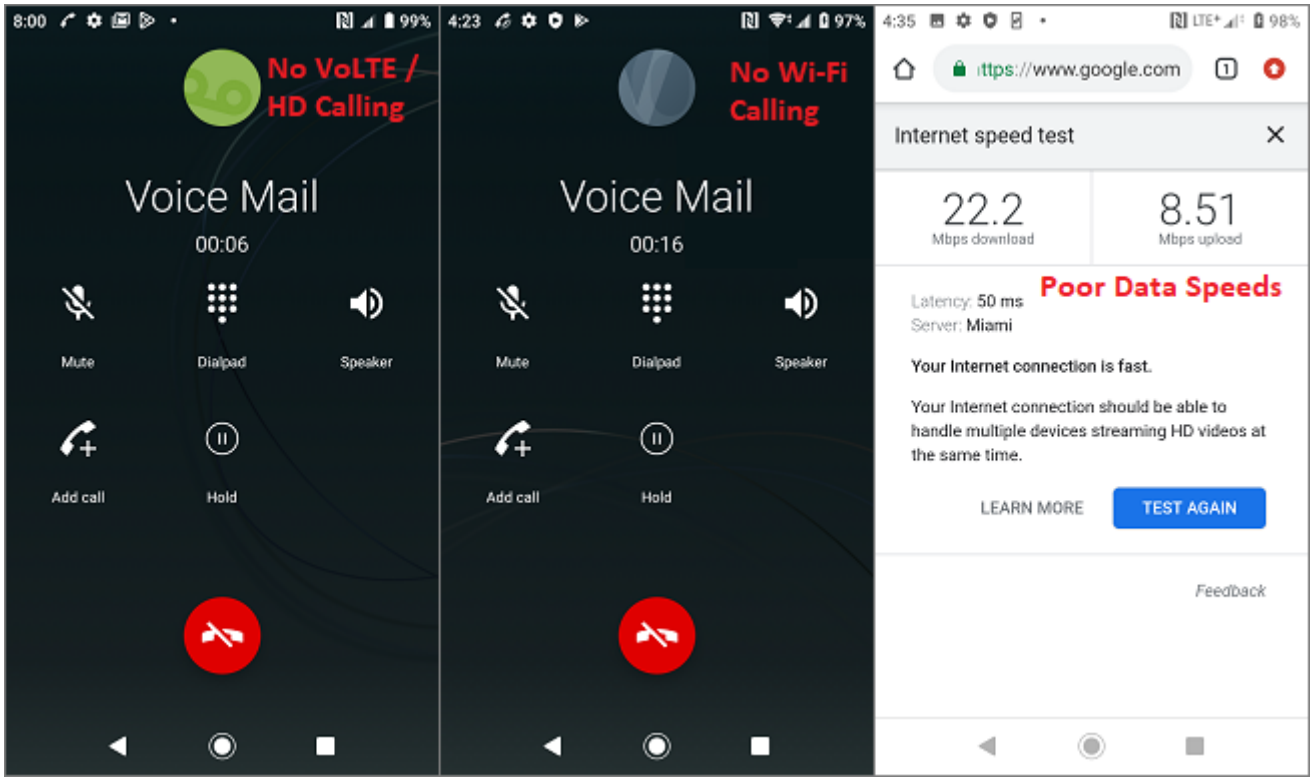
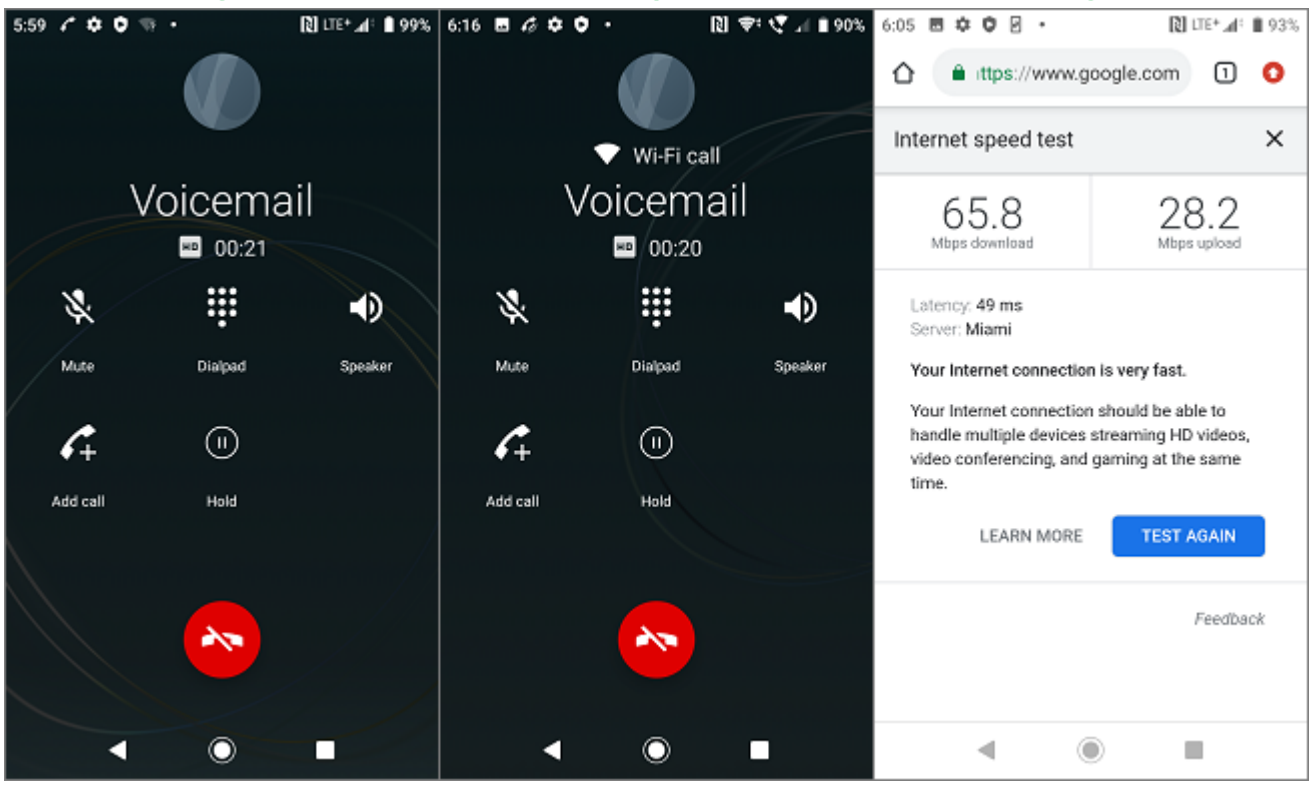
**MetroPCS VoLTE + Latest Pie + Fingerprint + Wi-Fi Calling**

**XZ1 Compact**

**Step by Step Guide**



## Overview:

This guide provides step-by-step instructions for flashing any existing Sony stock rom Android 8 or 9 to the latest Sony stock ROM Android 9 Build v47.2.A.11.228 for use on the MetroPCS network. The finalized flash is a hybrid of Sony UK v47.2.A.11.228-R2C for fingerprint sensor functionality and Sony US OEM v47.2.A.11.228-R7C for the US modem firmware required for T-Mobile MVNO's (MetroPCS).

