Release_Notes_ADK_5.0.2.3

Release Notes ADK 5.0.2.3

Released: 2025-12-14

CONFIDENTIAL INFORMATION:
This document contains confidential information that is the property of Verifone Inc. No part of this document may be copied, distributed, stored in a retrieval system, translated into any human or computer language, or transmitted in any form or by any means, without the prior written consent of Verifone.

IMPORTANT NOTICE
Verifone, the Verifone logo, is a registered
trademark of Verifone. Other brand names or trademarks associated with Verifone products and services are trademarks
of Verifone, Inc. All other brand names and trademarks appearing in this manual are the property of their respective
holders.

NO WARRANTY
No warranty although Verifone has attempted to ensure
the accuracy of the contents of this manual. This manual may contain errors or omissions. This manual is supplied
"as-is," without warranty of any kind, either expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose.

LIMITED LIABILITY
Limited Liability in no event shall Verifone be
liable for any indirect, special, incidental, or consequential damages including damages for loss of business, profits, or the like, even if Verifone or its representatives have been advised of the possibility of such damages.

Verifone, Inc.
817 Broadway, Suite 1100
New York, NY 10003 USA
www.verifone.com

Introduction

This document describes the content and changes in the ADK 5.0.2.3 release. It includes details about supported hardware,
components used, major changes and bug fixes as well as known issues and updates to procedures.

A summary of planned or implemented incompatible changes, which may require changes to applications, are provided as an annex.

Please check the installations section, to understand restrictions on downgrading to older ADK versions.

Content

This release provides files as follows:

Product Name	Package Name	Component identifies as
ADK VOS3 download file	adk-vos3-load-prod-5.0.2.3-70.zip adk-vos3-load-dev-5.0.2.3-70.zip	SLP-secure ADK-5.0.2.3 SLP-debug ADK-5.0.2.3
ADK VOS2 download file	adk-vos2-load-prod-5.0.2.3-70.zip	SLP ADK-5.0.2.3
ADK VOS download file	adk-vos-load-prod-5.0.2.3-70.zip	SLP ADK-5.0.2.3
ADK tools	tools-5.0.2.3-70.zip	N/A
ADK Documentation	adk-overview-programmers_guide-5.0.2.3-70.zip adk-doc-5.0.2.3-70.zip	N/A
ADK V/OS SDK	adk-sdk-vos-5.0.2.3-70.zip	N/A
ADK V/OS2 SDK	adk-sdk-vos2-5.0.2.3-70.zip	N/A
ADK V/OS3 SDK	adk-sdk-vos3-5.0.2.3-70.zip	N/A
ADK ANDROID NDK for payment applications	adk-sdk-android-5.0.2.3-70.zip	N/A

Installation

Important note: On any Engage device with battery, please calibrate the battery after installing the
new version. Go through a complete discharge-charging power cycle at least once.

To install the new ADK 5.0.2.3, please follow the instructions below:

- **VOS3 on NEO and Vegas devices:**

  - **Installing applications**:

    - To install user applications for ADK 5.0, you must sign download files on the online portal before installing them on the device.

  - **Field update**

    - Please use the download file **dl.adk-5.0.2.3-70-vos3-(neo|vegas)-prod.tgz**.
    - Low bandwidth updates: In case your bandwidth is limited, please check the packman documentation about differential packages. These can be created using this tool only and will result in a smaller download file, which can be used on top of one specific starting version.

  - **Deployment**
    - Please use the download file **dl.adk-5.0.2.3-70-vos3-(neo|vegas)-prod.tgz**.
    - **Passwords:** Verifone recommends to enable passwords during deployment to limit access to control panels and the MAC desktop. Please read the programmers guide sections about passwords.

      Password management requires a password key to be installed on the device, which can be done through VRK or other key loading means.

  - **Development**
    - Please use the download file **dl.adk-5.0.2.3-70-vos3-(neo|vegas)-dev.tgz** to update development devices.
    - For additional debug functionality, use the file **dl.adk-5.0.2.3-70-vos3-(neo|vegas)_debug-dev.tgz**. Note that the behavior of the device may differ from the production version, when running the debug variant.
    - **Note:** VOS3 uses the term "appdev", you can check the state of your device in the info control panel. Development devices are usually provided as devkits and are controlled by dev tokens.

