# IBM Mainframe Emulator System Notes

Last updated: December 22, 2020 by David Young

## Mainframe Emulator Platform Setup

* The Hercules mainframe emulator system can run on either Windows or Linux devices. There are actually two parts to the framework: the hardware emulator (Hercules), and the MVS Operating System and related components.
* The Hercules S/370 hardware emulator and documentation can be found at: [The Hercules System/370, ESA/390, and z/Architecture Emulator (hercules-390.eu)](http://www.hercules-390.eu/)
* You can download the appropriate installer package and run it to create the environment on a desktop. But you don’t really have to, as Hercules comes with the MVS ‘Turnkey’ framework.
* The MVS Turnkey system can be found and downloaded from: [The MVS 3.8j Tur(n)key System (ethz.ch)](http://wotho.ethz.ch/tk4-/)
* Before you install the MVS system, it’s a good idea to watch some Youtube videos on how to set up and use the environment. A guy named Moshix has several good tutorials. This is a good one to start with: [(233) Mainframe operating system IBM MVS 3.8 on Windows for beginners - M44 - YouTube](https://www.youtube.com/watch?v=QTxe8ASdxE0)
* Download and unzip the current version of the TK4 platform into a folder. I used [D:\ibm-mvs](../../../ibm-mvs).
* You also need a 3270 terminal emulator to interact with the mainframe. The best one is tn3270 from Tom Brennan software, which can be found at: [Tom Brennan Software - Vista tn3270](https://www.tombrennansoftware.com/) . However, it’s free for 30 days and then you have to pay for it.
* A free but not as good open source version is x3270 which can be found at: [x3270 (bgp.nu)](http://x3270.bgp.nu/)
* Per the instructions from Moshix, you need to configure MVS to interact via port 3270 and host 127.0.0.1, aka ‘localhost’ (tn3270 works with localhost, but x3270 needs the 127.0.0.1.
* To start up MVS, run mvs.bat (Windows) or mvs (Linux) scripts from a command / terminal session. It takes a couple of minutes to start.

## Using the System for Software Development

* The MVS Turnkey system contains TSO, which is how you’ll interact most of the time. Specifically, use option 1 of the main TSO menu, RFE (‘ISPF’-like tool).
* There are lots of good sample JCL scripts in SYS2.JCLLIB.
* The mainframe text editors are really clunky, so it’s best to write JCL and software on your desktop, and then use the 3270 program’s file transfer tools to copy from the desktop to the IBM host system.
* I used the predefined user HERC02 (pwd = CUL8TR), and the preexisting partitioned dataset HERC02.TEST.ASM to store my JCL and inline COBOL into new PDS members.
* Since COBOL does not deal well with CSV files for data mining, I used Python scripts to transform CSV’s to fixed-length records which are more mainframe-friendly. The data files can also be transferred from desktop to IBM host via transfer tools. Note that you’ll need to allocate and catalogue the target dataset before uploading to it, unless you’re copying to an existing PDS in which case it will dynamically create the new member.