

***Inforce 6309***  
***Android Software Release Note V3.0***

***003195 Rev A***

***February 28, 2018***

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## Revision History

| Revision | Date             | Description     | Author | Status |
|----------|------------------|-----------------|--------|--------|
| A        | 28/February/2018 | Initial Release | PH     | Active |

## Approval Record

| Function    | Name | Date             |
|-------------|------|------------------|
| Reviewed By | AP   | 28/February/2018 |
| Approved By | DR   | 28/February/2018 |

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# 1. INTRODUCTION

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This document describes the feature set supported on Android BSP Software Release Version 3.0 running Android Nougat 7.1.1 on Inforce 6309 development platform from Inforce Computing. The Inforce 6309 is a SBC based on the 64-bit Qualcomm® Snapdragon™ 410 processor (APQ8016 SoC).

## Test Configuration used for Validation

- SBC – IFC6309-01-P2
- Camera Modules – ACC-1H10-XX-P3
- LVDS – ACC-1B10-XX-A1

## Software Platform Version

This release is based on the following software platforms:

- Linux Kernel – Version 3.10.49
- Android Nougat – Version 7.1.1

## Memory Platform Information

The following has been validated in this release:

- eMMC 8GB
- LPDDR3 1GB

Instructions to create a build environment and build Android software is available at:

<https://source.android.com/source/requirements.html>

## 2. REFERENCES

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This section lists any parent and/or supplementary documents for the Inforce 6309 development platform. This document supersedes previous versions. This document should be read along with:

- 6309 User Guide (PN 002685, Rev E, July 7, 2017)

# 3. SOFTWARE RELEASE INFORMATION

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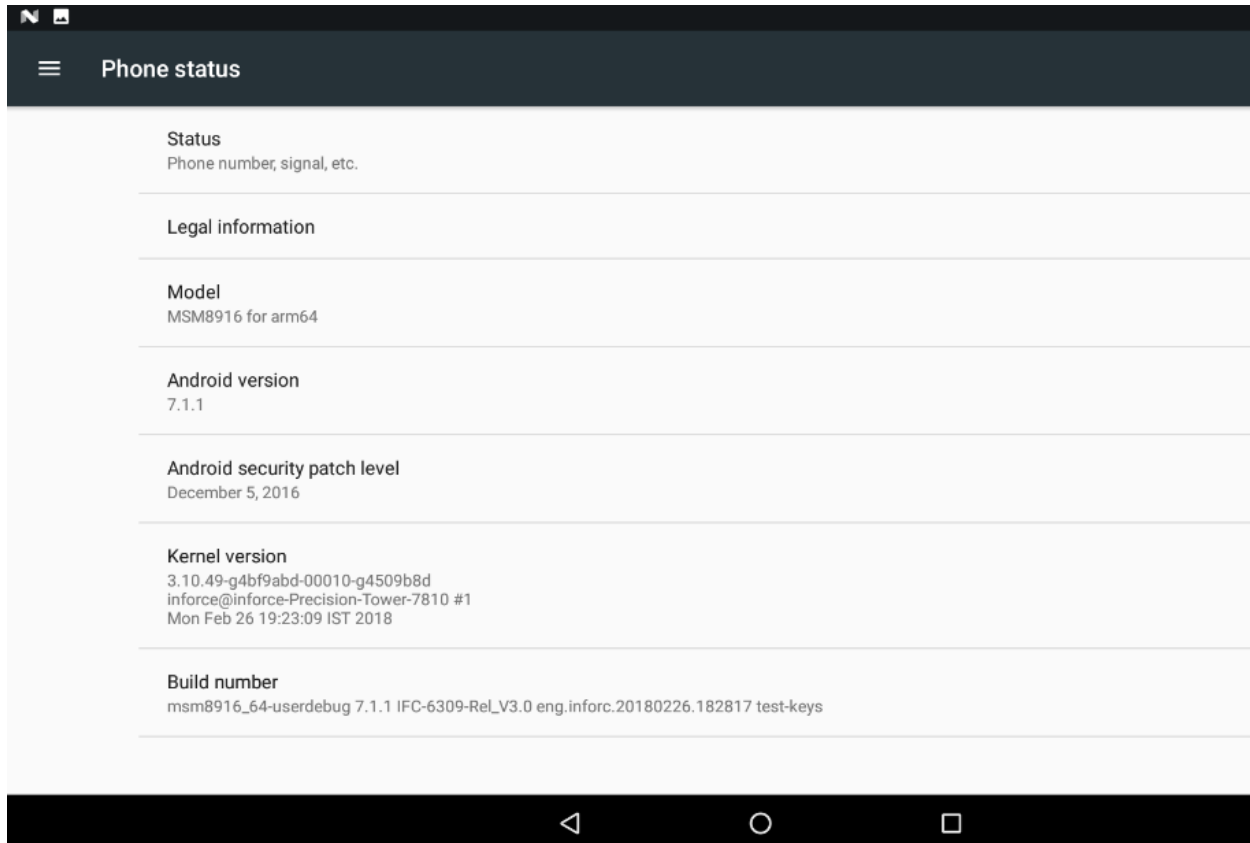
## 3.1 SOFTWARE RELEASE PACKAGE

