**IBScanUltimate API Manual for C/C++ on Windows Mobile**

**Version 1.8.5 (August 10, 2015)**

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# Revision History

|  |  |  |
| --- | --- | --- |
| Date | Author | Remarks |
| 2015/8 | Young | Added descriptions of new functions for IBScanUltimate v1.8.5  IBSU\_CombineImage() |
| 2015/3 | Young | A (ASCII) version of APIs was removed for IBScanUltimate v1.8.3. According to Microsoft documentation specifies that: the .NET compact Framework only supports Unicode, and consequently only includes the CharSet.Unicode (and CharSet.Auto which equals Unicode) value, and does not support any of the clauses of the Declare statement. This means that the ExactSpelling property is also not supported. Added descriptions of new function IBSU\_RedrawClientWindow() |
| 2014/10 | Young | Added descriptions of new functions for IBScanUltimate v1.8.2  IBSU\_WSQEncodeMem(), IBSU\_WSQEncodeToFile(),  IBSU\_WSQDecodeMem(), IBSU\_WSQDecodeFromFile(),  IBSU\_FreeMemory(),  IBSU\_SavePngImage(), IBSU\_SaveJP2Image() |
| 2014/4 | Jeff | Created document |

# Windows Mobile API Overview

The Windows Mobile API set is nearly identical to the Windows API set. This document only covers the differences between the Windows Mobile APIs and the Windows APIs. The primary reference for the Windows Mobile IBScanUltimate APIs is “IBScanUltimate API Manual for C.pdf”.

The difference between the two versions is that the Windows Mobile IBScanUltimate API set is extended to add support for UNICODE.

Since v1.8.3, A version of API was removed.   
According to Microsoft documentation specifies that:  
the .NET compact Framework only supports Unicode, and consequently only includes the CharSet.Unicode (and CharSet.Auto which equals Unicode) value, and does not support any of the clauses of the Declare statement. This means that the ExactSpelling property is also not supported.

# API Function Lists

## C Functions

### Summary of Interface Functions different on Windows Mobile

|  |  |
| --- | --- |
| No | Functions |
| 1 | IBSU\_GetSDKVersion split in to UNICODE versions |
| 2 | IBSU\_GetDeviceDescription split in to UNICODE versions |
| 3 | IBSU\_OpenDeviceEx split in to UNICODE versions |
| 4 | IBSU\_GetProperty split in to UNICODE versions |
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| 8 | IBSU\_SetClientWindowOverlayText split in to UNICODE versions |
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| 10 | IBSU\_AddOverlayText split in to UNICODE versions |
| 11 | IBSU\_ModifyOverlayText split in to UNICODE versions |
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Table 1

### Function Details

#### IBSU\_GetSDKVersion

* Description

This function maps to IBSU\_GetSDKVersionW when UNICODE is defined

#### IBSU\_GetSDKVersionW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_GetSDKVersionW (IBSU\_SdkVersionW \*pVerinfo) |

* Description

Gets a structure holding product and software version information, UNICODE version

* Parameter

|  |  |
| --- | --- |
| Parameter | Description |
| \*pVerinfo | ***[out] API version information. Memory must be provided by caller.*** |

* Return

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_DeviceDescription

* Description

This function maps to IBSU\_DeviceDescriptionW when UNICODE is defined.

#### IBSU\_ DeviceDescriptionW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_GetDeviceDescriptionW (const int deviceIndex, IBSU\_DeviceDescW \*pDeviceDesc) |

* Description

Retrieves detailed device information about a particular scanner by logical index, UNICODE version.

* Parameter

|  |  |
| --- | --- |
| Parameter | Description |
| deviceIndex | [in] Zero-based device index for device to lookup |
| \*pDeviceDesc | ***[out] Basic device information. Memory must be provided by caller.*** |

* Return

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_OpenDeviceEx

* Description

This function maps to IBSU\_OpenDeviceExW when UNICODE is defined.

