

Lab Setup Guide – Localize Labs

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Introduction

This lab setup guide helps you get your local environment configured for the AMD customer training labs.

AMD Official Policy

Instructor/classroom-led customers are provided with a Linux virtual machine (CustEd VM) for performing the labs through the Authorized Training Providers.

On-Demand users perform the labs in the same VM implemented through the CloudShare environment.

No support is provided for users running Linux natively, nor (except in rare instances) is Windows supported.

While some labs run equally well under Windows as under Linux, many labs run only under Linux. Please review the guidance provided with each course or topic. AMD does not officially support local execution in either Linux or Windows.

That said, many labs will run under Windows, although Windows users will need to translate the instructions from the provided Linux format into Windows. Some labs require Linux and simply cannot be run under Windows (e.g., Vitis™ AI, AI Engine labs, and others). This document is meant only to help users configure their local environment and should not be construed as official support.

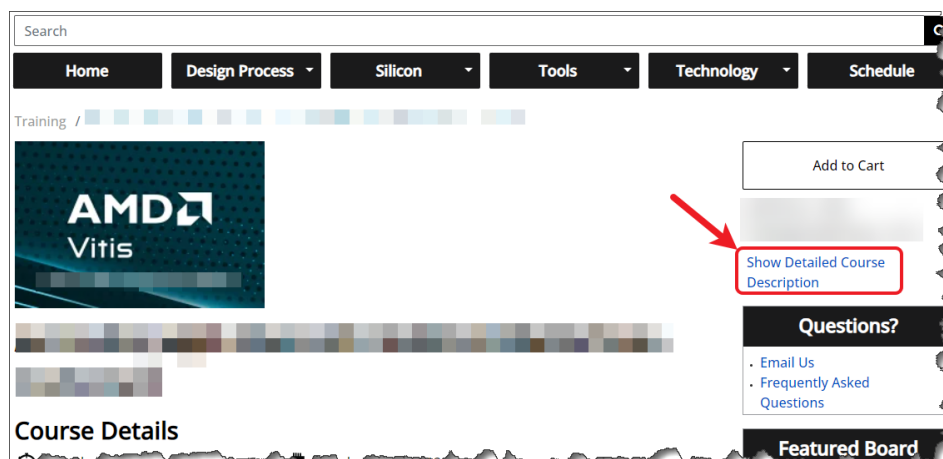
Note: Each lab file set is designed to run under a specific version of the tools. Please ensure that the lab file set, lab instructions, and tool versions match. For example, the version 2024.1 tools will likely not work with the 2023.1 lab files when you are following the 2023.2 instructions.

The following must be addressed regardless of the operating system:

- Where the lab files are extracted.
- Adjusting the environment variable so that it points to these files.
- Occasionally, some scripts may need to be adjusted to reference the tool installation location. These changes should be clearly indicated within the script.

AMD tool requirements differ from lab to lab. Some labs do not require any tools, whereas other labs require more than one tool.

This guide assumes that you have a working installation of the required AMD tools and corresponding licenses. The Software Tools section from the **Show Detailed Course Description** link lists the required tools for the course.



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Use the AMD Unified Installer to select and install the required AMD tools.

Note: During the installation process, you will be invited to install the cable drivers, which are required to connect to the evaluation boards.

The following is a list of the tools used by our courses. Not every tool is required for every course. Refer to the release notes in the tool's user guide for specific OS requirements.

Tool Name	Documentation	Notes
Vitis™ Unified Software Platform	UG1416 (https://docs.amd.com/v/u/en-US/ug1416-vitis-documentation)	The Vitis option in the installer includes the Vivado Design Suite, Vitis Model Composer, HLS, and AIE tools. For the Vitis - Application Acceleration Development Flow, refer to UG1393 (https://docs.amd.com/r/en-US/ug1393-vitis-application-acceleration/Getting-Started-with-Vitis). For the Vitis - Embedded Software Development Flow, refer to UG1400 (https://docs.amd.com/r/en-US/ug1400-vitis-embedded).
Vivado™ Design Suite	UG973 (https://docs.amd.com/r/en-US/ug973-vivado-release-notes-install-license/Release-Notes)	The Unified Installer allows access to the Vivado Design Suite separately from the Vitis tools.
Power Design Manager (PDM)	UG1556 (https://docs.amd.com/r/en-US/ug1556-power-design-manager)	
PetaLinux (Linux only)	UG1144 (https://docs.amd.com/r/en-US/ug1144-petalinux-tools-reference-guide/Overview)	

Please review the *Lab Setup Guide – Customer Academy* document for details for each course.

