

# ES400 OPERATING SYSTEM BSP V02.41.400 RELEASE NOTES

## INTRODUCTION

This package contains the v02.41.400 OS image for the ES405B terminals which are running with WM6.5 operating system. This image supersedes the previous BSP31.2 image and older images. Files installed in the "Application" folder and the "hidden partition" will be erased.

## DESCRIPTION

The 405Bw65XenUL241400.zip / 405Bw65XenAB241400.apf contains an Update Loader package to load the 02.41.0400 OS image onto the terminal.

1. AKU 5.2.23145 (Build 23145.5.3.10)
2. Fusion Software H\_3.40.0.1.055R
3. AirBEAM Client v7.08.42
4. RD Client v 7.08.42

## CONTENTS

1. 405Bw65XenUL241400.zip / 405Bw65XenAB241400.apf
  - partition.mbn - Partition Table
  - Pkgs.lst - Images list installed through update loader
  - StartUpdLdr.exe - Launch update loader
  - modem.smb - Modem Firmware
  - FLASH.bin - Windows Mobile 6.5 Image
  - CleanAppl.bin - Clean application to erase the application folder.

## BUGS FIXED/CHANGES FROM OS IMAGE 31.2

The following features were either not included in the original release or were part of a point release. Additional high level changes are listed as well.

### General Stability/Exceptions/Crashes/Lockups

- Resolved several memory leaks that over time led to exhaustion of the Device.exe virtual memory process slot. In these cases when the Device.exe virtual memory process slot was exhausted, the system could become unstable and potentially lockup requiring a cold boot to recover. In extreme cases, the flash file system could be affected resulting in corruption of files and required a clean boot or reloading of the operating system.

- SPR 22009 - Resolved memory leaks in WLAN driver seen after cycling the WLAN radio power very frequently.
- Resolved memory leaks in the keyboard driver.
- Resolved a small memory leak in the RIL driver seen when cycling the WAN radio power very frequently.
- SPR 21935 - Resolved an issue where in rare cases the device could lock-up on bootup due to an exception in the Microsoft Shell32.exe component.
- Resolved "GW\_NoSim.exe" and "CDMA\_activation.exe" exception errors that could occur in rare cases following a cold or warm boot on a device with the WAN radio powered and no SIM card inserted or CDMA activation.
- SPR22137/22090 - CAB file "Enable\_Sealed\_Slot.CAB" has been removed from \Windows folder. This implementation was found to contribute to device lockup issues and is no longer supported. If an SD card is used frequently by an application and needs to be available immediately following a suspend /resume, the recommendation is to use the "RemoveSealedSlot\_SD-Card\_HighAvailability.cab" found in the \Windows folder in order to allow file handles to be maintained through a suspend/resume cycle. Enabling this feature will add an additional 1mA of current consumption in the suspend state.
- SPR21946 - Resolved an issue in the SD bus interrupt handling routine that on rare occasions could result in a device lockup when the device is powering down after a warm boot is initiated.
- SPR22951 - Resolved an issue that could result in a device lockup related to the polling of the SD card detect function.
- SPR22045 - adds Qualcomm fixes for an issue that resulted in a device lockup with the display off.
- Resolved an issue where the WAN radio would remain off after resuming from a manual critical suspend.
- SPR 21908 - Fix to Device.exe/ConnMgr.exe crash while using GSM.
- SPR 21842 - Fix to issue locking up the device on the first reboot after inserting a Telenor or Vodafone Portugal SIM card.
- SPR21294 - Resolved a lockup issue when using WLAN.
- SPR20872 - Cannot change default USB ActiveSync connection to serial. Change from USB RNDIS (default) to USB Serial, warm boot and it goes back to USB RNDIS.
- Resolved an issue where scanning an RD barcode immediately after a clean boot could cause a Device.exe crash.
- Improved device utilization of virtual memory by moving certain system dll's to virtual memory slot 60.

## WLAN

- Updated WLAN driver version: Fusion H\_3.40.0.1.055R
  - SPR22241 - resolved an issue with reconnecting to the WLAN after going out of range.
  - SPR22327 - resolved an issue where after the device left the area where it was connected to an access point, the device still reported that it was connected even though it was not.
  - Improved roaming for 802.11n infrastructure.
  - Adds new features over 3.30. Support for CCX v4 and FIPS 140-2 Level 1.
  - Adds new features over 3.30. Support for CCX v4 and FIPS 140-2 Level 1.
  - Resolved an issue related to WiFi packet priority adjustment to address association loss and ping packet loss issues. Specifically, user priority on Access Class VI, has been adjusted when in UAPSD mode.
  - SPR 21406/21927 - Wireless LAN Roaming/Out of range fixes.

