

# CipherLab User Guide

Android Programming

for RS30/RS31/RS50/9700A  
Mobile Computers

Version 1.10



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# RELEASE NOTES

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Version	Date	Notes
1.10	Oct. 16, 2017	<ul style="list-style-type: none"><li>▶ New: <b>Chapter 3 OS Update</b></li><li>▶ New: <b>1.3.4 Reader Firmware Version</b></li><li>▶ Modified: <b>1.5.1</b> – AimerMode aimerMode, Enable_State centerDecoding, int centerDecodingTolerance added to Get_UserPreferences &amp; Set_UserPreferences</li><li>▶ Modified: <b>1.5.2</b> – “securityLevel” added to Code128 in Get_Symbology</li><li>▶ Modified: <b>1.5.9</b> – “Code128SecurityLevel securitylevel” added to Code128</li></ul>
1.09	Jun. 16, 2017	<ul style="list-style-type: none"><li>▶ Modified: <b>Chapter 1</b> – Library location added</li></ul>
1.08	Jun. 02, 2017	<ul style="list-style-type: none"><li>▶ Modified: <b>1.2.3 Reader Type</b> – return values updated</li><li>▶ Modified: <b>1.5.1</b> – add timeoutBetweenSameSymbology range (0~2550) of UserPreferences for EX25</li><li>▶ New: <b>1.5.41 Telepen Class</b></li><li>▶ New: <b>1.5.42 Plessey Class</b></li><li>▶ Modified: <b>Appendix II Scane Engine Settings</b>: tables updated</li></ul>
1.07	Apr. 12, 2017	<ul style="list-style-type: none"><li>▶ Modified: <b>1.5.1</b> – change “InverseType.Autodetect” to “InverseType.AutoDetect” (Get_UserPreferences)</li><li>▶ Modified: <b>1.5.1</b> – Continuous and Presentation modes for timeoutBetweenSameSymbology</li><li>▶ Modified: <b>1.5.1</b> – Replace “0x06” with “InterCharacterGapSize.Normal” of Get_UserPreferences</li><li>▶ Modified: <b>1.5.1</b> – Replace “0x0A” with “InterCharacterGapSize.Large” of Get_UserPreferences</li><li>▶ Modified: <b>1.5.1</b> – IlluminationPowerLevel added to Get_UserPreferences &amp; Set_UserPreferences</li><li>▶ Modified: <b>1.5.3</b> – parameter names of notisEditingType changed</li><li>▶ Modified: <b>1.5.14</b> – description for transmitCheckDigit</li><li>▶ Modified: <b>1.5.36</b> – descriptions for MatrixMirrorImage</li><li>▶ New: <b>1.8 Callback</b></li></ul>
1.06	Nov. 04, 2016	<ul style="list-style-type: none"><li>▶ New: <b>1.7 Intent</b></li><li>▶ New: <b>Appendix V Open Source License</b></li></ul>

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|------|---------------|---|
| 1.05 | Oct. 14, 2016 | <ul style="list-style-type: none"> <li>▶ Modified: <b>Development Tool</b> – Xamarin appended</li> <li>▶ Modified: <b>Chapter 1</b> – Barcodeapi_vx_x_xx.dll added</li> <li>▶ New: <b>1.1.3 Xamarin for Visual Studio 2015</b></li> <li>▶ New: <b>1.3.3 Reader API Version</b></li> <li>▶ Modified: <b>1.5.1</b> – TriggerType.PresentationMode added to GetUserPreferences</li> <li>▶ Modified: <b>1.5.1</b> – “public int timeoutPresentationMode” added to GetUserPreferences and SetUserPreferences</li> <li>▶ Modified: <b>1.5.10 GS1128 Class</b> – application ID added</li> <li>▶ Modified: <b>1.5.17 GS1DataBar14 Class</b> – “public int securityLevel” added</li> <li>▶ Modified: <b>1.5.19 GS1DataBarExpanded Class</b> – “public int securityLevel” added</li> </ul> |
| 1.04 | May 24, 2016  | <ul style="list-style-type: none"> <li>▶ Modified: <b>1.5.5 Code39 Class</b> – convertToCode32 changed to “False” by default</li> <li>▶ Modified: <b>1.5.6 TriopticCode39 Class</b> – changed to “False” by default</li> <li>▶ Modified: <b>1.5.9 GS1DataBarExpanded Class</b> – “fieldSeparator” corrected</li> <li>▶ Modified: Data type of all “fieldSeparator” class members changed from ‘char’ to ‘String’</li> <li>▶ Modified: <b>Appendix II</b>: remove “MacroPDF” from Supported Symbologies</li> </ul>   |
| 1.03 | Feb. 02, 2016 | <ul style="list-style-type: none"> <li>▶ Modified: <b>1.3.1 Get_ReaderOutputConfiguration</b> – add szCharsetName and clearPreviousData parameters</li> <li>▶ Modified: <b>1.3.1 Set_ReaderOutputConfiguration</b> - add szCharsetName and clearPreviousData parameters</li> <li>▶ Modified: <b>1.5.3 Codabar Class</b> – “Start/Stop characters” description for notisEditingType added</li> <li>▶ Modified: <b>1.5.3 Codabar Class</b> – notisEditing marked as “Reserved”</li> <li>▶ New: <b>Appendix III</b> – Code Type &amp; Symbology</li> </ul>   |
| 1.02 | Oct. 26, 2015 | <ul style="list-style-type: none"> <li>▶ <b>1.5.3 Codabar Class</b> – notes for Modulo_7DR of verifyCheckDigit added</li> </ul>   |
| 1.01 | Oct. 12, 2015 | <ul style="list-style-type: none"> <li>▶ <b>1.3.1 Get_ReaderOutputConfiguration</b> - replace Enable_State with KeyboardEmulationType</li> <li>▶ <b>1.3.1 Set_ReaderOutputConfiguration</b> - replace Enable_State with KeyboardEmulationType</li> <li>▶ <b>1.5.1 Get_UserPreferences</b> - TriggerType.PulseMode, BlinkingMode, HostMode, PresentationMode removed</li> <li>▶ <b>1.5.2 Get_Symbology</b> - Codabar, GS1DataBarLimited updated</li> <li>▶ <b>1.5.3</b> - Codabar Class updated</li> <li>▶ <b>1.5.18</b> - GS1DatabarLimited Class updated</li> <li>▶ <b>Appendix III</b> - Sample Code updated</li> </ul>   |
| 1.00 | Jul. 14, 2015 | First Release   |

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# INTRODUCTION

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This Programming Guide contains necessary information for building Android applications that can tune reader module(s), capture data, or control built-in hardware on RS30 Series Mobile Computers, which are powered by Android.

Android Framework makes it easy to create such applications. Simply import the prospective Android component (Android Class Library) to your Android application to make your way to build it.

We recommend that you read the documents thoroughly before use and keep them at hand for quick reference.

Thank you for choosing CipherLab products!



## DEVELOPMENT TOOL

Before developing Android applications, programmers are supposed to make their machine ready with the requirements as follows:

- ▶ Java SE Development Kit (JDK, Java SE 7 or greater is recommended)
- ▶ Android SDK
- ▶ Android Studio, Eclipse IDE, or Xamarin for Visual Studio
- ▶ Visual Studio 2015 (a must while using Xamarin)

The software tools listed above are free and can be downloaded from their official websites respectively. Programmers are assumed to possess Android programming knowledge.

## BARCODE READER API

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Before developing your self-made application, the offered "***barcodeapi\_vx\_x\_xx.jar***" or "***barcodeapi\_vx\_x\_xx.dll***" library file has to be imported into your project.

Library Required	Location
<i>Barcodeapi_vx_x_xx.jar</i> (for Android Studio or Eclipse)	<i>/sdcard/ReaderService_data</i>
<i>Barcodeapi_vx_x_xx.dll</i> (for Xamarin)	

### IN THIS CHAPTER

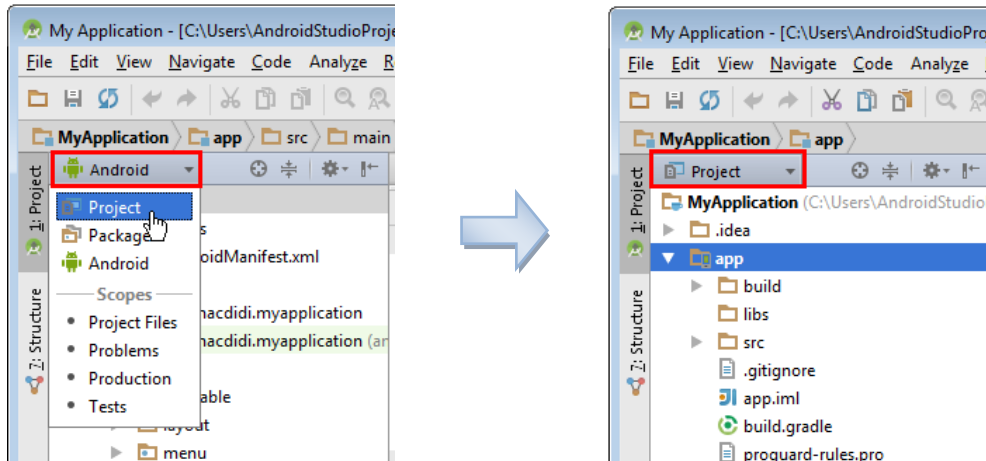
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## 1.1. IMPORT LIBRARY

### 1.1.1 ANDROID STUDIO

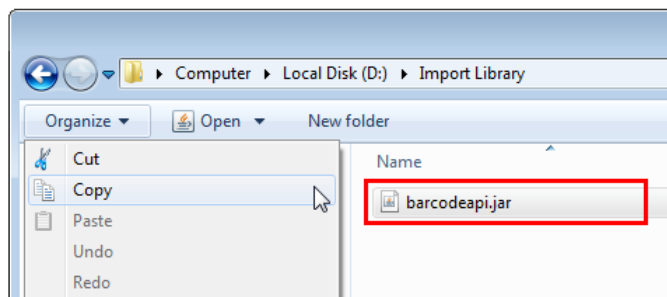
- 1) After creating an Android Studio project, click the **Android** project view icon to switch to the Traditional project view.



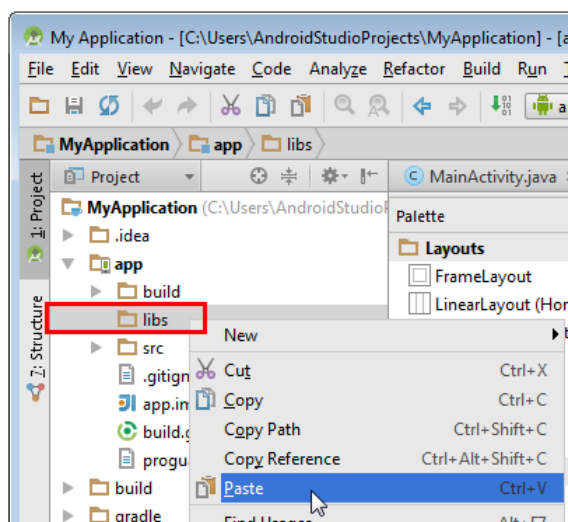
*Android project view*

*Traditional project view*

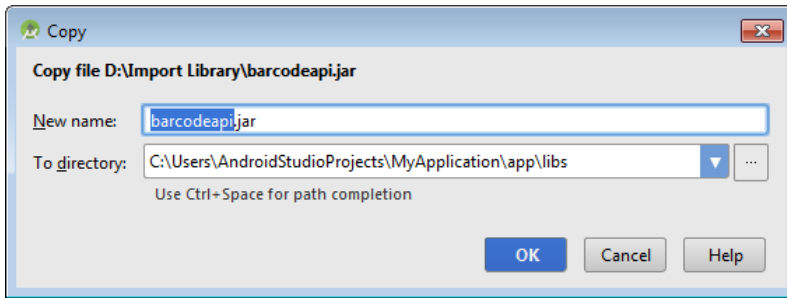
- 2) Locate the offered "**barcodeapi.jar**" library file in your file system and copy it.



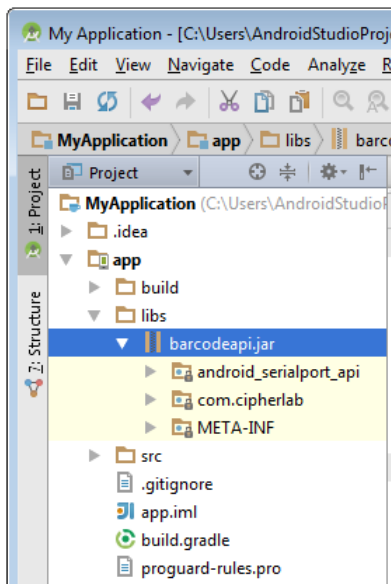
- 3) Right-click on the **libs** folder in the project view, and then select **Paste**.



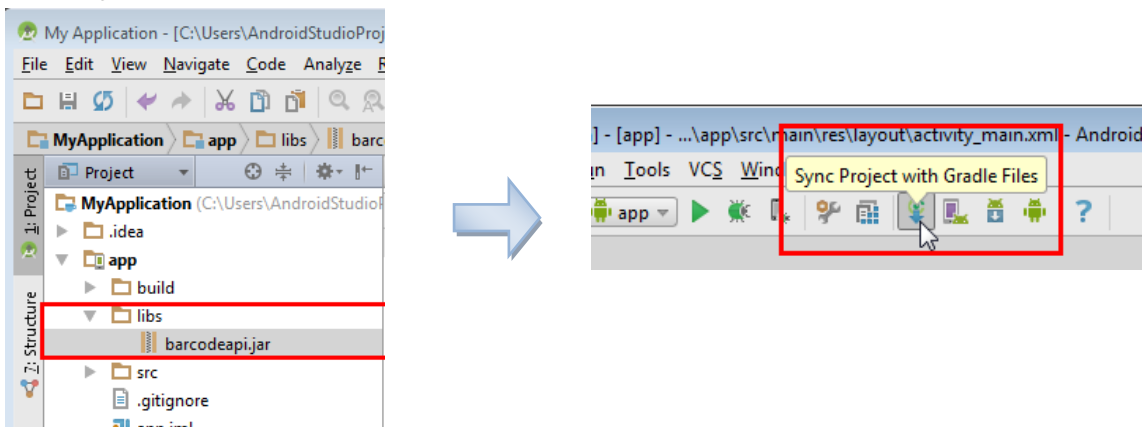
- 4) A dialog shows up indicating the file name and the destination directory to be copied. Click the **OK** button to start importing the library file.



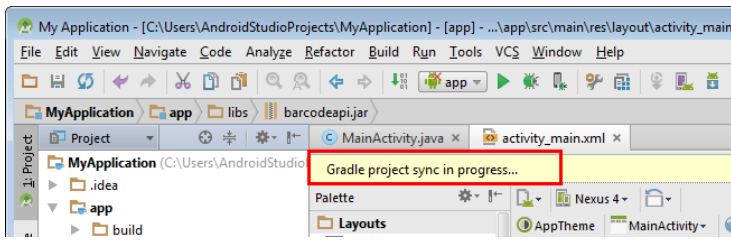
- 5) In the project view, you can see the library is imported.



If you don't see any files listed under the *barcodeapi.jar* item, please click the **Sync Project with Gradle Files** button from the toolbar.

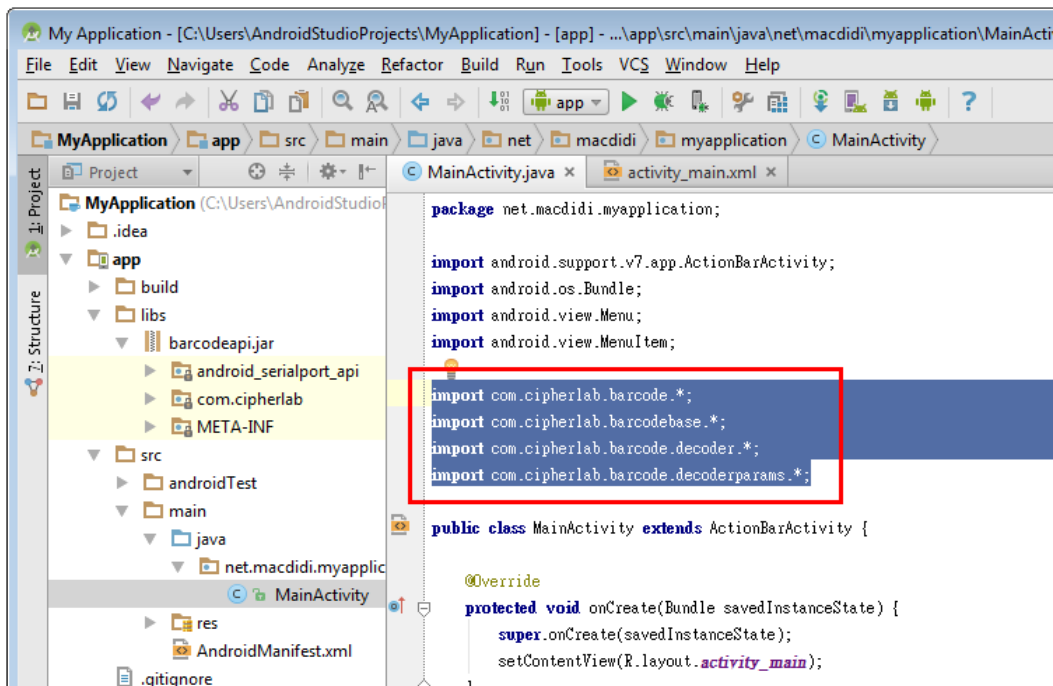


After the project sync completes, the files relating to the library will be displayed.