A modification is required to instruct the device to recognize a MetroPCS SIM card as a T-Mobile MVNO carrier. Post modification, when a MetroPCS SIM card is inserted into the phone the correct modem files (T-Mobile) necessary for use on the MetroPCS network will be loaded. This modification can only be installed by temporarily flashing the device to an older Sony stock Oreo rom. Installing the modified APK file. Then re-flashing the device with the latest Sony Android 9 Pie build. This guide covers all steps needed to complete the full procedure from start to finish.

On completion, the device will function correctly on the MetroPCS network with the following characteristics:

- VoLTE HD Voice Calling fully functional (greatly improved call quality)
- Wi-Fi HD Voice Calling fully functional
- Data speeds greatly improved
- Fingerprint recognition sensor fully functional
- Latest Sony Android 9 build v47.2.A.11.228
- Device remains unrooted
- Bootloader remains locked
- Android Attest Key remains intact
- Mobile Hotspot and USB Tethering fully functional

## Important:

Factory resetting the phone is a requirement. All data that exists on the phone will be erased when following this guide. Be sure to backup all data before proceeding. At the completion of this guide, the phone will be restored to a 'new from factory like state'.

Bootloader unlocking is not performed in this guide. There is no need to backup or restore DRM keys when following this guide.

The rooting method used in this guide to install the MetroPCS VoLTE mod is via temporary root. A permanent root will not be present on the device at completion.

The 'Android Attest Key' will not be damaged, destroyed or lost when following this guide. Remember to always delete all files beginning with *'persist_'* BEFORE running newflasher!

At completion of this guide, the device will retain its Sony stock ROM appearance, security and functionality. With the only exception being a modification that instructs the device to load a T-Mobile modem configuration when a MetroPCS SIM card is inserted into the phone.

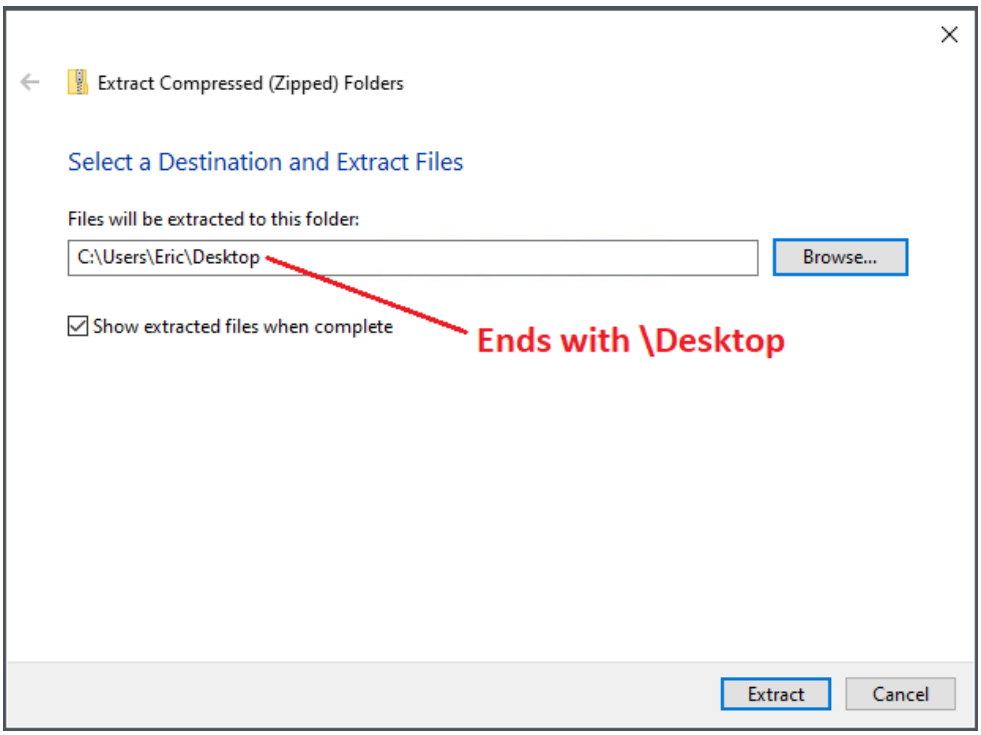
**Step 1 – The Two Options for Media:**

There are two options to obtain the media used in this guide. You may download all media already prepared for you, unzip the contents and start flashing (recommended). Or you may obtain and create the media manually yourself.

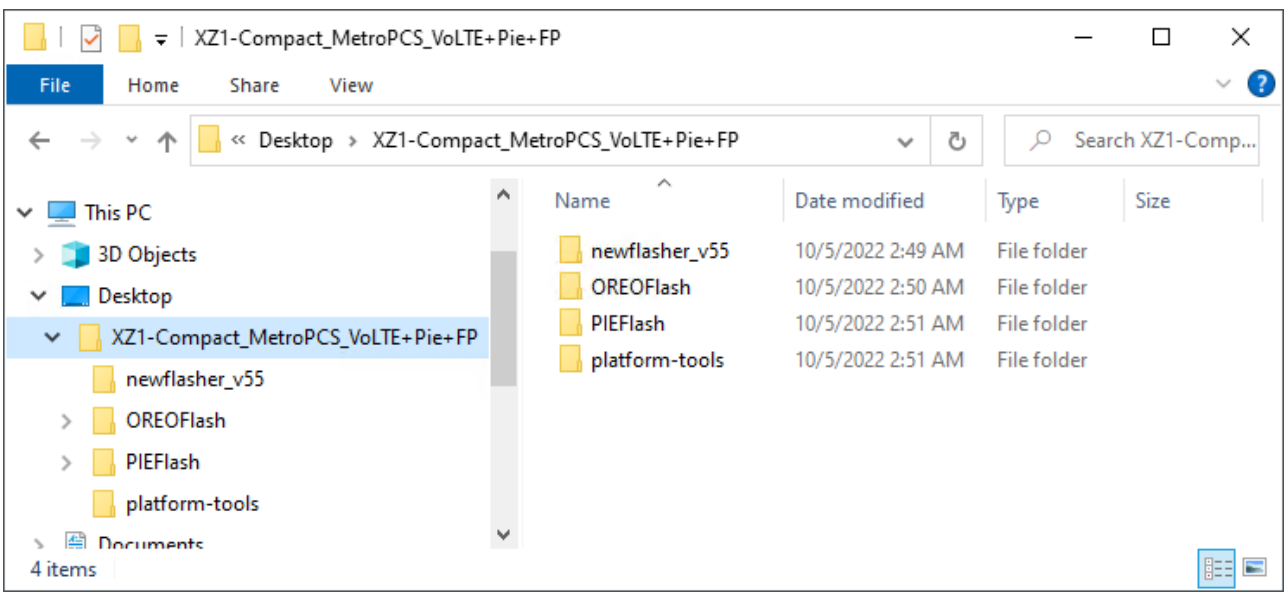
- To download the prepared media (recommended):

1. Download the XZ1-Compact_MetroPCS_VoLTE+Pie+FP.zip (5.2GB). Installing from this media will result in the final OS - Android 9, Build 47.2.A.11.228 (UK region for fingerprint functionality hybridized with the US OEM for VoLTE + Mod to enable VoLTE+Wi-Fi calling for MetroPCS).

2. Using File Explorer right click on the *XZ1-Compact_MetroPCS_VoLTE+PIE+FP.zip* file, select '*Extract All*'. Click the '*Browse*' button, select *Desktop -> OK* (see image below), and extract the contents.




3. Verify the folder paths and folder names match the image below:




4. Once the media is downloaded and extracted, skip to Step 3.

- Or: To prepare the media manually, begin at Step 2.

