

Qolsys
Engineering Install Notes

2013

Revision History

Revision	Date	Author	Changes
Initial 1.0	08/02/2013	Eric Caldwell Karthik Challa	Initial release

Contents:

- 1. Panel Flashing Procedure**
- 2. Panel Updates Procedure**
- 3. Panel Wi-Fi Update**
- 4. Copying Videos**
- 5. ADC Two-Way tests**
- 6. Preparing panels for shipping**
- 7. Troubleshooting**

1. Panel Flash Procedure

Prepare Panel and Debugging Tool

- The marvel debugger should be connected by USB to the computer. The large Serial cable should connect the black box to the chip that goes with it, and the pink side of the cable should be plugged into the side of the serial connector opposite the yellow button on the chip. There should be another narrow serial cable with 1 end plugged into the chip and another usb cable with 1 end plugged into the chip and the other into the computer.

- Remove back cover on the panel

- Behind the two large capacitors there may be two white(or blue or black) rectangles, these are the jumpers and they need to be removed to flash the panel. If you see 4 metal pins you're already good to go.

- Also behind the capacitors should be a set of pins sticking out of a black plastic connector, attach the other end of the narrow serial cable from the debug tool that looks like it should fit.

-Power on panel

Set up Tera Term

- Open TeraTerm and select the SerialPort button and click OK
- Go to Settings->SerialPort and change the BaudRate to 115200
- Go to Settings->Keyboard and enable the backspace key

Set up Marvell Debug Software

- Open the Marvell Extreme Debugger software and press start on the first window that pops up
- You may have to wait a bit, but eventually a lightning bolt shaped button will appear near the top left of the screen
- Wait till you see two floating windows on the screen and then click on the lightning bolt button.
- Click the “**Detect**” button on the window that pops up

Figure out whether the panel is 2G or 4G

-By default assume the panel is 2G unless for some reason the flash fails or you have other reasons to suspect it's a 4G panel.

- Flash failures that are symptoms of the panel being 4G are any warnings about memory or the panel coming up immediately after the sd card step rather than holding up at the “Starting Kernel...” output in Tera Term.

-If you really want to know for sure read through the tera term outputs and you should see references to emmc being 3.XX GiB if it's a 4G panel and 1.8X GiB if it's 2G

Marvell Debug Flash Step One for 2G panels

- Select partition “**0x2**” from the drop down menu below the detect button.
- On the wider drop down menu in the middle of the window select the “C:\...\uboot_sd.bin” file and then click burn
- Then select partition “**0x0**” from the drop down menu below the detect button

-Again on the larger drop down menu select “C:\...\lwz_1020.img” and click burn

-Close the Marvell Debugger software and reboot the panel with the god damn boot sdcard in it

Marvel Debug Flash Step One for 4G panels (names are just the closest, not matching, use some common sense)

-Select partition “**0x1**” from the drop down menu below the detect button

-On the wider drop down menu in the middle of the window select the “C:\...\loader512_bin_new_ddr.bin” file and then click burn

-Select partition “**0x2**” from the drop down menu below the detect button

-On the wider drop down menu in the middle of the window select the “C:\...\uboot_sd.bin” file and then click burn

-Then select partition “**0x0**” from the drop down menu below the detect button

-Again on the larger drop down menu select “C:\...\lwz****(something)***_4Gemmc” and click burn

-Close the Marvell Debugger software and reboot the panel with the boot sdcard in it

SDCard Flash Step One

- Insert the “boot” SD-card (card with 4 partitions configured correctly) into the panel.

-In TeraTerm once the panel is ready to go (if you press enter and pound signs appear along the left column) type in “**busybox mount /dev/block/mmcblk0p4**

/mnt/sdcard", press enter, and then type in **"upall.sh"** and press enter again, this step takes a while, then make sure the panel reboots, it is supposed to reboot automatically but sometimes it fails.

- When the panel reboots, it will get stuck at the step "Starting Kernel...." and when this happens go to the next step. If it doesn't get stuck you have a problem, either you flashed a 4G panel as a 2G panel or the upall.sh script failed. Either way the panel needs to be reflashed if it doesn't stop here.