6) Finally, import the packages by manually typing statements as follows to finish the library import process:

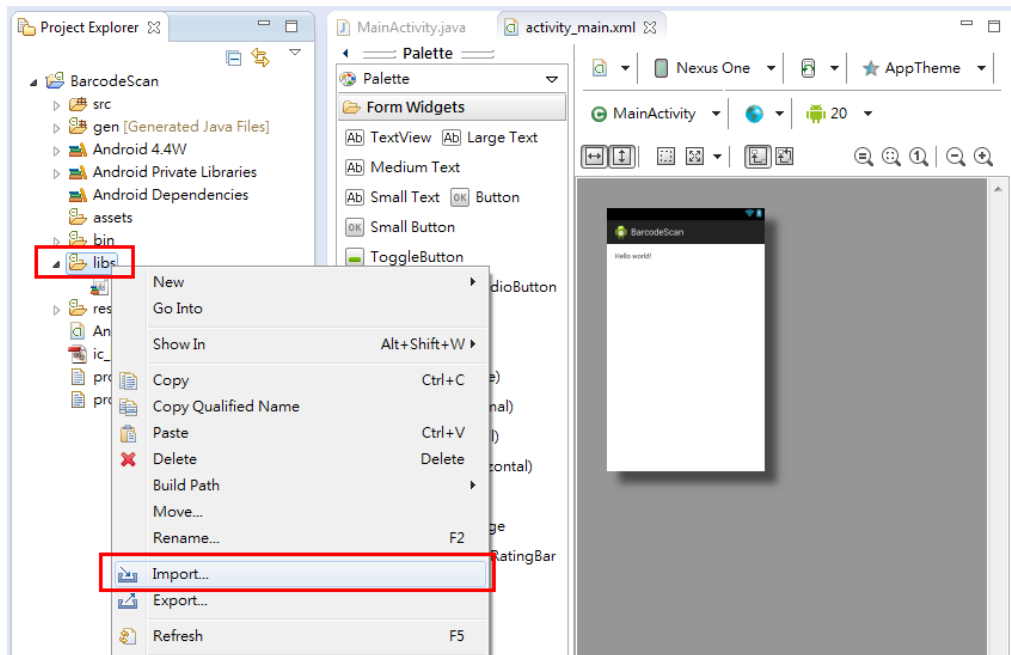
```
import com.cipherlab.barcode.*;  
import com.cipherlab.barcodebase.*;  
import com.cipherlab.barcode.decoder.*;  
import com.cipherlab.barcode.decoderparams.*;
```



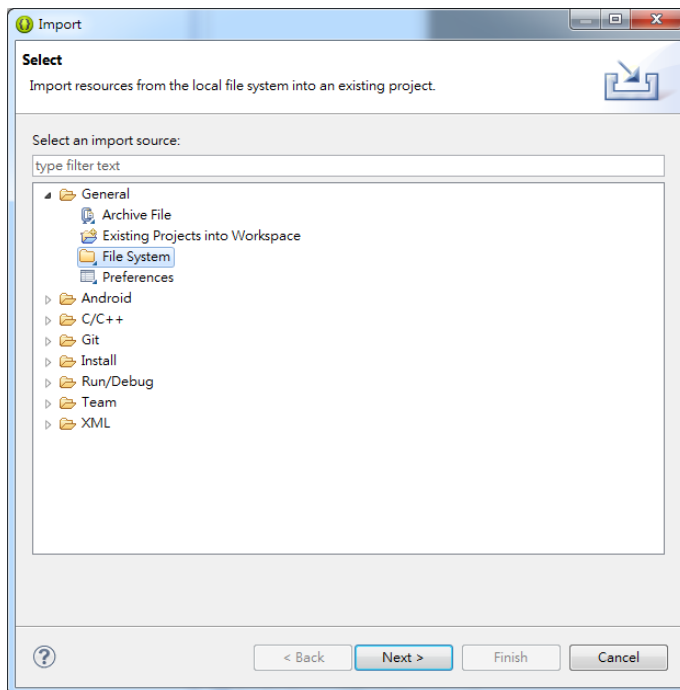
## 1.1.2 ECLIPSE

Have the library file (barcodeapi.jar) be ready on the file system. And then follow the instructions below:

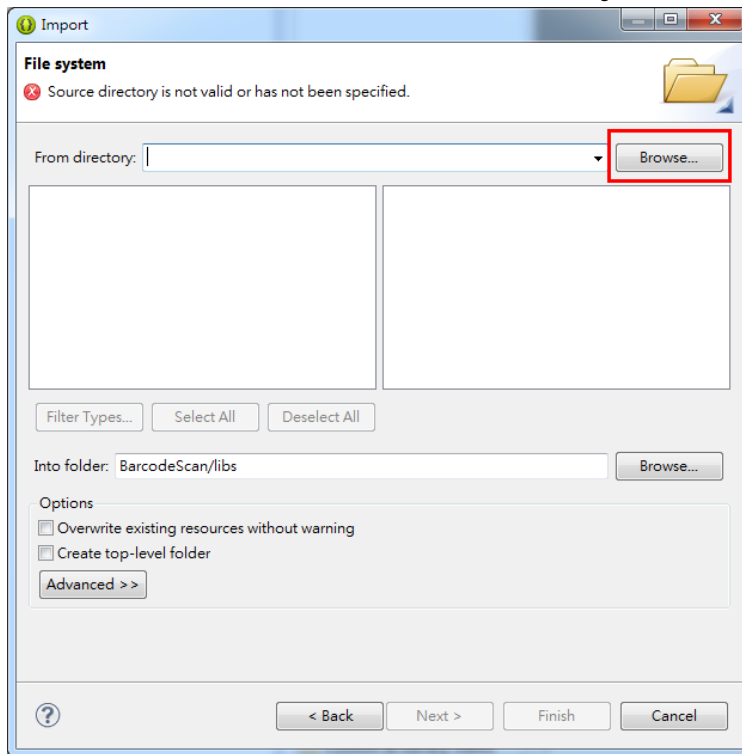
- 1) In the **Project Explorer** view, right-click the **libs** folder in your Android project and then select **Import**.



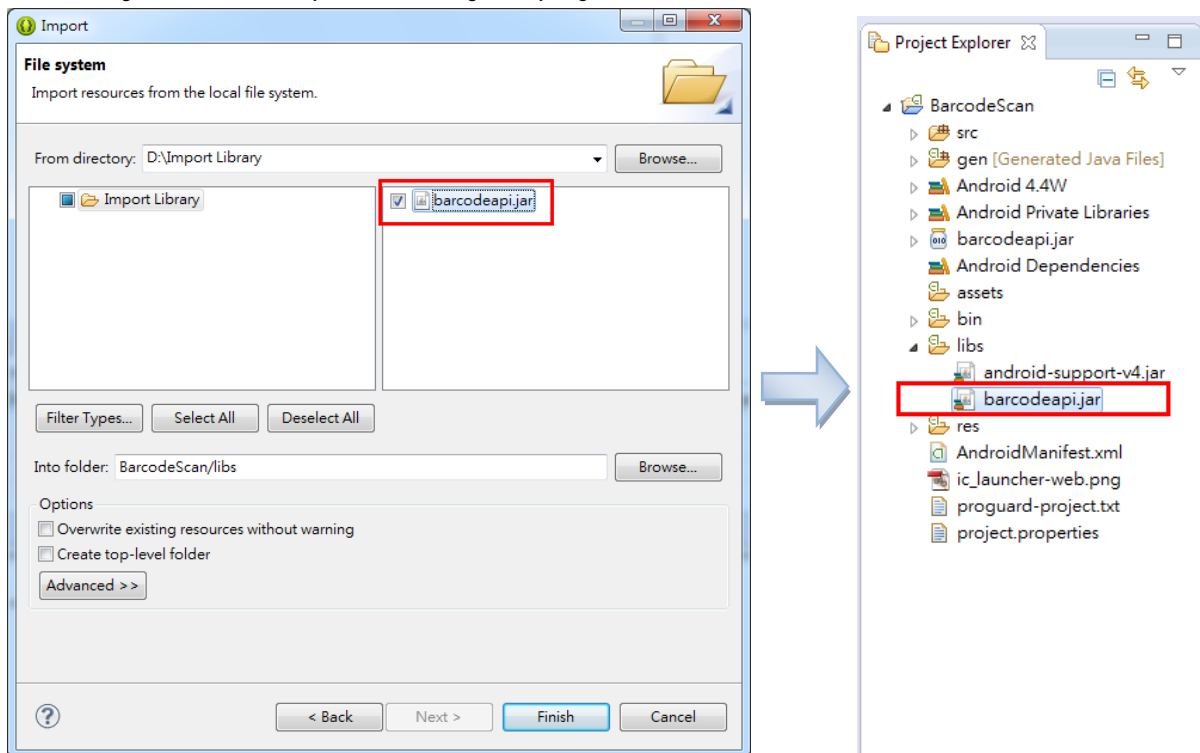
- 2) With the **Import** dialog showing up, select **General -> File System** and click the **Next** button.



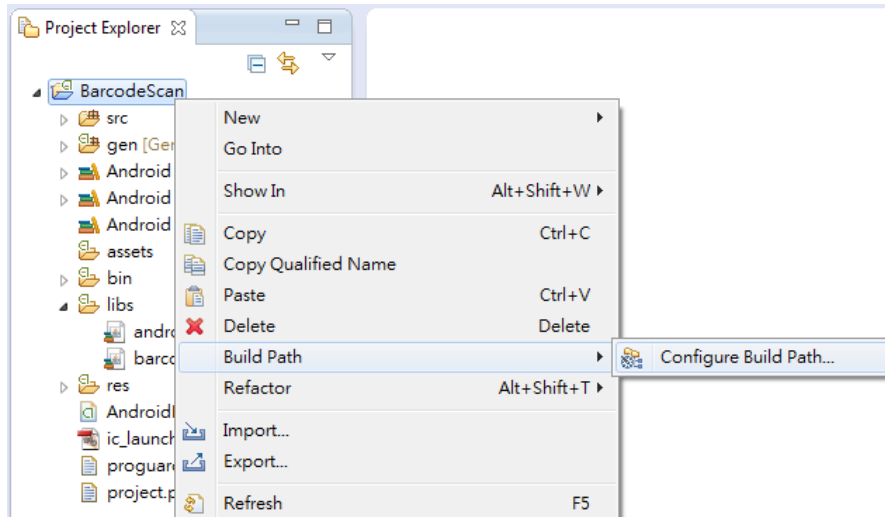
3) Click the **Browse** button to locate the library file.



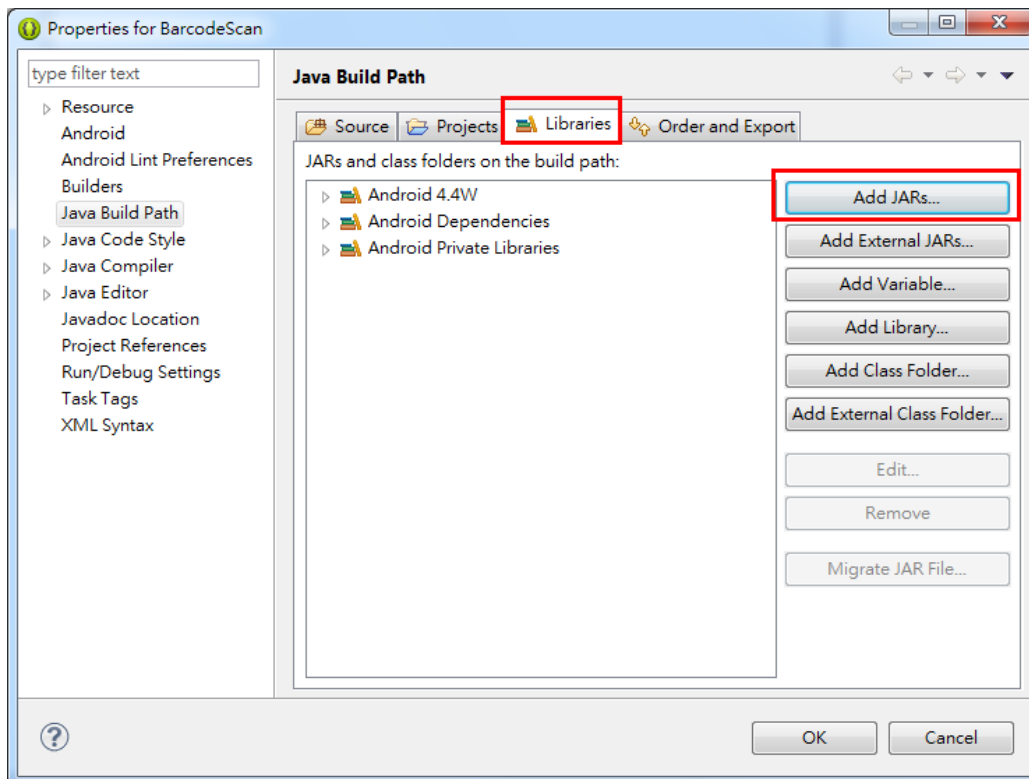
4) For example, "D:\Import Library" is the destination directory where the library file is located. Check the .JAR file in the right pane and click the **Finish** button. You will see the library has been imported into your project.



- 5) If the library is not on your build path, please right-click on the project name and then select **Build Path -> Configure Build Path** on the pop-up menu.

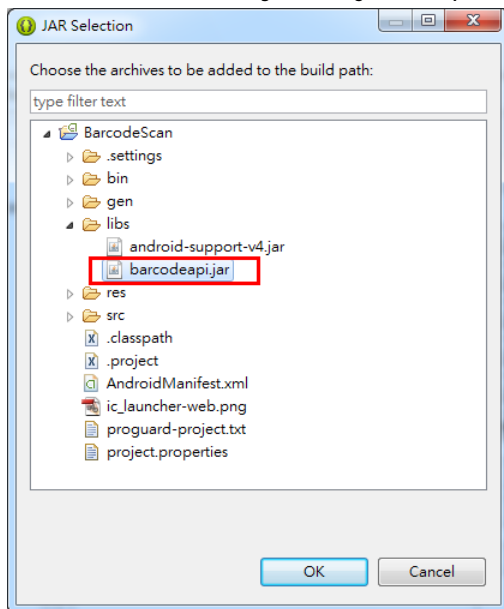


- 6) After the project properties window shows up, click the Libraries tab and then click the **Add JARs** button.

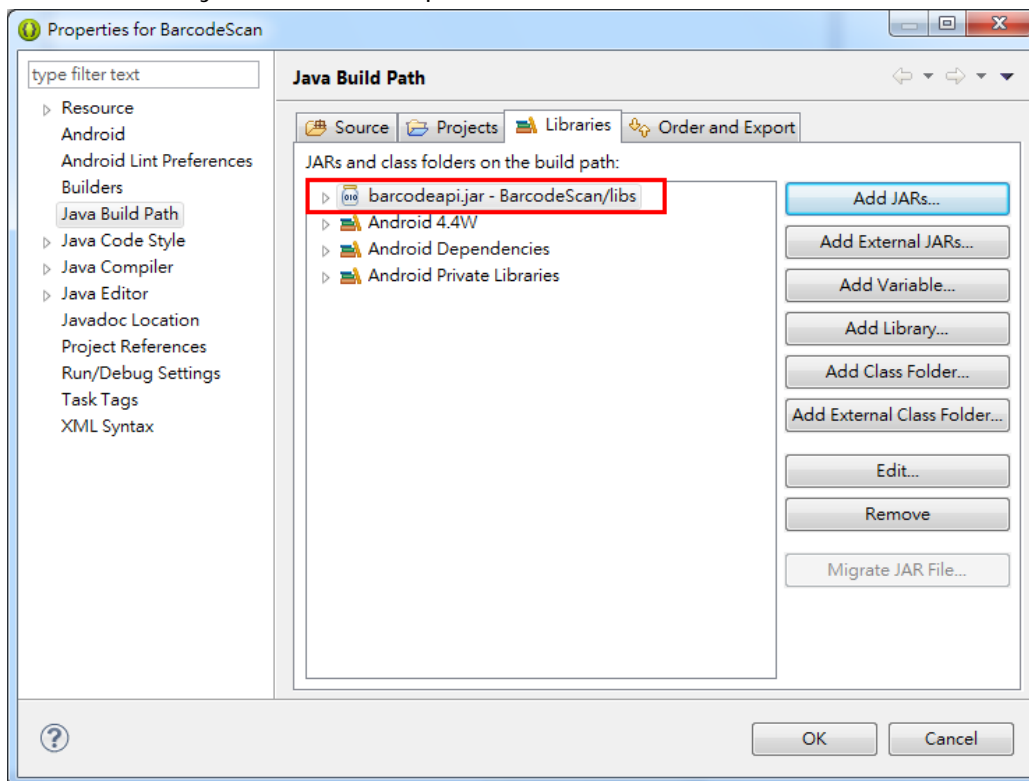




7) Select the JAR file you've just imported. Click the **OK** button.

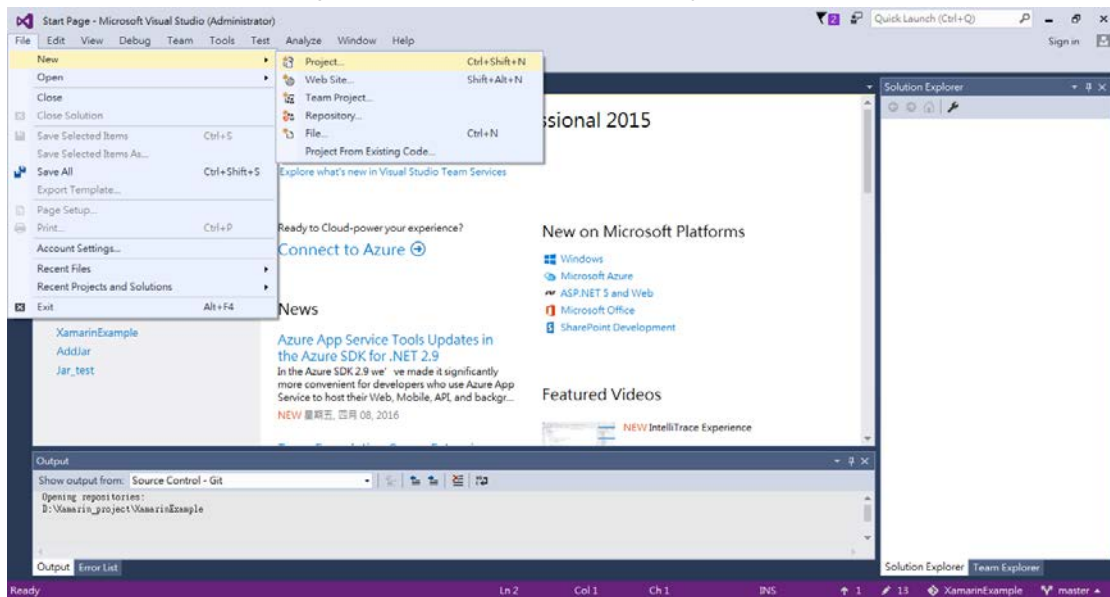


8) Now the library is on the build path.