- **VOS2 on Engage devices:**

  - **Installing applications**:

    - To install user applications for ADK 5.0, you must sign its download files on the online portal before installing on the device.
    - In a case you are using license token, you must install these before starting the installation process for applications.
    - Please check the appendix "New user signing for V/OS2" below, and the chapter "Guidance for new user signing feature" in the ADK programmers guide for details.

  - **Field update**

    - **Field update:** Please use the installation file used during deployment for field updates, the default package for payment terminals is **dl.adk-5.0.2.3-70-vos2-engage-prod.tgz**.
    - Low bandwidth updates: In case your bandwidth is limited, please contact Verifone support to provide a trimmed down download file. Be aware, that these are point-to-point version

updates and only work on the requested starting version.
- **Bases:** Please use the download file **dl.adk-5.0.2.3-70-vos2-base-prod.tgz** to update bases.
  - **Deployment**
    - Please use the download file **dl.adk-5.0.2.3-70-vos2-engage-prod.tgz** to update to this ADK version.
      - Please use the SDI and related download files for other types of devices, or for solutions, which require SDI.
      - **Bases:** Please use the download file **dl.adk-5.0.2.3-70-vos2-base-prod.tgz** for bases.
  - **Important note: We advise to not cut the power during software updates.**
  - **Development**
    - Please use the download file **dl.adk-5.0.2.3-70-vos2-engage-prod.tgz** to update "CP dev" development devices.
    - **Note:** You can check the state of your device in sysmode, development devices are usually referred to as "CP dev" devices.

- **V/OS on Trident devices:**

  - **Important note: Downgrading the SBI boot loader will tamper your device.**
  - **For ADK 5.0 there are two types of buildall files for Ux.**

    - **Original buildall (with SBI included) and no_SBI (new additional buildall). If you use the original buildall file, the latest SBI 3.17.1 or higher will be installed. If you try to downgrade to a build with an older SBI your device will tamper. If you want to keep the old SBI, pre 3.17.1, please use the no_SBI buildall file.**

    - **The Ux diff update package will not update the SBI.**

  - **Deployment and field update**

    - Please use the regular UX download file for both initial deployment and field updates
    - Low bandwidth updates: In case your bandwidth is limited, please contact Verifone support to provide a trimmed down download file. Be aware, that these are point-to-point version updates and only work on the requested starting version.
  - **Important note:**
    - **For better behavior of software installs in case of unexpected power failures, we strongly advice to install software in form of compressed tar download files '.tgz' instead of '.tar' files. This note only applies to the top most layer, the download file, no other changes are required.**
    - **We advise to not cut the power during software updates.**

Solution Package Overview

ADK 5.0.2.3 provides solution files, which combine the operating system, middleware components and EMV kernel in one single loading image.

Please review the supported kernel version list and update your desired file accordingly. You must only enable kernel versions, which are certified for your device, country and customer.
In some cases, due

to included user components, solutions might need to be resigned before loading into a unit.

For more details, please check the ADK programmers guide, chapter "ADK Packages and Update Procedure", in particularly "System Installation Download Files".

Documentation

For detailed information on using any of the ADK features, please refer to comprehensive documentation at adk-overview-programmers_guide-5.0.2.3-70.zip.

Additional files referred to in the programmers guide can be found in the "doc" archive.

Prerequisites/Requirements

Hardware Requirements

This ADK release is for use on production and application development terminal units specified in section "Supported Platforms".

Software Requirements

No special software is required to use this software on a Verifone device. This release provides all required software to operate a terminal, except a payment application.

VHQ server dependencies

- ADKTMS 5.1.5.2 or higher is compatible with the VHQ Server 3.27.01.19
- VHQ XSD version 04.01.0009 is used in this Agent

Application development:

- VOS2 & VOS1: The use of Verifone Development Environment (VDE) is recommended when creating new applications (VOS1 & VOS2 support only).
- VOS3: Please check chapter Developing Applications and in particular the section Development Toolkit VOS3 in the programmers guide for an instruction for compiling applications.