**Step 2 – Prepare the Media (Manual Method):**

## Warning:

Never flash a rom directory that contains a *'persist_X_FLASH_ALL-C938.sin'* file, or any other .sin file that begins with *'persist_'*. ALWAYS delete this file from the rom directory before you run newflasher. Flashing a ROM that contains a *'persist_*.sin'* file will permanently erase your *'Android Attest Key'*. Once the *'Android Attest Key'* is lost, there is no known way to recreate it. Always remove this file before running newflasher.

Before proceeding with this guide, check that the *'Android Attest Key'* still exists undamaged on your phone. On the phone, open the dialer and dial *#*#7378423#*#* -> tap Service info -> Security. Make note of the '*Android Attest Key'*.

- If the *'Android Attest Key'* reads *'NOT PROVISIONED'*, your *'Android Attest Key'* was already lost. There is no way to restore or recreate the key. But it is safe to proceed with this guide. I still recommend deleting the *'persist_*.sin'* from all rom sources that you are going to flash before running newflasher. As the attest key has already been lost, you will notice your camera does not work when you are running Oreo. Your camera will work when running on Pie, but there are reports of fuzzy(er) pictures when the attest key has been lost.
- If the *'Android Attest Key'* reads *'PROVISIONED. ver 4'* your attest key is intact. In this case, ALWAYS delete the *'persist_*.sin'* file from the rom directory you are going to flash before running newflasher. Flashing a rom that contains the 'persist_*.sin' file WILL delete your Attest Key. Your SOMC-FIDO key should also read *'PROVISIONED. ver 4'* if it is also intact. If you always delete the *'persist_*.sin'* file from the directory of the rom that you are going to flash before running newflasher, there is nothing to worry about and your Attest key will not be damaged by following this guide.

1. Download XperiaFirm, launch, and download:
   1. The Sony Stock Pie ROM: 1310-4371 United States Customized US 47.2.A.11.228-R7C
   2. The Sony Stock Pie ROM: 1310-6856 United Kingdom Customized UK 47.2.A.11.228-R2C

2. Using a browser, download the Sony Stock Oreo US ROM: G8441_Customized US_1310-4371_47.1.A.16.20-R8B.zip and extract the .zip.

3. Create a folder on your desktop named: *\XZ1-Compact_MetroPCS_VoLTE+Pie+FP*. Copy the downloaded ROM directories into this folder.

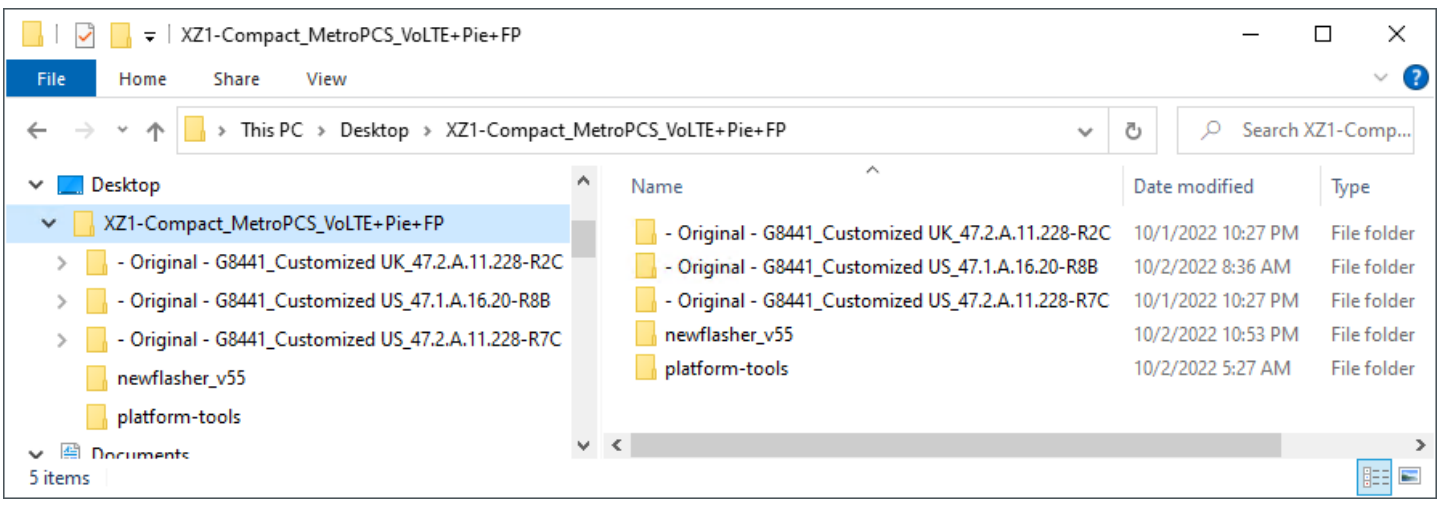
4. Download Newflasher (v55 was used for this document). And extract to \XZ1-Compact_MetroPCS_VoLTE+Pie+FP\newflasher_v55

5. Download the Android SDK Platform-Tools (r33.0.3 was used for this document). Extract the zip. Copy the platform-tools_r33.0.3-windows\platform-tools folder to \XZ1-Compact_MetroPCS_VoLTE+Pie+FP\platform-tools.

6. Rename the '*1310-6856 United Kingdom Customized UK 47.2.A.11.228-R2C'* folder to: *'- Original - G8441_Customized UK_1310-6856_47.2.A.11.228-R2C'*

