



MC9200 OPERATING SYSTEM BSP 02.12.1005 - UPDATE LOADER IMAGE RELEASE NOTES

INTRODUCTION

The MC9200 rugged mobile computer, the next generation of the industry leading gold standard for mobility, has evolved to meet changing business needs, bringing you the same signature rugged design, best-in-class barcode scanning and dependable operation. Now with the power to run applications with highly intuitive interfaces, the MC9200 will further simplify processes and increase worker productivity in your toughest environments.

Now, leveraging the power of Android OS, support for Android KitKat 4.4.4 is available for specific MC9200 SKUs.

MC9200 Android release v02.12.1005 provides Recovery update and Airbeam packages for installing the OS release. Packages for performing Factory and Enterprise resets are also provided.

This software is intended to be loaded and run on specific MC92N0 SKU devices. It is important that care be taken to match the device configuration with the appropriate Recovery update package. If an incorrect Recovery update package is loaded, the device may not boot. Please refer to the device compatibility section below for more details of the supported SKUs.

COMPONENT DESCRIPTION AND VERSION

Component / Description	Version
Product Build Number	02-12-03-4AJ22-K-V0-M1-100515
Android Version	4.4.4
Linux Kernel	3.4.48
Android SDK Level	19
Bluetooth Stack	4
Flash Size	2 GB



RAM Size	1 GB
MSP Agent/RD	7.08.85
Scanning Framework	5.45.0
Datawedge	3.1.20
DWDemo	2.0.6
OSX/MXMF	TI_OSX_4.4-3 , 4.4.3.6
Wi-Fi	FUSION_A_4.00.0.0.035
PTT	3.1.19
RxLogger	3.0.0.51
MLogManager	MLogManager v06.52
EA	2.56
SPAM	4.8
StageNow	2.1.1.1306
B2M Elemez	1.0.0.238
Data Analytics	1.0.1.2107
App Gallery	2.1.0.1
SOTI	12.2.0 Build 23434
EMDK	3.1.38
ZVC	1.1.9
Wavelink TE	2.0.2.4818

FEATURES ADDED/SUPPORTED

- Added support for existing MC9200 devices and new MC9200 SE1524 devices.



- Upgrade from Windows CE7 / WEH to Android supported via Service Depot.
- Supported scan engines
 - SE965
 - SE4500SR
 - SE4750SR and SE4750MR
 - SE1524
- Included rebranding changes for Zebra/Symbol namespace
- Included changes for APA v1 feature content
 - Storage and non-storage path guidelines
 - Navigation Keys
 - DHCP Options
 - Key remapping guidelines
 - Battery Extras
- Support Bluetooth 4.0 (Supports both Classic and Bluetooth LE) with Broadcom Bluetooth Stack (Bluedroid)
- Included
 - StageNow client
 - B2M Elemez
 - Data Analytics
 - App Gallery
 - SOTI MobiControl Stage
 - Zebra Volume Control
- Pre-licensed Wavelink Terminal Emulation

COMPONENT RELEASE NOTES

FUSION A_4.00.0.0.035 :

1. New features:

a. 802.11k: Fusion A4.00 adds support for 802.11k. Using 802.11k Neighbor Report, MC92 will retrieve details of neighboring APs from current AP if AP also support this feature. This is used for improving roam performance. 802.11k is enabled on MC92 by default.

a. Null Data Power save: Fusion A4.00 supports Null Data Power save method. In this method, Wi-Fi will go to sleep state only if there were no Tx or Rx packets in the last 100ms. If AP indicates a buffered frame for device in TIM element of beacon, MC92 will exit Wi-Fi sleep mode by sending 802.11 NULL data packet to retrieve buffered frames from AP. By default, MC92 uses WMM-PS as the default power save mode. Power save mode can be changed using Wi-Fi CSP.

b. Band Preference: Band Preference feature allows device to prefer one frequency band over the other during initial connection and roam. By default, MC92 will prefer 5GHz band. If there are no good APs available for connection/roam in 5GHz, MC92 will look for APs in 2.4GHz frequency band.



