IBScanUltimate Version History

Version 1.9.7 (April 27, 2017)

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Version History

Version 1.9.7(April 27, 2017)

Additions

- New device Five-0 was supported.
- New function IBSU_CombineImageEx() was added.
- New properties have been added (for use with `IBSU_GetProperty() and IBSU_SetProperty()`)
    - Enable the warning message for invalid area for result image using the `ENUM_IBSU_PROPERTY_WARNING_MESSAGE_INVALID_AREA` property.
    - Enable wet detect function using the `ENUM_IBSU_PROPERTY_ENABLE_WET_FINGER_DETECT` property.
    - Change wet detect level using the `ENUM_IBSU_PROPERTY_WET_FINGER_DETECT_LEVEL` property.
- New enumeration value has been added to IBSU_FingerQualityState
    - Finger position is not valid on bottom side `ENUM_IBSU_QUALITY_INVALID_AREA_BOTTOM`
- New warning code has been added for result callback
    - A finger doesn't meet image brightness criteria `IBSU_WRN_INVALID_BRIGHTNESS_FINGERS`
    - Detected wet finger `IBSU_WRN_WET_FINGERS`
    - A finger is located on the invalid area `IBSU_WRN_QUALITY_INVALID_AREA`
    - A finger was located on the horizontal invalid area `IBSU_WRN_QUALITY_INVALID_AREA_HORIZONTALLY`
    - A finger was located on the vertical invalid area `IBSU_WRN_QUALITY_INVALID_AREA_VERTICALLY`

Changes

- Used static MFC library.
- Added PIDs for each all scanners
- Integrated the source with IBScanSDK
- Improved Kojak voltage management
- Improved display processing time for drawing result image on android sample app

- Updated WHQL USB driver to v1.4.1.

Bug fixes

- Sales demo - "save image" error : in Columbo's case, the wrong pitch value were used.
- Kojak had memory leak.
- The android app was broken during capture whenever disconnecting the IBScanner
- Unexpected termination on windows 10 with low performance system.
- WHQL USB driver v1.4.0 does not work on Windows XP.

Version 1.9.5(October 14, 2016)

Additions

- New Visual C++ sample “IBSU_DynamicLinkedSampleForVC” was added.

Bug fixes

- Encountered a hang each time when IBSU_UnloadLibrary() was called in the dynamic linked method.
- The program was crashed during calling IBSU_CreateClientWindows() in the dynamic linked method in the x86 Debug mode when the program was terminated.

Version 1.9.4(September 22, 2016)

Additions

- New properties have been added (for use with `IBSU_GetProperty()`:
    - The preview image can not be generated to make preview processing speed faster using the `ENUM_IBSU_PROPERTY_NO_PREVIEW_IMAGE` property.
    - The roll image displayed can be overridden with current roll image and best roll image using the `ENUM_IBSU_PROPERTY_ROLL_IMAGE_OVERRIDE` property.
- New partner key string has been added to the specific customer for use `RESERVED_GetDeviceInfo()`

Changes

- New WHQL certificate USB driver was added for the silent installation.
- The roll capture logic for KOJAK was optimized faster.
- The capture logic for Sherlock was optimized faster.
- The logic for display on android system was optimized faster.
- The IBSCAN logcat on ARM was changed to add timestamp information
- The final image quality of KOJAK was improved.
- The logic for sleep and hibernate state was improved on all product.
- The memory usage of KOJAK was reduced.
- The libpng static library was removed on Android to remove the security alert on Google Play Store.

Bug fixes

- Java sample has a memory leak with the generateZoomOutImageEx() method on Windows and Linux.
- Occasionally the finger quality correction is not same with the detected finger count.
- The initialize logic of cubic interpolation wasn't called for IBSU_OpenDeviceEX()

Version 1.9.3(April 20, 2016)

Additions

- New properties have been added (for use with `IBSU_GetProperty()`:
    - The width and height value for rolled image can now be get using the `ENUM_IBSU_PROPERTY_ROLLED_IMAGE_WIDTH` and `ENUM_IBSU_PPROPERTY_ROLLED_IMAGE_HEIGHT` property.

  The verification logic has been added to know received data from Endpoint 1 is valid.

Changes

- The logic for thread synchronization has been changed at the time the library is terminated.
- The logic for communication break has been changed.
- The logic for open device and close device has been changed.
- The capture logic for Watson Mini has been changed.
    - Adjusting the default voltage level was changed from 11 to 9.