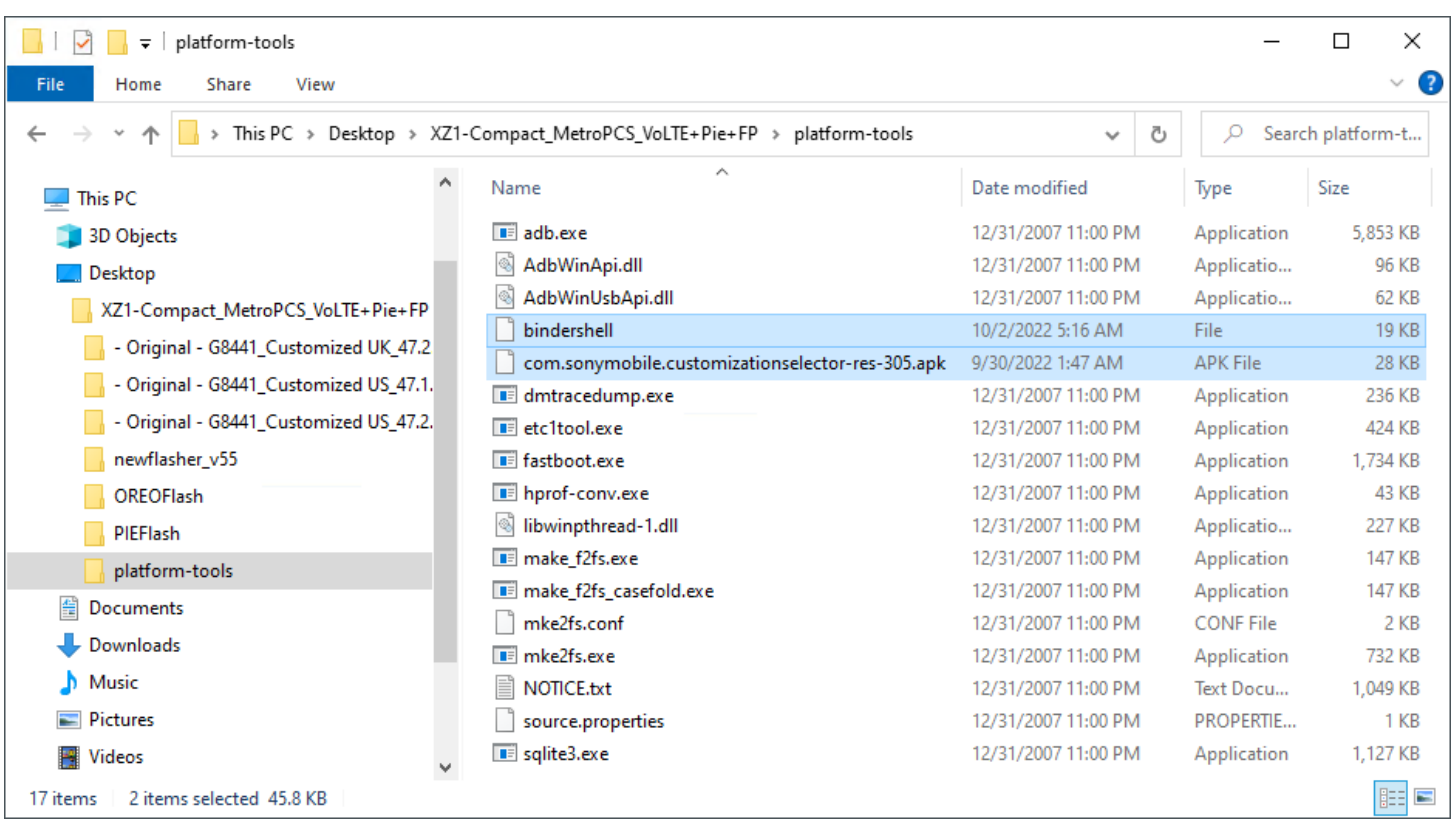
7. Rename the *'1310-4371 United States Customized US 47.2.A.11.228-R7C'* folder to: *'- Original - G8441_Customized US_1310-4371_47.2.A.11.228-R7C'*

8. Rename the *'G8441_Customized US_1310-4371_47.1.A.16.20_R8B'* to: *'- Original - G8441_Customized US_1310-4371_47.1.A.16.20-R8B'*




9. Download Bindershell.zip and extract to \XZ1-Compact_MetroPCS_VoLTE+Pie+FP\platform-tools\

10. Download the modified MetroPCS VoLTE 'com.sonymobile.customizationselector-res-305.apk' (28KB) and place in the \XZ1-Compact_MetroPCS_VoLTE+Pie+FP\platform-tools\ folder.



11. Create a new folder .\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\OREOFlash and copy ONLY the following files from the associated rom's into the OREOFlash folder.

    Blue = Files from the Sony Oreo ROM *'- Original - G8441_Customized US_47.1.A.16.20-R8B' folder.*
    Green = Files from the Sony PIE ROM *'- Original - G8441_Customized US_47.2.A.11.228-R7C' folder.*
    Orange = Files from the Newflasher folder '*newflasher_v55*'.

    **\OREOFlash**
    \OREOFlash\boot\boot_delivery.xml
    \OREOFlash\boot\bootloader_X_Boot_MSM8998_LA1_1_O_82_X-FLASH-ALL-5ADA.sin
    \OREOFlash\boot\bootloader_X_BOOT_MSM8998_LA1_1_O_82_X-FLASH-ALL-5D31.sin
    \OREOFlash\boot\bootloader_X_BOOT_MSM8998_LA1_1_O_82_X-FLASH-ALL-C93B.sin
    \OREOFlash\boot\Lilac_XBootConfig_MiscTA.ta
    \OREOFlash\partition\partition_delivery.xml
    \OREOFlash\partition\partition-image-LUN0_X-FLASH-ALL-C93B.sin
    \OREOFlash\partition\partition-image-LUN1_X-FLASH-ALL-C93B.sin
    \OREOFlash\partition\partition-image-LUN2_X-FLASH-ALL-C93B.sin
    \OREOFlash\adspso_X-FLASH-ALL-C93B.sin
    \OREOFlash\amss_fs_1_X-FLASH-ALL-C93B.sin
    \OREOFlash\amss_fs_2_X-FLASH-ALL-C93B.sin
    \OREOFlash\amss_fsg_X-FLASH-ALL-C93B.sin
    \OREOFlash\appslog_X-FLASH-ALL-C93B.sin
    \OREOFlash\bluetooth_X-FLASH-ALL-C93B.sin
    \OREOFlash\cache_X-FLASH-ALL-C93B.sin
    \OREOFlash\cust-reset.ta
    \OREOFlash\diag_X-FLASH-ALL-C93B.sin
    \OREOFlash\elabel-G8441-row-row_201709190503668.1_47.1.A.12.205_X-FLASH-LTALABEL-C93B.sin\fota-reset.ta
    \OREOFlash\fotakernel_X-FLASH-ALL-C93B.sin
    \OREOFlash\fsmetadata_X-FLASH-ALL-C93B.sin
    \OREOFlash\fwinfo.xml
    \OREOFlash\kernel_X-FLASH-ALL-C93B.sin
    \OREOFlash\modem_X-FLASH-ALL-C93B.sin
    \OREOFlash\newflasher.arm32
    \OREOFlash\newflasher.arm64
    \OREOFlash\newflasher.arm64_pie
    \OREOFlash\newflasher.darwin64
    \OREOFlash\newflasher.exe
    \OREOFlash\newflasher.i386
    \OREOFlash\newflasher.x64
    \OREOFlash\oem_X-FLASH-CUST-C93B.sin
    \OREOFlash\Qnovo_X-FLASH-ALL-C93B.sin
    \OREOFlash\ramdump_X-FLASH-ALL-C93B.sin
    \OREOFlash\ssd_X-FLASH-ALL-C93B.sin
    \OREOFlash\system_X-FLASH-ALL-C93B.sin
    \OREOFlash\update.xml
    \OREOFlash\userdata_X-FLASH-CUST-C93B.sin
    \OREOFlash\vendor_X-FLASH-ALL-C93B.sin

    Double check that \OREOFlash\persist_X-FLASH-ALL-C93B.sin does not exist in the \OREOFlash\ directory! Read the WARNING at the intro to Step #2 above!

    Double check that \OREOFlash\oem_X-FLASH-CUST-C93B.sin is from the US_47.2.A.11.228-R7C rom file! You can tell the difference by the files size.

    If any other files are present in the \OREOFlash\ directory other than what is shown in the list above, delete them.

12. Create a new folder .\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\PIEFlash and copy ONLY the following files from the associated rom's into the PIEFlash folder.

    Purple = Files from the Sony PIE ROM *'- Original - G8441_Customized UK_47.2.A.11.228-R2C' folder.*
    Orange = Files from the Newflasher folder '*newflasher_v55*'.