Band Preference settings can be changed using Wi-Fi CSP to prefer either 5GHz or 2.4GHz band, or to disable preference.

c. Updated regulatory rules: Fusion A4.00 uses updated regulatory rules. 5GHz channels 120—132 are opened up for USA and countries following US rules.

d. Zebra Mobility Extensions

Zebra Mobility Extensions make use 802.11 specifications and Zebra proprietary extensions to achieve the highest level of performance, efficiency and reliability. These features are available only when MC92 is deployed in a WLAN infrastructure that uses Zebra APs. These features are enabled by default on MC92. It can be turned off using Wi-Fi CSP.

I. Coverage Hole Detection: Using 802.11k and Zebra proprietary extensions, MC92 can report gaps in Wi-Fi coverage to Zebra WLAN infrastructure so that administrator can take corrective actions.

II. Aggregated Fast Transition (Aggregated FT): Aggregated FT improves on IEEE 802.11r, Over-the-DS fast roaming in conjunction with Zebra wireless LAN infrastructure. Using this feature, MC92 can achieve reliable and consistent fast roams.

III. Scan Assist: Using this feature, MC92 retrieves roaming related information from the Zebra wireless LAN infrastructure without doing scans. This is used for improving roam.

2. SPR fixes

Fixes for following SPRs are available in Fusion A4.00

- a. SPR 27679 [Occasionally Wi-Fi stop scanning and hence failed to roam]
- b. SPR 27019 [Add support for subnet roam]
- c. SPR 28080 [Unable to create TLS profile after changing language]
- d. Sometimes Wi-Fi stops or device hangs when connected to Ruckus AP.

MX4.4 Feature List:

Feature	Brief Description
Clear Clipboard	Clearing the data copied into clipboard

Enable/Disable Clipboard	Enable/Disable the clipboard features to cut/copy/paste
Factory Reset	Wipe - Data+Enterprise+Cache
Enterprise Reset	Wipe - Data+Cache
Full Device Wipe	Wipe - Data+Enterprise+Cache+Internal SD+External SD
Enable/Disable Enterprise Reset in Settings App	API to Enable/Disable the Enterprise Reset UI in Settings Application
Display OSX Version	OSX version can be seen in Settings => About Phone => SW Components => OSX version
Enable Disable AppInfo Access	Enabling and disabling , App info from settings
Allow/Disallow App to submit XML	Add/delete/query packages which are allowed to SubmitXML to MxMgtFw
Enable Disable UMS/PTP/MTP	MassStorage,MediaTransfer and PTP modes can be Blocked and Unblocked *(1)
Enable Disable External USB Storage	Enable/Disable Mounting of External USB Pen-drive storage with device *(2)
Enable/Disable Browser	Enable/Disable Native Browser Address Bar
Enable/Disable access to Applications Section of Settings UI	Hide Apps section of Settings Application
Initiate NTP Sync	Enable/Disable/Initiate NTP
Ethernet Settings	Enable/Disable & TurnOn/TurnOff
Enable/Disable Use of Background Data	Enable/Disable Background data in SIM devices
Auto Correction	Enable/Disable the ability of auto correction of words in soft keyboard
Wifi	Enable/Disable Wifi

Wwan	Enable/Disable Wlan
Safe Mode	Enable/Disable Safe mode
Unknown sources	Enable/Disable Unknown soures UI
Enable/Disable Home Key	Enable/Disable Home Key
BT Pairing Pop up	Enable/Disable BT pairing pop up
Sdcard Usage	Enable/Disable Sdcard Usage
Enable/Disable Power button instantly lock	Enable/Disable Power button instantly lock UI
Turn On/Off Power button instantly lock	Turn On/Off Power button instantly lock
Enable Disable Airplane mode	Enable/Disable Airplane mode UI
Turn On/Off Airplane Mode	Turn On/Off Airplane Mode
Enable/Disable Power button menu items	Enable/Disable menu displayed when power button is long pressed
Hide/unhide Power button menu	Hide/Unhide menu displayed when power button is displayed

Scanner Framework 5.45.0

Major Features

1. Support for SE1524
2. Support for New ImgKit Decoder Library Version 6.02T02.24_COD_7_Mailmark_08
3. Moved Serial Port Communication into Scanning Service
4. Fix for Lorax Supplemental mode
5. Hardware Beep Init Optimization
6. Changed the Lorax default Beamwidth to Narrow