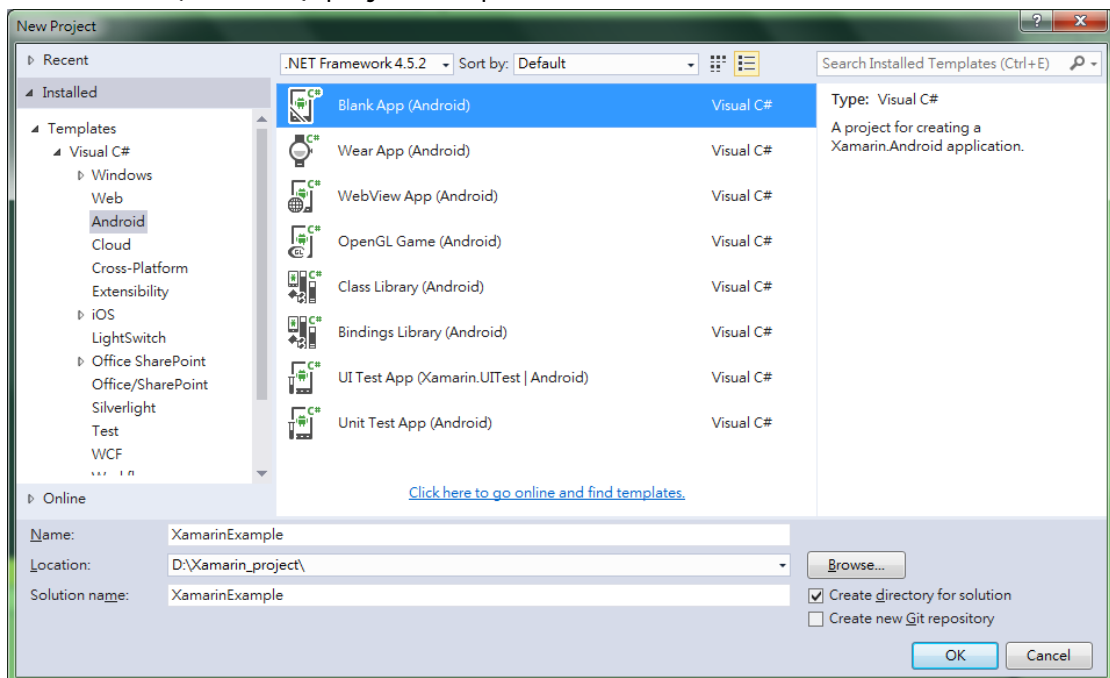


### 1.1.3 XAMARIN FOR VISUAL STUDIO 2015

- 1) Download Xamarin from <http://store.xamarin.com> and install it.
- 2) Open Visual Studio on your PC to create a new project.

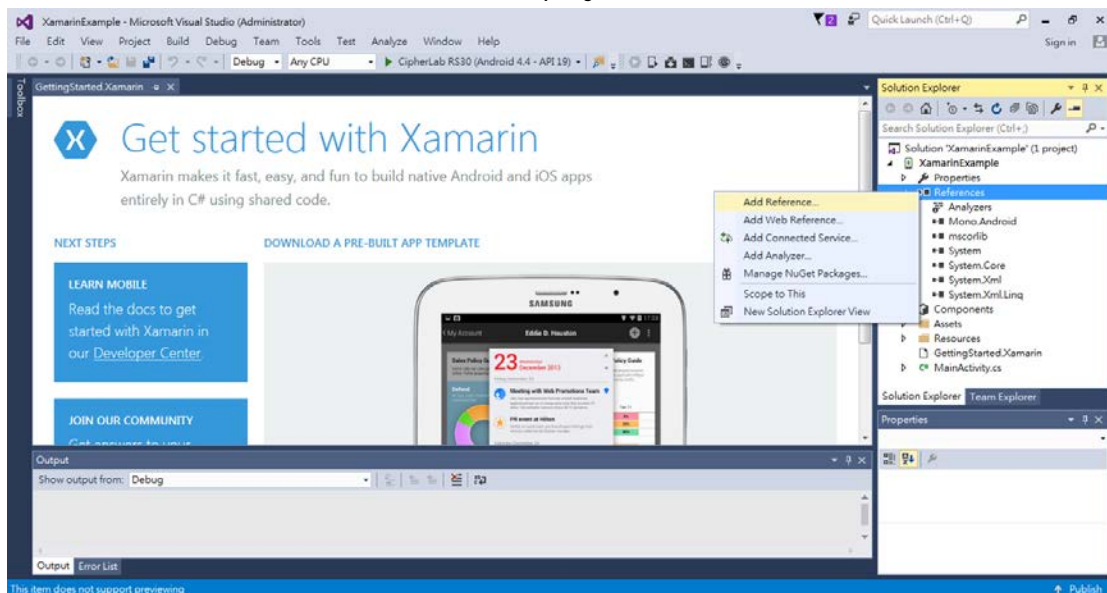


- 3) Select **File** → **New** → **Project** and then choose the **C#** → **Windows** → **Android** → **Blank APP (Android)** project template.

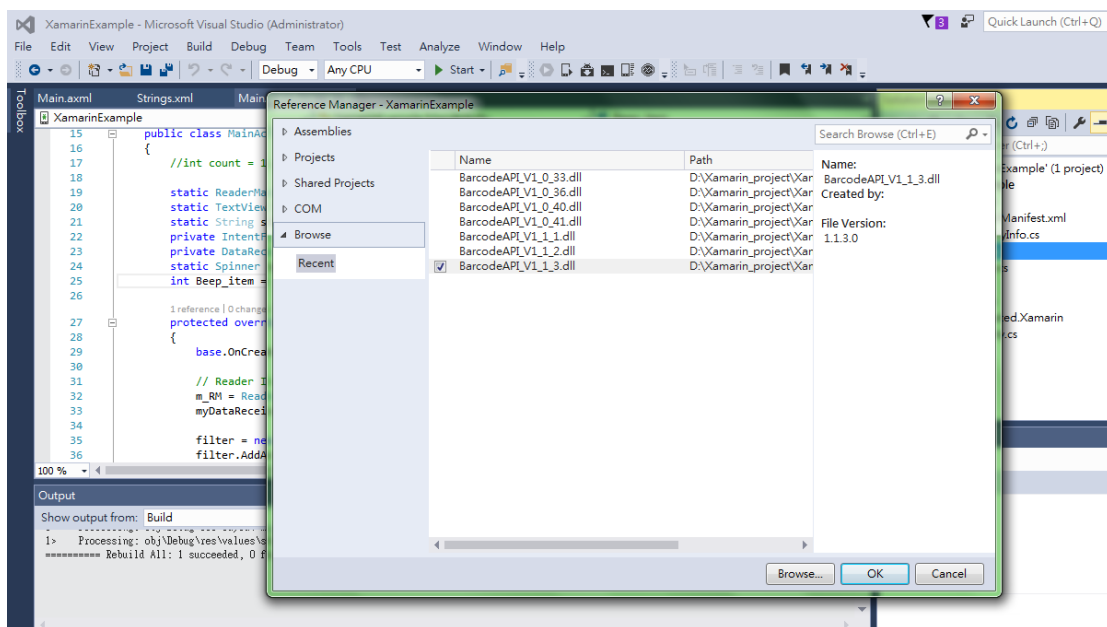


- 4) Copy the offered "**barcodeapi\_vx\_x\_xx.dll**" library file to the new project folder.

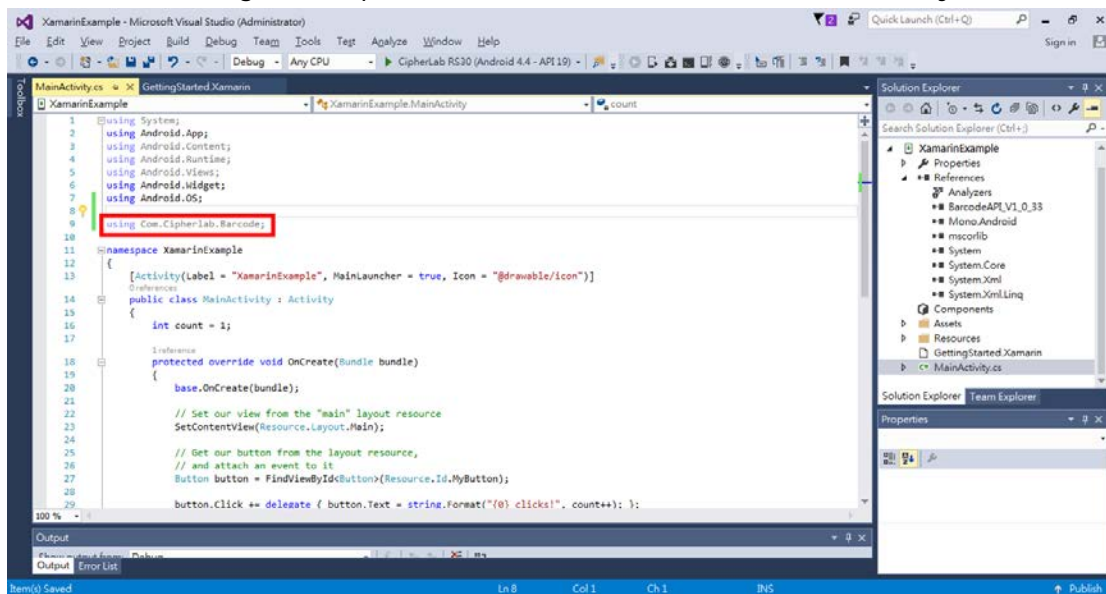
- In the right pane of Visual Studio, right-click on **References** and then select **Add Reference** under the name of the new project.



- In the **Reference Manager** dialog, click **Browse** in the left pane and then click the **Browse** button to locate the library file. When the *"barcodeapi\_vx\_x\_xx.dll"* file is selected in the file browser dialog, click the **Add** button. Now check the added file and click the **OK** button.



7) Include the "using Com.Cipherlab.Barcode;" statement in MainActivity.cs.



## 1.2. INITIALIZE/IDENTIFY READER

### 1.2.1. INITIALIZATION

#### InitInstance

Purpose	Creates a ReaderManager instance before employing any APIs.
Syntax	<b>ReaderManager InitInstance (Context context);</b>
Example	<pre>private ReaderManager mReaderManager; mReaderManager = ReaderManager.InitInstance(this);</pre>
Return Value	Gets a ReaderManager instance if successful, else null.
Remarks	As this is a function that gets reader module(s) ready, it must be called before any other functions.
See Also	GetActive, SetActive, GetReaderType, ResetReaderToDefault

#### Release

Purpose	Releases resources.
Syntax	<b>void Release ();</b>
Example	<pre>mReaderManager.Release();</pre>
See Also	InitInstance, ResetReaderToDefault

## 1.2.2. ACTIVE DEVICE

### GetActive

**Purpose** Gets the reader active state.

**Syntax** **boolean GetActive ();**

**Example** `boolean bRet = mReaderManager.GetActive();`

**Return Value** If successful, it returns the reader active state accordingly:

<b>false</b>	Disable
<b>true</b>	Enable

**See Also** InitInstance, SetActive, GetReaderType

### SetActive

**Purpose** Sets the reader module to use.

**Syntax** **CIResult SetActive (boolean bActive);**

**Parameters** *bActive*  
[in] A value that specifies the active device.

<b>false</b>	Disable
<b>true</b>	Enable

**Example**

```
boolean bRet = mReaderManager.GetActive();
if (bRet==false){
    CIResult clRet = mReaderManager.SetActive(true);
}
```

**Return Value** If successful, it returns CIResult.S\_OK.  
Otherwise, it returns CIResult.S\_ERR.

**Remarks** Trigger key's triggering behavior applies only to the active device. No event occurs with the inactive device.  
There is no error signal if the reader to set is not found.

**See Also** GetActive, InitInstance, GetReaderType

### 1.2.3. READER TYPE

#### GetReaderType

Purpose Gets the available reader type(s)

Syntax **BcReaderType GetReaderType ();**

Example `BcReaderType myReaderType = mReaderManager.GetReaderType();`

Return Value If successful, it returns the reader type(s) accordingly:

Moto_1D_SE955
Moto_2D_4500
Moto_1D_SE965
Moto_2D_PL4507
Intermec_2D_EX25
Moto_1D_SE1524
CL_1D_SM1
SE4750SR_2D
SE4750MR_2D
Moto_1D_SE965I
Moto_1D_SE965E

See Also [InitInstance](#), [GetActive](#), [SetActive](#)

## 1.3. OBTAIN DATA

### 1.3.1. DATA OUTPUT SETTINGS

#### Processed Data

**Set\_ReaderOutputConfiguration()** sets which info to attach to a decoded barcode data:

Info	Description
<b>Code Type</b>	Barcode Type. See <b>Set_ReaderOutputConfiguration()</b> parameter <i>showCodeType</i> .
<b>Prefix Code</b>	No prefix code if value is 0. See <b>Set_ReaderOutputConfiguration()</b> parameter <i>szPrefixCode</i> .
<b>Decode Data</b>	Decoded barcode data
<b>Suffix Code</b>	No suffix code if value is 0. See <b>Set_ReaderOutputConfiguration()</b> parameter <i>szSuffixCode</i> .
<b>Code Length</b>	Decoded barcode length (excluding prefix and/or suffix codes). See <b>Set_ReaderOutputConfiguration()</b> parameter <i>showCodeLen</i> .

Note: Data fields by sequence may include –  
[Code Type], [Prefix Code], [Decode Data], [Suffix Code], [Code Length]

#### Get\_ReaderOutputConfiguration

Purpose	Gets the current output data format.
Syntax	<b>CIResult Get_ReaderOutputConfiguration (ReaderOutputConfiguration settings)</b>
Parameters	The default value (if there is) for each setting is indicated by an asterisk "*".

KeyboardEmulationType *enableKeyboardEmulation*

[in][out] A value that specifies whether to emulate data as typed text to subsequently pass it to the focused text field of active application.

<b>KeyboardEmulationType. None</b>	Disables keyboard emulation. The decoded data will be sent by the broadcast intent message.
<b>KeyboardEmulationType. InputMethod</b>	*Enables keyboard emulation via input method.
<b>KeyboardEmulationType. KeyEvent</b>	Enables keyboard emulation via key event.

OutputEnterWay *autoEnterWay*

[in][out] A value that specifies whether to auto-affix a character after decoding.

<b>OutputEnterWay.Disable</b>	Disables
<b>OutputEnterWay.SuffixData</b>	*Suffixes the decoded data (= decoded data + Enter-character)
<b>OutputEnterWay.PrefixData</b>	Prefixes the decoded data (= Enter-character + decoded data)

OutputEnterChar *autoEnterChar*



[in][out] A value that specifies the character to auto-affix.

<b>OutputEnter.None</b>	None
<b>OutputEnter.Return</b>	*Carriage Return (= 0x0d)
<b>OutputEnter.Tab</b>	Tab
<b>OutputEnter.Comma</b>	Comma (= 0x2c)
<b>OutputEnter.Semicolon</b>	Semicolon (= 0x3b)

Enable\_State *showCodeType*

[in][out] A value that specifies whether to transmit barcode type in data records.

<b>Enable_State.FALSE</b>	*Does not transmit
<b>Enable_State.TRUE</b>	Transmits

Enable\_State *showCodeLen*

[in][out] A value that specifies whether to transmit code length for a barcode in data records.

<b>Enable_State.FALSE</b>	*Does not transmit
<b>Enable_State.TRUE</b>	Transmits

String *szPrefixCode*

[in][out] A string variable that stores prefix code.

String *szSuffixCode*

[in][out] A string variable that stores suffix code.

int *useDelim*

[in][out] An ASCII value that specifies the delimiter in use.

<b>0</b>	*No delimiter
<b>1 ~ 127</b>	Adds a delimiter between UID and data when both are decoded

String *szCharsetName*

[in][out] A string variable that specifies the current encoding for barcode data.

<b>windows-1252</b>	*Standard ASCII
<b>big5</b>	Traditional Chinese
<b>shift_JIS</b>	Japanese

Enable\_State *clearPreviousData*

[in][out] A value that specifies whether to clear barcode data.

<b>Enable_State.FALSE</b>	*Does not clear
<b>Enable_State.TRUE</b>	Clear

Return Value

If successful, it returns CIResult.S\_OK.

Otherwise, it returns CIResult.S\_ERR.

Example

```
ReaderOutputConfiguration settings = new ReaderOutputConfiguration();
mReaderManager.Get_ReaderOutputConfiguration(settings);
```

Remarks Depending on reader type and associated reader setting, the fields of output record may differ.

When data comes from barcode reader, data fields may include:

[Code Type][Prefix Code][Decode Data][Suffix Code][Code Length]

[Code Type]:	This field is output only when <i>showCodeType</i> value is TRUE.
[Prefix Code]:	This field is output only when <i>szPrefixCode</i> is non-zero.
[Decode Data]:	This field is output only when <i>enableKeyboardEmulation</i> value is InputMethod or KeyEvent.
[Suffix Code]:	This field is output only when <i>szSuffixCode</i> value is non-zero.
[Code Length]:	This field is output only when <i>showCodeLen</i> value is TRUE. (Prefix/suffix codes are not included.)