    **\PIEFlash**
    \PIEFlash\boot\boot_delivery.xml
    \PIEFlash\boot\bootloader_X_Boot_MSM8998_LA2_0_P_114_X-FLASH-ALL-5ADA.sin
    \PIEFlash\boot\bootloader_X_BOOT_MSM8998_LA2_0_P_114_X-FLASH-ALL-5D31.sin
    \PIEFlash\boot\bootloader_X_BOOT_MSM8998_LA2_0_P_114_X-FLASH-ALL-C93B.sin
    \PIEFlash\boot\Lilac_XBootConfig_MiscTA.ta
    \PIEFlash\partition\partition_delivery.xml
    \PIEFlash\partition\partition-image-LUN0_X-FLASH-ALL-C93B.sin
    \PIEFlash\partition\partition-image-LUN1_X-FLASH-ALL-C93B.sin
    \PIEFlash\partition\partition-image-LUN2_X-FLASH-ALL-C93B.sin
    \PIEFlash\adspso_X-FLASH-ALL-C93B.sin
    \PIEFlash\amss_fs_1_X-FLASH-ALL-C93B.sin
    \PIEFlash\amss_fs_2_X-FLASH-ALL-C93B.sin
    \PIEFlash\amss_fsg_X-FLASH-ALL-C93B.sin
    \PIEFlash\appslog_X-FLASH-ALL-C93B.sin
    \PIEFlash\auto-boot.ta
    \PIEFlash\bluetooth_X-FLASH-ALL-C93B.sin
    \PIEFlash\cache_X-FLASH-ALL-C93B.sin
    \PIEFlash\cust-reset.ta
    \PIEFlash\diag_X-FLASH-ALL-C93B.sin
    \PIEFlash\elabel-G8441-row-row_201709190503668.1_47.1.A.12.205_X-FLASH-LTALABEL-C93B.sin
    \PIEFlash\fotakernel_X-FLASH-ALL-C93B.sin
    \PIEFlash\fota-reset.ta
    \PIEFlash\fsmetadata_X-FLASH-ALL-C93B.sin
    \PIEFlash\fwinfo.xml
    \PIEFlash\kernel_X-FLASH-ALL-C93B.sin
    \PIEFlash\master-reset.ta
    \PIEFlash\modem_X-FLASH-ALL-C93B.sin
    \PIEFlash\newflasher.arm32
    \PIEFlash\newflasher.arm64
    \PIEFlash\newflasher.arm64_pie
    \PIEFlash\newflasher.darwin64
    \PIEFlash\newflasher.exe
    \PIEFlash\newflasher.i386
    \PIEFlash\newflasher.x64
    \PIEFlash\osv-restriction.ta
    \PIEFlash\Qnovo_X-FLASH-ALL-C93B.sin
    \PIEFlash\ramdump_X-FLASH-ALL-C93B.sin
    \PIEFlash\reset-kernel-cmd-debug.ta
    \PIEFlash\reset-non-secure-adb.ta
    \PIEFlash\reset-wipe-reason.ta
    \PIEFlash\simlock.ta
    \PIEFlash\ssd_X-FLASH-ALL-C93B.sin
    \PIEFlash\system_X-FLASH-ALL-C93B.sin
    \PIEFlash\update.xml
    \PIEFlash\userdata_X-FLASH-CUST-C93B.sin
    \PIEFlash\vendor_X-FLASH-ALL-C93B.sin

    Double check that \PIEFlash\persist_X-FLASH-ALL-C93B.sin does not exist in the \PIEFlash\ directory! Read the WARNING at the intro to Step #2 above!

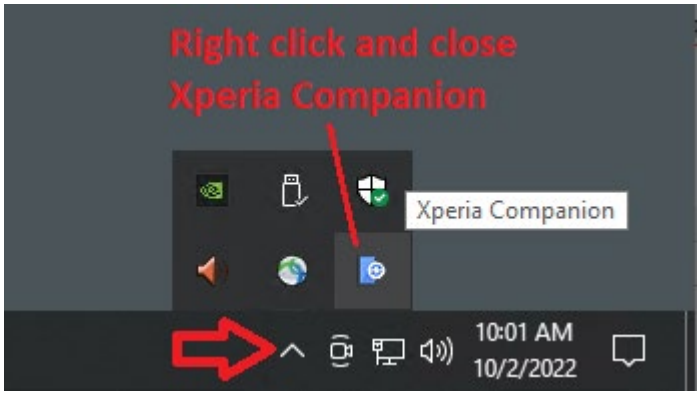
    Double check that \PIEFlash\oem_X-FLASH-CUST-C93B.sin does not exist in the \PIEFlash\ directory! We do not want to erase the goal we are trying to achieve.

    If any other files are present in the \PIEFlash\ directory other than what is shown in the list above, delete them.

**Step 3: OREOFlash (Flashing Oreo US rom hybridized with PIE US OEM*.sin)**

1. Warning! Backup all of your data before proceeding forward! The following steps will factory reset the phone and erase all data from the phone. Backing up and restoring data is outside of the scope of this guide.

2. ON PC: On the taskbar, next to the system clock, click the caret icon to open the System Tray. Hover the mouse over these icons to see the name of the application each icon represents. If the *Xperia Companion* icon is present, right click it and left click *Close*.




3. Unplug the USB cable from the phone end if one is connected. Plug a USB data cable into the PC, but do not plug the opposite end of the USB data cable into the phone.

4. ON PC: Open a Command Prompt (cmd.exe) as an administrator (How to: https://youtu.be/btg5hYs72gc?t=44). With command prompt open:
   TYPE: `cd %UserProfile%\Desktop\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\newflasher_v55`
   TYPE: `newflasher.exe`
   Enter 'Y' to the GordonGate flash driver.
   Press any key to exit newflasher.
   TYPE: `Sony_Mobile_Software_Update_Drivers_x64_Setup.msi`
   When the installation window for the Sony Mobile Software Update Drivers appears, install the drivers. If you reach a screen where the only option is a *'Remove'* button, cancel out of the installer as the drivers are already installed.

5. ON PHONE:
   If currently running Pie: Tap *Apps* icon -> *Settings* -> *System* -> *Advanced* -> *Reset Options* -> *Erase all data (factory reset)* -> *RESET PHONE* -> *ERASE EVERYTHING*. Wait for the phone to restart.

