

# CLI Usage

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## CLI Usage

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References

## 1. Download Source Code

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```
git clone https://github.com/ultralytics/ultralytics.git
```

## 2. Enable Maximum Board Performance

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### 2.1. Enable MAX Power Mode

Enabling MAX Power Mode on Jetson will ensure that all CPU and GPU cores are turned on:

```
#Orin Nano  
sudo nvpmodel -m 2  
#Orin Nx  
sudo nvpmodel -m 0
```

### 2.2. Enable Jetson Clocks

Enabling Jetson Clocks will ensure that all CPU and GPU cores run at maximum frequency:

```
sudo jetson_clocks
```

## 3. Use CLI for Prediction

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**CLI** (Command-Line Interface) is a way for users to interact with computers or software programs. Users run programs or execute tasks by typing text commands, rather than clicking icons or buttons through a graphical user interface (GUI).

### 3.1. CLI Usage Syntax

```
yolo TASK MODE ARGS
```

where **TASK** (optional) is one of [detect, segment, classify, pose, obb]  
**MODE** (required) is one of [train, val, predict, **export**, track,  
benchmark]

**ARGS** (optional) are any number of custom '**arg=value**' pairs like  
'**imgsz=320**' that override defaults.

### 3.2. Image Prediction

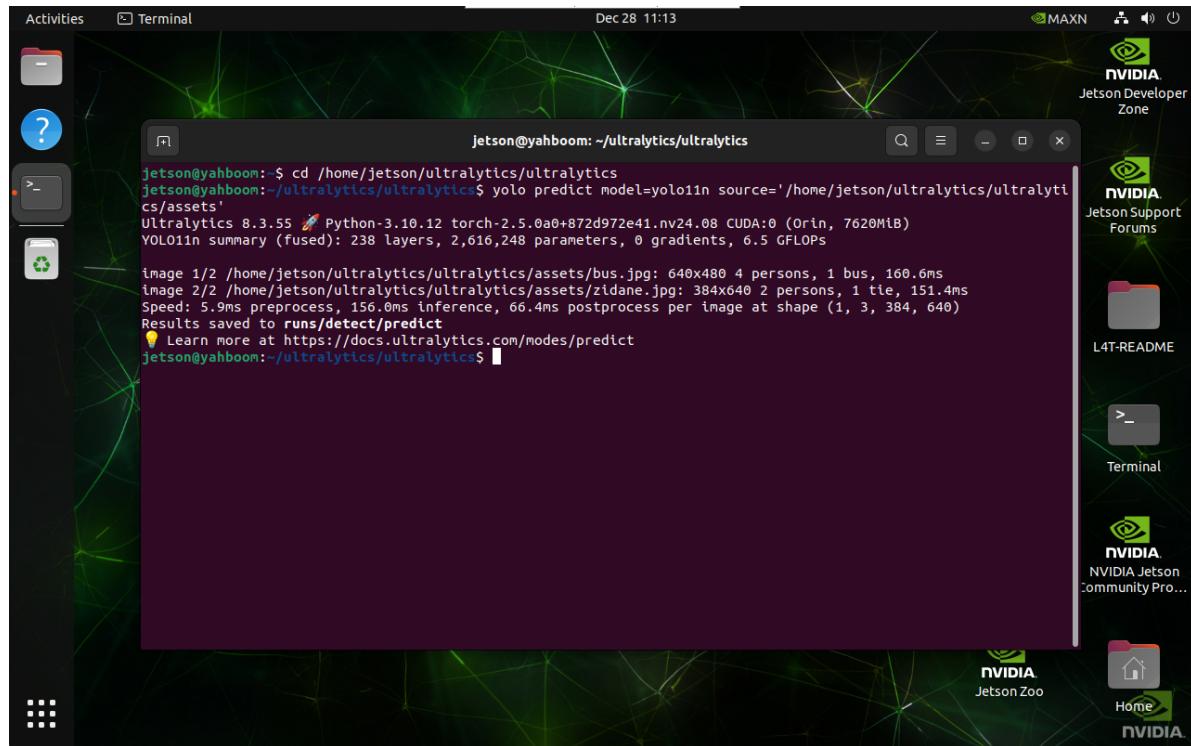
Use yolo11n.pt to predict the built-in images in the ultralytics project: If the system cannot find the corresponding model file in the directory where the command is running, it will be automatically downloaded (if download fails, you can copy the model in yourself)

Enter the project folder:

```
cd /home/jetson/ultralytics/ultralytics/
```

Use yolo11n.pt to detect images in the target folder and output results:

```
yolo predict model=yolo11n source='/home/jetson/ultralytics/ultralytics/assets'
```

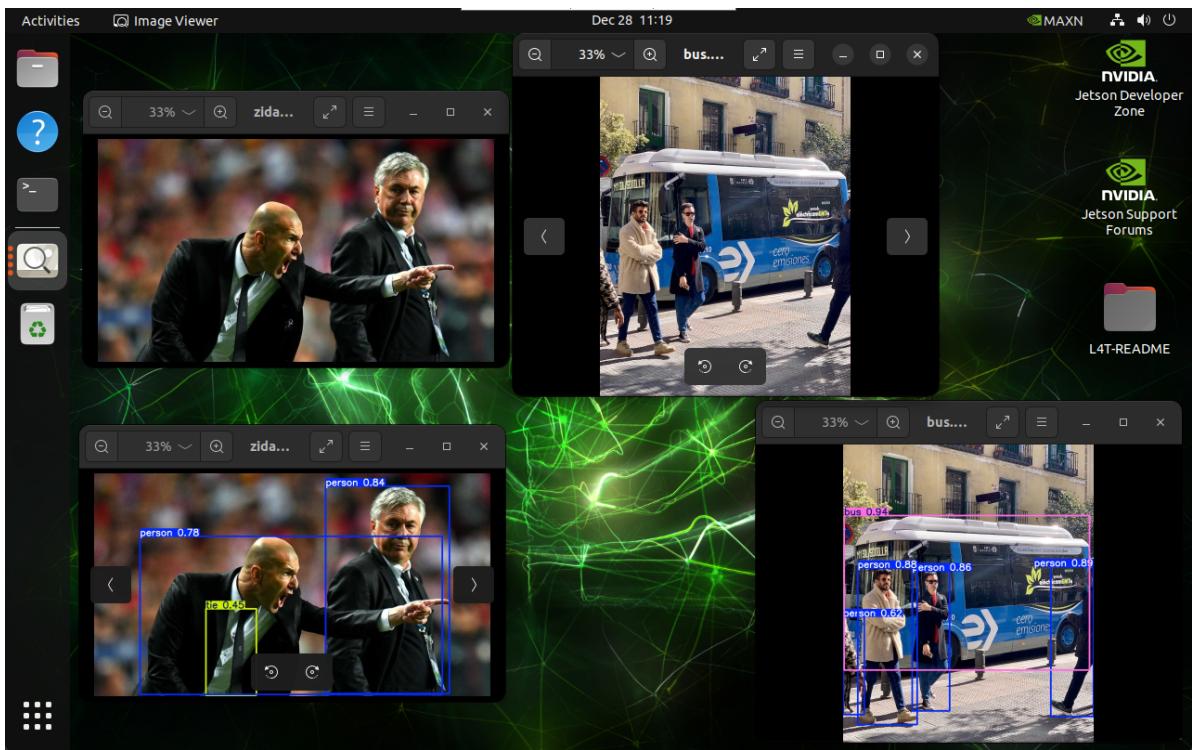