See Also Set\_ReaderOutputConfiguration

### Set\_ReaderOutputConfiguration

Purpose Sets the current output data format.

Syntax **CIResult Set\_ReaderOutputConfiguration (ReaderOutputConfiguration settings)**

Parameters The default value (if there is) for each setting is indicated by an asterisk "\*".

KeyboardEmulationType *enableKeyboardEmulation*

[in][out] A value that specifies whether to emulate data as typed text to subsequently pass it to the focused text field of active application.

<b>KeyboardEmulationType.None</b>	Disables keyboard emulation. The decoded data will be sent by the broadcast intent message.
<b>KeyboardEmulationType.InputMethod</b>	*Enables keyboard emulation via input method.
<b>KeyboardEmulationType.KeyEvent</b>	Enables keyboard emulation via key event.

OutputEnterWay *autoEnterWay*

[in][out] A value that specifies whether to auto-affix a character after decoding.

<b>OutputEnterWay.Disable</b>	Disables
<b>OutputEnterWay.SuffixData</b>	*Suffixes the decoded data (= decoded data + Enter-character)
<b>OutputEnterWay.PrefixData</b>	Prefixes the decoded data (= Enter-character + decoded data)

OutputEnterChar *autoEnterChar*

[in][out] A value that specifies the character to auto-affix.

<b>OutputEnter.None</b>	None
<b>OutputEnter.Return</b>	*Carriage Return (= 0x0d)
<b>OutputEnter.Tab</b>	Tab
<b>OutputEnter.Space</b>	Space (= 0x20)

<b>OutputEnter.Comma</b>	Comma (= 0x2c)
<b>OutputEnter.Semicolon</b>	Semicolon (= 0x3b)

Enable\_State *showCodeType*

[in][out] A value that specifies whether to transmit barcode type in data records.

<b>Enable_State.FALSE</b>	*Does not transmit
<b>Enable_State.TRUE</b>	Transmits

Enable\_State *showCodeLen*

[in][out] A value that specifies whether to transmit code length for a barcode in data records.

<b>Enable_State.FALSE</b>	*Does not transmit
<b>Enable_State.TRUE</b>	Transmits

String *szPrefixCode*

[in][out] A string variable that stores prefix code.

String *szSuffixCode*

[in][out] A string variable that stores suffix code.

int *useDelim*

[in][out] An ASCII value that specifies the delimiter in use.

<b>0</b>	*No delimiter
<b>1 ~ 127</b>	Adds a delimiter between UID and data when both are decoded

String *szCharsetName*

[in][out] A string variable that specifies the current encoding for barcode data.

<b>windows-1252</b>	*Standard ASCII
<b>big5</b>	Traditional Chinese
<b>shift_JIS</b>	Japanese

Enable\_State *clearPreviousData*

[in][out] A value that specifies whether to clear barcode data.

<b>Enable_State.FALSE</b>	*Does not clear
<b>Enable_State.TRUE</b>	Clear

Return Value If successful, it returns `CIResult.S_OK`.

Otherwise, it returns `CIResult.S_ERR`.

Example

```
ReaderOutputConfiguration settings = new ReaderOutputConfiguration();
settings.enableKeyboardEmulation =
KeyboardEmulationType.InputMethod;
settings.autoEnterWay = OutputEnterWay.SuffixData;
settings.autoEnterChar = OutputEnterChar.Return;
settings.showCodeLen = Enable_State.TRUE;
settings.showCodeType = Enable_State.TRUE;
settings.szPrefixCode = "PreStr";
settings.szSuffixCode = "SufStr";
settings.useDelim = ':';
settings.szCharsetName = 'shift_JIS';
```

```
settings.clearPreviousData = Enable_State.TRUE;
mReaderManager.Set_ReaderOutputConfiguration(settings);
```

Remarks Depending on reader type and associated reader setting, the fields of output record may differ.

When data comes from barcode reader, data fields may include:

[Code Type][Prefix Code][Decode Data][Suffix Code][Code Length]

[Code Type]:	This field is output only when <i>showCodeType</i> value is TRUE.
[Prefix Code]:	This field is output only when <i>szPrefixCode</i> is non-zero.
[Decode Data]:	This field is output only when <i>enableKeyboardEmulation</i> value is <i>InputMethod</i> or <i>KeyEvent</i> .
[Suffix Code]:	This field is output only when <i>szSuffixCode</i> value is non-zero.
[Code Length]:	This field is output only when <i>showCodeLen</i> value is TRUE. (Prefix/suffix codes are not included.)

See Also [Get\\_ReaderOutputConfiguration](#)

### SoftScanTrigger

Purpose Emulates the behaviour of physical trigger key.  
The following steps have to be done beforehand:

1. Register for the CipherLab-specific string – *com.cipherlab.barcode.GeneralString.Intent\_SOFTTRIGGER\_DATA* – by calling the *android.content.ContextWrapper.registerReceiver* function.
2. Receive the registered string by calling the Android *BroadcastReceiver()* function.
3. Fetch the data from the received Intent.

Syntax **void SoftScanTrigger ()**;

Example

```
public class MainActivity extends Activity {
    private IntentFilter filter;
    Button b1 = null;
    ReaderManager m_RM = null;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button) findViewById(R.id.button1);
        b1.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                if (m_RM != null)
                {
                    m_RM.SoftScanTrigger();
                }
            }
        });
        m_RM = ReaderManager.InitInstance(this);
        filter = new IntentFilter();
        filter.addAction(GeneralString.Intent_SOFTTRIGGER_DATA);
        registerReceiver(myDataReceiver, filter);
    }

    @Override
    protected void onDestroy() {
        // TODO Auto-generated method stub
        super.onDestroy();
        unregisterReceiver(myDataReceiver);
    }
    private final BroadcastReceiver myDataReceiver = new
        BroadcastReceiver() {

            @Override
            public void onReceive(Context context, Intent intent) {
                if (intent.getAction().equals(GeneralString.Intent_SOFTTRIGGER_
                    DATA))
                {
                    // Fetch data from the intent
                    String sDataStr = intent.getStringExtra(GeneralString.BcReaderData);
                    Toast.makeText(MainActivity.this, "Decoded data is " + sDataStr,
                        Toast.LENGTH_SHORT).show();
                }
            }
        }
    };
}
```

### 1.3.2. READER SERVICE VERSION

#### Get\_BarcodeServiceVer

Purpose Obtains the reader service version.

Syntax **String Get\_BarcodeServiceVer ();**

Example `String ver = mReaderManager.Get_BarcodeServiceVer();`

### 1.3.3. READER API VERSION

#### GetBarcodeAPIVersion

Purpose Obtains the reader API version.

Syntax **String GetBarcodeAPIVersion ();**

Example `String ver = mReaderManager.GetBarcodeAPIVer();`

### 1.3.4. READER FIRMWARE VERSION

#### GetScannerVersion

Purpose Gets the reader firmware version

Syntax **String GetScannerVersion ();**

Example `String ver = mReaderManager.GetScannerVersion();`

## 1.4. MANIPULATE STATUS INDICATION

The device auto-signals the receipt of a successful decoding by a sound or vibration according to **NotificationParams()** settings. Before calling Set\_xxx functions, users are supposed to call Get\_xxx functions to retrieve the current reader service settings.

### 1.4.1. NOTIFICATION SETTINGS

<b>Get_NotificationParams</b>																							
Purpose	Gets notification settings.																						
Syntax	<b>CIResult Get_NotificationParams (NotificationParams settings)</b>																						
Parameters	<p>A default value comes with an asterisk "*".</p> <p>BeepType <i>ReaderBeep</i></p> <p>[in][out] A value that specifies the sound to play.</p> <table border="1"> <tr><td><b>BeepType.Mute</b></td></tr> <tr><td><b>BeepType.Default</b></td></tr> <tr><td><b>BeepType.Hwandsw</b></td></tr> <tr><td><b>BeepType.MenuPop</b></td></tr> <tr><td><b>BeepType.MsgBox</b></td></tr> <tr><td><b>BeepType.Notify</b></td></tr> <tr><td><b>BeepType.VoiceBeep</b></td></tr> <tr><td><b>BeepType.Alarm2</b></td></tr> <tr><td><b>BeepType.Alarm3</b></td></tr> <tr><td><b>BeepType.LowBatt</b></td></tr> </table> <p>Enable_State <i>enableVibrator</i></p> <p>[in][out] A value that specifies whether to vibrate for a successful reading.</p> <table border="1"> <tr><td><b>Enable_State.FALSE</b></td><td>Disables Vibrator*</td></tr> <tr><td><b>Enable_State.TRUE</b></td><td>Enables Vibrator</td></tr> </table> <p>int <i>vibrationCounter</i></p> <p>[in][out] A value that specifies how long to vibrate.</p> <table border="1"> <tr><td><b>0</b></td><td>No vibration</td></tr> <tr><td><b>1 ~ 10</b></td><td>*1 (in increments of 0.5 seconds)</td></tr> </table> <p>int <i>ledDuration</i></p> <p>[in][out] A value that specifies whether to light the LED indicator for a successful reading.</p> <table border="1"> <tr><td><b>0</b></td><td>*Disables</td></tr> <tr><td><b>1 ~ 5000</b></td><td>Enables LED and sets lighting duration (millisecond)</td></tr> </table>	<b>BeepType.Mute</b>	<b>BeepType.Default</b>	<b>BeepType.Hwandsw</b>	<b>BeepType.MenuPop</b>	<b>BeepType.MsgBox</b>	<b>BeepType.Notify</b>	<b>BeepType.VoiceBeep</b>	<b>BeepType.Alarm2</b>	<b>BeepType.Alarm3</b>	<b>BeepType.LowBatt</b>	<b>Enable_State.FALSE</b>	Disables Vibrator*	<b>Enable_State.TRUE</b>	Enables Vibrator	<b>0</b>	No vibration	<b>1 ~ 10</b>	*1 (in increments of 0.5 seconds)	<b>0</b>	*Disables	<b>1 ~ 5000</b>	Enables LED and sets lighting duration (millisecond)
<b>BeepType.Mute</b>																							
<b>BeepType.Default</b>																							
<b>BeepType.Hwandsw</b>																							
<b>BeepType.MenuPop</b>																							
<b>BeepType.MsgBox</b>																							
<b>BeepType.Notify</b>																							
<b>BeepType.VoiceBeep</b>																							
<b>BeepType.Alarm2</b>																							
<b>BeepType.Alarm3</b>																							
<b>BeepType.LowBatt</b>																							
<b>Enable_State.FALSE</b>	Disables Vibrator*																						
<b>Enable_State.TRUE</b>	Enables Vibrator																						
<b>0</b>	No vibration																						
<b>1 ~ 10</b>	*1 (in increments of 0.5 seconds)																						
<b>0</b>	*Disables																						
<b>1 ~ 5000</b>	Enables LED and sets lighting duration (millisecond)																						
Example	<pre>NotificationParams settings = new NotificationParams(); mReaderManager.Get_NotificationParams(settings);</pre>																						

Return Value If successful, it returns `CIResult.S_OK`.  
Otherwise, it returns `CIResult.S_ERR`.

See Also `Set_NotificationParams`

### Set\_NotificationParams

Purpose Configures notification settings.

Syntax **CIResult Set\_NotificationParams (NotificationParams settings)**

Parameters A default value comes with an asterisk "\*".

`BeepType ReaderBeep`

[in][out] A value that specifies the sound to play.

<b>BeepType.Mute</b>
<b>BeepType.Default</b>
<b>BeepType.Hwandsw</b>
<b>BeepType.MenuPop</b>
<b>BeepType.MsgBox</b>
<b>BeepType.Notify</b>
<b>BeepType.VoiceBeep</b>
<b>BeepType.Alarm2</b>
<b>BeepType.Alarm3</b>
<b>BeepType.LowBatt</b>

`Enable_State enableVibrator`

[in][out] A value that specifies whether to vibrate for a successful reading.

<b>Enable_State.FALSE</b>	*Disables Vibrator
<b>Enable_State.TRUE</b>	Enables Vibrator

`int vibrationCounter`

[in][out] A value that specifies how long to vibrate.

<b>0</b>	*No vibration
<b>1 ~ 10</b>	in increments of 0.5 seconds

`int ledDuration`

[in][out] A value that specifies whether to light the LED indicator for a successful reading.

<b>0</b>	Disables
<b>1 ~ 5000</b>	*500, Enables LED and sets lighting duration (millisecond)

Example

```
NotificationParams settings = new NotificationParams();
settings.enableReaderBeep = Enable_State.TRUE;
settings.enableVibrator = Enable_State.TRUE;
settings.ledDuration = 500; //ms
settings.vibrationCounter = 1; //500ms * count
mReaderManager.Set_NotificationParams(settings);
```



Return Value      If successful, it returns `CIReturn.S_OK`.  
 Otherwise, it returns `CIReturn.S_ERR`.

See Also            `Get_NotificationParams`

## 1.5. CONFIGURE SCAN ENGINE

### 1.5.1. PREFERENCES

#### Get\_Decoders\_Status

Purpose              Gets symbology status (enabled or disabled) of the reader.

Syntax             **`CIReturn Get_Decoders_Status (Readers settings)`**

Parameters        [in][out] Each value specifies whether the reader is able to decode the corresponding symbology. A default value comes with an asterisk "\*" .

Enable\_State *enableAustralianPostal*

<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

Enable\_State *enableAztec*

<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

Enable\_State *enableCompositeCC\_AB*

<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled

Enable\_State *enableCompositeCC\_C*

<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

Enable\_State *enableCompositeTlc39*

<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled

Enable\_State *enableCode11*

<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

Enable\_State *enableCode39*

<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

Enable\_State *enableCode93*

<b>Enable_State.FALSE</b>	Disabled
---------------------------	----------

<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableCode128</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableCodabar</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableChinese2Of5</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableDataMatrix</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableDutchPostal</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableEanJan8</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableEanJan13</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableGs1128</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableGs1DataBar14</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableGs1DataBarLimited</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableGs1DataBarExpanded</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableGs1DatabarToUpcean</i>	
<b>Enable_State.FALSE</b>	Disabled

<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableIst128</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableIndustrial2Of5</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableInterleaved2Of5</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableJapanPostal</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableKorean3Of5</i>	
<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled
<i>Enable_State.enableMatrix2Of5</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableMaxiCode</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableMicroPDF417</i>	
<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled
<i>Enable_State.enableMicroQR</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableMsi</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enablePDF417</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State.enableQRcode</i>	
<b>Enable_State.FALSE</b>	Disabled

<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableTriopticCode39</i>	
<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled
<i>Enable_State enableUpcA</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUpcE</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUpcE1</i>	
<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled
<i>Enable_State enableUccCoupon</i>	
<b>Enable_State.FALSE</b>	*Disabled
<b>Enable_State.TRUE</b>	Enabled
<i>Enable_State enableUKPostal</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUPUFICSPostal</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUSPostnet</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUSPlanet</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled
<i>Enable_State enableUSPSPostal</i>	
<b>Enable_State.FALSE</b>	Disabled
<b>Enable_State.TRUE</b>	*Enabled

**Return Value** If successful, it returns `CIResult.S_OK`.  
Otherwise, it returns `CIResult.S_ERR`.

**Example**

```
Decoders settings = new Decoders();
mReaderManager.Get_Decoders_Status(settings);
if (Enable_State.NotSupport == settings.enableAustralianPostal) {
    // 1D is not supported
}
```

Remarks Enable\_State.FALSE means the reader is disabled to decode the symbology.  
 Enable\_State.TRUE means the reader is enabled to decode the symbology.

See Also Get\_Decoders\_Status

### Set\_Decoders\_Status

Purpose Sets symbology status (enabled or disabled) of the reader.

Syntax **CIResult Set\_Decoders\_Status (Decoders settings)**

Parameters 42 symbologies are supported. See above for details.

Return Value If successful, it returns CIResult.S\_OK.  
 Otherwise, it returns CIResult.S\_ERR.

Example

```
Decoders settings = new Decoders();
settings.enableAustralianPostal = Enable_State.FALSE;
settings.enableAztec = Enable_State.FALSE;
settings.enableChinese2Of5 = Enable_State.FALSE;
settings.enableCodabar = Enable_State.FALSE;
settings.enableCode11 = Enable_State.FALSE;
settings.enableCode128 = Enable_State.FALSE;
settings.enableCode39 = Enable_State.FALSE;
settings.enableCode93 = Enable_State.FALSE;

if (CIResult.S_ERR == mReaderManager.Set_Decoders_Status(settings))
    Toast.makeText(this, "Set_Decoders_Status was failed",
    Toast.LENGTH_SHORT).show();
else
    Toast.makeText(this, "Set_Decoders_Status was successful",
    Toast.LENGTH_SHORT).show();
```

Remarks Enable\_State.FALSE means the reader is disabled to decode the symbology.  
 Enable\_State.TRUE means the reader is enabled to decode the symbology.

See Also Set\_Decoders\_Status

### Get\_UserPreferences

Purpose Gets user preference settings of the barcode reader.

Syntax **CIResult Get\_UserPreferences (UserPreference settings)**

Parameters A default value comes with an asterisk "\*".

<b>2~30</b>	*10 (times of supplementary decoding)
-------------	---------------------------------------

int *addonSecurityLevel*  
 [in][out] A value that specifies decode security level for reading UPC/EAN when "Decode with Addons (=Auto-discriminate)" is applied.

Enable\_State *displayMode*  
 [in][out] A value that specifies whether to enable display mode.

<b>Enable_State.FALSE</b>	*Disables
---------------------------	-----------

<b>Enable_State.TRUE</b>	Enables
--------------------------	---------

int *laserOnTime*

[in][out] A value that specifies the maximum time for decoding a printed barcode during a scan act.

<b>500 ~ 9900</b>	*3000 (millisecond)
-------------------	---------------------

InverseType *negativeBarcodes*

[in][out] A value that specifies the negative barcode status.