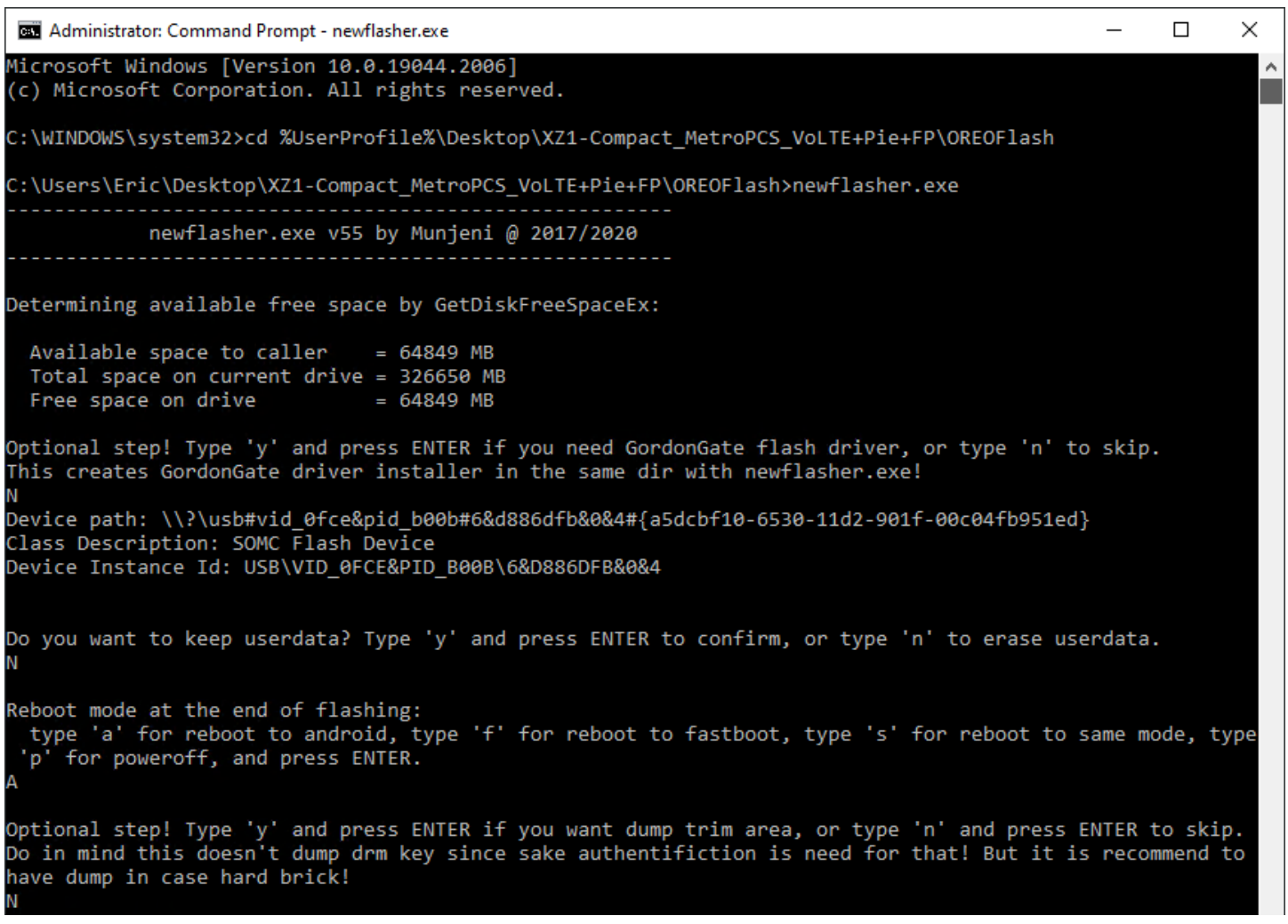
   If currently running Oreo: Tap *Apps* icon -> *Settings* -> *System* -> *Reset* -> *Factory data reset (factory reset)* -> *RESET PHONE* -> *ERASE EVERYTHING*. Wait for the phone to restart.

6. ON PHONE: At the welcome screen, press and hold the power button. Tap *Power off*. Wait for the phone to power off.

7. ON PHONE: Physically remove the SIM card from the phone. Information to locate the SIM card can be found here: https://youtu.be/2mwiN61kNBM?t=18

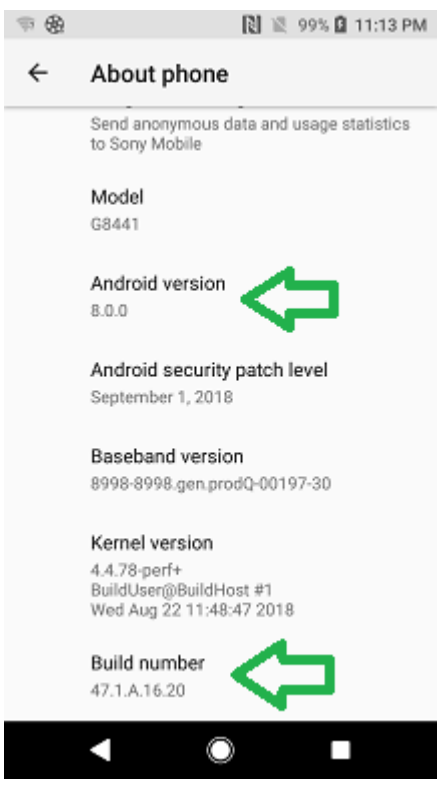
8. ON PHONE: Place the phone into flash mode. To do this, press and hold the volume down button. With the volume down button held, plug the USB cable into the phone. Continue to hold the volume down button until the phone's LED illuminates steady green. Than release the volume down button. The screen will remain off and the LED illuminated green when the device is in flash mode.

9. ON PC: Using the command prompt, flash OREOFlash:
   TYPE: *cd %UserProfile%\Desktop\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\OREOFlash*
   TYPE: *newflasher.exe*
   Enter '*N*' to the GordonGate flash driver.
   Enter '*N*' to keep userdata.
   Enter '*A*' to reboot.
   Enter '*N*' to dump trim area.
   When flashing has completed the phone will restart.
   Press any key to exit newflasher.




10. ON PHONE: Once the XPERIA boot animation is displayed, unplug the USB data cable from the phone.

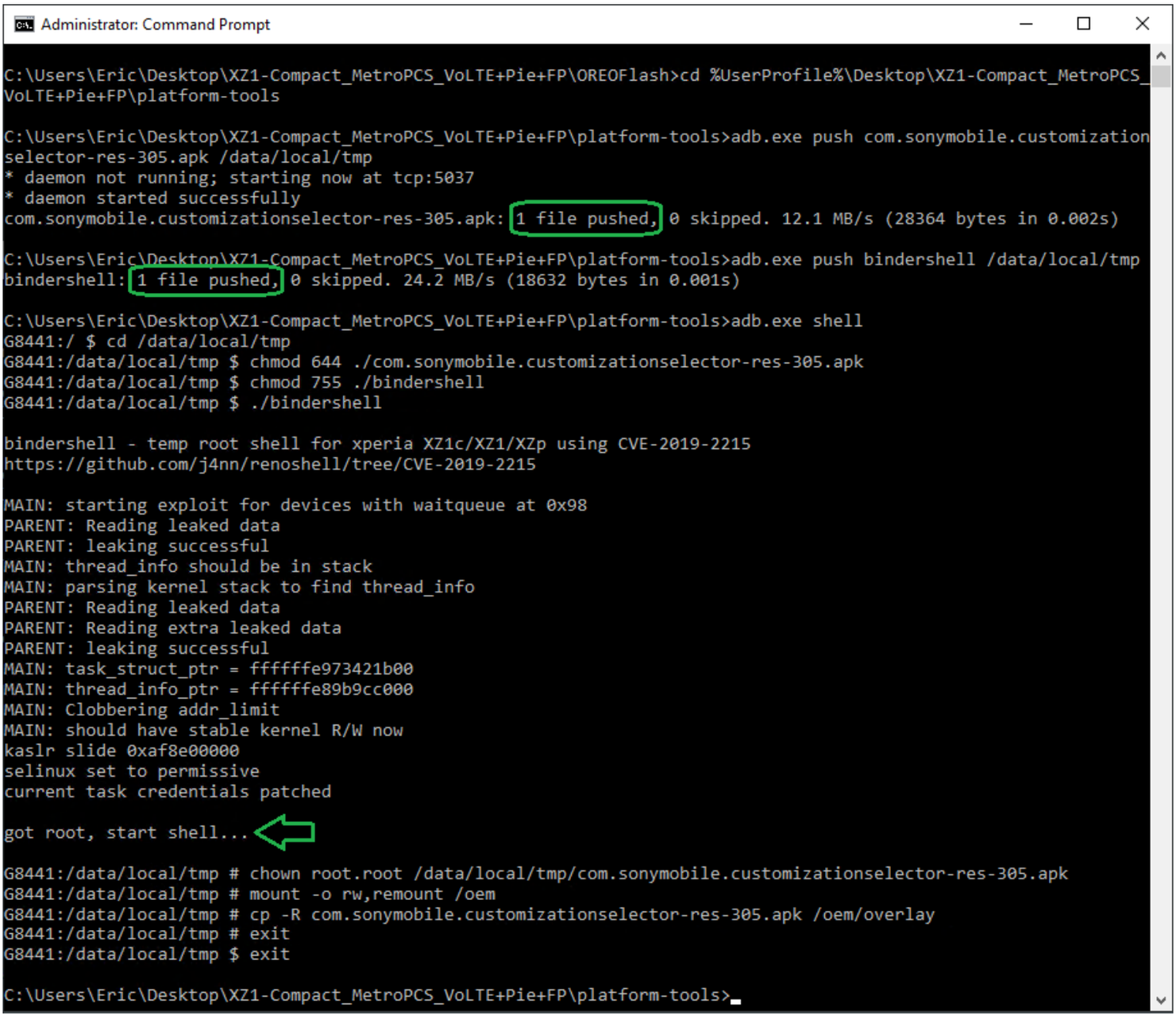
11. ON PHONE:
    Tap *'GET STARTED'* button.
    Untick 'Yes, I want to help improve Xperia by Sharing Diagnostics (optional)' than Tap '*ACCEPT*' button.
    Tap '*SKIP*' (bottom left corner) to Insert SIM card.
    Tap *'Set up as new'* to Welcome to your Xperia.
    Tap *'SKIP'* to Get connected.
    Tap *'CONTINUE'*.
    Tap *'NEXT'* to Date & time.
    Tap *'NEXT'* to Name.
    Tap *'Not now'* to Protect your phone.
    Tap *'SKIP ANYWAY'*.
    Toggle OFF *Help apps find location*. Toggle OFF *Improve location accuracy*. Toggle OFF *Send system data*. Tap *'I AGREE'* button.
    Tap *'NOT NOW'* to Xperia services.
    Tap *'SKIP'* to Skip signing in.
    Tap *'NEXT'* to Xperia Intelligence engine.
    Tap *'DENY'* to Allow Xperia Intelligence engin… to access this device's location.
    Tap '*Wi-Fi only*' to Software configuration.
    Tap *'FINISH'*.
    Tap *Apps* icon -> *Settings* -> *System* -> *About Phone*. Verify the Android version is 8.0.0, and Build number is 47.1.A.16.20.