#### IBSU\_ OpenDeviceExW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_OpenDeviceExW (const int deviceIndex, LPCWSTR uniformityMaskPath, const BOOL asyncOpen, int \*pHandle) |

* Description

Extension initialize device(fast mode), given a particular by device index, UNICODE version

* Parameter

|  |  |
| --- | --- |
| Parameter | Description |
| deviceIndex | [in] Zero-based device index for device to init |
| uniformityMaskPath | [in] Uniformity mask path in your computer  If the file does not exist or different in path, the DLL makes a new file in path. |
| asyncOpen | [in] async open device(TRUE) or sync open device(FALSE) |
| \*pHandle | [out] Function returns device handle to be used for subsequent function calls. Memory must be provided by caller |

* Return

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

* Note

**Any initialized device must be released before closing the host application!  
(call IBSU\_CloseDevice() or IBSU\_CloseAlldevice())**

#### IBSU\_ GetProperty

* Description

This function maps to IBSU\_GetPropertyW when UNICODE is defined.

#### IBSU\_ GetPropertyW

* Prototype

|  |  |
| --- | --- |
| API DLL | int IBSU\_GetPropertyW(const int handle,  const IBSU\_PropertyId propertyId,  LPWSTR propertyValue) |

* Description

Retrieves a particular device’s property value (by handle), UNICODE version

* Parameter

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle obtained by IBSU\_OpenDevice(). |
| propertyId | [in] Property identifier to get value for. |
| propertyValue | ***[out] String returning property value. Memory must be provided by caller.*** |

* Return

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SetProperty

* Description

This function maps to IBSU\_SetPropertyW when UNICODE is defined.

#### IBSU\_ GetPropertyW

* Prototype

|  |  |
| --- | --- |
| API DLL | int IBSU\_SetPropertyW(const int handle,  const IBSU\_PropertyId propertyId,  LPCWSTR propertyValue) |

* Description

Set a device’s property value (by handle), UNICODE version

* Parameter

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle obtained by IBSU\_OpenDevice(). |
| propertyId | [in] Property identifier to set value for. |
| propertyValue | [in] String containing property value. |

* Return

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

* Note

Only specific property values can be set.

#### IBSU\_ GetClientWindowProperty

* Description

This function maps to IBSU\_GetClientWindowPropertyW when UNICODE is defined.

#### IBSU\_ GetClientWindowPropertyW

* Prototype

|  |  |
| --- | --- |
| API DLL | int IBSU\_GetClientWindowPropertyW (const int handle, const IBSU\_ClientWindowPropertyId propertyId, LPWSTR propertyValue) |

* Description

Get user-defined window properties, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle obtained by IBSU\_OpenDevice() |
| propertyId | [in] Property identifier to set value |
| propertyValue | [out] String returning the property’s value. (Memory must be provided by caller) |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SetClientDisplayProperty

* Description

This function maps to IBSU\_SetClientWindowPropertyW when UNICODE is defined.

#### IBSU\_ SetClientDisplayPropertyW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_SetClientDisplayPropertyW( const int handle, const IBSU\_ClientWindowPropertyId propertyId, LPCWSTR propertyValue  ) |

* Description

Set a user-define window property, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle obtained by IBSU\_OpenDevice() |
| propertyId | [in] Property identifier to set value |
| propertyValue | [out] String returning property value. (Memory must be provided by caller) |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SetClientWindowOverlayText (Deprecated)

* Description

This function maps to IBSU\_SetClientWindowOverlayTextW when UNICODE is defined.

#### IBSU\_ SetClientWindowOverlayTextW (Deprecated)

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_SetClientWindowOverlayTextW (const int handle, const WCHAR \*fontName, const int fontSize, const BOOL fontBold, const WCHAR \*text, const int posX, cons tint posY, const DWRD textColor ) |

* Description

Set the text property on a user-defined window, UNICDE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle obtained by IBSU\_OpenDevice() |
| \*fontName | [in] font name for display |
| fontsize | [in] font size for display |
| fontBold | [in] font bold for display |
| \*text | [in] string for display |
| posX | [in] X coordinate of text for display |
| posY | [in] Y coordinate of text for display |
| textColor | [in] string color for display |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SaveBitmapImage

* Description

This function maps to IBSU\_SaveBitmapImageW when UNICODE is defined.

#### IBSU\_ SaveBitmapImageW

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_SaveBitmapImageW (LPCWSTR filepath, const BYTE \*imgBuffer, const DWORD width, const DWORD height, const int pitch, const double resX, const double resY) |

* Description

Save fingerprint image in bitmap format, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| filePath | [in] File path to save bitmap |
| \*imgBuffer | [in] Point to raw image data (background color is black) |
| Width | [in] Image width |
| Height | [in] Image height |
| Pitch | [in] Image line pitch (Positive value indicate top down line order, Negative value mean bottom up line order) |
| resX | [in] Image horizontal resolution (in PPI) |
| resY | [in]Image vertical resolution (in PPI) |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ AddOverlayText

* Description

This function maps to IBSU\_AddOverlayTextW when UNICODE is defined.

