



PowerEdge MX7000 At-the-Box Serial Access to Management Firmware

Tech Note by:

Kristopher Gilly
Shashwat Jnawali
Christopher Poblete

SUMMARY

PowerEdge MX7000 comes with a Management Module that provides chassis management.

This technical white paper describes the step by step “at-the-box” serial access feature of the chassis management firmware.

A typical use of the serial access feature is for troubleshooting purpose when remote access to the management firmware is not available.

Preparation

What you need?

To prepare for serial access, you need the correct cable for connection. You will need a “micro-USB to USB” cable (Figure-1) long enough to connect your client system to the micro-USB port in the Management Module.



Figure 1 USB to Micro USB Cable

Where to connect?

The micro-USB port (Figure-2) for serial access is in the Management Module located at the rear of the chassis. If you see two Management Modules, look for the module that has the LED under “i” lit.



Figure 2 - Micro USB port to connect to

What you need in the client?

You can use any serial terminal client application of your choice, such as Tera Term or PuTTY.

Windows Client Host

If your client host system is running Windows, the default serial device driver should work. Open the Device Manager (type “devmgmt.msc” from command line) to determine which COM port Windows has created for your serial connection.

If Windows is not able to see the serial COM port or it is present but you are not able to connect, you may have to manually install the device driver. You can get this driver from a 3rd party vendor. Search for “cypress semiconductor usb serial driver download”. Look for the driver download link. After the manual driver installation, you should see the COM port for your connection (example in Figure-3).

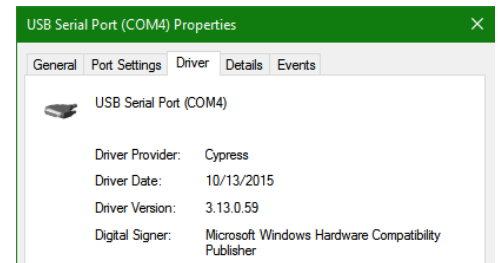


Figure 3 – 3rd party serial device driver in Windows

Linux Client Host

If your client host system is running Linux, the device driver to connect to the serial interface should already be installed. There is an extra step however that is required to correctly recognize the Management Module serial device. The USB serial device is recognized by Linux as a “Thermometer” device and loads the cytherm kernel module. The following steps help to correctly recognize the Management Module serial device.

First, add this entry “blacklist cytherm” to the file “/etc/modprobe.d/blacklist.conf”. This will prevent loading the incorrect driver.

Next, connect the serial cable to the host system. If you have already connected the serial cable, you will need to unload the incorrect driver with the command “sudo rmmod cytherm”. Then re-connect the serial cable to the host system. If you see “/dev/ttyACM0” then you are ready to connect. The “0” means it is the first serial device discovered.

Serial Console

Serial Console Menu

When a serial connection is established to the Management Module, the serial client application will be presented with the serial console’s main menu (Figure-4). It is populated with the available components to which serial connection can be made. On the upper right corner of the menu, it shows which Management Module you are connected to (the Active or the Standby). When you are finished, you may simply disconnect the cable and exit the serial client application.

The following sections describe each selection in the Main menu.

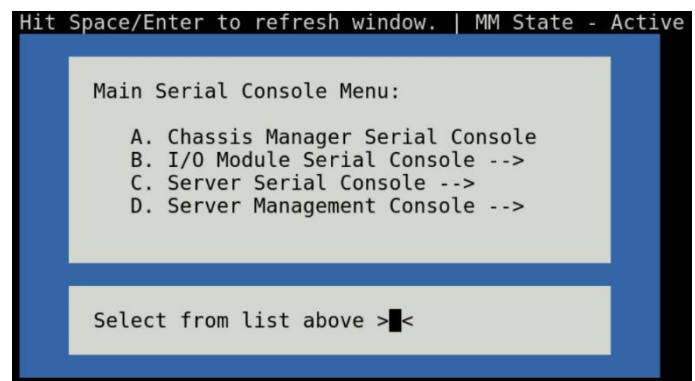


Figure 4 - Main menu

Chassis manager firmware console

Choosing option (A) from the Main menu takes you to the Chassis Manager firmware console. A serial session will open and a login prompt is displayed.

On successful login, you will have access to the Chassis Manager’s firmware racadm interface. To end the session, the exit sequence is “Ctrl-A Ctrl-X”. If using minicom in Linux, the exit sequence is “Ctrl-A Ctrl-A Ctrl-X”. Upon exit, you will see the Main menu.