Bug fixes

- There are memory leak when the library is terminated with dynamic link.
- The IBSU_GetIBSM_ResultImageInfo() return the wrong memory pointer at the argument “pSplitResultImage”.
- The library on Android was crashed when the usb unplugging 100ms after call openDevice

Version 1.8.3.11(March 14, 2016) – Released specially, for specific customer

Changes

- USB communication was changed to remove dummy buffer when he goes to unexpected state.
- For the unexpected USB communication with Sherlock, the initialization logic was change to send ASIC reset to Cypress from 1 time to 2 times.

Version 1.9.2(January 21, 2016)

Additions

- New properties have been added (for use with `IBSU_GetProperty()` and `IBSU_SetProperty()` to set the minimum capture time in dry mode, Some of devices (or firmware version) does not support this feature :
    - It can be used for dry finger using the `ENUM_IBSU_PROPERTY_MIN_CAPTURE_TIME_IN_SUPER_DRY_MODE` property.

Changes

- The capture logic was improved.
    - Added the detection algorithm to recognize a small segmentation for the dry finger.
    - Changed the preview image process for the rolled finger from decimation method to full image.
- Changed the segmentation logic to make finger count same between preview and result.
- The position of beeper was changed in IB demo application from callback ResultImage to CompleteAcquisition
- The sync method for multi-threading was changed in Windows from Mutex to Critical Section.

Bug fixes

- There are memory leak on Android when the captured image is enlarged.

Version 1.9.1(January 7, 2016) – Released, but it is not recommended

Changes

- The preview image processing of Kojak was improved than previous 1.9.0.
    - In 1.9.0, during roll collection, the preview image was a bit better but significantly lighter than the final captured image.

Bug fixes

- The smear algorithm of Kojak was not detected correctly; the smear warning seems to be occurring more frequently on Kojak than other scanners.
- In IBSU_OpenDeviceEx(), the uniformity mask file of Kojak did not generated.
- The IB demo program has some issue.
    - The logic of finger duplication permission was not working correctly when it is required “re-capture”.
    - Watson Mini and Sherlock take longer (6-7 seconds) to open the demo app in 1.9.0. In 1.8.5, they take 2-3 seconds.
    - “wrong finger” errors during roll scanning, even though he was using the right finger
    - Program has a memory leak when enable the “Finger Duplication permission”, so it makes a crashes issue in Kojak frequently.

Version 1.9.0(December 11, 2015) – Released, but it is not recommended

Additions

- Support new devices (Kojak, 4-fingers scanner)
- Added API function (`IBSU_GetOperableBeeper()`, `IBSU_SetBeeper()`) to support device has buzzer into the device board.
- Add new callback for detecting the key button of device was pressed (`ENUM_IBSU_ESSENTIAL_EVENT_KEYBUTTON`)
- New properties have been added (for use with `IBSU_GetProperty()` and `IBSU_SetProperty()` to detect super dry finger, Some of devices (or firmware version) does not support this feature :
    - It can be used for dry finger using the `ENUM_IBSU_PROPERTY_SUPER_DRY_MODE` property.

- Added additional LED definitions for Kojak.
- Added enumeration value to IBSU_ImageType (`ENUM_IBSU_FLAT_THREE_FINGERS`)
- Added enumeration value to IBSU_LEDType (`ENUM_IBSU_LED_TYPE_FSCAN`)
- Added enumeration for beeper (`IBSU_BeeperType, IBSU_BeepPattern`)
- Added enumeration value to IBSM_CaptureDeviceTypeID (`IBSM_CAPTURE_DEVICE_TYPE_ID_KOJAK`)

Changes

- InstallShield package (Windows x86/x64) does not require to remove the old package any more.
- Old dependence packages version was supported on Linux 64bit.
    - Glibc 2.11 version was supported
- The IB demo program was updated.
    - The rolled prints show NFIQ score when captured.
    - It has a sequence check where the application compares the rolled image to the correct finger from the slapped four finger image to ensure it is the correct finger
    - The LEDs on the scanner work properly.
    - The left button work (start capture) when he stay the capture dialog.
    - Support to save WSQ and ISO 19794-4 images.