Release Overview

ADK-5.0.2.3 is a hot fix release on the ADK 5.0 production branch. This release is focused on bug fixes.

The release is based on ADK 5.0.2 and is in parity with ADK-4.7.44, ADK-4.8.36 and ADK 4.10.6, as well as ADK-VOS3 2.1.7.

Branch maintenance policy: ADK 5.0 is the new main production branch for VOS1, VOS2 and VOS3 devices and is updated with new features and bug fixes regularly. Please use this branch when creating new customer solutions.

Supported platforms and devices

This ADK release targets the following Verifone products:

- NEO PinPad: M425, M450, P630-2, P630-A
- NEO Unattended: UX700, UX700 WBU/ML
- VEGAS Unattended: UX302
- Engage: PIN Pad: P200, P200 Plus, P400, P400 Plus, P400 Dual MSR, M400
- Engage Countertop: V200c, V200c Plus, V200, V400c, V400c Plus
- Engage Portable: V200t, V205c, V210, V240m, V240m Camera, V400m
- Engage Mobile: E280 Speaker, E285, E235
- Engage secure devices: CM5, M440, M424
- Engage based full-featured bases: V210, V240m, V400m, T650p, V660p, CM5
- Trident Unattended: UX300, UX301, UX410 and Ux115

Important note: Use CM5, M440 and M424 only in combination with an approved Android OS version. The same requirement applies to Carbon 8 and Carbon 10 using ADK 4.6.

Component Versions

This ADK Release provides following component versions:

- Abstraction:
    - Crypto Abstraction 1.5.0
    - Reader Abstraction 1.7.10
    - Reader Synchronous Cards 1.0.7
- ADK Fonts 1.6.1
- AUTHMAN 0.1.12 - VOS3 Authentication Manager
- Agent - System remote management (e.g. VHQ):
    - AGT 5.1.5.2 - System Remote Agent for VOS1 & VOS2 devices
    - AGT-SUBDEV 4.3.40.2 - System Remote Agent for Android Subdevices (e.g. CM5, M424 and M440)
    - AGT-VOS3 7.5.2 - System Remote Agent for VOS3 devices
- AST 1.9.3 - Anti Skimming Tool
- Base Updater 1.0.3 - Updating base software
- CDD 1.0.3 - Compromise Detection Daemon
- Communication:
    - CCP 1.85.0 - Communication Control Panel
    - COM 2.144.0 - Communication service
    - COMSVC 3.51.0 - Communication Daemon for VOS3
- CPL 2.8.4 - Commerce Platform Library
- EMV CT, CTLS and MSR Card Services:
    - CRD 5.2.144 - EMV service
    - CRD-SYNC 1.3.1 CRD-SYNC service
    - MSR 2.10.5 - MSR service
    - TEC 2.9.6 - Technology selection service
- Certificates:
    - KLDCERTS 1.2.1 - Key Loading Certificates
    - RKLCERTS 1.2.1 - Remote Key Loading Certificate
    - ROOTCERTS 2.0.0 - Root Certificate
- CTLS L1:

