

DeepSeek-r1

DeepSeek-r1

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Demonstration environment

Development board: rdk x5 motherboard

sd card: 64G

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

Board Model	Ollama direct operation
rdk x5 8GB	√
rdk x3 4GB	√(Need to run the small parameter version)

DeepSeek-r1 is an open source large language model (LLM) designed by DeepSeek for code understanding and generation.

Model size

Model	Parameter
DeepSeek-r1	1.5B
DeepSeek-r1	7B
DeepSeek-r1	8B

rdk x5 8GB: Run deepseek-r1 model with 8B or less parameters!
rdk x5 4GB: Run deepseek-r1 model with 4B or less parameters!

Pull DeepSeek-r1

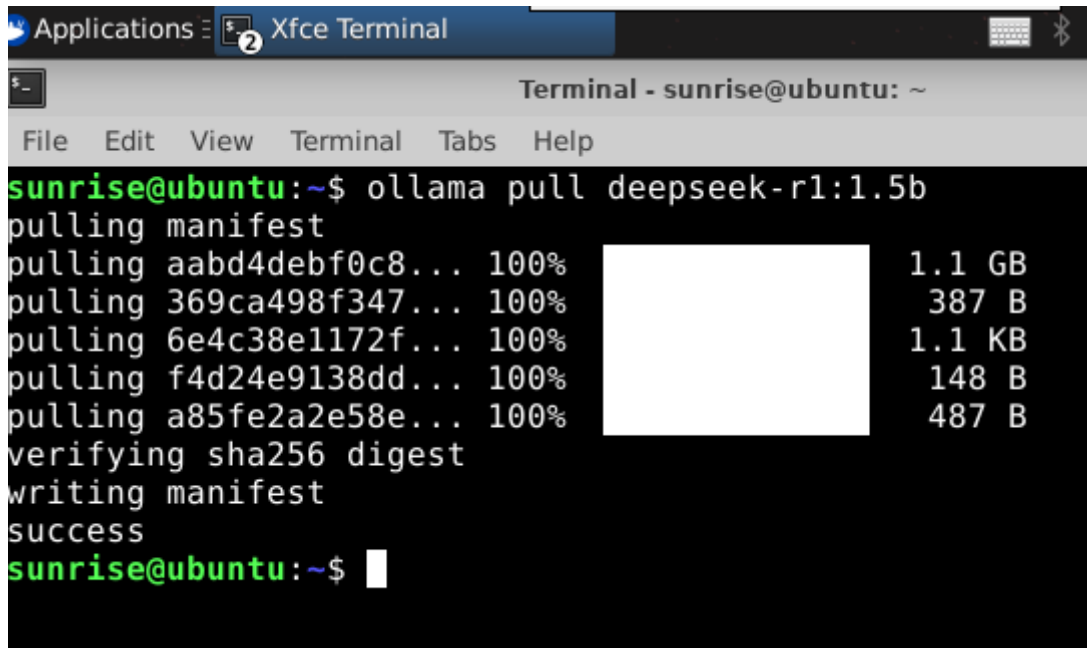
When pulling a model with large parameters such as DeepSeek-R1, it is recommended that you check the system's available memory in advance to ensure that the SD card system has completed the memory expansion operation to avoid deployment failure or other problems caused by insufficient memory

rdk x5 8GB board:

```
ollama pull deepseek-r1:8b
```

rdk x5 4GB board:

```
ollama pull deepseek-r1:1.5b
```



```
Terminal - sunrise@ubuntu: ~
File Edit View Terminal Tabs Help
sunrise@ubuntu:~$ ollama pull deepseek-r1:1.5b
pulling manifest
pulling aabd4debf0c8... 100% 1.1 GB
pulling 369ca498f347... 100% 387 B
pulling 6e4c38e1172f... 100% 1.1 KB
pulling f4d24e9138dd... 100% 148 B
pulling a85fe2a2e58e... 100% 487 B
verifying sha256 digest
writing manifest
success
sunrise@ubuntu:~$
```

Use DeepSeek-r1

Run DeepSeek-r1

For a motherboard with rdk x5 8Gb RAM, you need to enable desktop and docker services, and then run the following command in the ssh remote login terminal:

Shut down the docker service command:

```
sudo systemctl stop docker
```

To turn off desktop service command:

```
sudo systemctl stop lightdm
```

If you want to re-enable the above two functions:

```
sudo systemctl start docker
sudo systemctl start lightdm
```

