
Release Notes – Zebra TC20 and TC25 Android N 04-14-30-0-NN-00-M1 (Non-GMS)

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Introduction

Zebra is providing a maintenance release for its durable smartphone designed for small-medium sized businesses in the tradesmen, courier, DSD, and merchandising industries! TC25 is a WWAN device ideal for customers who need proof of delivery, voice communications, and basic tracking, navigating and messaging applications

The TC20, is an enterprise mobile computer is designed for small-medium sized businesses in the retail, hospitality and small footprint warehousing industries! TC20 is a WLAN only device ideal for customers who need inventory management, price checking, and basic clientele applications.

TC25 and TC20 series of devices are positioned as the durable everyday business tool, in the entry-level segment of Zebra's mobility portfolio, with a differentiated and comprehensive set of new features including:

- Two scan engine options to meet SMB business needs with SE2100 and SE4710
- Ergonomic smartphone-like form factor that is small enough to fit in your pocket, yet powerful enough to multi-task, manage inventory, price check, and preform back of store applications
- High capacity 3000 mAh internal battery designed to support a full shift plus an optional snap on PowerPack for continuous use
- Pre-installed Workforce Connect Push-To-Talk Express communication solution
- Ambidextrous scan buttons on left and right side of the device
- Android 7.1.2 (Nougat) OS at launch with the ability to support OS upgrades in the future
- Extensive accessory eco-system, including 1-Slot cradles for charging and data communication, 5-slot cradles for large charging deployments, a field detachable trigger handle and a unique snap on PowerPack

Description

This is the third software release for TC20 Mobile Computer and initial software release for TC25 NON-GMS. This release contains software packages for Android Nougat GMS operating system for TC20 and TC25.

Device Compatibility

This software release has been approved for Android TC20 Nougat Non-GMS models mentioned below. Please note that GMS OS images are not compatible with China based SKUs

Device	Operating System
TC200J-20C112CN	Android N (Non-GMS Only) China Only
TC200J-20A111CN	Android N (Non-GMS Only) Plus SKU - China Only
TC200J-2KC111CN	Android N (Non-GMS Only) Keyboard SKU - China Only
TC200J-20C213CN	Android N (Non-GMS Only) Premium SKU - China Only

This software is also approved for Android TC25 Nougat Non-GMS models mentioned below

Device	Operating System
TC25CJ-20B101CN	Android N (Non-GMS Only) China Only
TC25CJ-20C102CN	Android N (Non-GMS Only) China Only

Component Contents

Component	Version
Build_version	04-14-30-0-NN-00-M1 (NON-GMS)
Android_version	7.1.2
Android_SDK_Level	25
Android Security Patch Level	February 5, 2018
Linux_kernel	3.18.31

Wifi	FUSIONLITE_QA_1_0.0.0.015_N
Platform	Qualcomm MSM8937
Scanning_Framework	19.0.29.0
DWDEMO	2.0.13
OSX	QCT.71.7.6.6.UL
MXMF	7.2.1.0
Touch	Focaltech V1.1 20161103 (fw:0x24)
Bluetooth_Stack	CNSS.PR.4.0-00388/01050102
Flash_Size	16G /32G
RAM_Size	2G
GPS	MPSS.JO.3.0-00295-8937_GENNS_PACK-1
MMS	7.1.2
RIL_Version	1.0
BT_Pairing_UTILITY	3.8
DataWedge	6.7.39
Camera	LA.UM.5.6.r1-04600-89xx.0-1
PTT	3.1.35
RxLogger	5.4.10.0
StageNow	2.10.1.1389
Data_Analytics	3.0.0.1289
EMDK	6.8.21.1121
IMEI SV Number	06
OEM Config	7.0.1.0
DDT	V1.15.0.11k

NOTE: For Enterprise Mobile Device Management, most EMM vendors such as SOTI, AirWatch, MobileIron, etc. WILL require an updated device management agent to support this Nougat enterprise device. **Do NOT use** your existing device management agent and console with this device without first contacting your EMM vendor to understand when the agent supporting this device is available and whether a console upgrade is required as well. Attempting to enroll with an agent that is not validated to support the device will result in errors.

Installation Requirements

HW Requirements

- Windows PC running Windows 7/10 32/64 bits

- USB Type C Cable
- Micro SD Card with at least 2GB capacity (optional)

SW Requirements

Please make sure following components are installed on your computer before commencing OS installation.

- Zebra Android USB Driver V2.2 or higher
- Android Debug Bridge version 1.0.39 or higher
- TC20/TC25 Non-GMS Android OS Release Images

Image Compatibility

AOSP/Non-GMS image primarily meant for China SKUs hence only validated for Traditional Chinese and Simplified Chinese.

