

CipherLab User Guide

Android Programming

For CipherLab Android Based Mobile Computers

Version 1.19



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Release Notes

Version	Date	Notes
1.19	Dec. 21, 2022	<ul style="list-style-type: none"> Modified: Remove all description about N6703 New: The description of SE4750 DPM/SE4100 reader type New: 1.9 Extended Functions
1.18	Nov. 20, 2020	<ul style="list-style-type: none"> Modified: Chapter 4 Other Functions – GetSystemProperty added
1.17	Sep. 17, 2020	<ul style="list-style-type: none"> Modified: 1.2.3. Reader Type – N6703_2D, SE4770_2D, SM4_SDC_2D return values appended Modified: 2.1 Bind SAM Service – CResult ExecuteApuEx, CResult PowerOnSAMCard(), CResult PowerOffSAMCard(), CResult PowerOnSAMCardEx(), CResult PowerOffSAMCardEx(), CResult ExecuteApuEx() appended New: Chapter 4 Other Functions Modified: Appendix II Scan Engine Settings – SM4+SDC/SE4770/N6703 added
1.16	Jun. 22, 2020	<ul style="list-style-type: none"> New: Appendix VII Miscellaneous
1.15	May 12, 2020	<ul style="list-style-type: none"> Modified: 1.2.3. Reader Type – SM2, PL3307_SE4750, SE4850, SM2_SDC added to GetReaderType Modified: 1.3.1. Data Output Settings – szCustomIntentAction & szCustomIntentDecodeData added to Get_ReaderOutputConfiguration / Set_ReaderOutputConfiguration Modified: 1.3.1. Data Output Settings – LF_Character (0x101) added to OutputEnterChar Modified: 1.3.1. Data Output Settings – charset table of szCharsetNames updated Modified: 1.5.1. Preferences - enablePlessey, enableTelepen, enableHanxin, enableFrenchPharmacode, enableMRZ, enableDotCode added to Get_Decoders_Status Modified: 1.5.1. Preferences – update the triggerMode table Modified: 1.5.1. Preferences - timeoutAimMode, sensitivityLevel added to Get_UserPreferences Modified: 1.5.2. Symbology Settings - Get_Symbology() includes DotCode, MRZ, Hanxin, and French Pharmacode (Cip39) New: 1.5.43. HanXin New: 1.5.44. French Pharmacode New: 1.5.45. DotCode New: 1.5.46. MRZ Modified: Chapter 3 OS Update – OTA appended Modified: Appendix II Scan Engine Settings – tables updated
1.14	Mar. 24, 2020	<ul style="list-style-type: none"> RK95 supported New: 1.7.7. LED Control (RK95 only)
1.13	Apr. 08, 2019	<ul style="list-style-type: none"> RS51 supported
1.12	Sep. 10, 2018	<ul style="list-style-type: none"> New: Appendix IV ADC Profile Deployment