Run the language dialogue model:

```
ollama run deepseek-r1:8b
```

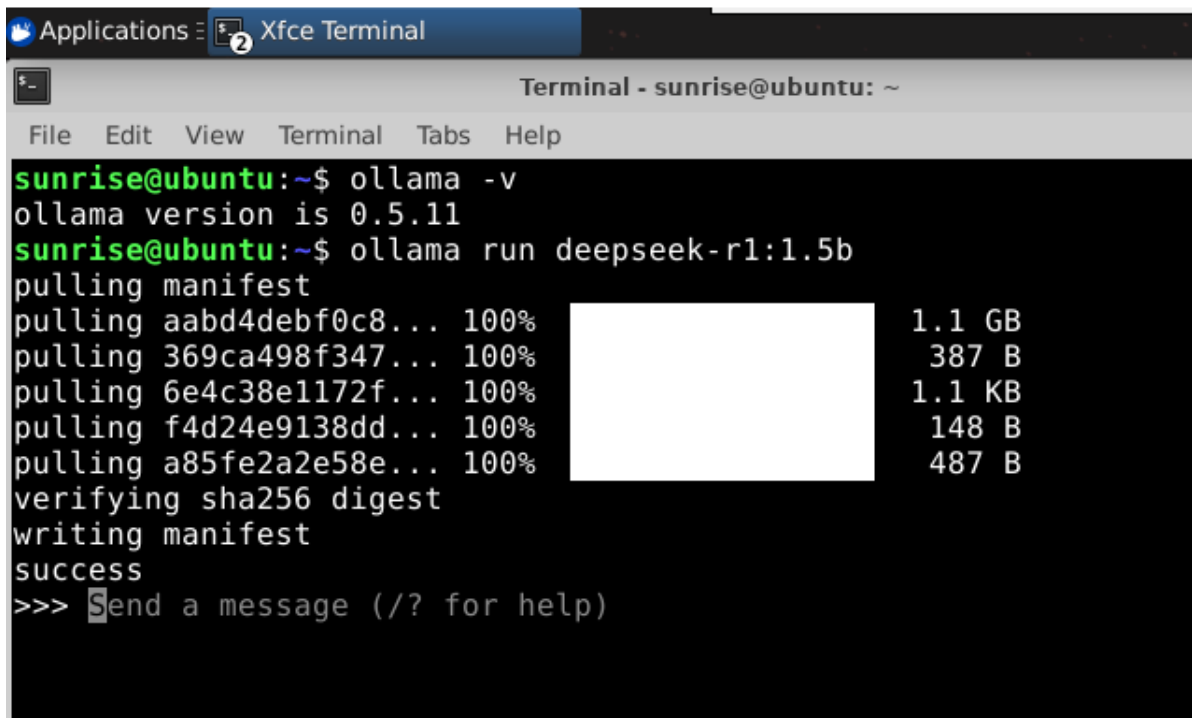
```
sunrise@ubuntu:~$ ollama run deepseek-r1:8b
Error: model requires more system memory (6.1 GiB) than is available (5.9 GiB)
sunrise@ubuntu:~$ sudo systemctl stop docker
Warning: Stopping docker.service, but it can still be activated by:
  docker.socket
sunrise@ubuntu:~$ ollama run deepseek-r1:8b
>>> hello
<think>

</think>

Hello! How can I assist you today? @
>>> Send a message (/? for help)
```

rdk x5 4GB RAM motherboard, if the system does not have this model, it will automatically pull it and enter the dialogue interface.

```
ollama run deepseek-r1:1.5b
```



```
Applications ▢ 2 Xfce Terminal
Terminal - sunrise@ubuntu: ~
File Edit View Terminal Tabs Help
sunrise@ubuntu:~$ ollama -v
ollama version is 0.5.11
sunrise@ubuntu:~$ ollama run deepseek-r1:1.5b
pulling manifest
pulling aabd4debf0c8... 100% 1.1 GB
pulling 369ca498f347... 100% 387 B
pulling 6e4c38e1172f... 100% 1.1 KB
pulling f4d24e9138dd... 100% 148 B
pulling a85fe2a2e58e... 100% 487 B
verifying sha256 digest
writing manifest
success
>>> Send a message (/? for help)
```

Start a conversation

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

Startup command.

```
ollama run deepseek-r1:1.5b
```

```
Terminal - sunrise@ubuntu: ~
File Edit View Terminal Tabs Help

sunrise@ubuntu:~$
sunrise@ubuntu:~$ ollama run deepseek-r1:1.5b
>>> Please tell me how many centimeters are equal to one meter
<think>
First, I need to understand the relationship between meters and
centimeters. One meter is a standard unit of length in the metric system.

To convert meters to centimeters, it's important to know that 1 meter
equals 100 centimeters.

This conversion factor allows us to multiply or divide by 100 to switch
between meters and centimeters.
</think>

Sure! Let's determine how many centimeters are equal to one meter.

### Step-by-Step Solution:

1. **Understand the Relationship Between Meters and Centimeters:**
   - In the metric system, units of length are related by powers of ten.
   - Specifically, **1 meter (m)** is equal to 100 centimeters (cm).
```

End the conversation

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

```
Applications 2 Xfce Terminal
Terminal - sunrise@ubuntu: ~
File Edit View Terminal Tabs Help

sunrise@ubuntu:~$ ollama run deepseek-r1:1.5b
>>> who are you?
<think>

</think>

Greetings! I'm DeepSeek-R1, an artificial intelligence assistant
created by DeepSeek. I'm at your service and would be delighted to
assist you with any inquiries or tasks you may have.

>>> /bye
sunrise@ubuntu:~$
```

References

Ollama

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

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

DeepSeek-r1

Ollama model: <https://ollama.com/library/deepseek-r1>

GitHub: <https://github.com/deepseek-ai/DeepSeek-r1>

