

Gemma3

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Demo Environment

Development Boards: Jetson Orin, RDK X5, Raspberry Pi 5 series motherboard

Note: Due to performance limitations, Jetson Orin Nano 4GB, Raspberry Pi 5 2GB, and RDK X5 4GB require a smaller parameter version to run.

Gemma is a lightweight model series built by Google based on Gemini technology. Gemma 3 models use a multimodal model (capable of handling text and images) and have 128K context windows, supporting over 140 languages.

1. Model Size

Model	Size
gemma3:1b	815MB
gemma3:4b	3.3GB

2. Performance

3. Using Gemma3

3.1 Running Gemma3

Use the `run` command to start running the model. If you haven't downloaded this model before, it will automatically pull models from the Ollama model library:

```
ollama run gemma3:4b
```

```
:~$ ollama run gemma3:4b
pulling manifest
pulling aeda25e63ebd: 100% [REDACTED] 3.3 GB
pulling e0a42594d802: 100% [REDACTED] 358 B
pulling dd084c7d92a3: 100% [REDACTED] 8.4 KB
pulling 3116c5225075: 100% [REDACTED] 77 B
pulling b6ae5839783f: 100% [REDACTED] 489 B
verifying sha256 digest
writing manifest
success
>>> Send a message (/? for help)
```

3.2 Conducting a Dialogue

```
How to learn a programming language?
```

The response time depends on hardware configuration. Please be patient!

```
-----
>>> How to learn a programming language?
Learning a programming language can feel daunting at first, but with a
structured approach and consistent effort, it's absolutely achievable.
Here's a breakdown of how to learn a programming language effectively,
broken down into stages and with different learning styles in mind:

**1. Choosing Your Language:**

* **Beginner-Friendly Options:**
    * **Python:** Highly recommended for beginners. It has a clean
syntax, huge community support, and is used in many fields (web
development, data science, scripting).
    * **JavaScript:** Essential for web development (front-end and
increasingly back-end with Node.js).
    * **Scratch:** (Visual, block-based) A fantastic starting point for
kids and absolute beginners to understand programming concepts without
worrying about syntax.
* **Consider Your Goals:** What do you want to *do* with programming?
    * **Web Development:** JavaScript, Python (with frameworks like Django
or Flask), Ruby
    * **Data Science/Machine Learning:** Python, R
    * **Game Development:** C#, C++, Python (with Pygame)
    * **Mobile App Development:** Swift (iOS), Kotlin/Java (Android)
```

3.3 Visual Functions



```
what do you see in this picture? ./test_pic.png
#Using ": + image path" in the dialogue allows the model to use its visual
functions to interpret information from the image.
```

```
:~$ ollama run gemma3:4b
>>> What do you see in this picture?:./test_pic.png
Added image './test_pic.png'
Here's a breakdown of what I see in the picture:

* **Main Subject:** A young man is in the foreground, with his eyes closed and his head tilted back, seemingly taking a deep breath. He's wearing a white tank top and shorts.
* **Background:** The background is a cityscape, likely a rooftop with buildings visible. There is a water bottle next to him.
* **Other Person:** There's another man sitting on the right, also seemingly relaxed.
* **Sky:** The sky is a vibrant blue with fluffy white clouds.
* **Color Tone:** The image has a slightly warm, saturated color tone, giving it a dramatic feel.

This photograph evokes a sense of stillness, perhaps a moment of respite amidst a busy urban environment. It's a strong, visually compelling image.

>>> Send a message (/? for help)
```

3.4 Ending the Dialogue

Use the shortcut `ctrl+d` or `/bye` to end the dialogue!

3.5 Chinese Dialogue

For those without a Chinese input method, please refer to the [Chinese input method switching tutorial](#).

Chinese Dialogue:

```
:~$ ollama run gemma3:4b
>>> 一个小时是多少分钟？请用中文告诉我
一个小时有 60 分钟。
```

References

Ollama

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

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

Gemma3

Ollama's corresponding model: <https://ollama.com/library/gemma3>