- SPR21906 - Resolved an issue with MSP to allow co-existence of new and old definition files.
- Resolved an issue where the device failed to "hear" 4 way handshake packets after association.
- Resolved issues in ndis.dll that could result in exceptions leading to a device lockup when using WLAN.
- Resolved an issue related to Open SSL exceptions that could result in a device lockup.
- Resolved an issue related to slow authentication when a country code is not acquired.

## WAN

- SPR21058 - Resolved a WAN data connectivity issue seen on the Sprint network.
- SPR21992 - Resolved an issue seen on the Verizon network where the WAN IP address would renew every two hours.

## GPS

- Resolved an issue that could cause the device's assisted GPS application to crash if the device did not have a data connection.
- Resolved an issue where in rare cases after losing the GPS signal upon entering a building, the GPS would stop reporting data after exiting the building.
- Resolved an issue where in rare cases, the GPS would report a static location while indicating greater than zero velocity.
- Resolved an issue where in rare cases the GPS would report invalid location data as a valid GPS fix.

## Other Changes

- Upon an occurrence of a main processor - ARM11 or modem processor - ARM9 Fatal error, the device will auto recover by performing a cold boot. Previously, the device would halt upon an occurrence of this type of error and the device would appear non-responsive with no LED's lit, requiring user intervention to perform a cold boot to restart the unit. The following registry key controls this behavior:  
[HKEY\_LOCAL\_MACHINE\Software\ \AutoReboot] "Enable" = DWORD: 00000001
- SPR 21071 - Corrected the date and time in diagnostic RTLogs when not using a WWAN network supporting NITZ.
- SPR21310 - Removed ability to enter engineering menu from the boot screen by holding down the "w" key while booting.
- SPR 21310 - Removed ability to Clean Boot the device from the boot screen by holding down the "c" key while booting.
- Resolved an issue where keyboard input gets sluggish.
- As per BSP 31.2 Release Notes the maximum size of the cache disk is 4MB. Implemented a control to ensure cache disk cannot be set greater than 4MB.
- Modified the MMS application functionality for Verizon. The auto retransmission functionality has been disabled per Verizon requirements. The user must manually attempt to retry through the MMS application. The MMS application user interface also limits the number of manual retry attempts to three before moving the message to the sent items folder with the applicable error status.
- SPR20854 - Resolved an issue that could result in an additional 40mA current consumption following a critical suspend due to low battery state. Added resume status check method, to ensure if the device in the resuming state, and it also meets the battery critical low condition, the system could enter to suspend mode.
- Cell Broadcast feature is disabled by default. This improves device stability on certain networks. If it is desired to enable Cell Broadcast, set the following reg key to 1. Two

device reboots are required for the new setting to take effect.

HKEY\_LOCAL\_MACHINE\Software\ \SMS\_CB] "Enable" = dword: 00000001

## Features

- Integrated Datalight's FlashFX flash file system driver to replace the Microsoft flash file system driver.
- MSP and RD client updated to version 7.08.42
- Added several diagnostic utilities:
  - Added eMscript v1.2.9 diagnostic utility which can be installed from Start->Debug menu selection. This utility can be used to gather general use statistics.
    - Logging will begin immediately following installation of the tool. Press the "Stop eMscript" icon in the debug folder to halt logging.
  - Added a diagnostic tool called "VMMService" to monitor virtual memory utilization. The tool will alert the user when the virtual memory is low and advise them to reboot. It is disabled by default and can be enabled by installing VMMService.cab, which is located in the Windows folder.
  - Added CaptureDump.cab file which can be found in the windows folder. This is a utility to help customers debug application issues.
- SPR 21020 - Adds a pop-up warning message if the device is going to shut-down due to exceeding the operating temperature (60 degrees C) or if charging will be terminated due to the device exceeding the temperature at which it is allowed to charge the battery (45 degrees C). The pop-up message is not enabled by default and is only in English language. The pop-up message can be enabled via the following registry setting if desired :  
[HKEY\_LOCAL\_MACHINE\Drivers\BuiltIn\Battery]  
"EnableTemperatureMessagebox"=dword: 00000001
- Added an option to perform a scheduled daily system reboot. The scheduled daily system reboot is disabled by default. It can be enabled with the following registry settings (2:30AM local system time as an example below):
  - [HKEY\_LOCAL\_MACHINE\Software\ \dailyReboot] "Disable"=dword:00000000  
"dailyRebootTime"="02:30"
  - "dailyRebootTime" should be set as a string value in "HH:mm" format. If the time is set greater than 23 hours or greater than 59 minutes a popup warning will be shown on the device. If enabled, the scheduled reboot will occur even if the device is suspended.