Bug fixes

- There is memory leak on WinCE when it was terminated.
- Datatype of API function IBSU_GetIBSM_ResultImageInfo() was not correct at VB.Net
- Datatype of IBSM_ImageData structure was not correct at VB.Net

Version 1.8.5(August 10,2015)

Additions

- Added API functions (`IBSU_CombineImage`()) to support Combine two image (2-finger image) into a single image.(left/right hands)
    - The combine two image(2-flat fingers) into Image(Left Hand) set using the `ENUM_IBSU_COMBINE_IMAGE_LEFT_HAND` property
    - The combine two image(2-flat fingers) into Image(Right Hand) set using the

ENUM_IBSU_COMBINE_IMAGE_RIGHT_HAND property

- Added Java method (getCombineImage()) to single image in Java, Android.

Version 1.8.4 (April 10, 2015)

Changes

- The SPAM message whenever 250ms was removed on Android.

Additions

- Added new variable ProcessThres to IBSU_ImageData structure to marks threshold of image processing.
- Added new package to support rooted Android device;
  - The libusb1.0 was added.
  - Added Java method (updateUsbPermission()) to allow the approach to attached USB bus by libusb library.
  - New android sample code was added.
- New properties have been added (for use with IBSU_GetProperty() and IBSU_SetProperty() to support multi scanner on Android :
  - The device index can now be get using the ENUM_IBSU_PROPERTY_DEVICE_INDEX property.
  - The device id can now be get using the ENUM_IBSU_PROPERTY_DEVICE_ID property.
- New properties have been added (for use with IBSU_GetProperty() and IBSU_SetProperty() :
  - The parameter to enable image capture when finger release can enabled/disabled using the ENUM_IBSU_PROPERTY_ENABLE_CAPTURE_ON_RELEASE property. The default is FALSE.
  - The quality threshold for preview image can now be set using the ENUM_IBSU_PROPERTY_RESERVED_IMAGE_PROCESS_THRESHOLD reserved property. The valid range is between 0 and 2, inclusive, with the default of 0 on embedded processor (ARM, Android and Windows Mobile), and with the default of 2 on PC. It requires partner or reserved code to set specific value with RESERVED_SetProperty()
    0 : IMAGE_PROCESS_LOW
    1 : IMAGE_PROCESS_MEDIUM
    2 : IMAGE_PROCESS_HIGH
- Added Java method (wsqEncodeToFile()) to save WSQ image in Android.

- Added API function (`RESERVED_GetEnhancedImage()`) to enhance the image quality of preview image.
- Added API function (`IBSU_UnloadLibrary()`) to release the library from the address space manually. Some platform SDKs (Windows Mobile and Android) can be needed to call `IBSU_UnloadLibrary()` before shutting down the application.
- A new error code have been added (`IBSU_ERR_LIBRARY_UNLOAD_FAILED`)
- A new warning code have been added (`IBSU_WRN_ALREADY_ENHANCED_IMAGE`)

Bug fixes

- SDK does not read the serial number of the latest Curve correctly.

Version 1.8.3 (March 4, 2015)

Changes

- The source was integrated with the WinCE.
- Old dependence packages version was supported on Linux 32/64bit.
  - Glibc 2.11 version was supported.
- The time to display image was improved on Java :
  - Added native API function (`IBSU_IBSU_GenerateZoomOutImageEx()`) on JNI.
  - Changed display method from bitmap to TYPE_3BYTE_BGR.

Additions

- New properties have been added (for use with `IBSU_GetProperty()` and `IBSU_SetProperty()` :
  - The area threshold for image capture can now be set using the `ENUM_IBSU_PROPERTY_CAPTURE_AREA_THRESHOLD` property. The valid range is between 0 and 12, inclusive, with the default of 6.
  - The decimation mode can be enabled/disabled using the `ENUM_IBSU_PROPERTY_ENABLE_DECIMATION` property. The default is TRUE, but now Columbo only can use this mode because the other devices do not support this feature with the firmware.
- New client window properties have been added (for use with `IBSU_GetClientWindowProperty()` and `IBSU_SetClientWindowProperty()`):
  - The scale of the display image on client window for WinCE (or UNICODE) can be gotten with the `ENUM_IBSU_WINDOW_PROPERTY_SCALE_FACTOR_EX` client window

property.

- Added a feature to write custom data into EEPROM of IB USB device using the `ENUM_IBSU_PROPERTY_RESERVED_1` property. It requires specific relationship with IB to use this feature.
- Added API function (`IBSU_RedrawClientWindow()`) to redraw the client window.

