

Installing PMRS firmware using a serial cable, LAN and TFTP

It is possible to install the PMRS device firmware using a serial cable, a LAN cable and a TFTP server application if the device has a working U-Boot software. This is the way to do it when the device does not connect to the PC using a USB cable in device configuration mode (DIP switches 1&2 in the UP position).

Hardware Requirements

1. PMRS unit.
2. External power connection to the PMRS unit.
3. Ethernet cable connected to a PC running a TFTP server.
4. Combined cable: PMRS to serial to USB connected to a PC running a terminal application.
5. Internet connection for acquiring all relevant software.

Software Setup

1. Connect the USB to serial cable to the PC. If this is the first time, a driver will be required. Download it from:
<http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>
2. Open a terminal application on the PC that is connected with the USB to serial cable to the PMRS unit. On an XP system, use Hyper-terminal. For newer Windows systems, download hyper-terminal from: <http://www.infodraw.com/dlds/hyperterminal.zip>. Open a new connection. When you have to select the COM port for the terminal, choose the one you see in the **Device Manager** under “**Ports (COM&LPT)**” where it says “**CP210x USB to UART Bridge Controller**”. Usually it is the one in the bottom of the list. Select baud rate (Bits per second) 115200, Data Bits: 8, Parity: None, Stop Bits: 1, Flow Control: None.
3. Open a TFTP server application on the PC that is connected with the Ethernet cable to the PMRS unit. A TFTP server application can be downloaded from:
http://tftpd32.jounin.net/tftpd32_download.html. Take a note of and/or direct the TFTP directory to the one of your choice. Make sure this directory is empty.
4. Download the latest firmware of the PMRS device according to the device type (100/101/102) from: <http://www.infodraw.com/dlds/>. The firmware file is named **pmrsXXX.tgz**.
5. Unpack the files inside the firmware installation file into the TFTP directory (from 3). To unpack the files, use decompression software such as 7-zip which can be downloaded from: <http://www.7-zip.org/>. The files should include: ubl_ubootXXX.bin ; uImageXXX.pmr ; rootfsXXX.cramfs. They should not be under any sub-folder, but directly inside the selected TFTP directory. Do not rename the files.
6. Assign an IP address to the local area port of the PC (which is connected by LAN to the PMRS) compatible with the PMRS settings: IP 10.5.5.5 ; Sub-net mask 255.0.0.0.

Installation Process

1. Turn on the PMRS unit and look at the hyper-terminal window. After about two seconds you should see numbers counting down. At this stage you must click the space bar. If you miss the countdown, turn off the device, wait for about ten seconds and turn on the device again.
2. You should see a prompt. Write the following:
 - `setenv serverip 10.5.5.5`
 - `run flash_uboot`
3. You should see information on the terminal window telling you that it is downloading and flashing `ubl_ubootXXX.bin` from the TFTP server. If there is a problem here, then it has something to do with the TFTP configuration or LAN connection/configuration. If there is no problem, then the device will re-flash the U-Boot firmware, reboot and start counting back again. Click the space bar to stop and return to the prompt.
4. In the updated U-Boot prompt, write the following:
 - `setenv serverip 10.5.5.5`
 - `run upgrade`

You should see information on the terminal window telling you that it is downloading and flashing the other two files: `ulimageXXX.pmrs` and `rootfsXXX.cramfs`. This process should take a few minutes and you are done. The next time it reboots and starts counting, you can disconnect the serial and LAN cables, connect the USB cable (in configuration mode) and check that the device is properly configured.