

EPICS Introduction

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Overview

This is a first EPICS introduction:

- **EPICS Overview**
- **First Steps in the Virtual Machine**
- **Basics of EPICS Database**
- **Basics of EDM**
- **Basics of CS-Studio, DisplayBuilder, BOY**

Preparation

On the accelerator and instruments, EPICS is typically used on Linux. You will be using a Linux setup which includes the EPICS components within a “virtual machine”.

Please prepare a laptop, or a desktop with helper to carry it.

1. The computer must run a 64 bit OS (Windows, Linux, Mac OS X) and should have at least 8GB of memory.
In the BIOS of your computer, you may have to enable the “VT-X” or “AMD-v” option to support 64 bit guest operating systems.
2. Download and install the 64 bit version of Virtualbox for your OS from <https://www.virtualbox.org/wiki/Downloads>
3. Download the latest “TrainingSNS*.ova” VM image from https://controlssoftware.sns.ornl.gov/training/2018_SNS/ (this may take 5 minutes).
4. Start VirtualBox, invoke the menu File, Import Appliance...
5. Select the file “TrainingSNS*.ova” that you just downloaded, press ‘Continue’.
6. On the next page, you can adjust the number of allocated CPUs and RAM.
Try CPU: 4, RAM: 4096 MB. Press ‘Import’.

In the Virtual Box program, you should now see a new virtual machine. If you are on Mac OS X, after the import, select the imported VM, open the menu Machine/Settings, and in the ‘Display’ section, enable “Use Unscaled HiDPI Output”.

Start the VM by double-clicking on it. After about 10 seconds, Linux should start up and automatically log you into the account for the user `training` (with password `\$training` in case you should later need that).

From the VirtualBox window menu, select View, Auto-resize Guest Display.

Most of the time, it will be most convenient to work in full-screen mode, which you also select from the View menu (revert via Apple Command-F or right-Ctrl-F).

To close the VM, use the drop-down at the right edge of the desktop menu bar which includes a “power off” button.

VM Hints

First check:

1. Right click on desktop, "Open Terminal"
2. Type "start_iocCA <Return>"
3. Open another terminal
4. Type "camonitor training:calcExample <Return>"

Basic tools included in the Linux image:

- Terminal: Open via Applications, Favorites or from "Open Terminal" context menu of desktop
- Editors: vi, gedit, css

All the tools and examples are in an `epics-train` folder in your home directory:

- epics-train/tools: Contains EPICS base, EDM, CS-Studio, ...
- epics-train/examples: Contains example IOCs, displays, ...