Bug fixes

- WSQ image was flipped at previous version. So new argument (pitch) was added on the WSQ functions below.
    - pitch : Image line pitch (in bytes). A positive value indicates top-down line order; a negative value indicates bottom-up line order.
    - `IBSU_WSQEncodeMem()`, `IBSU_WSQEncodeToFile()`, `IBSU_WSQDecodeMem()`, `IBSU_WSQDecodeFromFile()`
- SDK has a wrong code in the initializing logic for old Sherlock (ROIC).
- The segment number of Columbo is not correct, but other devices are correct.

Version 1.8.2 (September 30, 2014)

Changes

- The smear detect option was added for the IB Demo program

Bug fixes

- IBScanUltimate ver 1.8.1 has potential issue with TBN3xx series devices, so it was not released officially.
    - Curve firmware is not supported to read property data from Cypress, but other devices (Watson, Sherlock and others) can read property data from Cypress. So if TBN3xx firmware is updated any reason (bug fixed, added feature and etc) in the future, IBScanUltimate ver1.8.1 cannot work well.

Version 1.8.1 (September 17, 2014) – Not released

Changes

- The rolling algorithm was improved to detect non-finger while rolling

Additions

- Added a IB Demo program
- Added TBN3xx series devices. (TBN31A, TBN320, TBN340)
- Added API functions to support PNG/JPEG-2000 image format

- Functions to save PNG compresses grayscale fingerprint image (`IBSU_ SavePngImage()`)
- Functions to save JPEG-2000 compresses grayscale fingerprint image (`IBSU_ SaveJP2Image()`)

Version 1.8.0 (July 23, 2014)

Changes

- Dependence packages version was changed on Linux 32/64bit.
  - Glibc version was changed from 2.13 to 2.15

Additions

- Added a sample project for Java on Windows, Linux and ARM platform. (IBScanUltimate_SampleForJava)
- Added a sample project for QT on Windows and Linux flatform. (IBScanUltimate_SampleForQT)
- Added API function (`IBSU_FreeMemory()`) to “release” (i.e., clear the pointer to) the allocated memory block on the internal heap of library.
- Added API functions for WSQ:
  - Functions to make WSQ compresses grayscale fingerprint image (`IBSU_WSQEncodeMem()`, `IBSU_WSQEncodeToFile()`)
  - Functions to decompress a WSQ-encoded grayscale fingerprint image (`IBSU_WSQDecodeMem()`, `IBSU_WSQDecodeFromFile()`)
- Two new error codes have been added (`IBSU_ERR_NBIS_WSQ_ENCODE_FAILED`, `IBSU_ERR_NBIS_DECODE_FAILED`)

Bug fixes

- The position of ClientWindow was not working correctly when you give non-zero value for left and right property of `IBSU_CreateClientWindow()`
- Finger order correction at segmentation
- For Sherlock scanner, in Ready to Scan state, if you use power saving mode which you do, the power consumption is 60mA and otherwise 230mA. However, it was measured at 130mA in Ready to Scan state.

Version 1.7.3 (June 19, 2014)

Changes

- For Sherlock scanners, the frame speed was improved at embedded system and EL on time was changed from 800000 to 480000.

Additions

- New properties have been added (for use with `IBSU_GetClientWindowProperty()` and `IBSU_SetClientWindowProperty()`:
    - The thickness of rolling guide line can now be set using the `ENUM_IBSU_WINDOW_PROPERTY_ROLL_GUIDE_LINE_WIDTH` property. The valid range is between 1 and 6 pixels, inclusive, with the default of 2 pixels.

Bug fixes

- The handle value which is made by `IBSU_OpenDevice()` was not assigned correctly when you use multi-devices at same time.
- For Sherlock scanners, the segment (foreground) count was not calculated correctly when you use capture mode for two flat fingers.

Version 1.7.2 (April 3, 2014)

Changes

- For Sherlock scanners, the significant delay between fingerprint image capture operations was improved from 1.8 seconds to 0.5 seconds.

Bug fixes

- Default value of `ENUM_IBSU_WINDOW_PROPERTY_DISP_INVALID_AREA` is changed as TRUE when the `IBSU_DestroyClientWindow()` was called.
- Segmented finger was not sorted on result image as left alignment.