<b>InverseType.RegularOnly</b>	*Regular barcode
<b>InverseType.InverseOnly</b>	Negative barcode
<b>InverseType.AutoDetect</b>	AutoDetection

Enable\_State *pickListMode*

[in][out] A value that specifies whether to enable picklist mode for decoding accuracy.

<b>Enable_State.FALSE</b>	*Disables
<b>Enable_State.TRUE</b>	Enables

RedundancyLevel *redundancyLevel*

[in][out] A value that specifies decode redundancy. Higher redundancy levels should be selected for deteriorated barcode quality.

<b>RedundancyLevel. One</b>	*The following barcodes must be successfully read twice before being decoded:										
	<table border="1"> <thead> <tr> <th>Barcode Types</th> <th>Code Length</th> </tr> </thead> <tbody> <tr> <td>Codabar</td> <td>All</td> </tr> <tr> <td>MSI</td> <td>4 characters or less</td> </tr> <tr> <td>Industrial 25 (Discrete 25)</td> <td>8 characters or less</td> </tr> <tr> <td>Interleaved 25</td> <td>8 characters or less</td> </tr> </tbody> </table>	Barcode Types	Code Length	Codabar	All	MSI	4 characters or less	Industrial 25 (Discrete 25)	8 characters or less	Interleaved 25	8 characters or less
Barcode Types	Code Length										
Codabar	All										
MSI	4 characters or less										
Industrial 25 (Discrete 25)	8 characters or less										
Interleaved 25	8 characters or less										
<b>RedundancyLevel. Two</b>	All barcodes must be successfully read twice before being decoded.										
<b>RedundancyLevel. Three</b>	All barcodes must be successfully read twice before being decoded except for the following that must be read three times:										
	<table border="1"> <thead> <tr> <th>Barcode Types "Excluded"</th> <th>Code Length</th> </tr> </thead> <tbody> <tr> <td>MSI</td> <td>4 characters or less</td> </tr> <tr> <td>Industrial 25 (Discrete 25)</td> <td>8 characters or less</td> </tr> <tr> <td>Interleaved 25</td> <td>8 characters or less</td> </tr> </tbody> </table>	Barcode Types "Excluded"	Code Length	MSI	4 characters or less	Industrial 25 (Discrete 25)	8 characters or less	Interleaved 25	8 characters or less		
Barcode Types "Excluded"	Code Length										
MSI	4 characters or less										
Industrial 25 (Discrete 25)	8 characters or less										
Interleaved 25	8 characters or less										
<b>RedundancyLevel. Four</b>	All barcodes must be successfully read three times before being decoded.										

ScanAngleType *scanAngle*

[in][out] A value that specifies scan angle.

<b>ScanAngleType.Narrow</b>	Narrow Angle (35 degrees)
<b>ScanAngleType.Wide</b>	*Wide Angle (47 degrees)

SecurityLevel *securityLevel*

[in][out] A value that specifies decode security level, which is useful to fix some printed quality issues when reading delda barcodes such as Code 128, Code 93, UPC/EAN.

<b>SecurityLevel.Zero</b>	*Security Level 0 – The default. It allows the scan engine to operate aggressively enough to decode most “in-spec” barcodes.
<b>SecurityLevel.One</b>	Security Level 1 – Select this option if misdecodes occur. This level should fix most misdecodes.
<b>SecurityLevel.Two</b>	Security Level 2 – Select this option if Security Level 1 fails to fix misdecodes.
<b>SecurityLevel.Three</b>	Security Level 3 – Select this option if Security Level 2 also fails to fix misdecodes. However, selecting this option impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the barcode quality.

int *timeoutBetweenSameSymbology*

[in][out] A value that specifies the minimum time interval between reading two identical barcodes. This helps prevent the scanner from accidentally reading the same barcode twice.

This parameter applies to Continuous and Presentation modes.

<b>0 ~ 9900</b>	*1000 (millisecond)
<b>0 ~ 2550</b>	*300 (millisecond) only for the EX25 scan engine

int *timeoutPresentationMode*

[in][out] A value that specifies the time to enable the Presentation mode.

This parameter applies to Continuous mode.

<b>60000 ~ 1800000</b>	*900000 (millisecond) (default: 15 minutes, ranging from 1 to 30 minutes)
------------------------	---

TransmitCodeIDType *transmitCodeIdChar*

[in][out] A value that specifies whether to transmit Code ID characters.

<b>TransmitCodeIDType.None</b>	*Transmits none
<b>TransmitCodeIDType.AimCodeID</b>	Transmits AIM Code ID Character

TriggerType *triggerMode*

[in][out] A value that specifies the mode to scan.

<b>TriggerType.LevelMode</b>	*Level mode
<b>TriggerType.ContinuousMode</b>	Continuous mode
<b>TriggerType.PresentationMode</b>	Presentation mode
<b>TriggerType.AutoAimMode</b>	Auto Aim mode

Enable\_State *decodingillumination*

[in][out] A value that specifies whether to provide flash illumination during every barcode capture to aid decoding.

<b>Enable_State.FALSE</b>	Disables decoding illumination
<b>Enable_State.TRUE</b>	*Enables decoding illumination

IlluminationPowerLevel *decodingIlluminationPowerLevel*

[in][out] A value that specifies the power level of illumination.

<b>IlluminationPowerLevel.Zero ~ IlluminationPowerLevel.Ten</b>	*IlluminationPowerLevel.Ten – The default is set to Ten which is the maximum power level.
---	---

Enable\_State *decodingAimingPattern*

[in][out] A value that specifies whether to project the aiming pattern on every barcode capture.

<b>Enable_State.FALSE</b>	Disables decode aiming pattern
<b>Enable_State.TRUE</b>	*Enables decode aiming pattern

InterCharacterGapSize *interCharGapSize*

[in][out] A value that specifies the intercharacter gap size for Code 39 and Codabar, which is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed and prevent the scan engine from decoding a barcode. If this problem occurs, set it to "Large Intercharacter Gaps" to tolerate these out-of-specification barcodes.

<b>InterCharacterGapSize.Normal</b>	*Normal intercharacter gaps
<b>InterCharacterGapSize.Large</b>	Large intercharacter gaps

AimerMode *aimerMode*

[in][out] A value that specifies how the aimer behaves.

<b>0</b>	*Typical, the aimer is on and behaves according to the Trigger mode selected.
<b>1</b>	One pull to aim and read
<b>2</b>	One pull to aim, second pull to read

Enable\_State *centerDecoding*

[in][out] A value that specifies whether to enable center decoding. When enabled, the scanner reads only the barcode at which the laser aimer is aiming. This is helpful when reading barcodes that are positioned close together.

<b>Enable_State.FALSE</b>	Disables center decoding
<b>Enable_State.TRUE</b>	*Enables center decoding

int *centerDecodingTolerance*

[in][out] A value that specifies the center decoding tolerance ranging from 0 to 100. The tolerance level controls how precise the laser aimer is. Zero means there is no tolerance, and the aimer must be positioned directly toward the target barcode. The higher the level is, the more the tolerance is allowed to position the aimer close to the target barcode.

<b>0 ~ 100</b>	*0 (no tolerance allowed)
----------------	---------------------------



Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
Example	<pre>UserPreference settings = new UserPreference(); mReaderManager.GetUserPreferences(settings); if (Enable_State.NotSupport == settings.displayMode) { } }</pre>
See Also	<code>Set_UserPreferences</code>

### **Set\_UserPreferences**

Purpose	Sets user preference settings of the barcode reader.
Syntax	<b>CIResult Set_UserPreferences (UserPreference settings)</b>
Parameters	<p>11 preference settings are listed below. See above for details.</p> <p><code>int addonSecurityLevel</code>  <code>Enable_State displayMode</code>  <code>int laserOnTime</code>  <code>InverseType negativeBarcodes</code>  <code>Enable_State pickListMode</code>  <code>RedundancyLevel redundancyLevel</code>  <code>ScanAngleType scanAngle</code>  <code>SecurityLevel securityLevel</code>  <code>int timeoutBetweenSameSymbology</code>  <code>int timeoutPresentationMode</code>  <code>TransmitCodeIDType transmitCodeIdChar</code>  <code>TriggerType triggerMode</code>  <code>Enable_State decodingillumination</code>  <code>IlluminationPowerLevel decodingilluminationPowerLevel</code>  <code>Enable_State decodingAimingPattern</code>  <code>InterCharacterGapSize interCharGapSize</code>  <code>AimerMode aimerMode</code>  <code>Enable_State centerDecoding</code>  <code>int centerDecodingTolerance</code></p>
Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
Example	<pre>UserPreference settings = new UserPreference();  settings.addonSecurityLevel = 2; settings.laserOnTime = 3000; settings.negativeBarcodes = InverseType.AutoDetect; settings.scanAngle = ScanAngleType.Wide;  if (CIResult.S_ERR == mReaderManager.Set_UserPreferences(settings)) Toast.makeText(this, "Set_UserPreferences was failed", Toast.LENGTH_SHORT).show(); else</pre>

```
Toast.makeText(this, "Set_UserPreferences was successful",
Toast.LENGTH_SHORT).show();
```

See Also            Get\_UserPreferences

## 1.5.2. SYMBOLOGY SETTINGS

### Get\_Symbology

Purpose            Gets symbology settings by implementing a symbology interface instance.  
Syntax            **CIResult Get\_Symbology (SymbologyInterface settings)**  
Parameters        This function provides 38 symbology parameters implemented as objects.

```
Codabar
{
Enable_State transmitCheckDigit;
CodabarDigitAlgorithm verifyCheckDigit;
NOTISEditingType notisEditingType;
Enable_State enable;
int length1;
int length2;
Enable_State clsiEditing;
Enable_State notisEditing;
}
```

```
Code11
{
Enable_State enable;
int length1;
int length2;
NumberOfCheck numberOfCheckDigits;
Enable_State transmitCheckDigit;
}
```

```
Code39
{
Enable_State enable;
int length1;
int length2;
Enable_State checkDigitVerification;
Enable_State transmitCheckDigit;
Enable_State fullASCII;
Enable_State convertToCode32;
Enable_State convertToCode32Prefix;
}
```

```
TriopticCode39
{
```

```
Enable_State enable  
}
```

```
Korean3Of5  
{  
Enable_State enable  
}
```

```
Code93  
{  
Enable_State enable;  
int length1;  
int length2;  
}
```

```
Code128  
{  
Code128SecurityLevel securitylevel;  
Enable_State enable  
}
```

```
GS1128  
{  
Enable_State enable;  
String fieldSeparator; //ranging from 0 to 127  
}
```

```
ISBT128  
{  
Enable_State enable;  
ISBTConcatenationType concatenation;  
int concatenationRedundancy; //ranging from 2 to 20  
}
```

```
Chinese2Of5  
{  
Enable_State enable;  
}
```

```
Industrial2Of5  
{  
Enable_State enable;  
int length1;  
int length2;  
}
```

```
Interleaved2Of5
{
  Enable_State enable;
  int length1;
  int length2;
  Enable_State checkDigitVerification;
  Enable_State transmitCheckDigit;
  Enable_State convertToEan13;
}
```

```
Matrix2Of5
{
  Enable_State enable;
  int length1;
  int length2;
  int redundancy;
  Enable_State checkDigitVerification;
  Enable_State transmitCheckDigit;
}
```

```
UccCoupon
{
  Enable_State enable;
}
```

```
GS1DataBar14
{
  Enable_State enable;
  Enable_State convertToUpcEan;
}
```

```
GS1DataBarLimited
{
  int securityLevel;
  Enable_State enable;
  Enable_State convertToUpcEan;
}
```

Note: The convertToUpcEan elements included in GS1DataBar14 and GS1dataBarLimited symbologies correspond to each other, which means changing either of the element value of a particular symbology will also change the other one.

```
GS1DataBarExpanded
{
  Enable_State enable;
  String fieldSeparator; //ranging from 0 to 127
}
```

```
Msi
{
  Enable_State enable;
  int length1;
  int length2;
  MsiDigitOption checkDigitOption;
  Enable_State transmitCheckDigit;
  DigitAlgorithm checkDigitAlgorithm;
}
```

```
Ean8
{
  Enable_State enable;
  AddonsType addon2;
  AddonsType addon5;
  Enable_State transmitCheckDigit;
  Enable_State convertToEan13;
}
```

```
Ean13
{
  Enable_State enable;
  AddonsType addon2;
  AddonsType addon5;
  Enable_State convertToISBN;
  Enable_State convertToISSN;
  ISBNFormat booklandISBNFormat;
  Enable_State transmitCheckDigit;
}
```

Note: The *addon2*, *addon5*, and *transmitCheckDigit* elements included in *Ean8* and *Ean13* symbologies correspond to each other respectively, which means changing either of the element value of a particular symbology will also change the other one.

```
UpcA
{
  Enable_State enable;
  AddonsType addon2;
  AddonsType addon5;
  Enable_State transmitCheckDigit;
  Preamble transmitSystemNumber;
  Enable_State convertToEan13;
}
```

```
UpcE
{
```

```
Enable_State enable;  
AddonsType addon2;  
AddonsType addon5;  
Enable_State transmitCheckDigit;  
Preamble transmitSystemNumber;  
Enable_State convertToUpca;  
}
```

```
Upce1  
{  
Enable_State enable;  
AddonsType addon2;  
AddonsType addon5;  
Enable_State transmitCheckDigit;  
Preamble transmitSystemNumber;  
Enable_State convertToUpca;  
}
```

Note: The addon2 and addon5 elements included in UpcA, UpcE, and UpcE1 symbologies correspond to each other respectively, which means changing either of the element value of a particular symbology will also change the others.

```
Composite  
{  
Enable_State enableCc_C;  
Enable_State enableCc_AB;  
Enable_State enableTlc39;  
UpcMode enableUpcMode;  
Enable_State enableEmulationMode;  
}
```

```
USPostal  
{  
Enable_State enablePlanet;  
Enable_State enablePostnet;  
Enable_State transmitCheckDigit;  
}
```

```
UKPostal  
{  
Enable_State enable;  
Enable_State transmitCheckDigit;  
}
```

```
JapanPostal  
{  
Enable_State enable;  
}
```

```
AustralianPostal
{
  Enable_State enable;
}
```

```
DutchPostal
{
  Enable_State enable;
}
```

```
USPSPostal
{
  Enable_State enable;
}
```

```
UPUFICSPostal
{
  Enable_State enable;
}
```

```
PDF417
{
  Enable_State enable;
  TransmitMode transmitMode;
  char escapeCharacter;
  Enable_State transmitControlHeader;
}
```

```
MicroPDF417
{
  Enable_State enable;
  Enable_State code128Emulation;
}
```

```
DataMatrix
{
  Enable_State enable;
  String fieldSeparator; //ranging from 0 to 127
  MatrixMirrorImage mirrorImage;
}
```

```
MaxiCode
{
  Enable_State enable;
}
```

```

QRCode
{
  Enable_State enable;
}

```

```

MicroQR
{
  Enable_State enable;
}

```

```

Aztec
{
  Enable_State enable;
}

```

Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
Remarks	<i>length1</i> and <i>length2</i> are integers ranging from 0 to 55
Example	<pre> Codabar settings = new Codabar(); if (CIResult.Err_NotSupport == mReaderManager.Get_Symbology(settings)) {   // to verify whether the symbology is supported }  // if disabled, enable it and then configure it via Set_Symbology if (Codabar.enable == Enable_State.FALSE) {   Codabar.enable = Enable_State.TRUE; } </pre>
See Also	<code>Set_Symbology</code>

### Set\_Symbology

Purpose	Sets symbology settings by implementing a symbology interface instance.
Syntax	<b>CIResult Set_Symbology (SymbologyInterface settings)</b>
Parameters	This function provides 38 symbology parameters implemented as objects. See above for details.
Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
Example	<pre> Codabar settings = new Codabar(); Codabar.enable = Enable_State.TRUE; if (CIResult.S_ERR == mReaderManager.Set_Symbology(settings))   Toast.makeText(this, "Set_Symbology was failed",   Toast.LENGTH_SHORT).show(); else   Toast.makeText(this, "Set_Symbology was successful",   Toast.LENGTH_SHORT).show(); </pre>



See Also [Get\\_Symbology](#)

### 1.5.3. CODABAR CLASS

```
public class Codabar
{
    public Enable_State transmitCheckDigit;
    public CodabarDigitAlgorithm verifyCheckDigit;
    public NOTISEditingType notisEditingType;
    public Enable_State    enable;
    public int              length1;
    public int              length2;
    public Enable_State    clsiEditing;
    public Enable_State    notisEditing;
    public Enable_State    transmitCheckDigit;
}
```

Data Type	Member Name	Description				
Enable_State	transmitCheckDigit	A value specifying whether to transmit check digit. <table border="1"> <tr><td>*TRUE</td></tr> <tr><td>FALSE</td></tr> </table>	*TRUE	FALSE		
*TRUE						
FALSE						
CodabarDigitAlgorithm	verifyCheckDigit	A value specifying whether and how to verify check digit. <table border="1"> <tr><td>*None</td></tr> <tr><td>Modulo_16</td></tr> <tr><td>Modulo_7DR</td></tr> <tr><td>Modulo_Both</td></tr> </table> <p>Note: For Modulo_7DR, the total number of digits in a codabar cannot be greater than '19'; and the first digit in a codabar must be equal to or less than '8'.</p>	*None	Modulo_16	Modulo_7DR	Modulo_Both
*None						
Modulo_16						
Modulo_7DR						
Modulo_Both						
NOTISEditingType	notisEditingType	A value specifying whether to transform it to NOTIS editing format (Start/Stop characters) and the way it is transformed. <table border="1"> <tr><td>*None</td></tr> <tr><td>ABCD_Upper</td></tr> <tr><td>Abcd_Lower</td></tr> </table>	*None	ABCD_Upper	Abcd_Lower	
*None						
ABCD_Upper						
Abcd_Lower						
Enable_State	enable	A value specifying whether to enable Codabar. <table border="1"> <tr><td>*TRUE</td></tr> <tr><td>FALSE</td></tr> </table>	*TRUE	FALSE		
*TRUE						
FALSE						
int	length1	Length qualification				