Marvell Debug Flash Step Two

-Repeat the Marvell Debugger set up process and select partition **"0x2"** again, then burn the file **"C:\...\uboot_wd.bin"** from the larger drop down menu, reboot and you should be finished with the flash

2. Panel SD Card Update Procedure

Method-1:

- Have the right SD Card in the panel
- Have the following files on the root of the sdcard

1. system.tar.gz
2. data.tar.gz
3. system.tar.gz.md5
4. system.md5
5. data.tar.gz.md5
6. zImage
7. zImage.md5
8. upkernel.sh
9. upandroid.sh
10. updateshell.sh

Connect to the Panel

- Option 1: Console

-Set up the panel and tera term as described in the flash procedure document.

- Option 2: ADB

-Access the secret menu by tapping the home button then the green bar at the top and repeat 4 times until the code enter window pops up, and the password is 1470963258

-In this menu enable ADB (should be the first option)

-Enable and connect to a wifi network, then go to the about page and scroll down to find your IP address

-Go to wherever on your computer you have ADB installed or add it as a path variable, then enter “adb connect (IP Address from Panel without parantheses)”, if you have recently connected to a panel over adb you may first need to type “adb disconnect”, then enter “adb shell” and hit enter

- Note both the panel and the laptop must be on the same wireless network.

Update

-In the command line of either command prompt for ADB or TeraTerm type in the following:

1. “**cd /mnt/sdcard**”, hit enter, then
2. “**busybox sh updateshell.sh**”, hit enter
3. Calibrate the panel when the calibration screen is displayed.

Method-2:

Steps to Update the panel using an SD Card from the panel :

Prepare SD Card:

1. Format your SD card as a FAT-32 drive, and copy the required files on the root of your sd card.
(Ask Karthik about the required files)
2. Verify that the SD Card has only the files and nothing else.
3. Plug-in the SD card to the panel.

Updating the Panel :

1. Press Settings(1111)
2. Go to Installation ---> Firmware Upgrade
3. Select Upgrade Using SD Card
4. Click on Upgrade Operating System
5. The panel should power off and install the update. (Should take 5-10 min)
6. Once the panel reboots, verify the install under about.

3. Panel Wifi Update Procedure

1. Press Settings(1111)
2. Click on Installation and Firmware Upgrade
3. Enable HTTP Upgrade
4. Under that change the patch tag to the current one, ask Anand or Karthik for current patch tag
5. Click Software Upgrade, then wait and follow the instructions on the panel

4. Panel FAQ Videos Procedure

1. Have the right SD Card in the panel (the folder Panel_FAQVideos should be on the root)

2. Connect to the Panel

-Follow previous procedure's instructions

3. Add Videos

Type "**busybox cp -r /mnt/sdcard/Panel_FAQVideos /mnt/internalstorage**" and wait

4. Remove SD Card, go to the help menu, and test to make sure the videos are present.

5. Prepare ADC for Two-Way Voice

- Go to “alarmadmin.alarm.com”
 - Find someone with, or use your own, ADC dealer login
 - Mouse over the grey customer tab at the top of the page and select “Find Customer”
 - In the “Login Name” field enter “qolsyspilot##” where ## is the number of the panel and hit enter or press “search”
 - Click on the left number in the bar with the panel name to go to the next page
 - On the left bar under “Customer Info” you should see a link labeled “CS Forwarding Settings”, go to it and change the following:
 - Forward signals to the central station: **ALWAYS**
 - CS Account Number: 9### where ### is the 3 digit panel number
 - Event Groups to Forward: Panics
 - In the drop down menu right below this select the number with (TEST)
- after it
- Save these settings
 - If the last box says “two way voice is disabled” click the link to change it,
 - Scroll down through the “New Service” section to the part that says “Wireless

Two-Way Voice” and click the check box next to it, save and the panel is set up

6. Prepare Panel for Shipping

-Update the panel to the newest stable software (or whichever one the recipient needs)

-Case by Case Basis

-D/W pairing: Go the security sensors autolearn page and enable autolearn then tamper (remove the back cover) the device, no other changes necessary

-Motion Sensor Pairing: Go the security sensors autolearn page and enable autolearn, then tamper (remove the back cover) the device. Rename the device "x8b ## motion" where ## is the panel number, make sure the sound is chime 5 and voice prompts are "off"

-Image Sensor Pairing: If the light is blinking quickly then the panel is prepared to pair and you can just start the autolearn process, if not stick a paperclip or something similar down the skinny hole at the bottom of the front of the panel until the little LED starts blinking rapidly. Once the sensor is paired rename is "x8b ## image" where ## is the panel number, turn off voice prompts.