#### IBSU\_ AddOverlayTextW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_AddOverlayTextW  const int handle,  int \*pOverlayHandle,  const WCHAR \*fontName,  const int fontSize,  const BOOL fontBold,  const WCHAR \*text,  const int posX,  const int posY,  const DWORD textColor  ); |

* Description

Add an overlay text for display on window.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle |
| \*pOverlayHandle | [out] Function returns overlay handle to be used for client windows functions call |
| \*fontName | [in] Name of font. |
| fontSize | [in] Font size. |
| fontBold | [in] Indicates whether font is bold. |
| \*text | [in] Text for display on window |
| posX | [in] X coordinate of text for display on window |
| posY | [in] Y coordinate or test for display on window |
| textColor | [in] Text color |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ ModifyOverlayText

* Description

This function maps to IBSU\_ModifyOverlayTextW when UNICODE is defined.

#### IBSU\_ ModifyOverlayTextW

* Prototype

|  |  |
| --- | --- |
| API DLL | int WINAPI IBSU\_ModifyOverlayTextW(  const int handle,  int OverlayHandle,  const wchar\_t \*fontName,  const int fontSize,  const BOOL fontBold,  const wchar\_t \*text,  const int posX,  const int posY,  const DWORD textColor  ); |

* Description

Modify an existing overlay text for display on window, Unicode version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| handle | [in] Device handle |
| OverlayHandle | [in] Handle of overlay to modify. |
| \*fontName | [in] Name of font. |
| fontSize | [in] Font size. |
| fontBold | [in] Indicates whether font is bold. |
| \*text | [in] Text for display on window |
| posX | [in] X coordinate of text for display on window |
| posY | [in] Y coordinate or test for display on window |
| textColor | [in] Text color |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ WSQEncodeToFile

* Description

This function maps to IBSU\_WSQEncodeToFileW when UNICODE is defined.

#### IBSU\_ WSQEncodeToFileW

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_WSQEncodeToFileW(LPCWSTR filePath, const BYTE \*image, const int width, const int height, const int pitch, const int bitsPerPixel, const int pixelPerInch, const double bitRate, const WCHAR \*commentText) |

* Description

Save WSQ compresses grayscale fingerprint image to specific file path, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| filePath | [in] File path to save image which is compressed from original image by WSQ compression |
| \*image | [in] Original image |
| width | [in] Width of original image (in pixels) |
| height | [in] Height of original image (in pixels) |
| pitch | [in] Image line pitch (Positive value indicate top down line order, Negative value mean bottom up line order) |
| bitsPerPixel | [in] Bits per pixel of original image |
| pixelPerInch | [in] Pixel per inch of orginal image |
| bitRate | [in] Determines the amount of lossy compression  Suggested settings:  bitRate = 2.25 yields around 5:1 compression  bitRate = 0.75 yields around 15:1 compression |
| \*commentText | [in] Comment to write compressed data |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ WSQDecodeFromFile

* Description

This function maps to IBSU\_WSQDecodeFromFileW when UNICODE is defined.

#### IBSU\_ WSQDecodeFromFileW

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_WSQDecodeFromFileW(LPCWSTR filePath, BYTE \*\*decompressedImage, int \*outWidth, int \*outHeight, int \*outpitch, int \*outBitsPerPixel, int \*outPixelPerInch) |

* Description

Decompress a WSQ-encoded grayscale fingerprint image from specific file path, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| filePath | [in] File path of WSQ-encoded image |
| \*\*decompressedImage | [out] Pointer of image which is decompressed from WSQ-encoded image. This pointer is deallocated by IBSU\_FreeMemory() after using it |
| \*outWidth | [out] Width of decompressed image (in pixels) |
| \*outHeight | [out] Height of decompressed image (in pixels) |
| \*outPitch | [out] Image line pitch (Positive value indicate top down line order, Negative value mean bottom up line order) |
| \*outBitsPerPixel | [out] Bits per pixel of decompressed image |
| \*outPixelPerInch | [out] Pixel per inch of decompressed image |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SavePngImage (Not supported due to memory issue)

* Description

This function maps to IBSU\_SavePngImageW when UNICODE is defined.