		*4 (0 ~ 55)
int	length2	Length qualification *55 (0 ~ 55)
Enable_State	clsiEditing	A value specifying whether to edit CLSI. TRUE *FALSE
Enable_State	notisEditing	(Reserved)
Enable_State	transmitCheckDigit	A value specifying whether to transmit check digit. *TRUE FALSE

### 1.5.4. CODE11 CLASS

```
public class Code11
{
    public Enable_State enable;
    public int length1;
    public int length2;
    public NumberOfCheck numberOfCheckDigits;
    public Enable_State transmitCheckDigit;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value specifying whether to enable Code 11. *TRUE FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification *55 (0 ~ 55)
NumberOfCheck	numberOfCheckDigits	A value specifying whether and how to verify check digit. *None One Two
Enable_State	transmitCheckDigit	A value specifying whether to transmit check digit. TRUE *FALSE

### 1.5.5. CODE39 CLASS

```
public class Code39
{
    public Enable_State enable;
    public Enable_State checkDigitVerification;
    public Enable_State transmitCheckDigit;
    public Enable_State fullASCII;
    public Enable_State convertToCode32;
    public Enable_State convertToCode32Prefix;
    public int length1;
    public int length2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Code 39. TRUE *FALSE
Enable_State	checkDigitVerification	A value that specifies whether to verify check digit. *TRUE FALSE
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. TRUE *FALSE
Enable_State	fullASCII	A value that specifies whether to support Code 39 Full ASCII. TRUE *FALSE
Enable_State	convertToCode32	A value that specifies whether to convert Code 39 to Code 32 (= Italian Pharmacode). TRUE *FALSE
Enable_State	convertToCode32Prefix	A value that specifies whether to transmit prefix for Code 32 data. TRUE *FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification

		*55 (0 ~ 55)	
--	--	--------------	--

### 1.5.6. TRIOPTICCODE39 CLASS

```
public class TriopticCode39
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable TriopticCode39. TRUE *FALSE

### 1.5.7. KOREAN3OF5 CLASS

```
public class Korean3Of5
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Korean 3 of 5. *TRUE FALSE

### 1.5.8. CODE93 CLASS

```
public class Code93
{
    public Enable_State enable;
    public int length1;
    public int length2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Code 93. *TRUE FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification

		*55 (0 ~ 55)	
--	--	--------------	--

### 1.5.9. CODE128 CLASS

```
public class Code128
{
    public Code128SecurityLevel securitylevel;
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Code128SecurityLevel	securitylevel	A value that specifies the decode security level while reading Code128. *High Low
Enable_State	enable	A value that specifies whether to enable Code 128. *TRUE FALSE

### 1.5.10. GS1128 CLASS

```
public class GS1128
{
    public Enable_State enable;
    public String fieldSeparator;
    public Enable_State enableApplicationIdentifier; // Default is disable
    public String applicationIdentifierMark1;
    public String applicationIdentifierMark2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable GS1 128. *TRUE FALSE
String	fieldSeparator	A value that specifies whether to apply a field separator of ASCII ranging from 0 to 127. It's set to zero by default.
Enable_State	enableApplicationIdentifier	A value that specifies whether to enable the application identifier. TRUE *FALSE
String	applicationIdentifierMark1	Application ID mark 1

String	applicationIdentifierMark2	Application ID mark 2
--------	----------------------------	-----------------------

### 1.5.11. ISBT128 CLASS

```
public class ISBT128
{
    public Enable_State enable;
    public ISBTConcatenationType concatenation;
    public int concatenationRedundancy;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable ISBT 128. *TRUE FALSE
ISBTConcatenationType	concatenation	A value that specifies whether to decode and concatenate pairs of ISBT barcodes. Disable Enable *Auto
int	concatenationRedundancy	A value that specifies concatenation redundancy (2~20 times) when auto-discriminate of ISBT concatenation is enabled. By default, it is set to 10 times.

### 1.5.12. CHINESE20F5 CLASS

```
public class Chinese20f5
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Chinese 25. *TRUE FALSE

### 1.5.13. INDUSTRIAL20F5 CLASS

```
public class Industrial20f5
{
    public Enable_State enable;
    public int length1;
    public int length2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Industrial 25. *TRUE FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification *55 (0 ~ 55)

### 1.5.14. INTERLEAVED20F5 CLASS

```
public class Interleaved 25
{
    public Enable_State enable;
    public int length1;
    public int length2;
    public I20f5CheckDigitVerification checkDigitVerification;
    public Enable_State transmitCheckDigit;
    public Enable_State convertToEan13;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Interleaved 25. *TRUE FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification *55 (0 ~ 55)
I20f5CheckDigitVerification	checkDigitVerification	A value that specifies whether and how to verify check digit.

		*Disable
		USS
		OPCC
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. It is available only when I20f5CheckDigitVerification is not disabled.
		TRUE
		*FALSE
Enable_State	convertToEan13	A value that specifies whether to convert Interleaved 25 to EAN-13.
		TRUE
		*FALSE

### 1.5.15. MATRIX20F5 CLASS

```
public class Matrix 25
{
    public Enable_State enable;
    public int length1;
    public int length2;
    public Enable_State redundancy;
    public Enable_State checkDigitVerification;
    public Enable_State transmitCheckDigit;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Matrix 25.
		*TRUE
		FALSE
int	length1	Length qualification
		*4 (0 ~ 55)
int	length2	Length qualification
		*55 (0 ~ 55)
Enable_State	redundancy	A value that specifies whether to enable decode redundancy.
		TRUE
		*FALSE
Enable_State	checkDigitVerification	A value that specifies whether to verify check digit.
		TRUE
		*FALSE



Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. TRUE *FALSE
--------------	--------------------	---

### 1.5.16. UCCCOUPON CLASS

```
public class UccCoupon
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UCC Coupon. TRUE *FALSE

### 1.5.17. GS1DATABAR14 CLASS

```
public class GS1DataBar14
{
    public int securityLevel;
    public Enable_State enable;
    public Enable_State convertToUpcEan;
}
```

Data Type	Member Name	Description
int	securityLevel	A value that specifies the decode security level while reading GS1 DataBar 14. *1 (0 ~ 3)
Enable_State	enable	A value that specifies whether to enable GS1 DataBar-14. *TRUE FALSE
Enable_State	convertToUpcEan	A value that specifies whether to convert RSS to UPC/EAN barcodes. TRUE *FALSE

### 1.5.18. GS1DATABARLIMITED CLASS

```
public class GS1DataBarLimited
{
    public int securityLevel;
    public Enable_State enable;
    public Enable_State convertToUpcEan;
}
```

Data Type	Member Name	Description
int	securityLevel	A value that specifies the decode security level while reading GS1 DataBar Limited. *3 (1 ~ 4)
Enable_State	enable	A value that specifies whether to enable GS1 DataBar Limited. *TRUE FALSE
Enable_State	convertToUpcEan	A value that specifies whether to convert RSS to UPC/EAN barcodes. TRUE *FALSE

### 1.5.19. GS1DATABAREXPANDED CLASS

```
public class GS1DataBarExpanded
{
    public int securityLevel;
    public Enable_State enable;
    public String fieldSeparator;
}
```

Data Type	Member Name	Description
int	securityLevel	A value that specifies the decode security level while reading GS1 DataBar Expanded. *1 (0 ~ 3)
Enable_State	enable	A value that specifies whether to enable GS1 DataBar Expanded. *TRUE FALSE
String	fieldSeparator	A value that specifies whether to apply a field separator of ASCII ranging from 0 to 127. It's set to zero by default.

## 1.5.20. MSI CLASS

```
public class Msi
{
    public Enable_State enable;
    public int length1;
    public int length2;
    public MsiDigitOption checkDigitOption;
    public Enable_State transmitCheckDigit;
    public DigitAlgorithm checkDigitAlgorithm;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable MSI. *TRUE FALSE
int	length1	Length qualification *4 (0 ~ 55)
int	length2	Length qualification *55 (0 ~ 55)
MsiDigitOption	checkDigitOption	A value that specifies how to verify check digit. *Onedigit TwoDigits
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
DigitAlgorithm	checkDigitAlgorithm	A value that specifies which algorithm to apply. *Modulo_10_11 DoubleModulo_10

### 1.5.21. EAN8 CLASS

```
public class Ean8
{
    public Enable_State enable;
    public AddonsType addon2;
    public AddonsType addon5;
    public Enable_State transmitCheckDigit;
    public Enable_State convertToEan13;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable EAN-8. *TRUE FALSE
AddonsType	addon2	A value that specifies the way processing addon2. *IgnoresAddon AutoDiscriminate
AddonsType	addon5	A value that specifies the way processing addon5. *IgnoresAddon AutoDiscriminate
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
Enable_State	convertToEan13	A value that specifies whether to convert EAN-8 to EAN-13. TRUE *FALSE

## 1.5.22. EAN13 CLASS

```
public class Ean13
{
    public Enable_State enable;
    public AddonsType addon2;
    public AddonsType addon5;
    public Enable_State convertToISBN;
    public Enable_State convertToISSN;
    public ISBNFormat booklandISBNFormat;
    public Enable_State transmitCheckDigit;
}
```

Data Type	Member Name	Description		
Enable_State	enable	A value that specifies whether to enable EAN-13. <table border="1"> <tr><td>*TRUE</td></tr> <tr><td>FALSE</td></tr> </table>	*TRUE	FALSE
*TRUE				
FALSE				
AddonsType	addon2	A value that specifies the way processing addon2. <table border="1"> <tr><td>*IgnoresAddon</td></tr> <tr><td>AutoDiscriminate</td></tr> </table>	*IgnoresAddon	AutoDiscriminate
*IgnoresAddon				
AutoDiscriminate				
AddonsType	addon5	A value that specifies the way processing addon5. <table border="1"> <tr><td>*IgnoresAddon</td></tr> <tr><td>AutoDiscriminate</td></tr> </table>	*IgnoresAddon	AutoDiscriminate
*IgnoresAddon				
AutoDiscriminate				
Enable_State	convertToISBN	A value that specifies whether to convert EAN-13 to ISBN. <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				
Enable_State	convertToISSN	A value that specifies whether to convert EAN-13 to ISSN. <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				
ISBNFormat	booklandISBNFormat	If you enabled Bookland EAN, select one of the following formats for Bookland data. <table border="1"> <tr><td>ISBN_10</td></tr> <tr><td>ISBN_13</td></tr> </table>	ISBN_10	ISBN_13
ISBN_10				
ISBN_13				
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <table border="1"> <tr><td>*TRUE</td></tr> <tr><td>FALSE</td></tr> </table>	*TRUE	FALSE
*TRUE				
FALSE				

### 1.5.23. UPCA CLASS

```
public class Upca
{
    public Enable_State enable;
    public AddonsType addon2;
    public AddonsType addon5;
    public Enable_State transmitCheckDigit;
    public Preamble transmitSystemNumber;
    public Enable_State convertToEan13;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UPC-A. *TRUE FALSE
AddonsType	addon2	A value that specifies the way processing addon2. *IgnoresAddon AutoDiscriminate
AddonsType	addon5	A value that specifies the way processing addon5. *IgnoresAddon AutoDiscriminate
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-A preamble. None *SysNumOnly SysNumAndCtyCode
Enable_State	convertToEan13	A value that specifies whether to convert to EAN-13. TRUE *FALSE

### 1.5.24. UPCE CLASS

```
public class Upce
{
    public Enable_State enable;
    public AddonsType addon2;
    public AddonsType addon5;
    public Enable_State transmitCheckDigit;
    public Preamble transmitSystemNumber;
    public Enable_State convertToUpcA;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UPC-E. *TRUE FALSE
AddonsType	addon2	A value that specifies the way processing addon2. *IgnoresAddon AutoDiscriminate
AddonsType	addon5	A value that specifies the way processing addon5. *IgnoresAddon AutoDiscriminate
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-E preamble. None *SysNumOnly SysNumAndCtyCode
Enable_State	convertToUpcA	A value that specifies whether to convert to UPC-A. TRUE *FALSE

## 1.5.25. UPCE1 CLASS

```
public class UpcE1
{
    public Enable_State enable;
    public AddonsType addon2;
    public AddonsType addon5;
    public Enable_State transmitCheckDigit;
    public Preamble transmitSystemNumber;
    public Enable_State convertToUpcA;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UPC-E1. *TRUE FALSE
AddonsType	addon2	A value that specifies the way processing addon2. *IgnoresAddon AutoDiscriminate
AddonsType	addon5	A value that specifies the way processing addon5. *IgnoresAddon AutoDiscriminate
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-E1 preamble. None *SysNumOnly SysNumAndCtyCode
Enable_State	convertToUpcA	A value that specifies whether to convert to UPC-A. TRUE *FALSE



### 1.5.26. COMPOSITE CLASS

```
public class Composite
{
    public Enable_State enableCc_C;
    public Enable_State enableCc_AB;
    public Enable_State enableTlc39;
    public UpcMode enableUpcMode;
    public Enable_State enableEmulationMode;
}
```

Data Type	Member Name	Description
Enable_State	enableCc_C	A value that specifies whether to enable Composite CC-C. *TRUE FALSE
Enable_State	enableCc_AB	A value that specifies whether to enable Composite CC-A/B. TRUE *FALSE
Enable_State	enableTlc39	A value that specifies whether to enable Composite TLC-39 (=TCIF Linked). TRUE *FALSE
UpcMode	enableUpcMode	A value that specifies whether to enable UPC Composite Mode. NeverLinksUPC *AlwaysLinksUPC Auto
Enable_State	enableEmulationMode	A value that specifies whether to enable GS1-128 Emulation Mode for UCC/EAN Composite Codes. TRUE *FALSE

**1.5.27. USPOSTAL CLASS**

```
public class USPostal
{
    public Enable_State enablePlanet;
    public Enable_State enablePostnet;
    public Enable_State transmitCheckDigit;
}
```

Data Type	Member Name	Description
Enable_State	enablePlanet	A value that specifies whether to enable US Planet. *TRUE FALSE
Enable_State	enablePostnet	A value that specifies whether to enable US Postnet. *TRUE FALSE
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE

**1.5.28. UKPOSTAL CLASS**

```
public class UKPostal
{
    public Enable_State enable;
    public Enable_State transmitCheckDigit;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UK Postal. *TRUE FALSE
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE

### 1.5.29. JAPANPOSTAL CLASS

```
public class JapanPostal
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Japan Postal. *TRUE FALSE

### 1.5.30. AUSTRALIANPOSTAL CLASS

```
public class AustralianPostal
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Australian Postal. *TRUE FALSE

### 1.5.31. DUTCHPOSTAL CLASS

```
public class DutchPostal
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Dutch Postal. *TRUE FALSE

### 1.5.32. USPSPOSTAL CLASS

```
public class USPSPostal
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable USPS Postal. *TRUE FALSE

### 1.5.33. UPUFICSPOSTAL CLASS

```
public class UPUFICSPostal
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable UPUFICS Postal. *TRUE FALSE

### 1.5.34. PDF417 CLASS

```
public class PDF417
{
    public Enable_State enable;
    public TransmitMode transmitMode;
    public Enable_State escapeCharacter;
    public Enable_State transmitControlHeader;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable PDF417. *TRUE FALSE
TransmitMode	transmitMode	A value that specifies how to handle decoding. BufferAllSymbols TransmitAnySymbolInSet

		*PassthroughAllSymbols		
Enable_State	escapeCharacter	<p>A value that specifies whether to use the escape character.</p> <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				
Enable_State	transmitControlHeader	<p>A value that specifies whether to transmit the control header.</p> <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				

### 1.5.35. MICROPDF417 CLASS

```
public class MicroPDF417
{
    public Enable_State enable;
    public Enable_State code128Emulation;
}
```

Data Type	Member Name	Description		
Enable_State	enable	<p>A value that specifies whether to enable MicroPDF417.</p> <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				
Enable_State	code128Emulation	<p>A value that specifies whether to enable Code 128 Emulation for certain MicroPDF417 barcodes.</p> <table border="1"> <tr><td>TRUE</td></tr> <tr><td>*FALSE</td></tr> </table>	TRUE	*FALSE
TRUE				
*FALSE				

### 1.5.36. DATAMATRIX CLASS

```
public class DataMatrix
{
    public Enable_State enable;
    public String fieldSeparator;
    public MatrixMirrorImage mirrorImage;
}
```

Data Type	Member Name	Description		
Enable_State	enable	<p>A value that specifies whether to enable Data Matrix.</p> <table border="1"> <tr><td>*TRUE</td></tr> <tr><td>FALSE</td></tr> </table>	*TRUE	FALSE
*TRUE				
FALSE				
String	fieldSeparator	<p>A value that specifies whether to apply a field separator of ASCII ranging from 0 to 127. It's set to zero by default.</p>		

MatrixMirrorImage	mirrorImage	A value that specifies whether to decode mirror image Data Matrix barcodes.
		*Never
		Always
		Auto

### 1.5.37. MAXICODE CLASS

```
public class MaxiCode
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Maxicode.
		*TRUE
		FALSE

### 1.5.38. QR CODE CLASS

```
public class QRCode
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable QR Code.
		*TRUE
		FALSE

### 1.5.39. MICROQR CLASS

```
public class MicroQR
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable MicroQR.
		*TRUE
		FALSE

### 1.5.40. AZTEC CLASS

```
public class Aztec
{
    public Enable_State enable;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Aztec. *TRUE FALSE

### 1.5.41. TELEPEN CLASS

```
public class Telepen
{
    public Enable_State enable;
    public TelepenFormat format;
    public int length1;
    public int length2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Telepen. *TRUE FALSE
TelepenFormat	format	A value that sets output format. "0" represents ASCII, while "1" represents Numeric. *0 1
int	length1	Length qualification *0 (0 ~ 55)
int	length2	Length qualification *0 (0 ~ 55)