Installation Instructions

Using the “adb sideload” method

Assumptions

1. ADB installed on PC
2. TC20/TC25 has Developer options enabled
3. USB debugging ON

Procedure

1. Plug the TC20/TC25 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 notification bar, and tap on the notification which says “USB charging this device”, and change it to “Transfer files”.
3. Open Command Prompt on PC, run “adb devices” and check to see 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 Media Player... this can be ignored.
5. Entering Recovery Mode
 - a. Choice 1: In Command Prompt, type “adb reboot recovery” and click enter.
 - b. Choice 2:
 - i. Reboot and hold PTT key
 - ii. When Zebra Technologies logo appears on the screen Release the PTT Key
6. Your TC20/TC25 will reboot and take you to Android Recovery screen.
7. To select 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, type “adb sideload” and add a space and then drag and drop the zip file which you want to apply to the device and press enter.
 - a. When the file download starts, the command window will show progress with a percentage completed.
 - b. Device display will show a series of messages indicating it is downloading, verifying and installing the image on to the device.
9. After successful update, the device will auto reboot and you see Zebra on top and POWERED BY android at the bottom and after about 10 second will transition to the TC20/TC25 Touch Computer splash screen with 5 dancing white dots at bottom... it will stay at this screen up to 4 minutes and then present the “Lock Screen”.
10. To make sure the OS Update took place, once the initial setup is complete;
 - a. Go to “Settings” and scroll down to “About phone” and look at the “Build number”. It should state “04-14-30-0-NN-00-M1”.
11. Setting the Date and Time. If you associate the device to a WLAN AP, it should automatically set the date and time. 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.
12. Now you are all set to use your TC20/TC25.

Using External SD Card

1. Plug the TC20/TC25 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 notification bar, and tap on the notification which says, “USB charging this device”, and then change it to “Transfer files”.
3. You may also get a pop up on your PC (Win 7) that you will be connected as a Portable Media Player... this can be ignored.
4. Copy the required files to the SD Card. This can be done in two ways
 - a. Copy the files to the Micro SD card with the help of a SD Adapter which gets inserted to the SD slot of your PC/Laptop/SD Writer.
 - b. Directly transfer files to the Micro SD card which is inserted in to the back of the device. Please refer to the user guide on how to open the back door and inserting the SD card to the device.
5. Entering Recovery Mode
 - a. Choice 1: In Command Prompt, type “adb reboot recovery” and click enter.
 - b. Choice 2:
 - i. Reboot and hold PTT key
 - ii. When Zebra Technologies logo appears on the screen Release the PTT Key
6. Your TC20/TC25 will reboot and take you to Android Recovery screen.
7. 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 (downloaded Zip file) and press the Power Key to select it.
8. After successful update, the device will auto reboot and you see Zebra on top and POWERED BY android at the bottom and after about 10 second will transition to the TC20/TC25 Touch Computer splash screen with 5 dancing white dots at bottom... it will stay at this screen up to 4 minutes and then present the “Lock Screen”.
9. To make sure the OS Update took place, once the initial setup is complete;

- a. Go to “Settings” and scroll down to “About phone” and look at the “Build number”. It should state “04-14-30-0-NN-00-M1”.
10. Setting the Date and Time. If you associate the device to a WLAN AP, it should automatically set the date and time. 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. Now you are all set to use your TC20/TC25.

Installing the OS Update Patch for Build 03-11-03-0-NN-00-M1 (NON-GMS)

1. If the device you have is a TC20/TC25 device and it has factory loaded **02-10-07-0-NN-00-M1** build number and you want to move to the latest OS build; you could do a full OS update by applying the **T2XXJN300PUCN41430.zip** or do a OTA Patch update by updating with **T2XXJNXXXRUCN41430.zip**.
2. Please download **T2XXJNXXXRUCN41430.zip** package to your local hard drive.
3. Follow “[adb sideload](#)” or “[External SD Card](#)” method to load each OTA package to the device.
4. After package is loaded to your device you should see Build Number Under Phone Status as “**03-14-30-0-NN-00-M1**”.

Downloadable Software Included in this Release

Filename	Description
T2XXJN300PUCN41430.zip	Non-GMS/AOSP full package update image which, updates complete software. This image is verified only for china SKU.
T2XXJNXXXRUCN41430.zip	Non-GMS Recovery OTA Patch and this is applicable for TC20/TC25 Devices which has 03-11-03-0-NN-00-M1 (Non-GMS) this will update the device BSP to 04-14-30-0-NN-00-M1 BSP.