This software release package consists of the following items:

- **Binaries** – Pre-built binary files that can be flashed directly to the Inforce 6309 development platform.
- **Inforce Computing Patches** – These are adaptations and customizations done by Inforce Computing to ensure that the software works on the Inforce 6309.
- **README.txt** – Instructions for building and flashing the Android Images.
- **MAC Programming Files** – Support files required for Bluetooth and Ethernet MAC Address programming.
- **Applications** – Application APKs for Chrome, VLC player and GPS are included in the software package.
  - com.android.chrome-v47.0.2526.76-252607600-Android-4.1.apk
  - org.videolan.vlc-1.7.2-APK4Fun.com.apk
  - gpstest.apk
- **Release note** – This document describes the software capabilities and features, and any known issues/limitations in the release.

## 3.2 SOFTWARE RELEASE IDENTIFICATION

This Software Release Version 3.0 is based on Android Nougat 7.1.1 for use with the Inforce 6309 development platform (CAF tag LA.BR.1.2.9-01810-8x16.0.xml release) with adaptations and customizations from Inforce Computing.





## 3.3 FEATURES SUPPORTED IN THIS RELEASE

The following features are validated in this release:

1. **Android Nougat 7.1.1:** This release is based on Android Nougat 7.1.1.
2. **Android Recovery:** Recovery mode operation is verified with adb access in this release.
3. **CPU Frequency:** CPU core frequency up to 1.2GHz (4 cores).
4. **GPU Frequency:** This release supports 400MHz.
5. **USB**
  - **USB 2.0:** USB-based input devices (Mouse and Keyboard).



### NOTE

*Inforce 6309 will work either in USB host mode or device mode. If the device adb cable is connected, it will work in the device mode (for adb, fastboot).*

*ADB over Wi-Fi should be used to have adb and USB host function together. Following are the steps to enable ADB over Wi-Fi:*

1. *Boot the Inforce 6309 board and run the following commands on the Command prompt:*

```
adb wait-for-device && adb root && adb wait-for-device &&
adb remount
&& adb wait-for-device
adb shell "echo service.adb.tcp.port=5555 >>
/data/local.prop"
adb shell chmod 0644 /data/local.prop
```
  2. *Reboot the unit after disconnecting the  $\mu$ USB cable to the PC.*
  3. *Select the following options on the board:*
    - Settings → Wi-Fi → ON (select a network and then connect)*
    - Settings → Display → Sleep → 30 minutes*
    - Settings → Security → Screen Lock None*
    - Settings → About phone → Build Number  $\times 8$  (press build number eight times to enable developer mode)*
    - Settings → Developer Options → Stay Awake*
    - Settings → Developer Options → Verify Apps over USB → OFF*
  4. *Find the IP address of the device using the path below:*
    - Settings → WIFI → Long press on the Connected Network → Modify Network*
  5. *Now the IP address will be displayed on the Modify Network screen (e.g., "10.75.69.197").*
  6. *ping <ip address>*
  7. *adb connect <ip address>:5555*
  8. *adb devices*
  9. *Now the device will be accessible over Wi-Fi. The USB cable to load programs is no longer required.*
- **USB Mass Storage:** This release supports USB mass storage automount. The files can be accessed from UI using third party File Manager application (ES File Explorer File Manager).



### NOTE

*The USB mass storage will not work if the device adb cable is connected as the unit does not*

*support host mode and device mode operation simultaneously.*

*Connect to ADB over Wi-Fi by issuing the commands as mentioned in the previous point.*

- **USB Camera:** 1080p image capture and preview using the Microsoft LifeCam HD 5000.

## 6. Display

- **HDMI:** This release supports HDMI display at 1080p, 30fps full-screen resolution along with the audio.



### NOTE

*Ensure that the SW4 Position 4 switch for HDMI display is turned ON.*

- **LVDS Support:** This release is validated for 1366 × 768 resolution using the ACC-1B10 accessory.



### NOTE

*Turn OFF the SW4 Position 4 switch for LVDS display.*

*To reconfigure the Android home screen for supporting LVDS resolution, execute the following commands after flashing:*

```
adb root
adb remount
adb shell
adb shell "echo qemu.sf.lcd_density=160 >> /system/build.prop"
adb reboot
```

- **Wi-Fi:** Wi-Fi 2.4 GHz client functionality. Wi-Fi status LED is validated.