- CTLS L1 Library 1.2.52
  - CTLS L1 K81 Library 1.0.36
- EVT 2.6.19 - Event service
- FPS 1.3.3 - Fingerprint Sensor Library
- GDA 1.0.5 - Global Diagnostic Application
- GUIPRT 2.60.3 - Graphical User Interface service
- INF 1.16.14 - Information Database service
  - SQLITE 1.4.0
  - EXPAT 1.1.9
- INSTALLER 1.3.9 - Installer
- IPC 1.31.0 - Inter Process Communication
  - IPC-CFG 1.0.17 - IPC configuration
- ISO8583 1.6.1 - ISO8583 protocol Communication
- KLDLIB 1.3.7 - Key loading library
- LAUNCHER 1.1.1 - Launcher
- LOG 2.21.5 - Logging service
- MDB 0.2.3 - Multi-Drop Bus protocol
- NAV 1.1.0 - Navigator Gateway
- NAVLib 1.6.11 - Navigator Library
- NETLOADER 1.5.8 - Netloader Daemon
- NFC 1.21.5
  - NFC VAS 1.11.2
  - NFC Applepay 1.13.4
  - NFC VWI 1.14.3
- PAWMAN 0.4.4 - VOS3 Password Manager
- PC REGEX 8.41.3
- PERSO 1.3.0 - Ux Personalization
- PP1000 1.3.0.3 - Pinpad communication library
- PRX 3.8.0 - Cloud proxy
- SCP 2.6.0 - Secure Control Panel
- Secure Data Interface - SDI:
  - SDI 4.32.0-258-P2PE-1.6.39 - Secure Data Interface
  - SDI-API 1.20.0 - High level C++ client library
  - SDI-CLIENT 1.33.5 - Compatibilty layer
  - SDI-PAL 4.17.1 - Platform Abstraction Layer for Android and VOS3 platforms
- SEC 2.5.6 - Security service
- SKIMMERDETECT 1.1.0 - Anti Skimming Tool Library
- SLP ADK-5.0.2.3 - Solution package version
- SOUND 1.2.8 - Sound library
- SSTD 1.2.0 - Secure Service Tool Daemon
- SYSTEM SERVICES components:
  - SYSPROP 1.1.19 - System properties
  - SYSINFO 3.106.8 - System Services
  - SYSMAC 3.85.21 - Multi application controller
  - SYSPM 1.44.38 - ADK Power management
  - VFISYSD 1.2.1 - System Daemon
- VCCI 1.0.5 - Verifone Customizable Cryptographic Interface
- VeriShield Crypto Library:
  - VCL 12.7.6 - VeriShield Crypto Library

- VCL-VOS3 12.7.7 - VeriShield Crypto Library
- VCLCP 1.0.3 - VeriShield Crypto Library Control Panel
- VERIFIER 1.1.0 - Verifier
- VFIDIAG 1.1.5 - Verifone Diagnostic
- VOS-MSR 1.3.7 - MSR Decoder Library
- VRK-Agent 1.0.7 - Key Injection Service

Secure Processor (K81):

- SECPROCAPI 1.22.4 - Secure Processor Client API
- SECPROCFW 1.3.16 - Secure Processor Firmware
- SECPROCTOOLS 0.4.19 - Secure Processor Tools
- GPIO 1.2.0 - Secure Processor GPIO API

V/OS:

- SBI 3.17.1 - Secure Boot Image
- OS 32411200

V/OS2:

- OS 32411200-A100

V/OS3:

- Neo NON-HLOS 1.0.0 - Neo non-hlos (non-high level operation system) for modem processor
- ABOOT 1.0.18 - VOS3 NEO Bootloader
- U-BOOT 1.1.1 - VOS3 VEGAS Bootloader
- BSP
  - NEO 2.0.9
  - VEGAS 1.1.1
- OSS 2.2.0 - Open-Source-Software

CTLS:

- **V/OS**
  - VOS_CTLS-4-01.30.03
    - Subversion A4/A5/A6: With Visa MSD and Interac (suitable for the Americas and Europe)
    - With ExpressPay 3.0 / 3.1 and PayPass 3.0.2 / MCL 3.1.1 - Combinations according to release notes
  - VOS_CTLS-4.01.16.13
    - Subversion A4: With Visa MSD and Interac (suitable for the Americas and Europe) - With ExpressPay 3.0 and PayPass 3.0.2
    - Subversion B4: With Visa AP and ePAL (suitable for Asia-Pacific) - With ExpressPay 3.0 and PayPass 3.0.2

- **V/OS2 - CTLS L1**
  - ctls-l1-full-1.2.52 CTLS level 1 library for Engage

Tools:

- PACKMAN 1.14.1 - Tool for managing archives
- Windows USB driver (for Trident, Engage) 5.0.5.2 Build 8

Important Notes

- **From ADK 4.10.0 and ADK 4.8.24 onwards if you downgrade to any older ADK 4.8, 4.7 or 4.6 version you will lose any keys on your device.**

New Features

New features in ADK 5.0.2.3:

- No new features

New features in ADK 5.0.2.2:

- No new features

New features in ADK 5.0.2.1:

- No new features

New features in ADK 5.0.2:

- SEC: Added AES DUKPT support for PIN encryption, data encryption/decryption and MAC generation/verification. Please check the ADK-SEC Programmers Guide for details.