Version 1.7.1 (February 25, 2014)

Changes

- Default LED color for Curve has been updated as Blue color.
- “LE on time” has been updated to improve capture logic of Sherlock.
- Applying defect mask logic has been updated to improve image quality of Sherlock.
- Adjusting brightness logic between master and slave asic chips for Sherlock has been updated to improve image quality.
- CIS register setting value has been updated to increase image brightness for Columbo

- Default value of `ENUM_IBSU_WINDOW_PROPERTY_DISP_INVALID_AREA` is changed as FALSE

Additions

- Two new properties have been added (for use with `IBSU_GetProperty()` and `IBSU_SetProperty()`:
  - Smear detect mode can now be set using the `ENUM_IBSU_PROPERTY_ROLL_MODE` property. Smear dose not detected with value of 0. Warning message is made when smear is detected with value of 1. The default is 1.
  - Sensitivity of smear detection can now be set using the `ENUM_IBSU_PROPERTY_ROLL_LEVEL` property. Sensitivity can be low, medium, high. The default is 1.

Version 1.7.0 (October xx, 2013)

Changes

- The normal result image information callback (`ENUM_IBSU_ESSENTIAL_EVENT_RESULT_IMAGE`) has been deprecated, in preference to its new extended counterpart.
- `IBSU_SetClientWindowOverlayText()` has been deprecated. Please use `IBSU_AddOverlayText()` and `IBSU_RemoveOverlayText()` instead.
- All sample applications have been updated to use the extended result image callback.

Additions

- Add new callback for extended result image information (`ENUM_IBSU_ESSENTIAL_EVENT_RESULT_IMAGE_EX`) and corresponding blocking API function (`IBSU_BGetImageEx()`). Among the extended information is a status to hold a warning or error if the acquisition failed and an array of positions describing the coordinates of each segment within the full platen image.
- Added API function (`IBSU_ReleaseCallbacks()`) to “release” (i.e., clear the pointer to) a callback function registered for a particular event.
- Added API function (`IBSU_SaveBitmapMem()`) to create a valid bitmap image, in a memory buffer, from a raw gray scale image.
- Added API functions for overlays of text, lines, quadrangles, and shapes on a client window (available only on Windows):
  - Functions to show or hide overlays (`IBSU_ShowOverlayObject()`, `IBSU_ShowAllOverlayObject()`)

  - Functions to remove overlays (`IBSU_RemoveOverlayObject()`, `IBSU_RemoveAllOverlayObject()`)
  - Function to add and modify text overlays (`IBSU_AddOverlayText()`, `IBSU_RemoveOverlayText()`).
  - Function to add and modify line overlays (`IBSU_AddOverlayLine()`, `IBSU_RemoveOverlayLine()`)
  - Function to add and modify quadrangle overlays (`IBSU_AddOverlayQuadrangle()`, `IBSU_RemoveOverlayQuadrangle()`)
  - Function to add and modify shape overlays (`IBSU_AddOverlayShape()`, `IBSU_RemoveOverlayShape()`)
- Two new properties have been added (for use with `IBSU_GetProperty()` and `IBSU_SetProperty()`:
  - A capture timeout can now be set using the `ENUM_IBSU_PROPERTY_CAPTURE_TIMEOUT` property. The timeout can be infinite (a value of -1) or between 10- and 3600-seconds, inclusive; the default is infinite. Upon timeout, acquisition will abort and the `IBSU_ERR_CAPTURE_TIMEOUT` error will be returned in the extended result information.
  - The minimum distance of rolled fingerprints can now be set using the `ENUM_IBSU_PROPERTY_ROLL_MIN_WIDTH` property. The width can be between 10- and 30-millimeters, inclusive; the default is 15-millimeters.
- Four new client window properties have been added (for use with `IBSU_GetClientWindowProperty()` and `IBSU_SetClientWindowProperty()`):
  - The drawing of an arrow to the display invalid area can be enabled/disabled using the `ENUM_IBSU_WINDOW_PROPERTY_DISP_INVALID_AREA` client window property. The default is TRUE.
  - The scale of the display image on client window can be gotten with the `ENUM_IBSU_WINDOW_PROPERTY_SCALE_FACTOR` client window property.
  - The left and top margin of the displayed image in relation to the client window can be gotten with the `ENUM_IBSU_WINDOW_PROPERTY_LEFT_MARGIN` and `ENUM_IBSU_WINDOW_PROPERTY_TOP_MARGIN` client window properties.
- Rolled fingerprint capture now incorporates smear detection. If a smear event occurs, capture will terminate and the `IBSU_WRN_ROLLING_SMEAR` warning will be returned in the extended result information.
- Finger segmentation has been improved. If no fingers or an incorrect number of

fingers is detected in the result image, `IBSU_WRN_NO_FINGER` or `IBSU_WRN_INCORRECT_FINGERS` will be returned in the extended result information.