## 1.5.42. PLESSEY CLASS

```
public class Plessey
{
public Enable_State enable;
public Enable_State unconventionalStop;
public Enable_State transmitCheckDigit;
public int length1;
public int length2;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Plessey. *TRUE FALSE
Enable_State	State unconventionalStop	A value that specifies whether to enable Plessey unconventional stop. When this function is enabled, Plessey bar codes can be decoded with a stop which is a variation of a standard one (bars are narrower or wider). *TRUE FALSE
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. *TRUE FALSE
int	length1	Length qualification *0 (0 ~ 55)
int	length2	Length qualification *0 (0 ~ 55)



## 1.6. RESET READER

### ResetReaderToDefault

Purpose	Resets reader module(s).
Syntax	<b>CIResult ResetReaderToDefault ()</b>
Example	<pre>if (CIResult.S_ERR == mReaderManager.ResetReaderToDefault()) {     Toast.makeText(this, "ResetReaderToDefault was failed",         Toast.LENGTH_SHORT).show(); } else {     Toast.makeText(this, "ResetReaderToDefault was done!",         Toast.LENGTH_SHORT).show(); }</pre>
Return Value	If successful, it returns CIResult.S_OK. Otherwise, it returns CIResult.S_ERR.
Remarks	It takes approximately 2 seconds to reset reader(s) to default.
See Also	InitReader

## 1.7. INTENT

### 1.7.1. READER SERVICE CONNECTION

#### **GeneralString.Intent\_READERSERVICE\_CONNECTED**

**Purpose** After running InitInstance, the system makes connection between the application and the reader service. With success in making connection, this intent is sent.

### 1.7.2. SOFTWARE TRIGGER

#### **GeneralString.Intent\_SOFTTRIGGER\_DATA**

**Purpose** By calling SoftScanTrigger() to scan the barcode with success, this intent is used to inform the application. Parameters supported are as follows.

<b>Parameters</b>	<b>GeneralString.BcReaderData</b>	Decode data (Post-Process by Reder Service)
	<b>GeneralString.BcReaderData Array</b>	Raw decode data
	<b>GeneralString.BcReaderCode Type</b>	Decode code type (refer to <a href="#">Appendix III Code Type &amp; Symbology</a> )
	<b>GeneralString.BcReaderCode TypeStr</b>	Decode code type string

**Syntax**

```
getStringExtra(GeneralString.BcReaderData)
getBytesExtra(GeneralString.BcReaderDataArray)
getIntExtra(GeneralString.BcReaderCodeType)
getStringExtra(GeneralString.BcReaderCodeTypeStr)
```

### 1.7.3. HARDWARE SCAN KEY

#### **GeneralString.Intent\_PASS\_TO\_APP**

**Purpose** When using the hardware scan key to read the barcode with success, this intent is used to inform the application (Keyboard Emulator is not enabled). Parameters supported are as follows.

<b>Parameters</b>	<b>GeneralString.BcReaderData</b>	Decode data (Post-Process by Reder Service)
	<b>GeneralString.BcReaderData Array</b>	Raw decode data
	<b>GeneralString.BcReaderCode Type</b>	Decode code type (refer to <a href="#">Appendix III Code Type &amp; Symbology</a> )
	<b>GeneralString.BcReaderCode TypeStr</b>	Decode code type string

**Syntax**

```
getStringExtra(GeneralString.BcReaderData)
getBytesExtra(GeneralString.BcReaderDataArray)
getIntExtra(GeneralString.BcReaderCodeType)
getStringExtra(GeneralString.BcReaderCodeTypeStr)
```

### 1.7.4. DECODING ERROR

**GeneralString.Intent\_DECODE\_ERROR**

Purpose	If an error occurs in decoding the barcode, this intent is used to inform the application.	
Parameters	<b>GeneralString.BcReaderDecodeError</b>	Only for Codabar check digit verification. (DecodeErrorType.ERROR_Codabar_Verify_Check_Digit)
Syntax	<b>getIntentExtra(GenralString.BcReaderDecodeError)</b>	

### 1.7.5. DATA SENDING

The table below depicts the data sent by intents or Keyboard Emulator depending on the conditions.

Keyboard Emulator ON/OFF	Software Trigger	HW Scan Key
On	Data is sent by Intent (Intent_SOFTTRIGGER_DATA) instead of Keyboard Emulator.	Data is sent by Keyboard Emulator.
Off	Data is sent by Intent (Intent_SOFTTRIGGER_DATA).	Data is sent by Intent (Intent_PASS_TO_APP).

## 1.8. CALLBACK

When the callback function is enabled, the intent is then disabled.

### 1.8.1. SETREADERCALLBACK

#### SetReaderCallback

Purpose	Set the reader callback function.
Syntax	<b>void SetReaderCallback(ReaderCallback readerCallback);</b>
Example	<pre>interface ReaderCallback {     void onDecodeComplete(in String strDecodeData); }</pre>
See Also	GetReaderCallbackStatus

### 1.8.2. GETREADERCALLBACK

#### GetReaderCallbackStatus

Purpose	Verify whether the callback function is enabled.
Syntax	<b>boolean GetReaderCallbackStatus();</b>
Return Value	If the callback function is enabled, it returns true. Otherwise, it returns false.
See Also	SetReaderCallback

### 1.8.3. SAMPLE CODE

```
public class MainActivity extends Activity implements ReaderCallback {

private ReaderCallback mReaderCallback = null;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    e1 = (EditText)findViewById(R.id.editText1);

    // *****//
    // Need to get ReaderManager instance first , or you can't call any APIs of ReaderManager
    // *****//
    mReaderManager = ReaderManager.InitInstance(this);
    mReaderCallback = this;

    // *****//
    // Register an IntentFilter
    // Add GeneralString.Intent_READERSERVICE_CONNECTED for knowing apk is connected with
    // Barcode Reader Service
    // *****//
    filter = new IntentFilter();
```

```
filter.addAction(GeneralString.Intent_READERSERVICE_CONNECTED);
registerReceiver(myDataReceiver, filter);

// create a BroadcastReceiver for receiving intents from barcode reader service
private final BroadcastReceiver myDataReceiver = new BroadcastReceiver() {
    @Override
    public void onReceive(Context context, Intent intent) {

        if(intent.getAction().equals(GeneralString.Intent_READERSERVICE_CONNECTED)){
            // Make sure this app bind to barcode reader service , then user can use APIs
            // to get/set settings from barcode reader service

            BcReaderType myReaderType = mReaderManager.GetReaderType();
            e1.setText(myReaderType.toString());

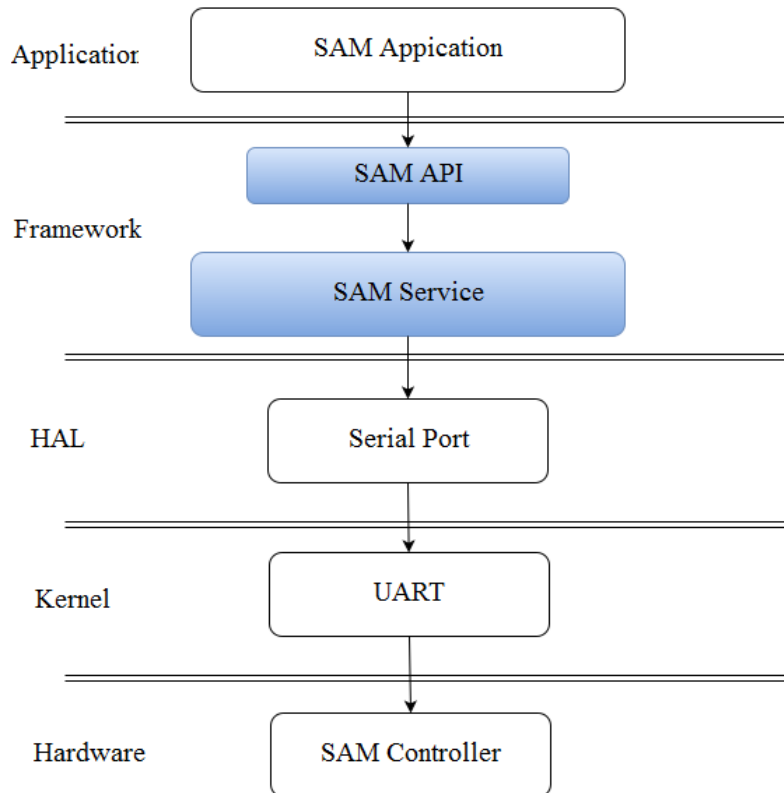
            if(mReaderCallback != null)
            {
                // Enable Callback function
                mReaderManager.SetReaderCallback(mReaderCallback);
            }
        }
    }
};

@Override
public void onDecodeComplete(String arg0) throws RemoteException {
    // TODO Auto-generated method stub
    //e1.setText(arg0);
    Toast.makeText(this, "Decode Data " + arg0, Toast.LENGTH_SHORT).show();
}
}
```

## SAM API

---

Because Google hasn't defined the class relating to SAM, this object provides the SAM Controller access method for the application.



Before developing your self-made application, the offered "**SamAPI.jar**" library file has to be imported into your project. Please refer to [1.1 Import Library](#) on how to import the library.

<b>Library required:</b>
SamAPI.jar

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## 2.1 BIND SAM SERVICE

### SamManager InitInstance(Context context)

Purpose	Binds SAM service.
Parameters	<i>context</i> is Activity
Example	<pre>private SamManager m_SM; @Override protected void onCreate(Bundle savedInstanceState) {     super.onCreate(savedInstanceState);     setContentView(R.layout.activity_main);      m_SM = SamManager.InitInstance(this); }</pre>
Return Value	Gets a SamManager instance if successful, else null.

### CIResult ExecuteApu(int[] cmd, ApduOutputData outputData, int timeOut)

Purpose	Sends APDU command and get response of IC card.
Parameters	<i>cmd</i> – [in] An integer array (APDU command). <i>outputData</i> – [out] An ApduOutputData object. <i>timeout</i> – [in] An integer value (ms).
Example	<pre>int[] cmd={0x00,0x01,0x02,0x03,0x04,0x05};  ApduOutputData outputData=new ApduOutputData();  if (CIResult.S_OK == m_SM.ExecuteApu(cmd, outputData, 2000)) {     tvOutput.setText("Len is " + outputData.length + "\nData is " +     intArrayToHex(outputData.outputData)); } //Details of the ApduOutputData object //public class ApduOutputData { //    public int[] outputData; //    public int length; //}</pre>
Return Value	If successful, it returns CIResult.S_OK. Otherwise, it returns CIResult.S_ERR.

### Release

Purpose	Unbinds SAM service.
Syntax	<b>void Release ();</b>

Example           @Override  
                  protected void onDestroy() {  
                  super.onDestroy();  
                  m\_SM.Release();  
                  }

See Also           SamManager InitInstance

### CIResult Reset

Purpose            Reset SAM controller.  
Syntax            **CIResult Reset()**  
Return Value     If successful, it returns CIResult.S\_OK.  
                  Otherwise, it returns CIResult.S\_ERR.

## 2.2 SERVICE INFORMATION

### Get\_SamServiceVer

Purpose            Gets SAM service version of the device.  
Syntax            **String Get\_SamServiceVer ();**  
Example           String ver = m\_SM.Get\_SamServiceVer()





# Chapter 3

## OS UPDATE

OS update (including upgrade and downgrade) will supply Intent for users to install upgrade/downgrade package on both internal storage and external SD card.

Upgrade/downgrade Package File	Data_SDPath
Internal storage	/storage/sdcard0/
SD card	/storage/sdcard1/

Notes: OS Update is now only available for RS31. End users themselves should ensure the source of download package is official and safe.

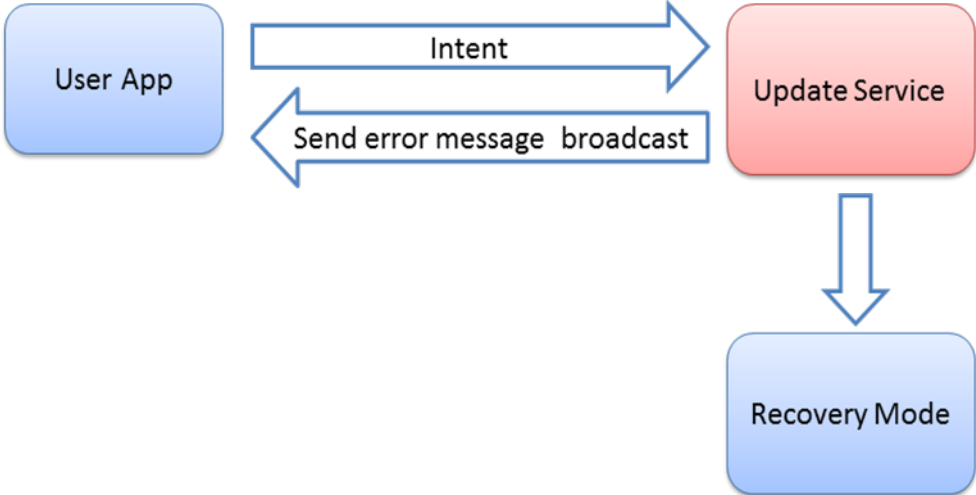
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### 3.1 OS UPDATE INTENT

#### 3.1.1. OS UPDATE ARCHITECTURE

The diagram below depicts the OS Update for RS31.



OS Update function diagram

### 3.1.2. LAUNCH OS UPDATE WITH INTENT

Purpose	Launch the OS update with intent.
Intent Action	<b>com.cipherlab.OtaUpdateService.SD</b>
Intent Name	<b>com.cipherlab.otaupdate.OtaUpdateService</b>
Intent Parameters	<b>Data_SDPath</b>
Example	<pre>Intent SDIntent = new Intent(); SDIntent.setClassName("com.cipherlab.otaupdate", "com.cipherlab.otaupdate.OtaUpdateService"); SDIntent.setAction("com.cipherlab.OtaUpdateService.SD"); Bundle bundle = new Bundle(); bundle.putString("Data_SDPath", "/storage/sdcard1/RS31.GMS.2020.20170513.sdupgrade.zip"); SDIntent.putExtras(bundle); mContext.startService(SDIntent);</pre>

Remarks 1. "Data\_SDPath" is the absolute path of the upgrade/downgrade package file.

Upgrade/downgrade Package File	Data_SDPath
Flash (internal storage)	/storage/sdcard0/xx.zip
SD card	/storage/sdcard1/xx.zip

2. The battery should be more than 50% and the memory should be larger than the file size of upgrade/downgrade package. The service will check the amount of free memory, SD card, or Flash, where the unzipped file is located.

Update File Location	Flash Space	SD Card Space	Update Result
Flash	Insufficient space	None	X
Flash	Insufficient space	Insufficient space	X
Flash	Insufficient space	Enough space	X
Flash	Enough space	None	O
Flash	Enough space	Insufficient space	O
SD card	Insufficient space	Insufficient space	X
SD card	Insufficient space	Enough space	O
SD card	Enough space	Insufficient space	X

Insufficiency: The free space is less than the size of update.

### 3.1.3. GET ERROR MESSAGE WITH BROADCAST

**Purpose** If an error occurs during OS update, this intent is used to inform the application.

**Intent Action** **com.cipherlab.OtaUpdateService.ErrorMessage**

**Intent Parameters** **Data\_ErrorMessage**

Intent Return Integer Value	Error Message	Description	Value
	ERROR_UNZIP	Upgrade/downgrade package unzip failed.	2100
	ERROR_NO_FILE	Upgrade/downgrade package does not exist or incorrect format.	2101
	ERROR_LOW_BATTERY	Battery is less than 50%.	2102
	ERROR_NOT_ENOUGH_SPACE	There is insufficient space to unzip upgrade/downgrade package.	2103

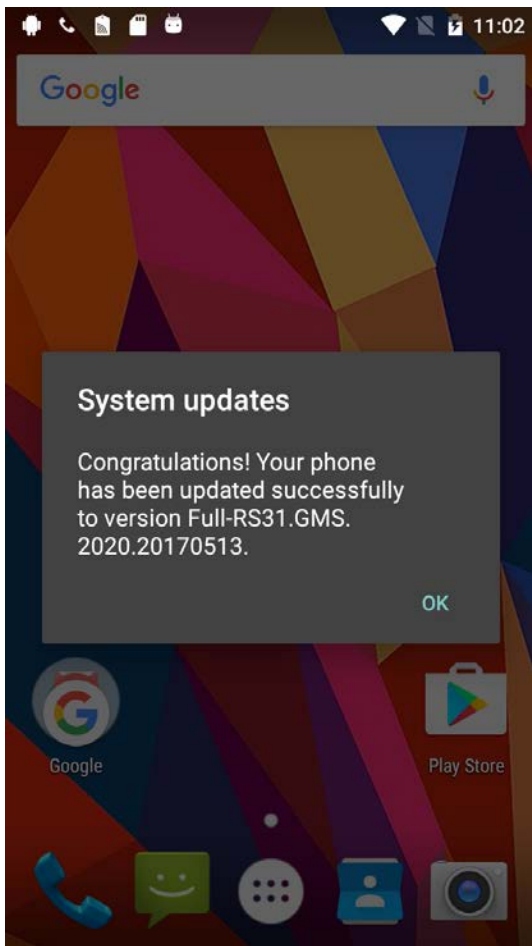
**Example**

```

If (intent.getAction().equals("com.cipherlab.OtaUpdateService.ErrorMessage"))
{
    Bundle GetErrorbundle = intent.getExtras();
    int value = GetErrorbundle.getInt("Data_ErrorMessage");
    TextViewVaule = "ErrorMessage = " + value + "\n";
}
    
```

### 3.1.4. OS UPDATE RESULT

After upgrade, the device restarts into normal mode in new system version. And then a dialog displays after the phone boots up to indicate the upgrade result.



### 3.1.5. SAMPLE CODE