- Installer: VOS3 bundles now allows a free form version extension, which can be used to display customer related versions. The extension cannot be used for dependency tracking, or comparing versions, and is solely for informative questions. They can be used in VHQ however.

- Wifi: Fast Transition (FT_MODE) between WIFI networks on devices with BCM43455 chip (VOS2) can now be to enabled/disabled when roaming between SSIDs.

- Documentation: The ADK Programmer's Guide is now available on the Verifone.Cloud portal. The portal allows better searching functionality across guides, by function name or by text. NB: Only some ADK versions like ADK 5.0 will be uploaded to the cloud. Please contact the Customer Support to get access to the Verifone.Cloud

New features in ADK 5.0.1:

- EMV: Added new CTLS kernel versions for UX410 and V210. Please check the EMV documentation for details.
  EMV: Allow fetching tag 9F09 even for CTLS specifications, which have not defined it.

- Battery: Improve/Refine battery capacity % reporting and removed some redundant charger settings

- Battery related changes:

  - Battery: Charging mode changed to meet specification of power management chip on e235 (applicable only on releases it is supported).
  - Battery: Improved error debugging when dealing with battery temperature.

New features in ADK 5.0.0:

- SEC: Hardened the implementation of file access and use of compression libraries when used by system services; removed telnet library from the default solution

- MSR: Refine MSR reading to support Magnetic Secure Technology (MST) on Samsung S23 and newer models. Note, that this change requires an update of both the SecProc SW and the main controller SW for devices other than Engage.

- Packaging: A new packaging structure for ADK package was introduced, which separates SDK, DOC and download archives. Please check the programmers guide package overview for details. The original full-ext package is still provided for VOS1 and VOS2 devices

- DOC: The programmers guide now includes a chapter about how to best make use of random functions

- COM: CCP now provides an additional firmware version to identify the radio related software on the main controller

- DOC: The programmers guide has been extended by various chapters from the VOS3 user guide.

- VOS3: VOS3 devices P630, UX700, M425, M450 and UX302 are now supported in regular ADK releases, including an SDK, download files, documentation and tools. Please check the programmers guide for details. In addition the Verifone support team offers a user guide and training.

- Wifi: Fast Transition (FT_MODE) between WIFI networks on devices with BCM43455 chip (VOS2) can now be to enabled/disabled when roaming between SSIDs.

Fixed Issues

Fixed Issues in ADK 5.0.2.3:

- PinPad

- System: Fixed an issue where timer handles could be closed twice when changing power management state.

Fixed Issues in ADK 5.0.2.2:

- PinPad

  - Device management: Support of key exchange with VHQ over usb ethernet.

Fixed Issues in ADK 5.0.2.1:

- Multi-lane

  - COM: Added a mechanism which updates Wifi config with new required flags after ADK update.

Fixed Issues in ADK 5.0.2:

- All platforms

  - NFC/SDK: Fixed an undefined reference to `_NFC_PT_SetBaudRate' in the SDK, when compiling applications.

- All Engage

  - NFC: Update Applepay and VWI kernels for compatibility with modified function call names in OpenSSL3

  - EMV: Configuration files for terminal and application settings, keys, etc. are now restored in case an application deleted them.

- All NEO and NEO2 based devices

  - Documentation: Added a section to the programmers guide about VOS3 UPWD Password and key fles

  - Log: Fixed an issue with overrunning logs in /tmp, which can prevent downloads of installable packages to VOS3 devices

  - COM: Added Orange Dongle parameters for CCP database update

  - Power control panel: Fixed the "generic error" problem for the VOS3 power mgmt control panel

- GUI: Fixed an issue, with scrollable div inside a button, which in turn is inside another scrollable div, scrolling in the inner div stops if the maximum button scroll distance is reached.