Change Notes

NOTE: change notes in **Blue** indicates the changes that happened for that component since last BSP Release

Barcode Scanning 19.0.29.0

- Added support for basic multi-barcode support for SE4710 and SE2100 scan engines
- Integration of RS507/RS507x scan engine support

- Integration of Firmware update through RSM-CSP for external scanners
- New trigger mode Press and Sustain for SE4710 and SE2100
- Enable Script mode for SE4710 for performance improvements
- Fixed a race condition with Shutdown event handling in Scan Framework.
- Enable Press and Release trigger mode for SE2100
- Other Bug fixes in Scanner Framework
- Fixed an issue where, Software picklist is not disabled when disabled from DWDemo icon
- Added support for Viewfinder support for software picklist
- Performance optimizations

Data Analytics 3.0.0.1289

- Added Zebra Setup Wizard End User Licensing Agreement for Data Analytics Application.
- Fixed an issue where Data Upload/Self Update was getting blocked when user tried following scenario where they first disable DA on EULA then reboot device and then enable on EULA and after that Apply UserConfig to uploadCycle to 5
- Fixed an issue where Zebra Services popup keeps displaying after reboot
- Removes permission definition com.symbol.dataanalytics.permission.MESSAGING
- Fixed SQL Lite Exception
- Limit the maximum metrics storage threshold on device
- Fix an Agent self-update problem
- Enhance ADB logging
- Fixed a Data Upload Failure
- Added Scanner metrics collection to the default metrics
- Fixed an issue where when agent is killed by Activity Manager it will not start again.

DataWedge 6.7.39

Added Support for

- Added DataWedge default Template selection to "Default - Barcode 4.xml"
- Added Analytics permission to DataWedge Manifest.
- Added Update Copyright span years (2017 to 2018) in DWApp and Demo About.
- Added support for Importing DataWedge full configuration via intent.
- Added support for Importing DataWedge profile configuration via intent.
- Added support for Implementing an option to set, send enter key as key event or as string in Keystroke Output.
- Added DataWedge to use port index in the configuration instead of the port name.
- Added support for including a Separator for multi-barcodes.
- Removed reverting the persistent flag since it was impacting Intent API.
- Added support to make DataWedge to run as a non-persistent application.
- Added multi barcode support for DW
- Added Enhancement to handle non-compliant db configuration importing with DataWedge.
- Implement Multiple plug-in configuration through a single intent
- Extend the Enumerate scanner intent API to return the scanner type.
- Switch scanner intent API to use scanner type.
- Extend GET_CONFIG API for scanner input to return the scanner type
- Update scanner configuration by the scanner type
- Set enableCalled flag to false when BT scanner battery is removed
- Implement extend GET_CONFIG API to return the profile status
- Implement Report generation module in DataWedge

Fixed

- Changed the display name from "Delay extended ascii characters only" to "Delay Multi byte characters only".
- Fixed an issue with intercharacter delay.
- Fixed an issue where DataWedge stops emitting scan beam after wake up from suspend when it was used with an Application utilizing DW services especially in instances where the App was re-installed during devices is in suspend state
- SPR32676, where DataWedge will stop working on Android devices due to invalid state machine
- Scanner doesn't get enabled after suspend/resume the device
- Fixed an issue where, Unable to switch to Scanner 2 when Scanner 1 is in DISCONNECTED state
- Fixed an issue where DataWedge Crash have been seen during closing StageNow App
- Fixed an issue where, Result feedback shows PLUGIN_BUNDLE_INVALID when giving correct parameters.
- Fixed an issue where, device is still scanning from Embedded scanner even though RS6000 is connected to terminal with scanner selection as *Auto*.
- Fixed Datawedge crash after reboot the device
- Fixed an issue where Scanner parameter changes in exported profile could not be seen once imported.
- Fixed an issue where User needs to disconnect/reconnect device to view Report file
- Fixed an issue where Report not getting generated for a corrupted db file.
- Fixed an issue where Restoring the configuration will delete parameters from the scanner_params table
- Fixed an issue where GET_CONFIG intent API not returning the correct scanner parameter values

EMDK 6.8.21

- Added profile manager support for Intercharacter delay
- Added profile manager changes to send enter as event or string
- Updated the new TC2X Aim type (Press and sustain) help text
- Added new TC2X Aim type support for EMDKA
- Added Multi-barcode support for EMDKA profile manager