-Smart Socket Pairing: In the installer menu go to Security Accounts, scroll to the bottom, and enable the ZWave radio. Plug in the Smart Socket. If there is a little Q at the bottom of the LED screen go to the ZWave sensors menu in the installation menu, hit "remove device" then briefly press the button at the bottom of the smart socket, and the little Q should go away. Now, in the ZWave sensors menu hit "Add Device" then "Pair", then hit the button at the bottom of the smart socket again.

-Test Alarm.com Functionality

-Go to "alarm.com" and hit the login button. The login will be "qolsyspilot##" where ## is your panel number, and the password will be "qolsys123"

-From the "alarm.com" website arm the panel then disarm it and confirm it works on the panel. Then arm and disarm the panel on the panel itself and after each step refresh the ADC page to confirm it tracks the panel

-Test two-way voice by triggering a fire alarm then silencing it, the number that somebody else setup for test calling will ring and needs to be answered with a specific number sequence. **NEEDS TO BE ADDED**

-Do some sanity testing of the panel and the sensors paired with it to confirm everything works

-Confirm that the panel siren plays the new two tone siren. If not connect using adb shell and type in "rm /mnt/internalstorage/buzzer_freq"

-In the security accounts menu disable power management and change the "Log Level" parameter to "Error"

-verify existence of /data/logs and /mnt/internalstorage/logs

-Package the panel. Make sure it has a back panel. Wipe off the panel so it looks nice and make sure the charger is correctly crimped and the end that plugs into the panel is twisted nicely. Add a twizzle (TM Marc Pennings) to the charger wires and place that in the box as well as the image sensor and D/W sensor if necessary. Bubble wrap heavily to fill any loose space in the final box

7. Troubleshooting:

-If after using the PC Controller with the panel the panel is unable to pair to new devices, hit "Panel Device Reset"

-If a panel is paired to other devices and to the PC Controller, don't delete those nodes from the PC Controller, if you do you may have to reset stuff

-If you don't have screensavers "Automation" is probably enabled in the hidden menu.

-The yellow button the debug card used when flashing can reboot the panel without having to pull out the power supply

-If you think a panel has SecurityRF issues connect using the TeraTerm console or adb and type in "rfest e ge". If it spits out some stuff up to "Configuration Successful" try to tamper a sensor, there should be stuff popping up in the

window about tampered sensors. If nothing appears after tampering a sensor (known to be working) next to a panel running rftest that panel probably has a hardware problem

-You can check memory usage on the panel by going into the adb shell and using the commands: “df” to check the available/used/free space on the main partitions (/data, /system, /mnt/internalstorage, etc.). “busybox du -sh *target*” to check the memory being used by a specific directory

-To check whether a directory is mounted correctly use “busybox mount” you should see /data and /mnt/internalstorage mounted as “rw”, /system doesn’t really matter

-If one of these is “ro” use “busybox mount -o remount,rw *target*”

-To check the health of the file systems. System having a missing lost+found file doesn’t matter at all. Missing block counts and incorrect inode counts don’t really matter.

Inode/other block errors with “IGNORED” next to them are actual errors, or stuff inside < >’s with numbers in between them. In small amounts those errors don’t really matter. In /mnt/internalstorage there will also be “Lost Cluster” errors which in small amounts don’t matter

Disk Check Commands:

-System: “e2fsck -n /dev/block/mmcblk0p2” or “e2fsck.ext3 -n /dev/block/mmcblk0p6” depending on where it is mounted.

-Data: “e2fsck -n /dev/block/mmcblk0p3”

-Internal Storage: a “fsck_msdos -n /dev/block/mmcblk0p7”