- Installer: The information function of the VOS3 installer has been made robust to now show dummy information in case of missing tags

- GUI: Direct PIN can now be bypassed with the CORR key for VOS3, too.

- Android SDK: Fixed an issues with NDK dependencies. It is recommended to update to this version of the Android SDK.

- NFC: Add a new ADK NFC function for unified A+B+F polling

- Log: Missing files in transferred logs are now available again

- VOS3 audio: Fixed an intermittent issue which prevents audio initialisation

- SDI: Delivering DFA138 tag when card is whitelisted in the whitelist.json file with fetchTrxTags (29-02)

- SDI: getKeyInventory() - returns correct data when ADE KeyAddressTable encryptData list contains 12 or more labels

- Portable and Mobile

  - VRK keys: Sysmode now reports additional AES DUKPT keys and shows them in info screens

  - BT: Several optimizations were implemented for reconnection time reduction: reworked event Thread, reduced sleep intervals, removed unnecessary scans and also optimized XML parsing.

  - COM-WIFI: Added "WPA-EAP-SHA256" key management mode in order to operate on an AP with WPA2/3" Mixed Mode

  - COM: Fixed an issue where ADK-COM's autopower feature would power on the hardware module (GSM, Bluetooth, Wifi) even if the associated network interface is disabled by configuration. This doesn't affect the cases where autopower is set to OFF (powering is controlled by user application).

  - Power management: Fixed an issue, which wakes up some devices from sleep periodically

- BAT: Fixed issue with battery not reporting correct percentage on e235

- VHQ: Fixed Baseupdater install loop issue when installing via VHQ

- Power mgmt: Added a power mode in VOS2, which doesn't turn on the backlight to allow running background tasks. Please check the programmers guide for more details.

- COM: Fixed a rare case where it was impossible to obtain Wifi network info (like SSID and MAC address) even though connection was successful.

- PM: Fixed an intermittent issue, which prevented sending of vfisyspm::ENTER_EXTERNAL_POWER event, when plugging and unplugging the power supply.

- PinPad

  - SDI: Improved APDU performance in transparent mode, trusted connections only

  - SDI: Added a new function to inject an externally entered PAN to the vos3-cards Plugin, when running in compatibility mode

  - NFC: Enabled reading of block 63 on Mifare Classic card.

  - COM: Added support for BT interface in com_GetWirelessSignalQuality for VOS3 devices

  - COM: Now interface info can be obtained in parallel to network bring up operation, and the info calls will not block until network operation has finished.

  - COM-WIFI: Fixed an issue, where the previous addition of new "WPA-EAP-SHA256" key management mode caused issues on some devices that do not support this key option.

- Countertop

  - PTR: Fixed issue where printing fails with "Printer voltage error"

  - COM-WIFI: Fixed an issue, where the previous addition of new "WPA-EAP-SHA256" key management mode caused issues on some devices that do not support this key option.

- Unattended

  - PM: Fixed sporadic issue on Ux410 where device is in hibernate and on wakeup doesn't return to Application menu but shows splash screen with s/w versions. This was repeated until power cable

was removed.

- NFC: Extended baud rate support on communication with MIFARE Plus card

- EMV: For UX410 transit use EP3.0.6 kernel set with MK3.0.3, VK4.0.1, AK4.0.0, JK1.2.0, DK3.0.5 and CK2.0.0.

- GUI: Added an option for sendkey() to not bypass keymap when using physical function keys. Please check the programmers guide for more details

- EMV: Updated list of allowed L2 kernel for use on Ux devices

- VCL/SDI: Fixed an issue, where the VCL status was not updated by SDI commands

- Multi-lane

  - Netloader: netloader_start() API can now be invoked by applications.

  - Sound: Fixed a sporadic issues, which prevented sounds from playing until the next reboot

  - EMV/SDI: Added a configuration in SDI to allows beeps during payments to go to the hardware buzzer to prevent lost, concurrent beeps.

  - WiFi: Added COM_PROP_WLAN_LIST to retrieve list of configured SSIDs from wpa_supplicant.