DataWedge 3.1.20

1. SPR 23137 : Multiple decodes performed for one barcode when pressing both Hard and soft trigger in DW Demo.



2. SPR 25359 : DataWedge crashes when string at criteria is set in the ADF configuration.

PTT Express 3.1.19

1. Major Features

a. After changing the talk-group or changing the status, the PTT Express user interface would be on the fore-ground to facilitate confirmation of the changed talk group and to allow user to continue making PTT calls when CallKeyConfig is 0 (on-screen buttons).

b. Recovery update procedure : Copy the Recovery update package for PTT Express installation/uninstallation for KK to the internal storage of respective device and perform the recovery update as per the procedures mentioned in the OS recovery update guidelines

c. To change the settings of the PTT Express client, modify the ptt_settings.xml file located at /enterprise/device/settings/ptt.

d. To enable Debug Logs, follow below steps:

1. Pull ptt_settings.xml from /enterprise/device/settings/ptt/ folder.

2. Edit <setting name="logLevel">Debug

3. Check for /storage/sdcard0/PTT folder.

4. Logs will be created with DEVICE_MODEL_MAC_ADDRES_PTT_log.txt

e. The previous log file is saved as
DEVICE_MODEL_MAC_ADDRES_PTT_log.txt.bck.

f. The default log level is set to 'None' (to avoid issue 74744). Update value of 'log_level' in ptt_settings.xml to enable the logging.

g. Log file should not be renamed or deleted while logging is active. Copy the log file to PC or other folder if snapshot log file has to be created.

h. Use 'adb' to copy the logs to PC.



- i. CDR log file will be created, if not exist, only when enableCDR is true and the first call happens on channel whose CDR is true or Private call.

- j. PTT HEADSET Usage Notes:

- k. Group call is initiated by pressing (and holding) headset button. Due to special PC implementation, there will be 600ms delay after user presses the headset button. User shall start speaking only after talk permit tone is played.

- l. Private call is initiated by pressing headset button in following sequence: Down, Up and Down (and hold). These 3 clicks shall occur within 600ms. If there are more than 3 clicks within 600ms, then the clicks will be discarded and nothing will happen.

- m. Enabling display of call statistics - The PTT Express client provides a toggling option on the settings page to enable/disable the display of toast messages showing call statistics.

- n. Mute functionality - The PTT express client allows itself to be muted and un-muted using the mute button on the main dialog, or using the key configured in the ptt_settings.xml or using intents. When the client is muted, it is indicated on the UI and on the status bar. While in Mute state, the client's audio and tones are muted and PTT key events ignored. The Mute functionality is not persistent across the reboots or application restarts. However the Mute functionality is persistent across Enable and Disable of the service.

- o. Audio feedback Functionality – The PTT Express client allows voice feedback on Channel and Profile Switch. The configuration “audioFeedback” should be set as Default to enable the Audio feedback. Based on the language value set in the profiles, the audio would be played, in that specific language. The value of the language is set as locale string defined in <http://developer.android.com/reference/java/util/Locale.html>. Only installed languages are supported and the language list would be listed in accessibility settings on the device.

- p. PTT supports Airwatch and SOTI MDM for deploying configuration changes.

- q. Full-duplex client co-existence - The PTT Express client supports a configurable option “fullDuplexClientCoexistence” to coexist with full duplex WAN or VOIP client. There is another configurable option “vibrateOnVoiceCall” which allows full duplex incoming calls to vibrate when



PTT is in call. The following is applicable when “fullDuplexClientCoexistence” is set to true:

- r. When there is an outbound call made or when an inbound call is accepted on the full duplex client, PTT Express enters into co-existence mode by muting itself and showing yellow icon on the status bar. It also stops playing out any tones or calls and ignores key requests for PTT calls.
- s. When a full duplex call terminates, PTT Express exits the co-existence mode to resume normal operations.
- t. Few full duplex clients allows PTT Express to exit coexistence mode when its call is put on hold and then enter back to coexistence mode when the call moves out of hold state.

2. SPR fixes

- a. SPR 28025 Disabling PTT express via SOTI.