Tap *'Build Number'* 7 times until it displays 'You are now a developer'.
Tap the back icon in the bottom left, or top left corner.
Tap *'Developer options'*.
Toggle ON *'USB debugging'*.
Tap *'OK'* to Allow USB debugging.
Tick *'Always allow from this computer'* and tap *'OK'*.
Tap the back (triangular) icon in the bottom left corner three times.
Plug the USB cable into the phone.
Tap '*NOT NOW*' when prompted to install Xperia Companion.
Tap '*Transfer files*' to Use USB to. (If you do not see this prompt, unplug and re-plug the USB cable.)

**Step 4: Gaining temp root and installing the MetroPCS VoLTE mod**

1. ON PC: Using command prompt, gain temp root and install the MetroPCS VoLTE mod:
   TYPE: *cd %UserProfile%\Desktop\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\platform-tools*
   TYPE: *adb.exe push com.sonymobile.customizationselector-res-305.apk /data/local/tmp*
   VERIFY: If the command did not respond with '*1 file pushed, 0 skipped*' read the VERIFY note below.
   TYPE: *adb.exe push bindershell /data/local/tmp*
   TYPE: *adb.exe shell*
   TYPE: *cd /data/local/tmp*
   TYPE: *chmod 644 ./com.sonymobile.customizationselector-res-305.apk*
   TYPE: *chmod 755 ./bindershell*
   TYPE: *./bindershell*
   TYPE: *chown root.root /data/local/tmp/com.sonymobile.customizationselector-res-305.apk*
   TYPE: mount -o rw,remount /oem
   TYPE: *cp -R com.sonymobile.customizationselector-res-305.apk /oem/overlay*
   TYPE: *exit*
   TYPE: *exit*
   VERIFY: Compare the responses to the image below. If the responses are not similar to the image below, or the response *'got root, start shell…'* was not received, return to the first line above that starts with 'Tap *Apps* icon ->' above the *About Phone* image.




2. Unplug the USB cable from the phone.

3. ON PHONE: Press and hold the power button -> tap *'Power off'*. Wait for the phone to power off.

**Step 5: PIEFlash (Flashing PIE UK ROM hybridized with PIE US OEM*.sin and MetroPCS VoLTE mod)**

1. ON PHONE: Place the phone into flash mode. To do this, press and hold the volume down button. With the volume down button held, plug the USB cable into the phone. Continue to hold the volume down button until the phone's LED illuminates steady green. Than release the volume down button. The screen will remain off and the LED illuminated green when the device is in flash mode.

2. ON PC: Using the command prompt, flash PIEFlash:
   TYPE: *cd %UserProfile%\Desktop\XZ1-Compact_MetroPCS_VoLTE+Pie+FP\PIEFlash*
   TYPE: *newflasher.exe*
   Enter '*N*' to the GordonGate flash driver.
   Enter '*N*' to keep userdata.
   Enter '*A*' to reboot.
   Enter '*N*' to dump trim area.
   When flashing has completed the phone will restart.
   Press any key to exit newflasher.

3. ON PHONE: Once the XPERIA boot animation is displayed, unplug the USB data cable from the phone.

4. ON PHONE: At the welcome screen, press and hold the power button -> tap *'Power off'*. Wait for the phone to power off.

5. ON PHONE: Install the MetroPCS SIM into the phone. Directionally, the black plastic tray is mounted towards the screen side of the phone, and the SIM card copper contacts face towards the back of the phone. Seat the SIM card securely.

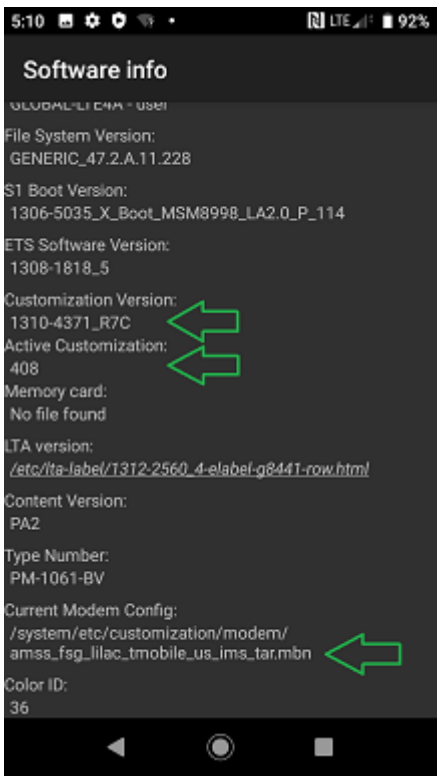
6. ON PHONE: Power on the phone.

7. ON PHONE:
   Tap '*GET STARTED'* button.
   Untick 'Yes, I want to help improve Xperia by Sharing Diagnostics (optional)' than Tap '*ACCEPT*' button.
   Tap '*SKIP*' to Connect to Wi-Fi.
   Tap '*CONTINUE*' to Skip network connections.
   Toggle OFF '*Use location*', '*Allow scanning*', and '*Send usage and diagnostic data*' than tap '*ACCEPT*' button.
   Tap '*SKIP*' to Set screen lock.
   Tap '*SKIP ANYWAY*'.
   Untick '*Lounge*', Untick '*Xperia Assist*', Untick '*Support*' to Xperia services and Tap 'NOT NOW' (bottom left corner).
   Tap '*SKIP*' to Skip signing in.
   Tap '*FINISH*' button.
   Tap '*OK*' to Your device will now restart to be optimized for your network operator.