  - SYS: Fixed MSR_SetOptions to show LEDs loop through all LEDS

  - Netloader: Added vfi::installer::get_bundle_list() to retrieve bundle information with the "WHO2" command in libnetloader

  - SDI: CVV is now returned also when the expiry date is bypassed for manual manual PAN entry

  - USB: The porttype was incorrectly defined in the Device Tree for M400. USB1 porttype has been changed from "unassigned" to "miniUSB"

  - VHQ control panel: Fixed a source issue for M450, which prevented the display of proper texts

  - UI: Zooming disabled on desktop ADK apps on Android devices

Fixed Issues in ADK 5.0.1:

- All Engage

    - RADIO: Two new rows have been added to the "Status monitor" table located in "Sysmode - Supervisor - Administration - Communications - GSM" tab.
      The first one shows the name of the currently selected network operator and the second one shows the current network registration status. In the case of roaming, the status will be set to "Registered to foreign network" or "Registered to home network" otherwise.

    - Bluetooth: To prevent implicit pairing, the retry mechanism for missing keys is now disabled.

    - Sec/VRK: VRKv2 TR31 blocks with filetype "opt hdr ID 02" are now allowed for VOS2 devices, if the filetype matches the one in VRKv2 KBPK

    - EMV: Improved handling of the tag DFA13A of EMV_ADK_FETCHTAGS_GET_DATA. Please check the programmers guide for details.

    - MSR: Fixed issue that blocked VCL from encrypting MSR data. (Issue occurs with ADK 4.10.5, ADK 4.10.6 and ADK 5.0.0)

- Portable and Mobile

    - VOS-RADIO: Modifications have been made in the case of LTE Attach #11, #12, #13, #14, #15, #22, #35, #42 to ensure compliance with the 3GPP standards.

    - COM:
      Fixed rare cases where COM stack would deadlock during Wifi interface setup
      Enhanced registration status waiting logic in GSM stack

    - SYS: Updated the version of libssh2.so to 1.10.0

    - RADIO: added support for new radio firmware version EC200AAUHAR01A13M16_01.200.01.200

    - PTR: Corrected printer driver issue where it reads an out of range voltage that then caused a printer error message and blocked printing.

    - CP apps: Fixed an issue on VOS2, where MAC becomes unresponsive, if all CP apps are stopped

    - PTR: Improve print quality for V210

- PinPad

- ○ COM: CCP now allows to configure static DNS servers for dynamic connections

- ○ COM: Added ability to set user-defined DNS server IP when using PPP with dynamic IP assignment.

- ○ TOUCH SCREEN: touch config is updated for P630 to support Stylus Pen PN "PPL435-010-01-A"

- ○ SDK: Expat headers and libraries are now part of the SDK.

- ○ COM-WiFi: Implementation: After terminal's reboot country domain is set automatically to world regulatory domain 00, which is used to select a behavior (1) or (2).

  - ■ (1) Country Code isn't changed/specified by user. World regulatory domain is configured.
  - ■ Behavior: Country Code can be set automatically during scan procedure or upon a connection to wireless Access Point, if AP is transmitting Country Code information element in Beacon/Probe Response/etc. frames.
  - ■ (2) Country Code is changed/specified by user via ADK-COM API. Then svc-net automatically sets this Country Code upon power on of WLAN module.
  - ■ Behavior: WLAN stack is ignoring Country Code, which is transmitted by wireless AP.
- Countertop

  - ○ RADIO: Fixed an issue, which prevented reading of radio capabilities for a BGS2-W radio module.

- Unattended

  - ○ VCL: Fixed an issue with configuring encryption in VCL.

  - ○ Touch based PIN entry: Improved the switching mechanism for touch based PIN entry to prevent the loss of the initial touch event after returning to normal mode.

- Multi-lane

  - ○ MAC: Fix sporadic issue with MAC init that resulted in UI styling errors including very large button icons

Fixed Issues in ADK 5.0.0:

- All platforms

  - ○ DOC: Fixed issue with VHQ section of Programmers Guide

- All Engage

  - ○ VHQ: Added reporting for AES and 3DES DUKPT online keys to VHQ

- ○ VHQ: Agent will send AgentReboot only once and subsequent reboots are considered as SystemReboot

- ○ VHQ: Fixed issue where Agent not handling SIG TERM signal in all cases.

