
```

The time to answer the question depends on the hardware configuration, so be patient!

## 4.5. End the conversation

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



```
Activities Terminal Jan 22 19:37 MAXN SUPER en
jetson@yahboom: ~
jetson@yahboom:~$ ollama run llama3:8b
>>> why is the sky blue?
What a great question! The sky appears blue because of a phenomenon called Rayleigh scattering, named after the British physicist Lord Rayleigh.

Here's what happens: when sunlight enters Earth's atmosphere, it encounters tiny molecules of gases such as nitrogen (N2) and oxygen (O2). These molecules scatter the light in all directions, but they do so more effectively for shorter wavelengths, like blue and violet. This is because these smaller molecules are better at interacting with the smaller particles of light.

As a result, the blue light is scattered in every direction and reaches our eyes from all parts of the sky. This is why the sky appears blue during the daytime, when the sun is overhead. The color we see is actually a combination of the direct sunlight and the scattered blue light.

Here are some interesting facts about the blue sky:

1. Blue light dominates: During the day, the atmosphere scatters more blue light than any other wavelength. This is why the sky appears blue.
2. Scattering depends on wavelength: The shorter the wavelength (like blue or violet), the more it's scattered by the tiny molecules in the air.
3. Atmospheric conditions matter: If there are particles or pollutants in the air, they can scatter light in different ways, changing the apparent color of the sky. This is why sunsets and sunrises often have hues of orange or red.
4. The blue color changes at night: When the sun sets below the horizon, the direct sunlight disappears, and the only light left is the scattered blue light from the atmosphere. That's why the sky can appear more blue-ish at night.

Now you know the science behind the blue sky!

>>> /bye
jetson@yahboom:~$
```

## 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>