```
package com.example.sdupdateexample;

import android.app.Activity;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends Activity {

    private Button sd ;
    private TextView TextViewVaule;
    String ErrorValue ;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // *****//
        // Create an IntentFilter to get intents which we want
        // Register an IntentFilter
        // Add "com.cipherlab.OtaUpdateService.ErrorMessage" for fetching the
error message
        // *****//
        IntentFilter filter_return = new IntentFilter();
        filter_return.addAction("com.cipherlab.OtaUpdateService.ErrorMessage");
        registerReceiver(myReceiver_return, filter_return);

        TextViewVaule = (TextView)findViewById(R.id.textView1);
```

```
sd = (Button)findViewById(R.id.button1);
sd.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View v) {
        // call OS Update sample code
        SD_Update();
    }
});
}

// Here is the launch OS Update with intent examples
public void SD_Update()
{
    Intent SDIntent = new Intent();

    SDIntent.setClassName("com.cipherlab.otaupdate","com.cipherlab.otaupdate.Ota
UpdateService");
    //Set the SD action to be performed.
    SDIntent.setAction("com.cipherlab.OtaUpdateService.SD");
    Bundle bundle = new Bundle();
    //Add update path to the intent.
    bundle.putString("Data_SDPath", "/storage/sdcard1/
RS31.GMS.2020.20170513.sdupgrade.zip");
    SDIntent.putExtras(bundle);
    startService(SDIntent);
}

// create a BroadcastReceiver for receiving intents from OS Update service
private final BroadcastReceiver myReceiver_return = new BroadcastReceiver()
{
    @Override
    public void onReceive(Context context, Intent intent)
    {
        // Error message must receive this intent message

        if(intent.getAction().equals("com.cipherlab.OtaUpdateService.ErrorMessage"))
```



```
        {
            // Fetch the error message along with the intent.
            Bundle GetErrorbundle = intent.getExtras();
            int value = GetErrorbundle.getInt("Data_ErrorMessage");
            ErrorValue = "ErrorMessage = " + value + "\n";
            TextViewVaule.setText(ErrorValue);
        }
    }
};

@Override
public void onDestroy()
{
    // *****//
    // Unregister Broadcast Receiver before app close
    // *****//
    unregisterReceiver(myReceiver_return);
    super.onDestroy();
}
}
```

## RESPONSE CODE INSTRUCTIONS

---

<b>Value</b>	<b>Instruction</b>
CIResult.S_OK	Successful completion of request
CIResult.S_ERR	Unknown error
CIResult.ERR_NotSupport	Symbology not supported
CIResult.ERR_InvalidParameter	Invalid parameter



## SCAN ENGINE SETTINGS

---

The mobile computer is equipped with a barcode reader as follows. Reader availability depends on the hardware integrated on the mobile computer.

Scan Engine		ID
1D	CCD	SM1
1D	Laser	SE955
		SE965
		SE965I
		SE965E
1D	Extended Range Laser (ER Laser)	SE1524
2D	2D Imager	SE4500
		SE4500 + PL4507
		SE4750SR
		SE4750MR
2D	Near/Far 2D Imager (N/F 2D)	EX25

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---

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## SYMBOLOGIES SUPPORTED

Depending on the scan engine integrated on the mobile computer, supported symbologies will differ as listed below.

		CCD	Laser	ER Laser	2D	N/F 2D
<b>Codabar</b>		✓	✓	✓	✓	✓
<b>Code 11</b>		✗	✓	✓	✓	✓
<b>Code 39</b>	Code 39	✓	✓	✓	✓	✓
	Trioptic Code 39	✗	✓	✓	✓	✓
	Italian Pharmacode (Code 32)	✓	✓	✓	✓	✗
<b>Code 93</b>		✓	✓	✓	✓	✓
<b>Code 128</b>	Code 128	✓	✓	✓	✓	✓
	GS1-128 (EAN-128)	✓	✓	✓	✓	✓
	ISBT 128	✓	✓	✓	✓	✓
<b>Code 2 of 5</b>	Chinese 25	✗	✓	✗	✓	✗
	Industrial 25 (Discrete 25)	✓	✓	✓	✓	✓
	Interleaved 25	✓	✓	✓	✓	✓
	Convert Interleaved 25 to EAN-13	✗	✓	✓	✓	✗
	Matrix 25	✗	✗	✗	✓	✓
<b>Composite Code</b>	Composite CC-A/B	✗	✗	✗	✓	✓
	Composite CC-C	✗	✗	✗	✓	✓
	Compostie TLC 39	✗	✗	✗	✓	✗
<b>GS1 DataBar (RSS)</b>	GS1 DataBar-14 (RSS-14)	✓	✓	✓	✓	✓
	GS1 DataBar Limited (RSS Limited)	✓	✓	✓	✓	✓
	GS1 DataBar Expanded (RSS Expanded)	✓	✓	✓	✓	✓
	Convert to UPC/EAN	✗	✓	✓	✓	✗
<b>Inverse</b>	Inverse 1D barcodes	✗	✗	✗	✓	✗
<b>Korean 3 of 5</b>		✗	✗	✗	✓	✗
<b>MSI</b>		✓	✓	✓	✓	✓

<b>Postal Codes</b>	Australian Postal	✘	✘	✘	✓	✓
	Japan Postal	✘	✘	✘	✓	✓
	Netherlands KIX Code	✘	✘	✘	✓	✓
	US Postnet	✘	✘	✘	✓	✓
	US Planet	✘	✘	✘	✓	✓
	UK Postal	✘	✘	✘	✓	✘
<b>EAN/UPC</b>	EAN-8	✓	✓	✓	✓	✓
	EAN-8 Extend	✓	✓	✓	✓	✘
	EAN-13	✓	✓	✓	✓	✓
	Bookland EAN (ISBN)	✓	✓	✓	✓	✓
	ISSN EAN	✘	✘	✘	✓	✓
	UPC-A	✓	✓	✓	✓	✓
	UPC-E	✓	✓	✓	✓	✓
	Convert UPC-E to UPC-A	✓	✓	✓	✓	✓
	UPC-E1	✓	✓	✓	✓	✓
	Convert UPC-E1 to UPC-A	✓	✓	✓	✓	✘
<b>2D Symbologies</b>	Aztec	✘	✘	✘	✓	✓
	Data Matrix	✘	✘	✘	✓	✓
	Maxicode	✘	✘	✘	✓	✓
	MicroPDF417	✘	✘	✘	✓	✓
	MicroQR	✘	✘	✘	✓	✓
	PDF417	✘	✘	✘	✓	✓
	QR Code	✘	✘	✘	✓	✓

## CONFIGURABLE SYMBOLOGY PROPERTIES

Depending on the scan engine integrated on the mobile computer, configurable symbology properties will differ as listed below.

Symbologies	Properties	CCD	Laser	ER laser	2D	N/F 2D
<b>General Properties</b>						
<b>Codabar</b>	transmitCheckDigit	✓	✓	✓	✓	✓
	verifyCheckDigit	✓	✓	✓	✓	✓
	notisEditingType	✓	✓	✓	✓	✓
	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
	clsiEditing	✓	✓	✓	✓	✓
	notisEditing					
<b>Code11</b>	enable		✓		✓	✓
	length1		✓		✓	✓
	length2		✓		✓	✓
	numberOfCheckDigits		✓		✓	✓(1)
	transmitCheckDigit		✓		✓	✓
<b>Code39</b>	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
	checkDigitVerification	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	fullASCII	✓	✓	✓	✓	✓
	convertToCode32	✓	✓	✓	✓	
	convertToCode32Prefix	✓	✓	✓	✓	
<b>TriopticCode39</b>	enable		✓	✓	✓	✓
<b>Korean3Of5</b>	enable				✓	
<b>Code93</b>	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
<b>Code128</b>	enable	✓	✓	✓	✓	✓
	securityLevel	✓(2)				
<b>GS1128</b>	enable	✓	✓	✓	✓	✓
	fieldSeparator	✓	✓	✓	✓	✓
<b>ISBT128</b>	enable	✓	✓	✓	✓	✓
	concatenation				✓	✓
	concatenationRedundancy				✓	

<b>Chinese2Of5</b>	enable		✓		✓	
<b>Industrial2Of5</b>	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
<b>Interleaved2Of5</b>	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
	checkDigitVerification	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	convertToEan13		✓	✓	✓	
<b>Matrix2Of5</b>	enable	✓			✓	✓
	length1	✓			✓	✓
	length2	✓			✓	✓
	redundancy	✓			✓	
	checkDigitVerification	✓			✓	
	transmitCheckDigit	✓			✓	
<b>UccCoupon</b>	enable		✓	✓	✓	
<b>GS1DataBar14</b>	enable	✓	✓	✓	✓	✓
	convertToUpcEan		✓	✓	✓	
	securityLevel				✓	
<b>GS1DataBarLimited</b>	enable	✓	✓	✓	✓	✓
	convertToUpcEan		✓	✓	✓	
	securityLevel				✓	
<b>GS1DataBarExpanded</b>	enable	✓	✓	✓	✓	✓
	fieldSeparator	✓	✓	✓	✓	✓
	securityLevel				✓	
<b>Msi</b>	enable	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓
	checkDigitOption	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	checkDigitAlgorithm	✓	✓	✓	✓	
<b>Ean8</b>	enable	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	convertToEan13	✓	✓		✓	✓



<b>Ean13</b>	enable	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓
	convertToISBN	✓	✓	✓	✓	✓
	convertToISSN				✓	✓
	booklandISBNFormat	✓	✓	✓	✓	
	transmitCheckDigit	✓	✓	✓	✓	✓
<b>UpcA</b>	enable	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	transmitSystemNumber	✓	✓	✓	✓	✓(3)
	convertToEan13	✓	✓	✓	✓	✓
<b>UpcE</b>	enable	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓
	transmitSystemNumber	✓	✓	✓	✓	✓(4)
	convertToUpcA	✓	✓	✓	✓	✓
<b>UpcE1</b>	enable	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	
	transmitSystemNumber	✓	✓	✓	✓	
	convertToUpcA	✓	✓	✓	✓	
<b>Composite</b>	enableCc_C				✓	✓
	enableCc_AB				✓	✓
	enableTlc39				✓	
	enableUpcMode				✓	
	enableEmulationMode				✓	
<b>USPostal</b>	enablePlanet				✓	✓
	enablePostnet				✓	✓
	transmitCheckDigit				✓	✓
<b>UKPostal</b>	enable				✓	
	transmitCheckDigit				✓	
<b>JapanPostal</b>	enable				✓	✓
<b>AustralianPostal</b>	enable				✓	✓
<b>DutchPostal</b>	enable				✓	✓

<b>USPSPostal</b>	enable				✓	
<b>UPUFICSPostal</b>	enable				✓	
<b>PDF417</b>	enable				✓	✓
	transmitMode					
	escapeCharacter					
	transmitControlHeader					
<b>MicroPDF417</b>	enable				✓	✓
	code128Emulation				✓	✓
<b>DataMatrix</b>	enable				✓	✓
	fieldSeparator				✓	✓
	mirrorImage				✓	✓(5)
<b>MaxiCode</b>	enable				✓	✓
<b>QRCode</b>	enable				✓	✓
<b>MicroQR</b>	enable				✓	
<b>Aztec</b>	enable				✓	✓
<b>Plessey</b>	enable					✓
	unconventionalStop					✓
	transmitCheckDigit					✓
	length1					✓
	length2					✓
<b>Telepen</b>	enable					✓
	format					✓
	length1					✓
	length2					✓

Symbologies	Properties	CCD	Laser	ER laser	2D	N/F 2D
<b>User Preferences</b>						
<b>All</b>	addonSecurityLevel	✓	✓	✓	✓	
	displayMode				✓	
	laserOnTime	✓	✓	✓	✓	
	negativeBarcodes				✓	
	pickListMode				✓	
	redundancyLevel	✓	✓	✓	✓	
	scanAngle		✓			
	securityLevel		✓	✓	✓	
	timeoutBetweenSameSymbol	✓	✓	✓	✓	✓
	transmitCodeIdChar	✓	✓	✓	✓	✓
	triggerMode	✓	✓	✓	✓	✓
	decodingIllumination				✓	✓
	decodingAimingPattern				✓	
	interCharGapSize				✓	
	timeoutPresentationMode				✓	✓
	decodingIlluminationPowerLevel				✓	
	aimerMode					✓
	centerDecoding					✓
centerDecodingTolerance					✓	

**Remarks**

- (1) EX25 do not support Zero number.
- (2) SM1 supports securityLevel only when the reader firmware version (GetScannerVersion()) >= 1.15.
- (3) EX25 only support Disable, Modulo\_10 and French\_CIP\_HR.
- (4) EX25 only support None and SysNumAndCtyCode for transmitSystemNumber.
- (5) Ex25 only support Never and Auto for mirrorImage.

## Appendix III

### CODE TYPE & SYMBOLOGY

The table below lists symbologies and the corresponding code types.

Hex	ASCII	Symbology
0x2F	47 (/)	Composite CC-A
0x37	55 (7)	Composite CC-B
0x38	56 (8)	Korean 3 of 5
0x39	57 (9)	ISSN
0x3F	63 (?)	ISBT 128 Concatenation
0x40	64 (@)	ISBT 128
0x41	65 (A)	Code 39
0x42	66 (B)	Italian Pharmacode (Code 32)
0x43	67 (C)	French Pharmacode (CIP 39)
0x44	68 (D)	Industrial 25
0x45	69 (E)	Interleaved 25
0x46	70 (F)	Matrix 25
0x47	71 (G)	Codabar (NW7)
0x48	72 (H)	Code 93
0x49	73 (I)	Code 128
0x4A	74 (J)	UPC-E0
0x4B	75 (K)	UPC-E0 with Addon 2
0x4C	76 (L)	UPC-E0 with Addon 5
0x4D	77 (M)	EAN-8
0x4E	78 (N)	EAN-8 with Addon 2
0x4F	79 (O)	EAN-8 with Addon 5
0x50	80 (P)	EAN-13 (also UPC-A on CCD/Laser scan engine)
0x51	81 (Q)	EAN-13 with Addon 2
0x52	82 (R)	EAN-13 with Addon 5
0x53	83 (S)	MSI
0x54	84 (T)	Plessey
0x55	85 (U)	GS1-128 (EAN-128)
0x56	86 (V)	Undefined
0x57	87 (W)	Undefined
0x58	88 (X)	Undefined

0x59	89 (Y)	Undefined
0x5A	90 (Z)	Telepen
0x5B	91 ( [ )	GS1 DataBar Omnidirectional (RSS-14)
0x5C	92 ( \ )	GS1 DataBar Limited (RSS Limited)
0x5D	93 ( ] )	GS1 DataBar Expanded (RSS Expanded)
0x5E	94 ( ^ )	UPC-A
0x5F	95 ( _ )	UPC-A with Addon 2
0x60	96 ( ' )	UPC-A with Addon 5
0x61	97 ( a )	UPC-E1
0x62	98 ( b )	UPC-E1 with Addon 2
0x63	99 ( c )	UPC-E1 with Addon 5
0x64	100 ( d )	TLC 39 (TCIF Linked Code 39)
0x65	101 ( e )	Trioptic (Code 39)
0x66	102 ( f )	Bookland (EAN)
0x67	103 ( g )	Code 11
0x68	104 ( h )	Code 39 Full ASCII
0x69	105 ( i )	IATA <sup>Note</sup> (Code 25 used on flight tickets)
0x6A	106 ( j )	Industrial 25 (Discrete 25)
0x6B	107 ( k )	PDF417
0x6C	108 ( l )	MicroPDF417
0x6D	109 ( m )	Data Matrix
0x6E	110 ( n )	Maxicode
0x6F	111 ( o )	QR Code
0x70	112 ( p )	US Postnet
0x71	113 ( q )	US Planet
0x72	114 ( r )	UK Postal
0x73	115 ( s )	Japan Postal
0x74	116 ( t )	Australian Postal
0x75	117 ( u )	Dutch Postal
0x76	118 ( v )	Composite CC-C
0x77	119 ( w )	Macro PDF
0x78	120 ( x )	Coupon Code
0x79	121 ( y )	Chinese 25
0x7A	122 ( z )	Aztec
0x7B	123 ( { )	MicroQR
0x7C	124 (   )	USPS 4CB / One Code / Intelligent Mail

0x7D	125 (})	UPU FICS Postal
0x7E	126 (~)	Macro MicroPDF417



## SAMPLE CODE

---

```
package com.example.cipherlab;

import android.app.Activity;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity extends Activity {

    private TextView tv1 = null;
    private IntentFilter filter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        tv1 = (TextView)findViewById(R.id.tv1);

        // Register an intent filter to get the intent we want.
        filter = new IntentFilter();
        filter.addAction("com.cipherlab.barcodebaseapi.PASS_DATA_2_APP");
        registerReceiver(myDataReceiver, filter);
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        unregisterReceiver(myDataReceiver);
    }

    // Create a broadcast object to get the intent sent from the service.
    private final BroadcastReceiver myDataReceiver = new BroadcastReceiver() {
        @Override
        public void onReceive(Context context, Intent intent) {
            // If the intent of the Intent_SOFTTRIGGER_DATA string is received,
            // the following statements are executed.
            if
                (intent.getAction().equals("com.cipherlab.barcodebaseapi.PASS_DATA_2_APP")) {

                tv1.setText("");

                // Fetch the data along with the intent.
                String data = intent.getStringExtra("Decoder_Data");
                // Fetch the original data along with the intent (not change
                // to UTF-8 Format)
                byte [] buffer =
                    intent.getByteArrayExtra("Decoder_DataArray");
                // Fetch the code type along with the intent
                int iCodeType = intent.getIntExtra("Decoder_CodeType", 0);

                // Display the data.
                tv1.setText(data);
            }
        }
    }
}
```



```
        }  
    };  
}
```

---

Note: The `enableKeyboardEmulation` is supposed to be set to `"KeyboardEmulationType.InputMethod"` or `"KeyboardEmulationType.KeyEvent"` so this sample can then receive the broadcasting intent message. For further information, please refer to `Set_ReaderOutputConfiguration`.

---

## Appendix V

### OPEN SOURCE LICENSE

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The Reader/SAM API involves the android-serialport-api project of Apache License Version 2.0, January 2004.

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