

Release Notes – Zebra TC51, TC51-HC, and TC56 Android N – LifeGuard Update 12 for NGMS

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Introduction

Work more efficiently and better serve your customers by giving your employees enterprise-class handheld computers that survive life in the field or shop floor, communicate and access information in real time.

The TC51/TC51-HC/TC56 is the professional-grade Android device built from the ground up for the enterprise.

-) Zebra's Mobility Extensions (Mx)
-) Mobility DNA, a suite of mobility enabling applications, development tools and utilities
-) Most advanced scan engine with longer range data capture capability
-) Rugged and ready for every day enterprise use inside and outside the four walls

Description

This release contains the following software package which is compatible with the TC51, TC51-HC and TC56 Non-GMS products.

LifeGuard patches are cumulative and include all previous fixes that are part of earlier patch releases.

Note:

When upgrading from M to N LG CFE, device should be upgraded to N first and allow to Reboot the device so that the Nougat LG Patch can be installed.

Component Contents

Component / Description	Version
Product Build Number	01-01-49.00-NN-U12-STD
Android Version	7.1.2
Linux Kernel	3.10.84
Android SDK Level	25
Platform	QC8956
Bluetooth Stack	1.1
Flash Size	32GB
RAM Size	4GB
Scanning	19.11.37.1
DataWedge	6.9.49
EMDK	6.10.12.1312
MXMF / OSX	MXMF-8.1.0.10 / QCT.71.7.7.1
Enterprise Keyboard (EKB)	1.9.0.4
WiFi	FUSION_BA_2_10.0.3.019_N Application: BA_2_10.0.0.011_N Radio: BA_2_10.0.1.018_N Middleware: BA_2_10.0.1.012_N Firmware: 7.35.205.8 (r)
PTT	3.1.35
Touch FW	N/A
RxLogger Utility	5.4.10.0

B2M	N/A		
Bluetooth Pairing Utility	3.11		
Zebra Data Services	1.0.0.1002		
File Browser	1.19.1.5		
Stage Now	3.1.1.1018		
App Gallery	3.0.1.7		
User Guide	N/A		
Sensors (Accel, Gyro)	2061000, 2061000		
MobiControl	N/A		
Zebra Volume Control (ZVC)	2.0.0.16		
Battery Manager	1.3.8		
ActiveEdge	2.5.16		
WorryFreeWiFi (Smart MU)	3.0.2		
SimulScan Demo App	3.0.2		
SimulScan Engine	2.0.3		
Device Central	2.0.17.0		
Zebra Software License Manager	3.1.1		
Audio SW Version	0.24.0.0		
Acoustic Profiles	TC51HC: General: AN2.1 Cellular: N/A	TC56: General: AN3.6 Cellular: AN3.6	TC51: General: AN1.4 Cellular: N/A
Diagnostic Tool	1.16.0.1		
OEM Config	8.1.0.9		
FingerPrint	Zebra/TC56/TC56:7.1.2/01-01-49.00-NN-U12-STD/74:user/release-keys Zebra/TC51/TC51:7.1.2/01-01-49.00-NN-U12-STD/74:user/release-keys Zebra/TC51HC/TC51HC:7.1.2/01-01-49.00-NN-U12-STD/74:user/release-keys		

Security Patch Level	October 01, 2018
GMS Version	7.1_r8

1. CFE v12 Updates:

❖ CFE_ATLAS_01-01-49.00-NN-U12-STD.zip (NGMS)

1. **Android Security Patch Level:** October 1, 2018

Use the link below to see the Android Security bulletin for more information:

<https://source.android.com/security/bulletin/>

2. Updated below mentioned components:

- WiFi: FUSION_BA_2_10.0.3.019_N:
 - a. Enable/Disable FAPI support to turn ON/OFF hotspot via CSP.
 - b. SPR34760 – Resolved an issue wherein the device was unable to reconnect after some idle hours in low coverage.
 - c. SPR35090 – Enable/Disable Captive Portal Support.
 - d. SPR 35012 – Fixed Wi-Fi connectivity issue when Bluetooth scanner is connected to device.
- SmartMU: Version 3.0.2:
 - a. SmartMU app name change to WorryFreeWiFi
- Device Central: Version 2.0.17.0
- Scanning Framework: Version 19.11.37.1
 - a. SPR34484 - Resolved an issue wherein exceptions were not thrown when multiple apps try to open scanner instance without earlier instance being released.
- 3. SPR34300 - Added Auto Screen Rotation to Lock screen.
- 4. SPR35090 – Resolved an issue wherein disabling captive portal detection was not working.
- 5. SPR35065 – Resolved an issue to include the correct EXIF orientation tag data in the jpeg image capture by camera.
- 6. SPR35462 – Fixed an issue wherein keyboard selection notification was being shown on hard keypad devices.
- 7. SPR35216 – Resolved an issue where Proxy Auto Config (PAC) did not work properly following stops/restarts of the PacService
- 8. SPR35188 - Disabled QC Quick Charge 3.0 which allows the device to charge at 9v (since many 3rd party cables are rated for only 5v use).
- 9. SPR34978 – Resolved an issue wherein the device was unable to set private apn through EMDK or StageNow.

10. SPR35021 - Resolved an issue where Auto PAC Proxy settings are not preserved after Android desert update.
11. Added new APN for Telstra-M2M.

2. CFE v11 Updates:

❖ CFE_ATLAS_01-01-49.00-NN-U11-STD.zip (NGMS)

12. **Android Security Patch Level:** September 1, 2018

Use the link below to see the Android Security bulletin for more information:

<https://source.android.com/security/bulletin/>

13. Updated below mentioned components:

- Enterprise Keyboard: Version 1.9.0.4
- Diagnostic Tool: Version 1.16.0.1
- OEMConfig: Version 8.1.0.9
- Device Central: Version 2.0.11.0
- Zebra Software License Manager: Version 3.1.1
- Zebra Data Services: Version 1.0.0.1002

14. MX, StageNow, EMDK, Datawedge component updates:

Note: For detailed release notes, please refer <http://techdocs.zebra.com>

- MX: Version 8.1.0.10
- StageNow: Version 3.1.1.1018
- EMDK: Version 6.10.12.1312
- Datawedge: Version 6.9.49
 - a. SPR34429 – Resolved an issue wherein DataWedge failed to load “default Profile0”.
 - b. SPR34614 – Resolved an issue in DataWedge wherein scanner could not be enabled due to quick enabling and disabling of scanner through Intents.
 - c. SPR34972 – Implemented new parameters in scanner_input_plugin API so that the API takes considerable less time to suspend/reenable of the scanner

15. CVE-2018-5383 was corrected preventing unauthenticated BT pairing.

16. SPR34970 - Resolved an issue wherein speech quality was not good for WAN calls on TC56.

17. Added LEAP Profile support.

18. Included Zebra Software License Manager v3.1.1.

19. Data Analytics changes:

- DataAnalytics has been renamed to Zebra Data Service.

- DAInBuiltDCA has been renamed to Zebra Data Service Plugin.
- SettingsEULA has been renamed to Zebra Data Services.
- In this release, the ZDS-EULA pop up during configuring the device, can be automatically skipped if the device is configured for Device Owner mode or when SUWByPass is used.
- DO mode configuration mechanism includes NFC bump, QR code, AFW# and Zero touch.
- SUW Setup Wizard Bypass can set with PowerMgr CSP.
- On Automatic skipping of Zebra EULA, Zebra's default settings and data collection rules will be configured on the device.

20. Device Central v2.0:

- Device Central v2.0 support is claimed for TC56 N.
- Ability to scan Bluetooth MAC address barcode and pair the supported peripherals such as HS3100 Headset, Zebra Printer.
- Ability to scan-to-pair supported Bluetooth scanner such as RS6000, DS3678
- Ability to display supported paired devices list in Device Central App Summary Page.
- Ability to unpair the supported paired Peripherals such as HS3100 Headset, Zebra Printer.
- Ability to keep only one paired device of same class and unpair previously paired device of same class for the supported peripherals such as Printer, HS3100 Headset.
- Ability to configure the Device Central application UI using Device Central Manager CSP
 - a. Enable/disable firmware update option in device central (Default firmware update option is enabled).
 - b. Enable/disable user to turn on/off Bluetooth Power from Device Central App.
 - c. Ability to keep only one paired device of same class and unpair previously paired device of same class for the supported peripherals.