## Note:

- The OS update package includes "Clean Application Folder" command in the installation package. It is advised to keep this included in the pkgs.lst to reformat the application folder to delete any earlier hotfixes which are not needed on this new release.
- When updating to or from a build containing the Datalight FlashFX flash file system and going to or coming from a build containing the Microsoft flash file system, the device will perform a Clean Application regardless of whether the update folder contains the CleanAppl command as the device needs to format the system partitions when moving between file systems.
- Available flash memory is reduced by approximately 170MB due to the implementation of the Datalight FlashFX file system.
- "Clean Boot" and "CleanBoot and Clean Application" packages have been updated ("ES400-MC65-CleanBoot&CleanBoot-Blank\_v2.zip") for OS versions containing the Datalight FlashFX flash file system. The new packages are compatible with older OS versions as well.

- Users with applications that utilize Microsoft SQL Server compact 3.5 are advised to update to Service Pack2 which can be downloaded from Microsoft. Some users have reported that this has resolved a sqlcese30.sys.dll crash in their application. <http://www.microsoft.com/en-us/download/details.aspx?id=5783>
- The following older software patch that utilized the update loader method to load the patch is not supported on this OS due to incompatibility with the Datalight FlashFX flash file system. This patch should NOT be loaded onto any OS version greater than 02.41.xxxx, or it will result in the device failing to boot and will require the OS to be reloaded using the USB loader recovery method with assistance from Support.
  - *SPR21310 patch - Removed ability to enter engineering menu from the boot screen by holding down the "w" key while booting and removed ability to Clean Boot the device from the boot screen by holding down the "c" key while booting. [note this fix has been integrated into this OS release]*
  - *SPR20095 patch - When using a wired headset, an incoming ring is only heard on the wired headset.*
  - *SPR20773 patch - When using a device in a vehicle cradle and the device is completely powered off via the press and hold power button shutdown menu, the device will turn on and bootup when external power is removed from the vehicle cradle.*

### Other General Best Practices

- Use Application\Startup folder to load applications not Windows\Startup folder as items in Windows\Startup run very early in the boot process and it is possible for items to start prior to full system resources being available.
- Programmatic Suspend API: PowerPolicyNotify - this is the only suspend API supported. VK\_Off method is not supported.  
PowerPolicyNotify(PPN\_SUSPENDKEYPRESSED, 0);  
PowerPolicyNotify(PPN\_SUSPENDKEYRELEASED, 0);
- Programmatic Warm Boot API: ExitWindowsEx(EWX\_REBOOT,0); - this is the only warm boot API supported.
- Customer configurations that require a large usage of virtual memory may benefit from a regularly scheduled programmatic warm boot. Frequency of the scheduled warm boot would depend on each customer's usage of virtual memory.

### Following can help with specific customer setups:

- Applications such as GPS Mapping where map files are stored on an SD card will require "SD-Card\_HighAvailability mode". This mode retains file handles during suspend and resume of the device so that the SD card is available immediately following a suspend/resume. To enable this mode launch the CAB installer, "RemoveSealedSlot\_SD-Card\_HighAvailability.cab", from the \Windows folder.

## DEVICE COMPATIBILITY

This software release has been approved for use with the following Symbol devices.

Device	Operating System
ES405B	Windows Mobile 6.5 Professional

## INSTALLATION REQUIREMENTS

This software package has been approved for use with the following:



- Microsoft Windows 2000 or Windows XP Operating System
- ActiveSync 4.5 or higher.
- If developing applications for Windows Mobile 6.5
- ES405B currently running English Rev A BSP19.1, BSP19.11, MR1 BSP19.103, BSP 31.2 and CPLD 13.1

## INSTALLATION INSTRUCTIONS

Copy contents of zip file to SD card or to \Temp folder. Execute StartUpdLdr.exe or cold boot terminal by pressing 1 + 9 + pwr and hold the camera key to start the update loader process.

## PART NUMBER AND RELEASE DATE

January 09, 2013

1. 405Bw65XenUL241400.zip
2. 405Bw65XenAB241400.apf