- New finger quality enumerations (`ENUM_IBSU_QUALITY_INVALID_AREA_LEFT`, `ENUM_IBSU_QUALITY_INVALID_AREA_RIGHT`, `ENUM_IBSU_QUALITY_INVALID_AREA_TOP`) are returned when the finger area overlaps the edge of the image platen.
- The warning `IBSU_WRN_API_DEPRECATED` is returned if a deprecated API function is called or if a callback is registered for a deprecated event.
- The error `IBSU_ERR_DEVICE_NEED_UPDATE_FIRMWARE` will be returned if a device needs updated firmware to perform a certain action.

Version 1.6.11 (October 1, 2013)

Changes

- (BZ#7) The **.um* (uniformity mask) files for the SAMPLE Columbo scanners have been removed from the *Data* directory of the Windows releases. The changes to the sample applications that specified this directory for loading a uniformity mask from such a scanner have been rolled back as well.
- The scanner FPGA/CPLD and image sensor are reset before each capture to improve stability.

Bug fixes

- For Columbo scanners, the LE voltage is disabled while resetting the CPLD to avert a high initial voltage on the film.

Additions

- For Columbo scanners with firmware v1.0.5/v1.1.2 and later, decimated preview images are received from the scanner at 1/4 area (approximately 500-ppi, for high-speed USB) or 1/16 area (approximately 250-ppi, for full-speed USB). For the latter, the images are upscaled to 500-ppi to return to the application.

Version 1.6.10 (August 31, 2013)

Changes

- (BZ#64) Additional image correction is performed to remove TFT defects for Sherlock sensors.
- (BZ#65) The gain adjustment is improved for Sherlock sensors to compensate for brightness of film.

- (BZ#66) A missing new-line was restored to the Windows IBLogTracer utility.
- (BZ#67) The checkboxes in the initial Windows TenScanSample form were re-aligned.
- (BZ#68) Events, such as presses of the enter key, are captured to prevent the Windows NewFunctionTester sample from closing. The AsyncDeviceOpen callback fired edit box is also cleared when all devices are closed (with `IBSU_CloseAllDevice()`).

Version 1.6.9 (August 22, 2013)

Changes

- Reformatted application include files and improved descriptions of functions, structures, and constants.

Bug fixes

- (BZ#58) Fixed fault in Windows TenScanSample from improper pointer addressing during the copy of segmented two-finger images to application buffers.
- (BZ#59) Fixed prelimary exit of capture thread on Linux and Android when a second capture was started in a sequence of captures, which caused `IBSU_BeginCaptureImage()` to return `IBSU_ERR_CAPTURE_STILL_RUNNING`. This bug was introduced in v1.6.4.

Version 1.6.8 (August 1, 2013)

Additions

- LED status and control is now supported for Curve (TBN240) sensors with the `IBSU_GetLEDs()` and `IBSU_SetLEDs()` functions. Constants have been added to the interface to define the LED bits (in the C/C++ interface these are the `#define`s `IBSU_LED_SCAN_CURVE_RED`, `IBSU_LED_SCAN_CURVE_GREEN`, and `IBSU_LED_SCAN_CURVE_BLUE`).
- Touch sensor control is now supported for Curve (TBN240) sensors with the `IBSU_SetLEOperationMode()` function. Only the “auto” and “on” modes are defined for these sensors.
- On Linux, the trace log (which was previously always disabled) can be enabled at run-time with `IBSU_EnableTraceLog()`.

Changes

- The approach for ensuring exclusive access to the sensor during Curve captures has changed to decrease the effect upon other scanners.

- Other changes not affecting operation to resolve compiler warnings.
- The icon used for the Android sample application has been replaced.

Bug fixes

- Only one finger quality is set for Curve sensors if a finger is on the scanner surface. Previously, all four qualities would be set.
- For Sherlock sensors, the voltage was set to an invalid value after a capture completed; this condition is now averted.