- ○ VHQ: Fixed issue where scheduling an installation at a later time from download wasn't working.

- ○ EMV: Fixed the falllback handling for EMV_CTLS_GetCandidateData() in case IIN(E) is not provided by candidate

- All Trinity

  - ○ SDI: Add check for minPanLength and maxPanLength when loading cardranges.json.

- All NEO and NEO2 based devices

  - ○ SDI: SDI now allows to encrypt card data also for manual card data entry when using VCL

  - ○ SDI: Add check for minPanLength and maxPanLength when loading cardranges.json.

  - ○ CP on appdev: Fixed an issue, which prevented CP apps from starting on appdev Devices

  - ○ VOS3 SDK: Duplicate NFC shared libraries and header files in the SDK have been removed, as VOS3 user application have to make use of SDI instead. For user application migration we recommend to use libsdiclient.a which provides the interfaces for SDI and compatibility to VOS-2 for NFC, TECSEL and MSR. For More details please check the VOS3 Migration Guide and the ADK-SDI-Client Programmers Guide

- Portable and Mobile

  - ○ VHQ: Fixed issue where Agent not handling SIG TERM signal in all cases.

  - ○ BAT: Fixed a bug that has prevented to receiving event on low battery on mobile devices.

  - ○ COM: Fixed an issue where the WiFi interface is not disabled when the last saved network is deleted from CCP database.

  - ○ VHQ: Fixed an issue which prevented installation of JSONKeyBlobs provided by the VHQ server.

  - ○ Battery: Fixed a sporadic issue on previous ADK 4.9 releases that prevents recovery from a depleted/deactivated battery.

- PinPad

  - VHQ: Fixed a sporadic issue in the VOS3 VHQ agent, which prevented SW installation after it's downloaded

- Unattended

  - VHQ: Remove watchdog timer to eliminated reported deadlock situation

- Multi-lane

  - VHQ: Fixed issue where Agent not handling SIG TERM signal in all cases.

  - SDI: PAN obfuscated is now added for control request BF01 and BF02 in case VCL is disabled

Known Issues, Limitations and Restrictions

Known Issues:

- No known issues

Restrictions:

- **Hardware support:** Please check the official PCI web page for support of any given hardware.
  This is a new release line and certifications may still be in progress.
  - **In particularly support for UX300, UX301 and UX410 is not available at this point.**
- **From ADK 4.10.0 and 4.8.24 onwards, if you downgrade to any older ADK 4.8, 4.7 or 4.6 version you will lose any keys on your device.**
- **VHQ Agent 5.1.3.x or above should be used with VHQ server 3.24.01.19 or higher.**
- **VHQ Agent 5.1.4.x or above should be used with VHQ server 3.26.01.17 or higher.**
- **VHQ Agent 5.1.5.x or above should be used with VHQ server 3.27.01.19 or higher. Please**
  - Check server version before recommending device software updates (especially on-premise clients).
  - Check version of Agent that will be included in any device software update.
  - Check version of software embedded on any devices before distributing to clients.
- V200t: You must use the latest PVT-3 battery. **Low power modes cannot be used on V200t. The unit may hang**
  sporadically and needs to be rebooted.
- When upgrading to ADK-4.4.17/ADK-4.6.4/ADK-4.7.x/later versions from older versions, it is recommended
  to go through a complete discharge-charge power cycle atleast once after the SW update.
  For later updates,
  example moving from ADK-4.6.12 to ADK-4.7.6 this step is not required.
  If battery is removed and
  re-inserted, it is recommended to go through a complete discharge-charge power cycle at least once.
- The presence of countries with WLAN channels supporting in the list does not indicate that the product is fully approved for use or sales in all listed countries.

Please follow the update procedure above strictly. There are several limitations in older releases regarding the update of units:

- **Engage automated update**: In some cases, the unit may not automatically restart after an install. Please reboot the unit manually in that case.

Appendix:

See Annex