Depending on the course, you may need the following:

- Board support packages (BSPs) from <https://www.xilinx.com/support/download/index.html/content/xilinx/en/downloadNav/embedded-design-tools.html>.
 - Copy these to the installation directory.
 - The BSP installation directory is `/opt/bsps` for Linux and `%installation_path%\bsps` for Windows.
- Linux only: Common images required for Embedded Vitis platforms from <https://www.xilinx.com/support/download/index.html/content/xilinx/en/downloadNav/embedded-platforms.html>.
 - Extract these to the `/opt` directory.
- Serial terminal (GTK Term for Linux and Tera Term for Windows) to connect a board to the environment.

Launch each of these to verify that they are properly installed. You can install and verify the licenses using the License Manager.

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Instructions

There are two basic requirements: Loading the lab files and configuring the environment variables and scripts.

Download the lab files for the course.

- 1) Open a browser.
- 2) Navigate to <https://www.amd.com/en/training/customer/adaptive-computing/downloads.html>.
- 3) Download the zip file(s) for the desired course(s).
Make sure you download the version that matches your tools and lab instructions.
- 4) Unzip the file(s).

Note: We *strongly* suggest that you unzip to these locations:

Windows: C:\training

Linux: /home/<username>/training

Here, <username> will be the username for your Linux machine.

For Windows, ensure that there are no spaces in the path and keep the path name short as the tools will often create lengthy hierarchy structures that can exceed the 260-character Windows limit, causing unnecessary and avoidable problems.

Remove unnecessary directory hierarchies, if any, to reflect the above structure.

There is only one environment variable that points to where the labs are performed. The instructions provided here illustrate how to set this variable.

Set the environment variable in your local environment.

Windows:

- 1) Open a command prompt window (press <Windows key + R> and enter `cmd`).
- 2) Enter the following command to set the environment variable permanently:
`setx TRAINING_PATH <location selected in the previous instruction>`
Example: `setx TRAINING_PATH \training`
- 3) Close the command prompt window.
- 4) Open a new command prompt window.
- 5) Enter the following command to verify that the environment variable is set:
`echo %TRAINING_PATH%`

The desired path should appear.

Note: Alternatively, right-click **This PC** from a Windows File Explorer browser and then select **Properties > Advanced system settings > Environment Variables**. You can then add or modify the **TRAINING_PATH** entry.

Linux:

- 1) Open a terminal window (press <Ctrl + Alt + T>).
- 2) Permanently set the environment variable for the user:
`echo 'export TRAINING_PATH=/home/$USER/training' >> ~/.profile`
This appends the `export` command to the `.profile` file.
Note: The `.profile` file contains the settings that are automatically run upon login.
- 3) Reboot your environment:

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```
sudo reboot
```

4) If necessary, re-login to the machine.

5) Verify the environment variable by opening a new terminal window and entering the following:

```
echo $TRAINING_PATH
```

The path to your lab files should appear.

Note: If you decide to change the location of your lab files, you must update the `$TRAINING_PATH` variable to point to that location by editing the `.profile` file.

Interpreting the Lab Instructions for Windows Users

The lab instructions are written for the Linux environment. There are several notable changes that you will need to make for Windows.

Linux uses the forward-slash (/) character to delimit the hierarchy, whereas Windows uses the backslash character (\). You must use the appropriate hierarchy delimiter for your OS.

Linux uses the `$` character to extract the value of the variable, whereas Windows requires the variable to be surrounded by the `%` symbol.

For example: [Linux] `echo $TRAINING_PATH` becomes [Windows] `echo %TRAINING_PATH%`. You must make these substitutions wherever variables are used.

Linux does not use file extensions to denote executables whereas Windows requires a `.exe` extension. Several labs require you to run an executable. Windows users must add the `.exe` extension.

Similarly, certain tool paths may differ based on the OS. Windows users must adjust this path.

For example: Under the Linux `.../Vivado/<release>` directory is another directory named `lnx64`. This directory does not exist in Windows—you would use `win64` instead.

To access the directories and files from a Tcl file, `./` prefix needs to be removed.

For example: Under Linux, `set src_dir ./wave_gen/src` sets the source directory. This command does not set the source directory in Windows—you would use `set src_dir wave_gen/src` instead.

Many labs *cannot* be run under Windows at all, such as any lab that uses the AIE and PetaLinux tools. Conversely, a limited number of labs cannot be run under Linux as they require Microsoft Excel.

Some labs require that a file be unzipped from within the Tcl console. The Linux tool is `unzip`, however, Windows's default archival tool is `expand`. So, when you see "unzip" in Linux, use "expand" in Windows.