#### IBSU\_ SavePngImageW (Not supported due to memory issue)

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_SavePngImageW (LPCWSTR filepath, const BYTE \*image, const DWORD width, const DWORD height, const int pitch, const double resX, const double resY) |

* Description

Save fingerprint image in png format, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| filePath | [in] File path to save png |
| \*image | [in] Point to raw image data (background color is black) |
| Width | [in] Image width |
| Height | [in] Image height |
| Pitch | [in] Image line pitch (Positive value indicate top down line order, Negative value mean bottom up line order) |
| resX | [in] Image horizontal resolution (in PPI) |
| resY | [in]Image vertical resolution (in PPI) |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_ SaveJP2Image (Not supported due to memory issue)

* Description

This function maps to IBSU\_SaveJP2ImageW when UNICODE is defined.

#### IBSU\_ SaveJP2ImageW (Not supported due to memory issue)

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_SaveJP2ImageA (LPCWSTR filepath, const BYTE \*image, const DWORD width, const DWORD height, const int pitch, const double resX, const double resY, const int fQuality) |

* Description

Save fingerprint image in JPEG-2000 format, UNICODE version.

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| filePath | [in] File path to save jp2 |
| \*image | [in] Point to raw image data (background color is black) |
| Width | [in] Image width |
| Height | [in] Image height |
| Pitch | [in] Image line pitch (Positive value indicate top down line order, Negative value mean bottom up line order) |
| resX | [in] Image horizontal resolution (in PPI) |
| resY | [in]Image vertical resolution (in PPI) |
| fQuality | [in] Quality level for JPEG2000, he valid range is between 0 and 100 |

* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

#### IBSU\_CombineImage

* Description

This function maps to IBSU\_WSQDecodeFromFileW when UNICODE is defined

#### IBSU\_CombineImageW

* Prototype

|  |  |
| --- | --- |
| API DLL | Int WINAPI IBSU\_CombineImage (const IBSU\_ImageData inImage1, const IBSU\_ImageData inImage2  ,IBSU\_CombineImageWhichHand whichHand , IBSU\_ImageData \*ouImage) |

* Description

Combine two images (2 flat fingers) into a single image (left/right hands).

* Parameters

|  |  |
| --- | --- |
| Parameter | Description |
| inImage1 | [in] Pointer to IBSU\_ImageData ( index and middle finger ) |
| inImage2 | [in] Pointer to IBSU\_ImageData ( ring and little finger ) |
| whichHand | [in] Information of left or right hand |
| \*ouImage | [out] Pointer to IBSU\_ImageData ( 1600 x 1500 fixed size image ) |

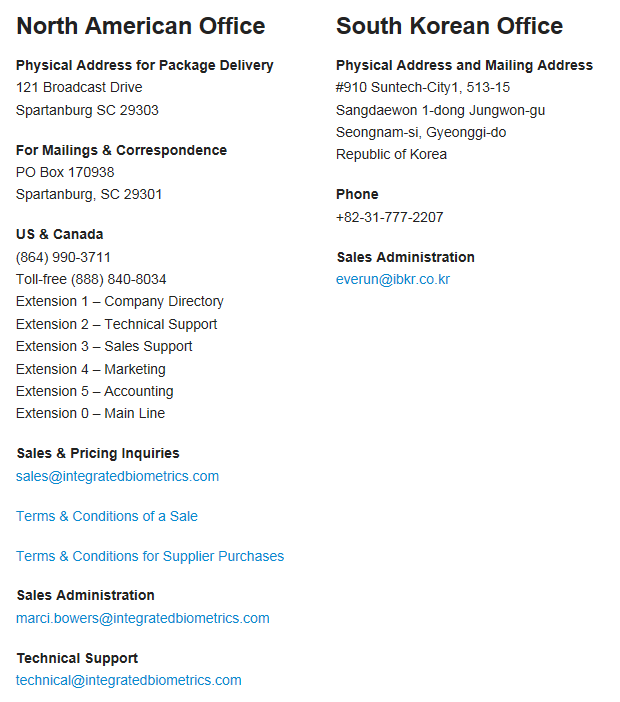
* Returns

|  |  |
| --- | --- |
| Return Value | Description |
| 0 | Function completed successfully. |
| < 0 | The error code as defined in IBScanUltimateApi\_err.h |

**Support Contact Information:**

[www.integratedbiometrics.com](http://www.integratedbiometrics.com)

**Integrated Biometrics, LLC**

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