

Weston use cases

Cases of this doc:

- Use of systemctl command
 - Enabling and disabling the Weston desktop
 - Print the startup log on the screen
 - Customized replacement of Kernel startup logo
1. Please book one i.MX8MP board before practicing these hands-on:
Open the cloud lab web page, and click the login button on the top-right corner, then input account and password.

<https://aiotcloud.nxp.com.cn/>

Click Hardware -> i.MX8 series EVKs



Find a board which in the state of "AVAILABLE NOW", then click "8MPLUSLPD4-PEVK" to go next.

The image shows a product page for the i.MX 8M Plus. On the left, there is a photograph of the green printed circuit board (PCB) with various components. Below the image, under the heading "User Case", there are four links: "Camera Use Case", "Display Use Case", "IO Use Case", and "Video Use Case". On the right side of the page, there is a green badge that says "AVAILABLE NOW" followed by "#1". Below this, the product name "8MPLUSLPD4-EVK" is displayed in large, bold letters. Underneath the product name, there are three icons with corresponding labels: a monitor icon for "MX8-DSI-OLED1A", a camera icon for "MINISASTOCSI", and a USB icon for "USB".

Then click button "BOOK NOW":

The image shows a close-up of the product availability and booking section. On the left, there is a white button with a green "AVAILABLE NOW" badge and the text "8MPLUSLPD4-EVK #1". To the right of this is a prominent yellow button with the text "BOOK NOW" and a small gift icon.

Then select "USE NOW" and select the "END HOUR"/"END MINUTE". You can't book the board exceeding 2 hours once.

Please select the book date, start and end times

USE NOW

18 30

CONFIRM BOOK

After click above “CONFIRM BOOK” button, you will go into “MY BOOKS” as below.

MY BOOKS									
Enter Keywords <input type="text"/>									
ID	CPU	Board Name	No	Start Time	End Time	Duration	Create Time	Status	Debug
4881	iMX BM Plus	BMPLUSLPD4-EVK	#1	2024-08-30 16:30	2024-08-30 18:25	1.917h	2024-08-30 16:35	Normal	DEBUG CANCEL

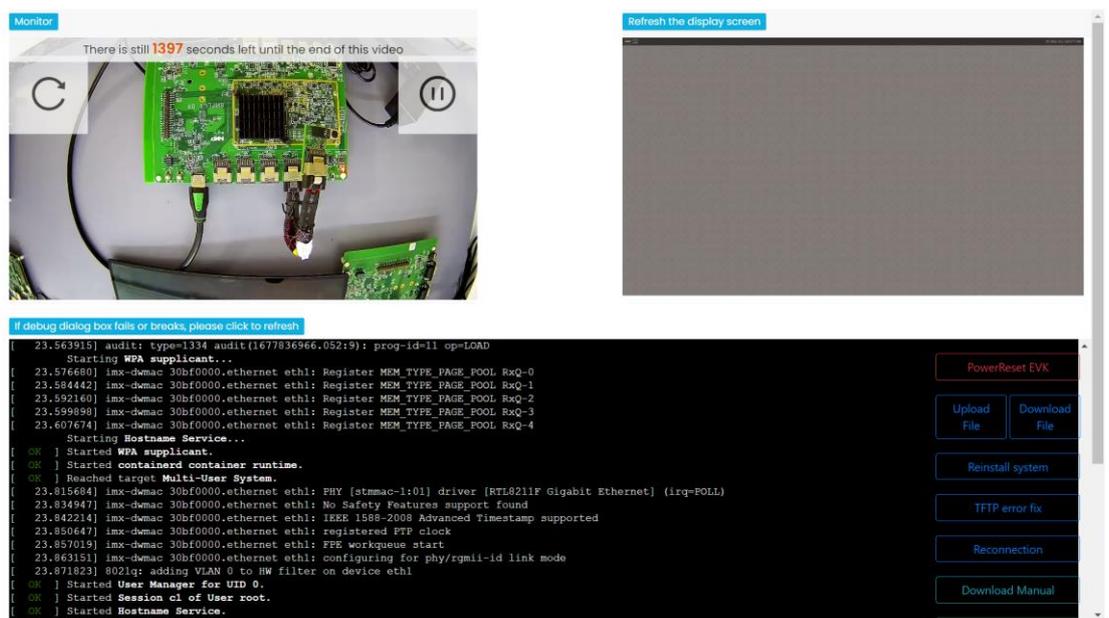
Then click the blue button “DEBUG”, and you will see the actual physical board and booting log on the web console.