```
jetson@yahboom:~$ cd /home/jetson/ultralytics/ultralytics
jetson@yahboom:~/ultralytics$ yolo predict model=yolo11n source='/home/jetson/ultralytics/ultralytics/assets'
Ultralytics 8.3.55 🚀 Python-3.10.12 torch-2.5.0a0+872d972e41.nv24.08 CUDA:0 (Orin, 7620MiB)
YOLOv1n summary (fused): 238 layers, 2,616,248 parameters, 0 gradients, 6.5 GFLOPs
image 1/2 /home/jetson/ultralytics/ultralytics/assets/bus.jpg: 640x480 4 persons, 1 bus, 160.6ms
image 2/2 /home/jetson/ultralytics/ultralytics/assets/zidane.jpg: 384x640 2 persons, 1 tie, 151.4ms
Speed: 5.9ms preprocess, 156.0ms inference, 66.4ms postprocess per image at shape (1, 3, 384, 640)
Results saved to runs/detect/predict
jetson@yahboom:~/ultralytics$
```

#### Effect Preview

yolo recognition output video location: /home/jetson/ultralytics/ultralytics/runs/detect;

Each time it runs, predict under this folder automatically increments by 1



### 3.3. Video Prediction

Use `yolo11n.pt` to predict videos in the ultralytics project (not videos that come with ultralytics): If the system cannot find the corresponding model file in the directory where the command is running, it will be automatically downloaded (if download fails, you can copy the model in yourself)

Enter the project folder:

```
cd /home/jetson/ultralytics/ultralytics
```

Use `yolo11n.pt` to detect videos in the target folder and output results:

```
yolo predict model=yolo11n source='/home/jetson/ultralytics/ultralytics/videos'
```

```
jetson@yahboom:~$ cd /home/jetson/ultralytics/ultralytics
jetson@yahboom:~/ultralytics$ yolo predict model=yolo1n source='/home/jetson/ultralytics/ultralytics/videos'
Ultralytics 8.3.55 + Python-3.10.12 torch-2.5.0a0+872d972e41.nv24.08 CUDA:0 (Orin, 7620MiB)
YOLO1n summary (fused): 238 layers, 2,616,248 parameters, 0 gradients, 6.5 GFLOPs

video 1/1 (frame 1/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 dogs, 14.8ms
video 1/1 (frame 2/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 dogs, 1 sheep, 41.3ms
video 1/1 (frame 3/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 dogs, 1 sheep, 41.5ms
video 1/1 (frame 4/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 dogs, 1 sheep, 44.2ms
video 1/1 (frame 5/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 1 dog, 2 sheep, 23.6ms
video 1/1 (frame 6/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 1 dog, 2 sheep, 41.8ms
video 1/1 (frame 7/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 sheep, 45.2ms
video 1/1 (frame 8/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 1 dog, 2 sheep, 38.3ms
video 1/1 (frame 9/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 sheep, 25.8ms
video 1/1 (frame 10/119) /home/jetson/ultralytics/ultralytics/videos/01.people_animals.mp4: 480x640 2
persons, 2 sheep, 31.9ms
```

## Effect Preview

yolo recognition output video location: /home/jetson/ultralytics/ultralytics/runs/detect

Each time it runs, predict under this folder automatically increments by 1

You can use ffmpeg to view videos. Use the following command to install:

```
sudo apt update  
sudo apt install ffmpeg -y
```

Play video:

`ffplay <video_name>.avi`

The screenshot displays a Linux desktop environment with two terminal windows and a background visualization.

**Top Terminal:**

```
jetson@yahboom:~/ultralytics/ultralytics/runs/detect/predict$ ffplay people_animals.avi
```

**Bottom Terminal:**

```
jetson@yahboom:~/ultralytics/ultralytics/videos$ ffplay people_animals.mp4
```

**Background Visualization:**

A green neural network visualization is overlaid on the desktop background, showing a complex web of interconnected nodes and edges.

## 3.4. Real-time Prediction

Use yolo11n.pt to predict USB camera feed: If the system cannot find the corresponding model file in the directory where the command is running, it will be automatically downloaded (if download fails, you can copy the model in yourself)

Enter the project folder:

```
cd /home/jetson/ultralytics/ultralytics
```

Use yolo11n.pt to detect camera feed and output results: Currently only USB cameras can directly use CLI for real-time prediction. No relevant information found for CSI cameras as direct input source

```
yolo predict model=yolo11n.pt source=0 save=False show # Object detection
# Instance segmentation: yolo predict model=yolo11n-seg.pt source=0 save=False show
# Image classification: yolo predict model=yolo11n-cls.pt source=0 save=False show
# Pose estimation: yolo predict model=yolo11n-pose.pt source=0 save=False show
# Oriented object detection: yolo predict model=yolo11n-obb.pt source=0 save=False show
```

Click on the terminal and press "Ctrl + C" shortcut to terminate the program!

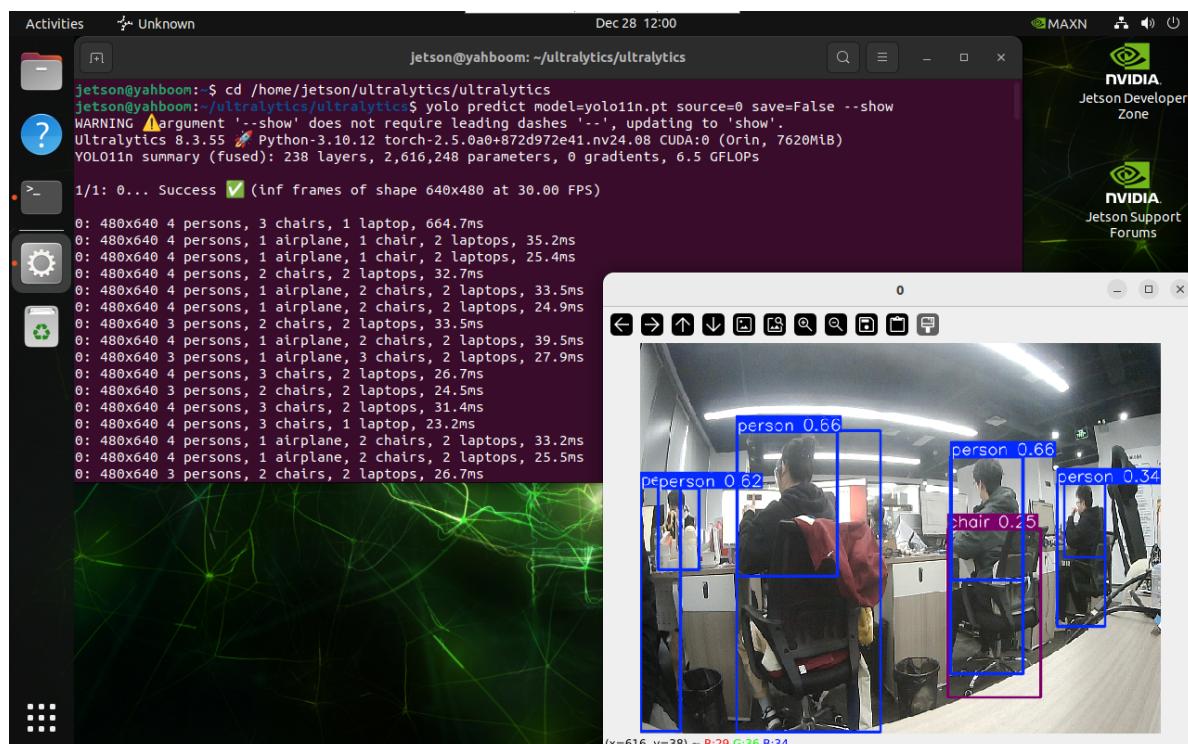
### Parameter Description

`model`: Specify YOLO model

`source`: Specify recognition source: multiple cameras can switch numbers

`save=False`: Disable saving results

`show`: Real-time display



## References

<https://github.com/ultralytics/ultralytics>

<https://docs.ultralytics.com/usage/cli/>