**Step 6: Verifying your work**

1. ON PHONE: Tap *Apps* icon -> *Settings* -> *System* -> *About Phone*. Verify the Android version is *9*, and the Build number is *47.2.A.11.228*.

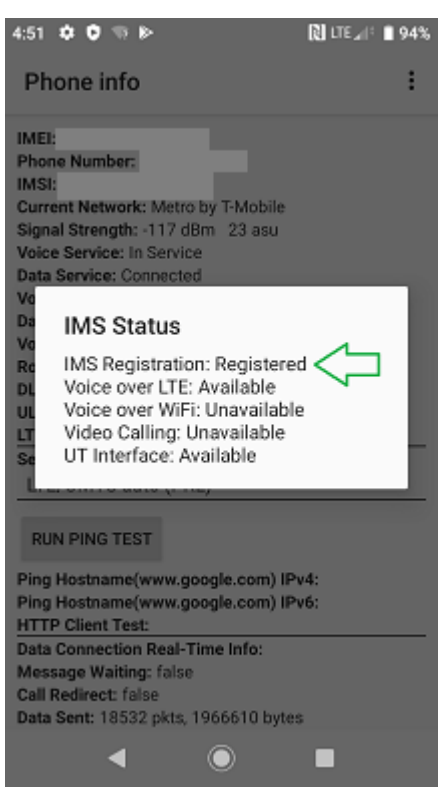

2. ON PHONE: Open the dialer and Dial **#*#7378423#*#** -> Tap *Service Info* -> Tap *Software Info* and verify:
    1. Customization Version shows: 1310-4371_R7C
    2. Active Customization shows: 408
    3. Current Modem Config shows: /system/etc/customization/modem/amss_fsg_lilac_tmobile_us_ims_tar.mbn




    If Current Modem Config reads amss_fsg_lilac_tmobile_us_ims_tar.mbn, VoLTE will be provisioned, and VoLTE will function properly after IMS registration completes. Call quality and data speeds are significantly improved with the correct modem config.

    If Current Modem Config does not read amss_fsg_lilac_tmobile_us_ims_tar.mbn, VoLTE will not be provisioned and VoLTE will not function. Call quality and data speeds will perform poorly.

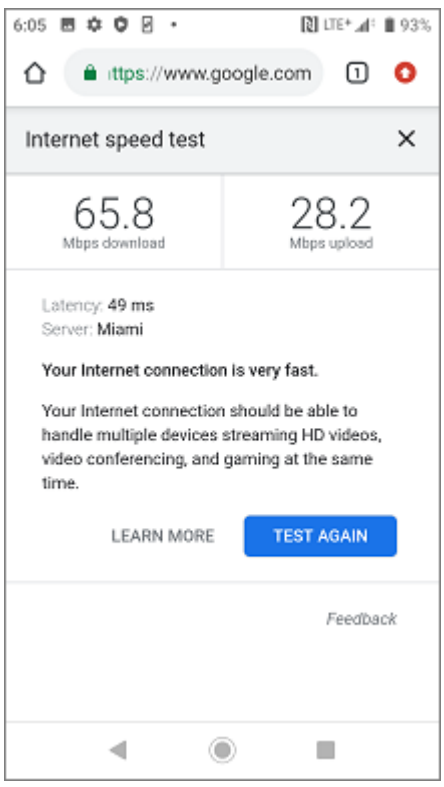
3. ON PHONE: Open the dialer and Dial **#*#4636#*#** -> Tap *Phone information* -> Tap the three hamburger dots at the top right -> Tap *IMS Service Status*. Verify IMS Registration shows *Registered* and Voice over LTE shows *Available*. If IMS Registration reads *Not Registered*, read the note below.




    This is VoLTE provisioning. IMS registration (usually) does not happen immediately. IMS registration can take up to 30 minutes after the device boots up. IMS Registration occurs after every boot of the device. When IMS Registration shows 'Not Registered' VoLTE will not function. Close the panel, let the phone sit for a while, then check it again later. Wait for IMS Registration to show as 'Registered' before proceeding.

4. ON PHONE: Open the dialer and Dial the devices phone number. Verify the HD calling icon is displayed. Verify the service type indicator shows LTE. Both indicate functional VoLTE service.


5. ON PHONE: Open the Chrome browser. Untick '*Help make Chrome better*'. Tap '*Accept & continue*'. Tap '*No Thanks*' when prompted to sign in. Google '*Speed Test*'. Tap *RUN SPEED TEST*. Verify that up/down speeds are correct for your area. When using the amss_fsg_lilac_tmobile_us_ims_tar.mbn modem, both call quality and data speeds are significantly improved.




6. ON PHONE: Connect to a Wi-Fi network. Dial the devices phone number. Verify the Wi-Fi calling icons and HD icon are displayed.


7. ON PHONE: Tap the *Apps* icon -> *Settings* -> *Lock screen & security* -> *Fingerprint Manager* -> *Next*. Choose a screen lock method and following the steps on screen to register a fingerprint. Once completed, wait 1 minute (without disturbing the phone) for the phone to enter sleep mode. Wait for the screen to turn completely dark and wake the device. Test unlocking the device using a registered fingerprint.

**Step 7: Say Thanks and Put a Smile on My Face!**

If this mod has made you happy, please let me know in the XDA forum thread: https://forum.xda-developers.com/t/xz1-compact-metropcs-volte-latest-pie-fingerprint-wi-fi-calling-step-by-step-guide.4502093/

If you are financially able, please consider a donation for my time to create this mod for you using the PayPal link https://www.paypal.com/donate/?hosted_button_id=LV7LUTBF3N5V4

Developing this mod took me 15 full days to track down the source of the problem, learn how to modify this part of the android system without damaging the security and functionality of the device, create a patch, get the solution running, and testing the completed solution. Followed by another 2 full days to write this guide just for you. If you can help financially, I could really use the help. Thank you in advance!

**Step 8: Set Language**

As the device is using the UK ROM, set the language to English (United States) or your preferred language.

1. ON PHONE: Tap the *Apps* icon -> *Play Store* -> and complete the sign-in process.
2. ON PHONE: Tap the *Apps* icon -> *Settings* -> *Accessibility* -> *Text-to-speech output* -> *Language* -> tap '*English (United States)*' or your preferred language -> *back* -> *back*.
3. ON PHONE: Tap *System* -> *Languages & input* -> *Languages* -> if '*English (United States)*' is not listed, or your preferred language -> tap '*Add a language*' -> *English* -> *United States*. Use remove option in top right corner if a language listed is not a language that you use. Tap *back*.
4. ON PHONE: Tap *On-screen keyboard* -> *Microsoft SwiftKey Keyboard* -> *Languages* -> verify 'Your languages' is set to *English (United States)* or your preferred language. Adjust if necessary. Tap *back* -> *back*.
5. ON PHONE: Tap *Google voice typing* -> [optional: untick '*Block offensive words*'] -> tap *Languages* -> tick '*English (US)*' or your preferred language.

**Enjoy!**
- Eric Parr
Documented 10-5-2022

https://forum.xda-developers.com/t/xz1-compact-metropcs-volte-latest-pie-fingerprint-wi-fi-calling-step-by-step-guide.4502093/