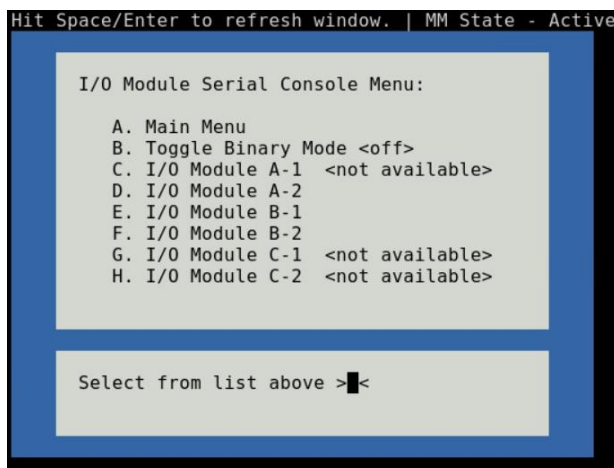


Figure 5 - I/O module console menu

I/O module firmware console

Choosing option (B) from the Main menu takes you to the I/O Module Console menu (Figure-5). The menu shows you the available I/O modules that support the serial interface.

Prior to selecting an I/O module, you will have the option to toggle the connection mode to either “binary” or non-binary” using option (B) from the menu. In “binary” mode, the terminal control characters from the client application are passed through the serial session.

Upon selection of an I/O module, a serial session will open and a login prompt is displayed. On successful login, you will have access to the I/O module firmware command line.

To end a non-binary session, the exit sequence is “Ctrl-^”.

To end a binary session requires an extra step. The extra step is to login to the Chassis Manager’s web interface and go to Home > Troubleshoot > Terminate Serial Connection.

Server serial console

Choosing option (C) from the Main menu takes you to the Sled Host Serial Console menu (Figure-6). The menu shows you the available server host in a sled present in the chassis.

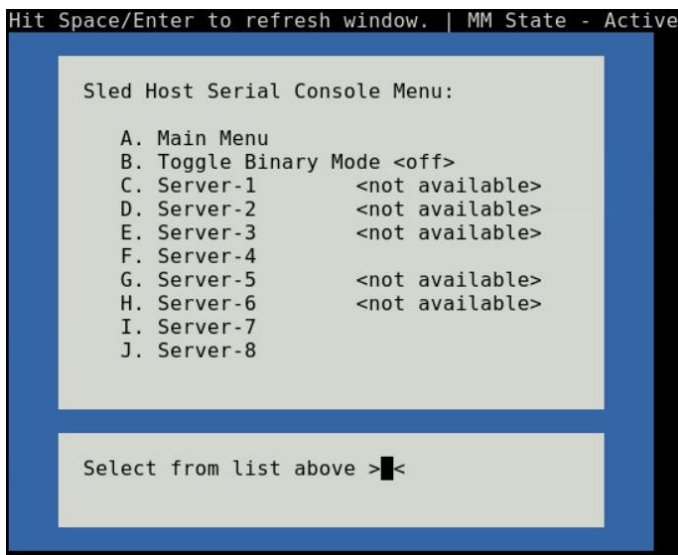


Figure 6 - Sled host serial menu

Prior to selecting a server sled, you will have the option to toggle the connection mode to either “binary” or non-binary” using option (B) from the menu. In “binary” mode, the terminal control characters from the client application are passed through the serial session.

Upon selection of a server sled, you will get access to the serial command line interface of the operating system running on the sled.

To end a non-binary session, the exit sequence is “Ctrl-^”. This exit sequence can be configured from the sled’s iDRAC UI.

To end a binary session requires an extra step. The extra step is to login to the Chassis Manager’s web interface and go to Home > Troubleshoot > Terminate Serial Connection.

Server management firmware console

Choosing option (D) from the Main menu takes you to the iDRAC Serial Console menu (Figure-7). The menu shows you the available iDRAC present in the chassis. iDRAC is the systems management firmware for a compute sled.

Choosing one of the iDRAC entry, you will be taken to the iDRAC Firmware console. A login prompt will be displayed. On successful login, you will have access to the iDRAC firmware racadm interface. To end the session, type “exit” and will return to the Main menu.

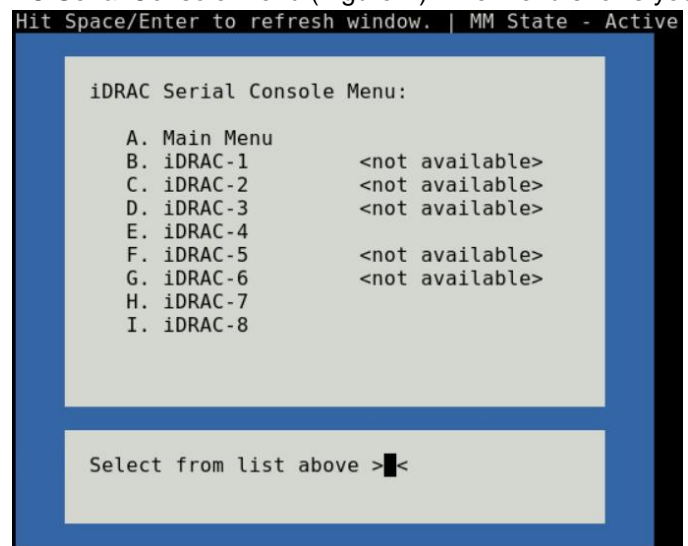


Figure 7- iDRAC console menu