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Getting Started with tensorflow-metal PluggableDevice

Accelerate training of machine learning models with TensorFlow right on your Mac. Install TensorFlow and the tensorflow-metal PluggableDevice to accelerate training with Metal on Mac GPUs.

Learn more about TensorFlow PluggableDevices ›

OS Requirements

- macOS 12.0+ (latest beta)

Currently Not Supported

- Multi-GPU support
- Acceleration for Intel GPUs
- V1 TensorFlow Networks

Installation Instructions

Step 1: Environment setup

x86 : AMD

Create virtual environment (recommended):

```
python3 -m venv ~/tensorflow-metal
source ~/tensorflow-metal/bin/activate
python -m pip install -U pip
```

NOTE: python version 3.8 required

arm64 : Apple Silicon

Download and install Conda env:

```
chmod +x ~/Downloads/Miniforge3-MacOSX-arm64.sh
```

```
sh ~/Downloads/Miniforge3-MacOSX-arm64.sh
source ~/miniforge3/bin/activate
```

Install the TensorFlow dependencies:

```
conda install -c apple tensorflow-deps
```

- When upgrading to new base TensorFlow version, we recommend:

```
# uninstall existing tensorflow-macos and tensorflow-metal
python -m pip uninstall tensorflow-macos
python -m pip uninstall tensorflow-metal
# Upgrade tensorflow-deps
conda install -c apple tensorflow-deps --force-reinstall
# or point to specific conda environment
conda install -c apple tensorflow-deps --force-reinstall -n my_env
```

- tensorflow-deps versions are following base TensorFlow versions so:

  For v2.5:

  ```
  conda install -c apple tensorflow-deps==2.5.0
  ```

  For v2.6:

  ```
  conda install -c apple tensorflow-deps==2.6.0
  ```

NOTE: python versions 3.8 and 3.9 supported

Metal

Overview   Sample Code

Step 2: Install base TensorFlow

```
python -m pip install tensorflow-macos
```

NOTE: If using conda environment built against pre-macOS 11 SDK use:
SYSTEM_VERSION_COMPAT=0 python -m pip install tensorflow-macos
otherwise you will get errors like : "not a supported wheel on this platform"

Step 3: Install tensorflow-metal plugin

```
python -m pip install tensorflow-metal
```

Questions and Feedback

To ask questions and share feedback about the tensorflow-metal plugin, visit the Apple Developer Forum.

Developer   Metal Overview   Tensorflow Plugin

Platforms
iOS
iPadOS
macOS
tvOS
watchOS

Languages
Swift
SwiftUI

Tools
SF Symbols
Swift Playgrounds
TestFlight
Xcode
Xcode Cloud

Topics & Technologies
Accessibility
Accessories
App Extensions
App Store
Audio & Video
Augmented Reality
Business
Design
Distribution
Education
Fonts
Games
Health & Fitness
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