### NOTE

*As there is no default browser available, install the Chrome browser provided along with the software package for browsing. Use the following commands for installing the apk:*

```
adb root
adb remount
adb install <location where apk is stored>/com.android.chrome-
v47.0.2526.76-252607600-Android-4.1.apk
```

- **Bluetooth:** This release is validated for Bluetooth and Bluetooth low-energy host functionalities. Bluetooth status LED is validated.

- **SD Card:** This release supports SD card storage media with a maximum validated storage size of 64GB.

- **Gigabit Ethernet:** This release supports Gigabit Ethernet. It is possible to browse the internet using a browser.



### NOTE

*Ethernet will not work if the device adb cable is connected as the unit does not support host mode and device mode operation simultaneously.*

- **GPS:** GPS feature with an external active antenna.



### NOTE

*GPS feature is verified using the gps test application provided within this release package. Follow the commands shown below to install the apk:*

```
adb root
adb remount
adb install gpstest.apk
```

- 13. Serial UART:** This release supports UART.
- 14. RS485 Support:** This release supports RS485.
- 15. Audio Jack:** This release supports audio input and output through a combo jack. This release was validated for Audio jack detection.

**NOTE**

*Use CTIA/North American compatible combo audio jack. European/OMTP compatible jack support needs hardware rework on the board.*

- 16. MIPI CSI:** This release is validated for MIPI CSI camera interface using ACC-1H10 accessory for H.264 recording of 1080p@30fps resolution.
- 17. Network Configuration:** Ethernet, Wi-Fi, and Bluetooth MAC address programming are maintained in persist partition.

**NOTE**

*For Ethernet, Wi-Fi and Bluetooth MAC address programming, please refer to the README.txt provided as part of this release package.*

- 18. MTP Device:** This release is validated for MTP device support.

**NOTE**

*The board will not be detected as a MTP device on the very first boot after flashing the board.*

- 19. SD Card Recovery:** This release is validated for recovery of bricked boards through SD card boot.

**NOTE**

*Refer to the application note titled **Inforce 6309 AppNote Recovery of Bricked Boards Using SD Card** that is available on Inforce Techweb.*

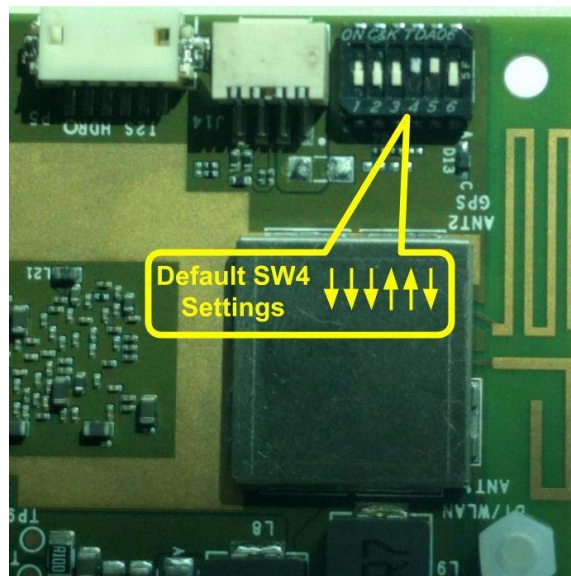
- 20. Low-speed peripherals:** Low-speed peripherals programming is validated.
- 21. FastCV SDK:** This release enables the usage of FastCV SDK 1.7 package.
- 22. Miracast:** This release supports Miracast. Casting of FullHD resolution has been validated in this release.
- 23. PoE Support:** ACC-1S70 is supported in this release.

## 3.4 NEW FEATURE OF THIS RELEASE

- 1. Android Nougat 7.1.1:** This release supports Android Nougat 7.1.1.

## 3.5 IMPORTANT NOTES

- *The default SW4 switch positions to boot the board with HDMI display is shown below:*



- To enable the POWER button, turn OFF the SW4 Position 5 switch. If enabled, the button needs to be long pressed to boot up the board.
- The following are the steps to enter into fastboot mode:
  - Hold the SW3 switch and power cycle the board or Enter the bootloader using the following command:

```
adb reboot bootloader
```
  - Confirm if the device has entered fastboot mode by issuing the command below:

```
fastboot devices
```
- For installing the Android applications, issue the following commands:

```
Adb root
```

```
Adb remount
```

```
Adb install <application name>.ask
```

## 3.6 LIMITATIONS/BUGS

1. Hexagon SDK is not working.
2. HDMI hot plug is not supported in this release.
3. Camera application will work only in the portrait mode.
4. Camera preview and recorded video has a grainy appearance.
5. The SD card option is available under **Camera > Storage** location even if it is removed. In this case, if the SD card option is selected, the image will not be saved.

## 4. CONTACT INFORMATION

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