3. CFE v10 Updates:

❖ CFE_ATLAS_P10_NN_01-01.49.zip (NGMS)

1. **Android Security Patch Level:** August 1, 2018

Use the link below to see the Android Security bulletin for more information:

<https://source.android.com/security/bulletin/>

2. Updated below mentioned components:

- OSX – Version QCT.71.7.7.1
- Scanning Framework – Version 19.11.37.0
- 3. SPR34695 - Resolved an issue wherein Google play protect setting was not persisting across reboot.
- 4. SPR35062 - Resolved an issue wherein setting Default Launcher was failing when more than one third party launcher was installed in the device.
- 5. SPR34648 - Resolved an issue where malformed DHCP Option 150 (TFTP Server Address) was passed during DHCP exchange.
- 6. SPR34445 - Resolved an issue wherein scanner exceptions were observed while scanning DATAMATRIX barcodes using DS3678 scanner resulting in scanner beam failures.
- 7. SPR34310 - Resolved an issue where in CANCELREAD API was not working when Continuous Mode was enabled.
- 8. SPR34757 - Resolved an issue where DHCP Option 42 (NTP servers) has more entries than expected.
- 9. SPR34046 - Resolved an issue wherein there were Bluetooth scanner disconnections noticed while audio was being played simultaneously on BT headset.

4. CFE v9 Updates:

❖ CFE_ATLAS_P09_NN_01-01.49.zip (NGMS)

1. **Android Security Patch Level:** July 1, 2018
Use the link below to see the Android Security bulletin for more information:
<https://source.android.com/security/bulletin/>
2. Updated below mentioned components:
 - MX – Version 8.0.2.0
 - EKB – Version 1.8.0.8
 - StageNow Client – Version 3.0.1.1038
 - DataWedge – Version 6.8.54
 - WiFi – FUSION_BA_2_10.0.1.019_N
 - SmartMU – Version 3.0.1
 - OSX – Version QCT.71.7.7.0
 - DataAnalytics – Version 3.3.0.1113
3. After an upgrade from non-EULA to EULA BSP, the Data Analytics Engine (DAE) upgrades to v3.3.0.1113 and takes about 35 secs to initialize for the first time. During this time the Settings->Zebra (EULA) page will show the default status of Device Data toggle button as enabled until initializing is complete.

4. Audio Optimization resulting in a 75% reduction in buffering between HAL and ALSA in both the RX and TX leg of a VoIP Call reducing device's contribution to the mouth to ear delay significantly. Impact is to VoIP use case only on all SKU's.
5. SPR34894 - Fixed an issue in DataWedge wherein scanner could not be enabled due to quick enabling and disabling of scanner through Intents.
6. SPR34743 - Keyboard configuration properties has been changed for software keyboard pop up scenario.
7. SPR34906 - Resolved an issue wherein device used to get stuck in the boot up screen on Velocity app installed devices.
8. SPR33599 - Resolved an issue wherein few system apps were being disabled after Applock whitelist mode was enabled.
9. SPR33818 - Fixed an issue wherein certain decoder type values were not persisting across a scanner enable/disable cycle.
10. SPR34267 – Resolved an issue wherein user was not able to enable USB debugging option using StageNow.
11. SPR33639 - Resolved an issue wherein the customer app install and launch during device sleep state and device stop emitting scan beam after awake from suspend.
12. SPR33920 - Resolved an issue wherein devices failed to connect to WLAN network if the country selection is set to Japan.
13. SPR34717 - Added support for new method of creating the Applock Whitelist.
14. SPR34888 - Resolved an issue wherein user could not launch Key Programmer in Settings App.
15. SPR34595 - Resolved an issue wherein Storage Card path was inaccessible through StageNow.
16. SPR34346 - Resolved an issue wherein Velocity app installation was not persisting after reboot.

5. CFE v8 Updates:

- ❖ CFE_ATLAS_P08_NN_01-01.49.zip (NGMS)

1. **Android Security Patch Level:** June 1, 2018
Use the link below to see the Android Security bulletin for more information:
<https://source.android.com/security/bulletin/>
2. Resolved an issue wherein KeyProgrammer fails to open via Device settings.
3. Build Number format has been updated.