Version 1.6.7 (July 18, 2013)

Changes

- Improvements in image quality for Sherlock sensors
- Changes to support latest Sherlock sensors

Bug fixes

- Corrected memory leak when `IBSU_DestroyClientWindow()` was called and the existing information about the display properties was cleared

Version 1.6.6 (July 7, 2013)

Bug fixes

- On Windows, unloading IBScanUltimate DLL could hang because of blocking operation, for which a timeout is now provided.

Version 1.6.5 (June 25, 2013)

Bug fixes

- For Columbo and Watson scanners, an out-of-bounds array access could occur while opening a scanner because of an uninitialized variable. This has been fixed.

Version 1.6.4 (June 18, 2013)

Additions

- Created new SDK for ARM Linux environments targeting processors with ARMv7A architecture (including Cortex-A5, Cortex-A8, and Cortex-A9). The previous Gumstix release is superseded by the arm-linux-gnueabi contents of this SDK.
- The uniformity mask is now read from Columbo scanners.

Changes

- For ARM builds, exceptions are now disabled.
- If clear platen callback is not register, then finger removal after a capture is not required to start a new capture.
- Miscellaneous changes to improve capture speed and quality.

Bug fixes

- On Android and ARM Linux, preview images for Columbo scanners are now returned by the preview image callback. Previously, blank images would be returned.
- Curve auto-capture time and result image quality have been improved. Capture process is also more stable for fast or repeated capture sequences.

Version 1.6.3 (May 13, 2013)

Version 1.6.2 (April 18, 2013)

Additions

- Added an API function, `IBSU_EnableTraceLog()`, to enable and disable the trace log
- Added an Android API function, the `setContext()` method of the `IBScan` class, to set or clear the context used by the singleton IBScan instance for receiving high-level USB event notifications

Changes

- Reorganized Linux distribution and sample program. The sample program has been moved to the *Samples/Linux* directory
- Minor changes to the Android SimpleScan sample, including a prompt for the file name when e-mailing output, and other changes not affecting operation

Bug fixes

- Removed improper validation of pContext pointer passed to `IBSU_RegisterCallbacks()`

Version 1.6.1 (April 3, 2013)

Changes

- Modified TFT noise removal

- Improved ridge detail of fingerprint for Sherlock
- Improved frame rate

Version 1.6.0 (March 27, 2013)

Additions

- Add a sample project for Windows. (IBSU_NewFunctionTesterForVC)
- Add a sample project for Java. (IBSU_FunctionTesterForJava)
- Add new functions `IBSU_GetIBSM_ResultImageInfo()`, `IBSU_GetNFIQScore()`, `IBSU_GenerateZoomOutImageEx()`

Changes

- Improvement preprocessing algorithm for Sherlock in order to improve the frame rate.
- Change the cutting value to meet the PIV certification for Columbo.

Bug fixes

- Fixed splitResultArray's background color bug on function "`_PostImageProcessing_ForResult()`
- Fixed bilinear bug on `IBSU_CreateClientWindow()` to be related with the image size of viewer.
- Fixed typing bug on `_CaptureThreadCallback()`.
- Fixed memory leak bug on `_AsyncOpenDeviceThread()`

Version 1.5.3 (March 11, 2013)

Changes

- Change methods in Android and Java SDK
- Support un-rooted Android device

Version 1.5.2 (February 19, 2013)

Changes

- Support Linux kernel 3.2.x with modification install script

Bug fixes

- Fixed memory leak bug on Windows when you call `IBSU_AsyncOpenDevice()`.

Version 1.5.1 (February 14, 2013)

Additions

- Support new devices (Sherlock)

Changes

- Improved capture logic for Columbo and Curve.
- Improved speed of image drawing on Windows (OS) in the multi-devices environment.

Bug fixes

- Fixed `PROPERTY_SERIAL_NUMBER` bug on `IBSU_GetProperty()` from Curve device. When you use this function with capture thread at same time
- Fixed bilinear bug on `IBSU_CreateClientWindow()` to be related with the image size of viewer.

Version 1.5.0 (February 1, 2013)

Additions

- Support new devices (Columbo, Curve)
- Add `ENUM_IBSU_PROPERTY_RETRY_WRONG_COMMUNICATION` to IBSU_PropertyId
- Add property for notify message event (`ENUM_IBSU_OPTIONAL_EVENT_NOTIFY_MESSAGE`)
- Add RESERVED API function for manufacturer.