Now, you have successfully booked a board and booted up it

WATCH&OPERATE **BMPLUSLPD4-PEVK-5**

Monitor Refresh the display screen

There is still **1397** seconds left until the end of this video



If debug dialog box fails or breaks, please click to refresh

```
23.563915] audit: type=1334 audit(1677836966.052:9): prog-id=11 op=LOAD
Starting WPA supplicant...
[ 23.576880] imx-dm9ac 30bf0000.ethernet eth1: Register MEM_TYFE_PAGE_POOL RxCQ-0
[ 23.584442] imx-dm9ac 30bf0000.ethernet eth1: Register MEM_TYFE_PAGE_POOL RxCQ-1
[ 23.592160] imx-dm9ac 30bf0000.ethernet eth1: Register MEM_TYFE_PAGE_POOL RxCQ-2
[ 23.599898] imx-dm9ac 30bf0000.ethernet eth1: Register MEM_TYFE_PAGE_POOL RxCQ-3
[ 23.607674] imx-dm9ac 30bf0000.ethernet eth1: Register MEM_TYFE_PAGE_POOL RxCQ-4
Starting Hostname Service...
[ OK ] Started WPA supplicant.
[ OK ] Started contained container runtime.
[ OK ] Reached Target Multi-User System.
[ 23.815684] imx-dm9ac 30bf0000.ethernet eth1: PHY [stmmac-1:01] driver [RTL8211F Gigabit Ethernet] (irq=POLL)
[ 23.834947] imx-dm9ac 30bf0000.ethernet eth1: No Safety Features support found
[ 23.842214] imx-dm9ac 30bf0000.ethernet eth1: IEEE 1588-2008 Advanced Timestamp supported
[ 23.850647] imx-dm9ac 30bf0000.ethernet eth1: registered PTP clock
[ 23.857019] imx-dm9ac 30bf0000.ethernet eth1: PTP workqueue start
[ 23.863151] imx-dm9ac 30bf0000.ethernet eth1: configuring for phy/rgmii-id link mode
[ 23.871823] 8021q: adding VLAN 0 to HW filter on device eth1
[ OK ] Started User Manager for UID 0.
[ OK ] Started Session c1 of User root.
[ OK ] Started Hostname Service.
```

PowerReset EVK
Upload File
Download File
Reinstall system
TFTP error fix
Reconnection
Download Manual

2. Use of systemctl command

systemctl is the main command of the Linux system management toolset Systemd. For example, for system management, if you run the following commands on the cloud laboratory board, you will see the corresponding phenomenon.

```
systemctl reboot //Reboot system
systemctl poweroff //Shutdown system(if you want to boot system again, please click "Reset-EVK" icon and wait several seconds)
systemctl suspend //Suspend system
```

After shutting down or entering system suspend, you need to click the Reset-EVK button below to restart the development board.



There are also other commands in systemd used to manage starting, stopping, restarting, checking status of various services:

```
systemctl enable
systemctl start
systemctl status
systemctl stop
systemctl kill
systemctl restart
systemctl analyze
```

Among them, systemctl-analyze can be used to analyze startup time. For details, see "System Startup Time Analysis Case".