3. Known issues

- a. The coexistence solution is dependent on the announcement of states done by the full duplex client. Few variations mentioned beneath have been observed in which case PTT Express client may not be able to enter or exit from coexistence mode.
- b. While coexisting with few versions of VOIP clients and the WAN client, PTT Express cannot come out of coexistence state when a call is put on hold.
- c. Specific version of Jabber client is not seen to announce [MODE_RINGTONE](#) due to which PTT Express cannot honor “vibrateOnVoiceCall” settings.
- d. Certain full-duplex clients are at times seen to fail in announcing their call states which can result in PTT Express not entering/exiting coexistence mode as expected. It can be recovered when a succeeding inbound/outbound established call is terminated. In some cases, a warmboot might be required
- e. After Reset (or) reboot key presses will not be detected for initial 30 secs.

DataAnalytics 1.0.1.2107

- 1. Major features:



- a. Provides ability to enable and disable Data Collection
 - This feature can be used to disable/enable Data Analytics and B2M services on the device, thus disabling Data Collection

- b. Enables collection of Level based metrics from devices and made available in Cloud to be visualized in the Analytics Platform
 - Metrics Supported are
 - Low Collection Frequency (Collected every 1 hour)
 - AcChargeCount
 - ACLineStatus
 - BatteryLevel
 - BatteryStatus
 - BatterySerial
 - BatteryPartNumber
 - BatteryManufactureDate
 - BatteryTemperature
 - BatteryVoltage
 - BatteryBackupVoltage
 - BatteryRatedCapacity
 - BatteryUsageNumber
 - DisplayOnTime
 - DeviceCpuTimeDelta
 - ProcessCpuTimeDelta
 - DataAnalyticsVersion



- DeviceModel
- DeviceSerial
- AndroidVersion
- BuildNumber
- AvailablePhysicalMemory
- AvailableStorageMemory
- TotalPhysicalMemory
- TotalStorageMemory
- TotalMemory
- Medium Collection Frequency (Collected every 30 minutes)
 - AcChargeCount
 - ACLineStatus
 - BatteryLevel
 - BatteryStatus
 - BatterySerial
 - BatteryPartNumber
 - BatteryManufactureDate
 - BatteryTemperature
 - BatteryVoltage
 - BatteryBackupVoltage
 - BatteryRatedCapacity
 - BatteryUsageNumber



- DisplayOnTime
- DeviceCpuTimeDelta
- ProcessCpuTimeDelta
- DataAnalyticsVersion
- DeviceModel
- DeviceSerial
- AndroidVersion
- BuildNumber
- AvailablePhysicalMemory
- AvailableStorageMemory
- TotalPhysicalMemory
- TotalStorageMemory
- TotalMemory
- WlanRadioOnTime
- IncomingCallAttempt
- IncomingCallDuration
- OutgoingCallAttempt
- SuccessIncomingCall
- WwanSignalQuality
- WwanRadioOnTime
- High Collection Frequency (Collected every 10 minutes)
- AcChargeCount



- ACLineStatus
- BatteryLevel
- BatteryStatus
- BatterySerial
- BatteryPartNumber
- BatteryManufactureDate
- BatteryTemperature
- BatteryVoltage
- BatteryBackupVoltage
- BatteryRatedCapacity
- BatteryUsageNumber
- AcChargeTime
- DisplayOnTime
- DeviceCpuTimeDelta
- ProcessCpuTimeDelta
- DataAnalyticsVersion
- DeviceModel
- DeviceSerial
- AndroidVersion
- BuildNumber
- AvailablePhysicalMemory
- AvailableStorageMemory



- TotalPhysicalMemory
- TotalStorageMemory
- TotalMemory
- WlanRadioOnTime
- WlanReceiveByteDelta
- WlanReceivePacketDelta
- WlanSignalQuality
- WlanTransmitByteDelta
- WlanTransmitPacketDelta
- IncomingCallAttempt
- IncomingCallDuration
- OutgoingCallAttempt
- SuccessIncomingCall
- WwanSignalQuality
- WwanRadioOnTime
- WwanErrorRate
- AltitudeWRTSeaLevel
- DeviceState
- DeviceStateOnTimeDelta
- GPSAccuracy
- GPSLocation
- Heading



- MaxSatellitesCount
 - PositionalDilutionOfPrecision
 - SatellitesCount
 - Speed
 - UTCTime
- c. Enables Self Update of Data Analytics Client on the device
- New versions of Data Analytics Client can be updated on the device using this mechanism

EXCLUSIONS

- MC9200 SKUs with the following scan engines are not supported in this release

Device P/N	Operating System
	KitKat 4.4.4
MC92N0-G90SYxAA6WR	-
MC92N0-G80SYxAA6WR	-
MC92N0-G50SYxAA6WR	-

- Serial peripherals are not supported in this release.
- Ethernet on the 4-slot charging cradle is not supported in this release.