Fusion [WLAN] FUSIONLITE_QA_1_0.0.0.015_N

- Fixed an issue to restrict 11k neighbor report requests to 1 even for empty response thus avoiding the 3 responses it sent earlier in same situation
- 802.11k support, initial scan time enhancements
- Added feature to Disable other reports except Neighbor report in 11k
- Fixed an issue where the device became unresponsive during a band selection under some corner cases.
- Fixed an issue to Limit Neighbor request retries to 1
- Optimized the Roam-Score calculation for Neighbor Response
- Fixed an issue where TC2X device sometimes not showing Hotspot profiles in Wi-Fi scan page
- Fixed an issue where WLAN 11k feature configuration was not persistent across Wi-Fi radio reset

- Fixed an issue where it was not able to enable/disable 11k feature via WiFiConfig CSP/APK
- Fixed an issue where Device disconnected while doing inter band roam from 2.4Ghz to 5Ghz
- Fixed an issue where Newly added profile is not connecting automatically
- Fixed an issue where PNO scan device failed to do profile roam after AUTH failure.
- Fixed an issue where Device is not doing PNO scan after Auth failure and after 300 seconds, DUT is never sending Probe Req in any channel
- Fixed an issue where Same profile is getting displayed multiple times on scan page
- Optimized Wi-Fi Framework to reduce Periodic scan intervals to 10s.
- Enhanced the log information shown in Wi-Fi dumphsys
- Optimized Wi-Fi Framework to increase Blacklist count from 5 to 13 for Auth and Assoc failures
- Fixed an issue where 'Refresh' menu item is enabled when Wi-Fi is disabled
- Enhancement to Addressing KRACK vulnerability by introducing hashing to PTK and GTK Keys
- Addresses KRACK vulnerability
- Added support for additional countries
- Fixed an issue where, AP beacons with a country IE in an unsupported channel and device connects to that AP
- Fix for Device didn't send Association/Re-Association frame immediately after Authentication response
- Fix for device suspend-resume reboot scenario
- Fix WiFi is not connecting automatically for TC20 after deploying the profile using AirWatch
- Fixed the country change indication from GSM module
- Device Suspend/resume optimization
- Fix Wi-Fi cannot turn on normally under Wi-Fi hotspot enable state
- Settings crash is observed when modifying a Profile

MX 7.2.1.0

- Fix for a scenario where AllowSubmitXMLAction was not working as expected
- Fix for a scenario where Enroll Device Owner via StageNow (without Certificate) is failing on WLAN devices
- Fix for a scenario where Persist manager was not considering Power Manager for persistence
- Fix for a scenario where PersistMgr Crashed while Enterprise Reset the device
- Integration of RS507x support with FW update and Remote Scanner Management (RSM) CSP
- Fix for a scenario where first time any app can be able to set any other app or itself as DO if installed user app is 1 while submitting XML
- Fix for a scenario where "Zebra Mobility Extensions Version" is shown as 1.3 on AirWatch agent when UUT RAM is 85% filled.

OSx QCT.71.7.6.6UL

- Added Feature to Skip End User License Agreement on NON-GMS Devices
- Fixed an issue where Enable/Disable SDCardUsage API call returns false even though functionality is working
- Fixed an issue to avoid Google security pop up from being displayed while an application is installed silently
- Fixed an issue where StageNow ANR was seen while scanning enrollment barcode after factory reset.

- Added feature to have External SD card mount as Portable storage whenever SD card is placed in SD Slot
- Fixed an issue where in Android N, when Reduced system settings is enabled using OSX APIs, Developer options can be accessed via notification pull down
- Enable Safe Mode out of box
- Fix an issue where, on enable, reduced system settings and Quick settings Icons are still visible until the Notification bar is pulled down completely
- Fixed, Language set via OSX does not persist after device reboot
- Fixed, Deployed WiFi EAP-TLS profile with Certificate getting failed in Device Admin and Device Owner mode
- Fixed where, Disabling the Recent App Button will not disable the Multi Window
- Fixed Settings crash is seen in Reduced Settings mode while accessing Display settings.
- Enable Reduced System Settings and click on Display - > Settings will crash
- Fixed an issue where Dynamic protected list is returning null
- Fixed issues where mCertInstaller.getCACertificateInfo(CertAlias, "TrustedStore") returning null
- Fixed an issue where List CA Certs is not listing system built-in CA certs
- Fixed an issue where EAP/TLS certificates getting deleted when connection to WiFi Profile
- PowerMgr CSP not working as expected using stagenow 2.8.1 to do factoryReset

Operating System (BSP)