3. Enabling and disabling the Weston desktop

```
systemctl stop weston //Close weston desktop, and you can see black screen
systemctl start weston //Enable weston desktop. See below picture:
```



4. Print the startup log on the screen

Use the fgconsole command to view the tty serial number corresponding to the board screen

```
root@imx8mpvk:~# fgconsole
```

```
7
```

When starting the board in the first time, find kernel cmdline in dmesg:

```
console=ttyMXC1,115200 root=/dev/nfs ip=dhcp
```

```
nfsroot=192.168.100.250:/opt/REAL/NFS/IMX8MPEVK-4-root,v3,tcp
```

Modify the defconfig file to enable the screen as console:

```
diff --git a/arch/arm64/configs/imx_v8_defconfig
b/arch/arm64/configs/imx_v8_defconfig
index 85762b37006f..16d8a67b5bd3 100644
--- a/arch/arm64/configs/imx_v8_defconfig
+++ b/arch/arm64/configs/imx_v8_defconfig
@@ -1105,3 +1105,5 @@ CONFIG_CORESIGHT_STM=m
 CONFIG_CORESIGHT_CPU_DEBUG=m
 CONFIG_CORESIGHT_CTI=m
 CONFIG_MEMTEST=y
+CONFIG_CMDLINE_FORCE=y
+CONFIG_CMDLINE="console=tty7 console=tty0,115200 earlycon dtb=imx8mp-
evk.dtb root=/dev/mmcblk1p2 rootwait rw"
```

After modifying the code above, reconfigure and compile the code:

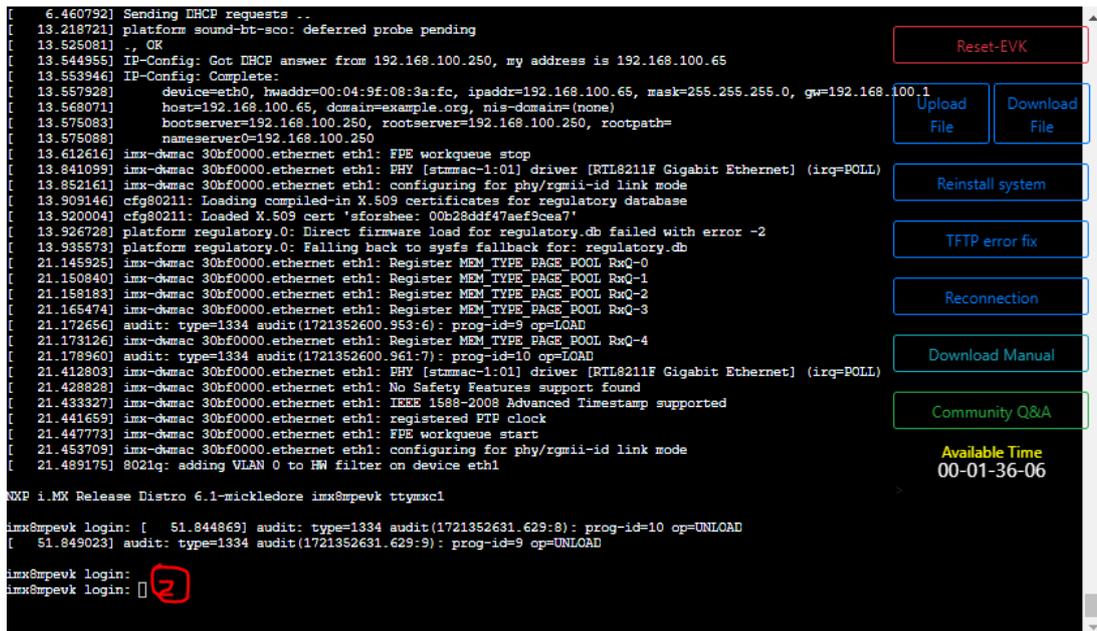
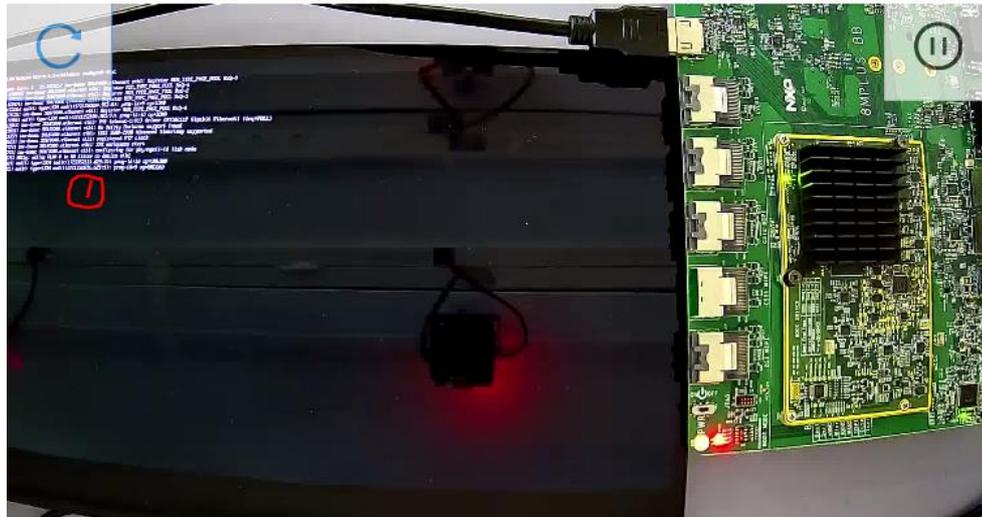
```
make imx_v8_defconfig
make -j$(nproc)
```