6. CFE v7 Updates:

❖ CFE_ATLAS_P07_NN_01-01.49.zip (NGMS)

1. **Android Security Patch Level:** May 1, 2018
Use the link below to see the Android Security bulletin for more information:
<https://source.android.com/security/bulletin/>
2. Fix for Zebra setup wizard popup after OS upgrade.
3. **Updated below components:**
 - MX: 8.0.0.10
 - StageNow client: 3.1.0.1037
 - DataWedge: 6.8.50
 - Enterprise Keyboard: 1.8.0.8
4. Build ID format has been updated.
5. Included Zebra Software License Manager v3.0.1.
6. SPR34179 – Resolved an issue wherein device connects slowly to an AP.
7. SPR34175 – Resolved an issue wherein device does not show preview information in Messaging App when language toggles from right-to-left.
8. SPR34259 – Added support to use USBMgr CSP to limit the standard 4 options on device to only allow UsbExternalStorageUsage.
9. SPR34307 – Resolved an issue wherein the device was unable to be staged via StageNow.
10. SPR34083/34014/32519 – Resolved an issue wherein disabling WWAN radio via Airwatch using StageNow XML fails.
11. SPR33977 – Resolved an issue wherein set time zone issue observed with StageNow.
12. SPR34213/31491 – Resolved an issue wherein the device was unable to stage via StageNow.
13. SPR34420 – Resolved an issue wherein floating scan bubble issue observed with Enterprise Keyboard.
14. SPR33755 - Resolved an issue wherein the Whitelisted apps were unable to submit XML to MX.
15. SPR33207 - Resolved an issue wherein the Device Diagnostic tool had an issue with reading the Battery Cycles in the application for PP+ batteries.
16. SPR33671 - Resolved an issue wherein user was unable to create WIFI profile with username as backslash followed by number.
17. SPR33862 - Resolved an issue wherein the Screen Time off settings using Display manager CSP was not working.
18. SPR34145 - Resolved an issue wherein indexing of the WEP key was not handled correctly.

19. SPR33973 - Resolved an issue wherein erroneously loading default profile by providing feature to ignore disabled profiles in DataWedge.
20. SPR33848 - Added support to included category field in intent profile in StageNow.
21. SPR34189 - Resolved an issue wherein low ram and oom limit adjustments to provide more free memory.
22. SPR33876 - Resolved an issue wherein Display Timeout was unable set via StageNow.
23. SPR33607 - Resolved an issue where few fresh devices were unable to stage after unbox the device.
24. SPR33538 - Resolved an issue wherein the Scanner beam stuck off and No LED beam while pressing scanner button.
25. SPR33981 - Resolved an issue Czech Republic Regulatory Country could not be set using Wifi config profile.
26. Added Enterprise Browser package (com.symbol.enterprisebrowser) to white listed apps.
27. Resolved an issue wherein Settings App crashes while performing "Network Settings Reset".
28. Resolved an issue wherein Bluetooth tethering was not working.
29. Added support for RS507x.
30. Fixed Bluetooth scanner firmware update failure.
31. Fixed "SignalOccurrenceOfThreat" parm is not added in threatStep.
32. SPR34579 – Resolved an issue wherein headset audio volume is too low when used with VoIP applications.
33. New Audio tuning for TC51/56 devices. This is a general enhancement to the original tuning to increase VoIP headset volume and to satisfy new regulatory requirements. The changes improve audio performance for telephone use cases such as VoIP, PTT, WAN, and VoLTE. Note that these changes are not applicable to TC51 HC SKUs.
34. A new device settings menu and an initial setup screen have been added to easily configure the Zebra analytics engine. The initial setup screen will be displayed upon bootup following an Enterprise Reset or Factory Reset. This screen can be skipped on an Enterprise Reset by provisioning using a StageNow profile (PowerMgr CSP), similar to what is available for the Google setup wizard bypass.