CONTENTS

1. M92N0KXXXRE0000005.zip – Enterprise Reset Recovery Package
2. M92N0KXXXAE0000001.apf – Enterprise Reset AirBeam Package
3. M92N0KXXXRF0000005.zip - Factory Reset Recovery Package



4. M92N0KXXXAF0000001.apf - Factory Reset AirBeam Package
5. M92N0KXXXRUxx11005.zip - KK Recovery OS update package
6. M92N0KXXXAUxx11005.apf - KK AirBEAM OS update package
7. M92N0KXXXFRxx11005.zip – KK User Fastboot package

DEVICE COMPATIBILITY

This software release has been approved for use with the following devices. Note that all MC92 keypad types are supported with this release so the keypad type identifier is shown as 'x' (e.g. GA0SYxAA6WR) in the below device list.

Device P/N	Operating System
	KitKat 4.4.4
MC92N0-GA0SYxAA6WR	-
MC92N0-G30SYxAA6WR	-
MC92N0-GL0SYxAA6WR	-
MC92N0-GM0SYxAA6WR	-
MC92N0-GJ0SYxAA6WR	-

INSTALLATION REQUIREMENTS

1. The software update requires supported a MC9200 SKU hardware device as listed in the Device Compatibility section
2. Enterprise Reset and Factory Reset package files are available on the MC92 Software Download section on Zebra.com

INSTALLATION INSTRUCTIONS

- OS Recovery Update Package (SD card method)
 1. Copy the recovery update zip file to a SD card.
 2. Remove the MC92 keypad (the device will suspend), insert the SD card, replace keypad.
 3. Press power key to resume device.
 4. Press and hold the Power button on the device until the Device options menu appears.
 5. Tap on Reset to reboot the device.



6. When the device is rebooting hold the gun scan trigger to enter Recovery update mode.
 7. When the Recovery Mode home screen (Android logo) appears then release the gun scan trigger.
 8. Use keypad arrow keys to select “apply update from sdcard” option
 9. Press keypad Enter key to select the option
 10. Use keypad arrow keys to select recovery update zip file.
 11. Press keypad Enter key to select the recovery update zip file.
 12. Press keypad Enter key to select “reboot system now” to reboot the device.
- OS Recovery Update Package (USB method)
 1. Connect MC9200 to PC via USB (note, PC must support MTP).
 2. Copy the recovery update zip file the internal memory of the MC9200. The internal memory will be shown in PC file browser as MC92N0\Internal storage.
 3. Press and hold the Power button on the device until the Device options menu appears.
 4. Tap on Reset to reboot the device.
 5. When the device is rebooting hold the gun scan trigger to enter Recovery update mode.
 6. When the Recovery Mode home screen (Android logo) appears then release the gun scan trigger.
 7. Use keypad arrow keys to select “apply update from emulated storage” option
 8. Press keypad Enter key to select the option
 9. Use keypad arrow keys to select recovery update zip file.
 10. Press keypad Enter key to select the recovery update zip file.
 11. Press keypad Enter key to select “reboot system now” to reboot the device.
 - OS AirBEAM Update package
Please refer Mobility Service Platform deployment guide for instruction.

Note: Battery must be 30% charged to perform update

PART NUMBERS

1. M92N0KXXXRE0000005.zip
2. M92N0KXXXAE0000001.apf
3. M92N0KXXXRF0000005.zip
4. M92N0KXXXAF0000001.apf
5. M92N0KXXXRUxx11005.zip
6. M92N0KXXXAUxx11005.apf
7. M92N0KXXXFRxx11005.zip

RELEASE DATE

October 15, 2015