Upload the compiled kernel image to the tftp directory of the cloud board (refer to "Compile the kernel image and run it on the cloud laboratory development board.pdf").

Click the Reset-EVK button, and you can see the log printed on the board screen during the startup process. However, you cannot login system by typing "root" after startup. Then you need to make the following modifications and restart the development board:

```
root@imx8mp-evk:~# vi /etc/systemd/system/weston.service
```

```
[Unit]
Description=Weston Wayland Compositor
After=graphical.target
[Service]
Type=simple ExecStart=/usr/bin/weston --tty=7
Restart=always
```



In this way, “root” commands can be entered at both the serial debugging terminal and the terminal on the board screen, as shown in Figures 1 and 2 above.

5. Customized replacement of Kernel startup logo

During the Kernel startup process, the logo of four little penguins will appear (for 4-core 8MP). In practical applications, some users hope to replace booting logo with their own logo.

Since the kernel's logo format is ppm, to convert general bmp images into ppm format, you must first have an ubuntu PC and install the format conversion tool:

```
sudo apt update
sudo apt install netpbm
```

For example, we take the image freescale.bmp in u-boot and use it to replace the penguin logo:

```
git clone https://github.com/nxp-imx/uboot-imx.git
```

```
cp uboot-imx/tools/logos/freescale.bmp ~/
```

Perform image conversion:

```
bmptopnm freescale.bmp > logo_linux.pnm
```

```
pnmquant 224 logo_linux.pnm > logo_linux_clut224.pnm
```

```
pnmtoplainpnm logo_linux_clut224.pnm > logo_linux_clut224.ppm
```

```
rm logo_linux.pnm logo_linux_clut224.pnm
```

By default, the logo of four little penguins during the kernel startup process are related to the number of CPU cores, so the code needs to be modified so that only one copy of our new logo is displayed. The kernel source code is modified as follows and recompiled (refer to "Compiling the Kernel Image and running on the cloud laboratory development board.pdf"):

```
diff --git a/drivers/video/fbdev/core/fbmem.c b/drivers/video/fbdev/core/fbmem.c
```

```
index e24b29c4fa0f..74122612f863 100644
```

```
--- a/drivers/video/fbdev/core/fbmem.c
```

```
+++ b/drivers/video/fbdev/core/fbmem.c
```

```
@@ -693,7 +693,7 @@ int fb_show_logo(struct fb_info *info, int rotate)
```

```
    return 0;
```

```
        count = fb_logo_count < 0 ? num_online_cpus() : fb_logo_count;
```

```
-    y = fb_show_logo_line(info, rotate, fb_logo.logo, 0, count);
```

```
+    y = fb_show_logo_line(info, rotate, fb_logo.logo, 0, 1);
```

```
    y = fb_show_extra_logos(info, y, rotate);
```

```
    return y;
```

After compiling, upload the new image and run it again. The effect is as follows. You can see that the little penguin logo has been replaced with the logo we made.