7. CFE v4 Updates:

- ❖ CFE-TC5X_TC7Xx-01-01-49-NN-00-A-04.zip (NGMS)

1. **Android Security Patch Level:** March 5, 2018
Use the link below to see the Android Security bulletin for more information:
<https://source.android.com/security/bulletin/>
2. **Updated below components:**
 - Datawedge: 6.7.34
 - StageNow: 2.10.1.1386
 - EMDK: 6.8.20.1120
 - MX: 7.2.0.6
 - File browser: 1.19.1.2
3. Added support for FIPS.
4. SPR33311 – Resolved an issue wherein RS507 is unable to connect via Bluetooth using Voxware voice application.
5. SPR33302 – Resolved an issue wherein disabling the oval capacitive key via StageNow fails.
6. SPR34267 – Resolved an issue wherein USB debugging failed to get enabled via StageNow.
7. SPR33639 – Resolved an issue wherein device stops emitting scan beam after waking up from suspend state.
8. SPR33799 – Resolved an issue wherein DataWedge was sending char 10 instead of char 13.

8. CFE v3 Updates:

- ❖ CFE-TC5X_TC7Xx-01-01-49-NN-00-A-03.zip (NGMS)
1. Spectre and Meltdown (CVE-2017-5753, 5715, 5754) remediation provided by updates to timer access for CVE-2017-13218.

Device Compatibility

This software release has been approved for use with the following Zebra devices. All devices listed below are on Android M or N when they leave the factory.

Device	Operating System
TC510K-2PAZU2P-US	Android N
TC510K-2PAZU2P-A6	Android N
TC510K-2PAZU4P-US	Android N
TC510K-2PAZU4P-A6	Android N
TC510K-2HDZU2P-US	Android N
TC510K-2HDZU4P-US	Android N
TC510K-2HDZU2P-A6	Android N

TC56DJ-2PAZU2P-A6	Android N
TC56DJ-2PAZU4P-A6	Android N
TC56DJ-2PAZU2P-IA	Android N
TC56DJ-2PAZU4P-IA	Android N
TC56DJ-2PAZU4P-BR	Android N
TC56DJ-2PAZU2P-BR	Android N
TC56DJ-2PAZU2P-CN	Android N
TC56DJ-2PAZU4P-CN	Android N
TC56DJ-2PAZU4P-ID	Android N
TC56DJ-2PAZU2P-ID	Android N
TC56DJ-2PAZU2P-TN	Android N
TC56DJ-2PAZU4P-TN	Android N

Supported FIPS SKUs

Device	Operating System
TC510K-2PAZU4P-FT	Android N
TC510K-2HDZU4P-FT	Android N
TC56CJ-2PAZU4P-FT	Android N

Installation Requirements

Install baseline 01-01-49-NN-00-A (NGMS) build.

Installation Instructions

Using ADB Sideload

The installation instructions assume you have ADB installed on your PC (the adb drivers and such) and your TC51/TC51-HC/TC56 has Developer options enabled and USB debugging ON:

Instructions on HOW TO enable ADB is also captured in Integrator guide.

1. Plug the TC51/TC51-HC/TC56 into the USB & Charging Cable and then the Cable to the PC. If you have a Cradle with USB connectivity, connect it now.
2. You may need to pull down the top menu and if you see “USB for charging”, touch it and then change it to “File transfers”.

3. Open Command Prompt, run *“adb devices”* and check if you can see the device’s serial number... If yes, proceed... if not, you will need to get the PC set up with the proper drivers or install an External SD Card.

4. You may also get a pop up on your PC (Win 7) that you will be connected as a Portable MediaPlayer... this can be ignored.

❖ **Download Image**

- a. **CFE_ATLAS_01-01-49.00-NN-U12-STD.zip** listed above in content section
- b. Reset files (Optional)

5. Entering Recovery Mode

- a. Choice 1: In Command Prompt, type *“adb reboot recovery”* and click enter.
- b. Choice 2:
 - Reset and hold PTT key
 - When Zebra Technologies logo appears on the screen Release the PTT Key

6. Your TC51/TC51-HC/TC56 will reboot and put you on the Android Recovery screen.

7. if applying update via sideload Method

- a. Use the Volume + and – to highlight, *“Apply update from ADB”* and press the Power Key to select it

8. With your Command Prompt open in the Host machine, type *“adb sideload”* command and add a space and then drag and drop the CFE on to it and click enter.

- a. Your PC screen will show files being installed and a little blue horizontal progress bar on your device will show status... and after about 6~ minutes (could be 10+ minutes if installing GMS) it should be done and you should be back at the Android Recovery screen.

- b. Repeat above steps for all mandatory packages

9. *“Reboot system now”* is highlighted. Press the Power Key to Reboot.