- Fixed SPR 33715 to address an issue where Datawedge keystroke output failed when Baidu IME was selected
- Fixed SPR 33860 to Address an issue where DataWedge keystroke output was not directed to out of focus text box on a web page
- Fixed an issue related to terminal pre-charging at a lower voltage when terminal is removed from battery pack and again re-inserted back.
- A new Application installation shortcut is introduced and the shortcut points to Zebra Support site to install "Asset Tracker Lite" application.
- Restricted OS Update Intent to get triggered only by applications with appropriate permission.
- Fixed an issue where the lock screen message was not fully visible.
- Fixed an issue where under certain circumstances when the device is disconnected from charging source, the charging LED was still blinking.
- Fixed an issue where there were two instances of Hotspot icon was displayed in status bar
- Enhanced battery extras intent to include "Battery Type" and "Base Cumulative Charge Value". Battery type for TC2X is returned as a power precision battery.
- Fixed an issue where terminal was holding on to previously acquired IP when ethernet interface is used even after lease time expires and if the DHCP Server is offline after the initial acquisition.
- Fixed an issue to remove DHCP option 77 from option 55 requests
- Fixed an issue where USB disconnection was seen under stress testing conditions
- Fixed an issue when both SD Card and external SD card adaptor is plugged using the OTG Port logical sdcard1 path was always pointing to the external SD card plugged through the OTG port making on device SD card inaccessible.
- Fixed an issue where Settings application gets crashed when "Network Settings Reset" was done while connected to VPN and the "Always ON VPN" option was enabled.

- Fixed an issue where Device Security Credentials were getting corrupted when Pattern Lock or PIN Lock was changed and a hard reset was done within 3 seconds of the change while “Require PIN/Pattern to start the device” option was enabled.
- Introduce a new touch firmware version to address an issue where false touch release event was fired despite the user’s finger is still on the touch screen. This issue only happened when unusually higher pressure was applied on the touch panel.
- Baidu maps application is pre-loaded with None GMS China SKU starting 04-14-30-NN-00-M1 build.
- Fixed an issue where “Group Name” Text was not visible unless the resolution of device was changed when a new contact group was created, especially when the keyboard was displaying suggestions.
- Fixed an issue where BT scanner not getting disconnected when turning off BT.
- Reduce camera image blur on low light conditions
- Fixed an issue where when both Ethernet and WiFi was active, ethernet was not getting the high priority over WiFi for network traffic.
- Added localized User Guide for Chinese language for TC25.
- The finger touch cannot be detected easier with screen protector when conductivity is low
- Fixed "Install" option is grayed out when user tries to install any third-party apps from file browser.
- Fixed an issue where camera preview resolution was set to 640x480
- Added Localized User Guide for Chinese language for TC20
- LED Notification added when battery charging error is seen
- Fixed issue where a battery charging indicator (lightning) is disabled upon reaching 100% capacity
- Fixed DUT is not booting up when device is rebooted after disabling settings app using AppMgr

Known Issues and Workarounds

- Chromium browser has an issue where printer icon will disappear while trying to share a page by clicking the browser menu (3 dots) and selecting share, if the device is suspended before the action is performed. As a work-around press back-button and revisit the same page and perform the action again and it will show the printer icon again.
- For customers utilizing China Mobile as a carrier. Please be informed that the 3 in 1 nano SIM card thickness is .81mm which will be damaged upon removal when using the TC25. Zebra recommends that the customer asks China Mobile for a nano SIM card with a thickness from .67mm - .76mm.
- As per Android Compatibility Definition Document, user data needs to get wiped either through a factory reset or an enterprise reset when an Enterprise Mobility Management Agent enrolled to a device as a Device Administrator needs to get migrated to Device Owner mode.
- When StageNow or SOTI is used to deploy a OS Update Recovery file or Incremental update patch make sure **not** to capitalize the file extension of the zip file as it can fail a case sensitive validation check done in the “OS Update” routine of MX Power Manager CSP, based on the MX version used in the device.
- Please refer to “Best Practices” tile in <http://techdocs.zebra.com/solutions/> for an article that explains how to preserve settings following an Enterprise Reset on a persistence-enabled device that implements a secure Android launcher and/or its Kiosk Mode feature deployed

using the Zebra StageNow administration tool or an enterprise mobile management (EMM) system such as those from SOTI or AirWatch

- To reduce the image size and facilitate smaller OTA packages, specific image optimization was turned off starting 04-14-04-0-NX-00-M1 build, but this has negatively impacted first boot timings for GMS based Devices after an enterprise reset or a factory reset is performed.
- When attaching a MMS Video from a pre-captured video using the camera application there is a known issue where “30 second MMS” options from duration menu option captures a higher resolution video than the MMS application can transmit. Hence care must be taken to reduce the resolution of the video bound for MMS. Same issue is not seen if the video is directly recorded from the MMS Application as it properly adjusts the resolution.

Last Revised: 04-13-2018