Changes

- Delete static vignetting table for Watson series.
- Change `MainCapture` class logic
- Improved *libusb.so* for Android with libcompat. Need to replace libusb.so in Android of customers.
- Improved capture speed for Watson and Watson Mini.

Bug fixes

- Fixed bilinear bug on `IBSU_GenerateZoomOutImage()` to be related with the image size of viewer.
- Fixed bilinear bug on IBSU_CreateClientWindow()to be related with the image size of viewer.

Version 1.4.2 (December 3, 2012)

Additions

- Support Sherlock ROIC device

Version 1.4.1 (November 6, 2012)

Additions

- Add a Rolling status function `IBSU_BGetRollingInfo()`.
- Add a `IBSU_BGetImageEx()` to support split image function for Android
- Add an Extended open device function `IBSU_OpenDeviceEx()`.

Changes

- Improve Initialize time with `IBSU_OpenDeviceEx()`
- Change power management logic
- Change capture logic (Change minimum capture time)
- Change image transfer method (0x86, from async to sync with timeout)

Bug fixes

- Crashing error on Android libFpsPower.so
- Rolling bug with multi devices.
- LE-power control bug on function `IBSU_BeginCapture()` – Synchronization with Dummy thread
- Returning same handle value bug when call `IBSU_OpenDevice()` at same time with multi devices
- Remained last capture image (very small image) bug when call `IBSU_BeginCapture()`

Version 1.3.1 (September 17, 2012)

Additions

- Add a help document (prototype version) for developer
- Add a Build directory to compile test on Windows using sample projects

Version 1.3.0 (September 5, 2012)

Additions

- Add `ENUM_IBSU_PROPERTY_ENABLE_POWER_SAVE_MODE` to `IBSU_PropertyId`
- Add `IBSU_ERR_DEVICE_ENABLED_POWER_SAVE_MODE` to *IBScanUltimateAPI_err.h*
- Add `IBSU_WRN_CHANNEL_IO_SLEEP_STATUS` to *IBScanUltimateApi_err.h*
- Add a class for manage devices (`CIBUsbManager` class)

Changes

- Modify callback process thread routine with `CIBUsbManager` class
- Modify a way to manage capture thread from `IBSU_BeginCaptureImage` to `IBSU_OpenDevice`

Version 1.2.4 (August 13, 2012)

Additions

- Add properties in `IBSU_DeviceDesc` (busNumber, devAddress, and devPath) for Android
- Improve rolling algorithms (bright normalization each frame)
- Improve communication break routine

Version 1.2.3 (August 3, 2012)

Additions

- Control FPS (Finger Print Sensor) power/wake-state for Raptor-id(Raptor Pad)
- (Function name is `IBSU_SetFpsPowercontrol`) (on Android)

Version 1.2.2 (July 27, 2012)

Changes

- Improve frame speed (on Android)

Version 1.2.1 (June 22, 2012)

Additions

- Added .NET framework 2.0 redistributable package on InstallShield
- Added Android SDK (Support for Android version 4.0 and higher)

Version 1.2.0 (June 13, 2012)

Additions

- Support Watson Mini device

Version 1.1.0 (May 29, 2012)

Additions

- Add sample project for VB6 developer (Non blocking method, IBScanUltimate_SampleForVB)
- Add sample project for Non-blocking method (IBSU_NonCallbackSampleForVC)

Changes

- Add property for polling time (`ENUM_IBSU_PROPERTY_POLLINGTIME_TO_BGETIMAGE`)
- Add property for async open device event (`ENUM_IBSU_ESSENTIAL_EVENT_ASYNC_OPEN_DEVICE`)
- Add CallBack function for Async Open device (`IBSU_CallbackAsyncOpenDevice()`)
- Add function for asynchronous initialize device, given a particular by device index (`IBSU_AsyncOpenDevice()`)
- Add function to get an image for Non-blocking function (`IBSU_BGetImage()`).
- Add function to initialize device for Non-blocking function (`IBSU_BgetInitProgress()`).
- Add function to check a plate status for Non-blocking function (`IBSU_BgetClearPlatenAtCapture()`)

Version 1.0.0 (April 6, 2012)

- First release

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