10. Device reboots and you see Zebra on top and POWERED BY android at the bottom and after about 1 minute will transition to the TC51/TC51-HC/TC56 Touch Computer splash screen with 5 dancing white dots at bottom... it will stay at this screen for a little over another minute (*could be another 7+ minutes if installing GMS*) and then you are at the Factory *“Welcome”* screen.

11. If you installed a GMS BSP, you will need to complete the process by setting up Wi-Fi and E-mail accounts and such. If on AOSP (non-GMS), there is no process to follow.

12. At the Home Screen, we need to verify that the BSP upgrade took place and set the Date & Time.

- a. Go to “Settings” and scroll down to “About phone” and look at the “Build number”. It should start with “**01-01-49.00-NN-U12-STD**”. Now you are on the correct BSP.
 - b. Setting the Date and Time. If you associate to a WLAN AP, do so now, as it should automatically set the time and date... the only thing left is to set the time zone. Go to “Settings” and scroll to and select “Date & time”. Scroll down to and select “Select time zone”, and scroll down to and select the appropriate time zone and you are done.
13. To Check the Android Patch Level after installing the CFE package in the device,
- a. Settings->About Phone->SW Components: Device Update Version: **12**
 - b. ADB Shell method: Execute following command from PC's command prompt:
\$ adb shell getprop ro.device.patch.version
\$ **12**
14. Now you are all set to use your **TC51/TC51-HC/TC56**

Using External SD card

1. Plug the TC51/TC51-HC/TC56 into the USB & Charging Cable and then the Cable to the PC. If you have a Cradle with USB connectivity, connect it now.
2. You may need to pull down the top menu and if you see “USB for charging”, touch it and then change it to “File transfers”.
3. Download “**CFE_ATLAS_01-01-49.00-NN-U12-STD.zip**” file and Reset Files (Optional) and drag & drop the files on External SD card
4. Entering Recovery Mode
 - a. Reset and hold PTT key
 - b. When Zebra Technologies logo appears on the screen Release the PTT Key
5. Your TC51/TC51-HC/TC56 will reboot and put you on the Android Recovery screen.
6. Applying update via External SD card
 - a. Use the Volume + and – to highlight select option to “Apply update from SD card” and press the Power Key to select it.
 - b. Use the Volume + and – to highlight package to be installed (**CFE_ATLAS_01-01-49.00-NN-U12-STD.zip**) and press the Power Key to select it.
 - c. Repeat above steps for all mandatory packages
7. “*Reboot system now*” is highlighted. Press the Power Key to Reboot.

8. Device reboots and you see Zebra on top and POWERED BY android at the bottom and after about 1 minute will transition to the TC51/TC51-HC/TC56 Touch Computer splash screen with 5 dancing white dots at bottom... it will stay at this screen for a little over another minute (*could be another 7+ minutes if installing GMS*) and then you are at the Factory "Welcome" screen.
9. If you installed a GMS BSP, you will need to complete the process by setting up Wi-Fi and E-mail accounts and such. If on AOSP (non-GMS), there is no process to follow.
10. At the Home Screen, we need to verify that the BSP upgrade took place and set the Date & Time.
 - a. Go to "Settings" and scroll down to "About phone" and look at the "Build number". It should start with "**01-01-49.00-NN-U12-STD**". Now you are on the correct BSP.
 - b. Setting the Date and Time. If you associate to a WLAN AP, do so now, as it should automatically set the time and date... the only thing left is to set the time zone. Go to "Settings" and scroll to and select "Date & time". Scroll down to and select "Select time zone", and scroll down to and select the appropriate time zone and you are done.
11. To Check the Android Patch Level after installing the CFE package in the device,
 - a. Settings->About Phone->SW Components: Device Update Version: **12**
 - b. ADB Shell method: Execute following command from PC's command prompt:


```
$ adb shell getprop ro.device.patch.version
          $ 12
```
12. Now you are all set to use your **TC51/TC51-HC/TC56**.

Downloadable Software Included in this Release

Package Name	Description
CFE_ATLAS_01-01-49.00-NN-U12-STD.zip	OTA incremental LifeGuard CFE v12 update software for Non-GMS build compatible for TC51, TC51-HC and TC56 products.

Last Revised: October 08, 2018