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|------|---------------|---|
| 1.11 | Jun. 07, 2018 | <ul style="list-style-type: none"> ▶ Modified: 1.5.1 Preferences – triggerPresentationModeTrigger added to Get_UserPreferences/Set_UserPreferences ▶ Modified: 1.5.1 Preferences – descriptions for RK25 series not supporting Presentation Mode added to the Get_UserPreferences Remarks item ▶ Modified: 1.5.2 Symbology Settings – "SecurityLevel securitylevel;" added to Interleaved2Of5 for Get_Symbology ▶ Modified: 1.5.2 Symbology Settings – "int length1" & "int length2" added to Code128 ▶ Modified: 1.5.2 Symbology Settings – "int securityLevel" added to GS1 DataBar14 & GS1 DataBarExpanded ▶ Modified: 1.5.9 Code128 Class – "int length1" & "int length2" added ▶ Modified: 1.5.14 Interleaved2Of5 Class – "public SecurityLevel securityLevel;" added ▶ Modified: 1.5.18 GS1DataBarLimited Class – note for converToUpcEan ▶ Modified: 1.5.19 GS1DataBarExpanded Class – note for securityLevel ▶ Modified: 1.5. 22 Ean 13 Class – note for transmitCheckDigit ▶ Modified: 1.5.25 UpcE1 Class – note for transmitCheckDigit ▶ Modified: Appendix II Scan Engine Settings: Configure Symbology Properties – securityLevel of Interleaved2Of5 appended for SE4500/SE4750SR/SE4750MR ▶ Modified: Appendix II Scan Engine Settings: Symbologies Supported – symbologies updated |
| 1.10 | Oct. 16, 2017 | <ul style="list-style-type: none"> ▶ New: Chapter 3 OS Update ▶ New: 1.3.4 Reader Firmware Version ▶ Modified: 1.5.1 – AimerMode aimerMode, Enable_State centerDecoding, int centerDecodingTolerance added to Get_UserPreferences & Set_UserPreferences ▶ Modified: 1.5.2 – "securityLevel" added to Code128 in Get_Symbology ▶ Modified: 1.5.9 – "Code128SecurityLevel securitylevel" added to Code128 |
| 1.09 | Jun. 16, 2017 | <ul style="list-style-type: none"> ▶ Modified: Chapter 1 – Library location added |
| 1.08 | Jun. 02, 2017 | <ul style="list-style-type: none"> ▶ Modified: 1.2.3 Reader Type – return values updated ▶ Modified: 1.5.1 – add timeoutBetweenSameSymbology range (0~2550) of UserPreferences for EX25 ▶ New: 1.5.41 Telepen Class ▶ New: 1.5.42 Plessey Class ▶ Modified: Appendix II Scane Engine Settings: tables updated |

1.07	Apr. 12, 2017	<ul style="list-style-type: none">▶ Modified: 1.5.1 – change “InverseType.Autodetect” to “InverseType.AutoDetect” (Get_UserPreferences)▶ Modified: 1.5.1 – Continuous and Presentation modes for timeoutBetweenSameSymbology▶ Modified: 1.5.1 – Replace “0x06” with “InterCharacterGapSize.Normal” of Get_UserPreferences▶ Modified: 1.5.1 – Replace “0x0A” with “InterCharacterGapSize.Large” of Get_UserPreferences▶ Modified: 1.5.1 – IlluminationPowerLevel added to Get_UserPreferences & Set_UserPreferences▶ Modified: 1.5.3 – parameter names of notisEditingType changed▶ Modified: 1.5.14 – description for transmitCheckDigit▶ Modified: 1.5.36 – descriptions for MatrixMirrorImage▶ New: 1.7.6. Physical Scan Button Simulation▶ New: 1.8 Callback
1.06	Nov. 04, 2016	<ul style="list-style-type: none">▶ New: 1.7 Intent▶ New: Appendix V Open Source License
1.05	Oct. 14, 2016	<ul style="list-style-type: none">▶ Modified: Development Tool – Xamarin appended▶ Modified: Chapter 1 – Barcodeapi_vx_x_xx.dll added▶ New: 1.1.3 Xamarin for Visual Studio 2015▶ New: 1.3.3 Reader API Version▶ Modified: 1.5.1 – TriggerType.PresentationMode added to GetUserPreferences▶ Modified: 1.5.1 – “public int timeoutPresentationMode” added to GetUserPreferences and SetUserPreferences▶ Modified: 1.5.10 GS1128 Class – application ID added▶ Modified: 1.5.17 GS1DataBar14 Class – “public int securityLevel” added▶ Modified: 1.5.19 GS1DataBarExpanded Class – “public int securityLevel” added
1.04	May 24, 2016	<ul style="list-style-type: none">▶ Modified: 1.5.5 Code39 Class – convertToCode32 changed to “False” by default▶ Modified: 1.5.6 TriopticCode39 Class – changed to “False” by default▶ Modified: 1.5.9 GS1DataBarExpanded Class – “fieldSeparator” corrected▶ Modified: Data type of all “fieldSeparator” class members changed from ‘char’ to ‘String’▶ Modified: Appendix II: remove “MacroPDF” from Supported Symbologies
1.03	Feb. 02, 2016	<ul style="list-style-type: none">▶ Modified: 1.3.1 Get_ReaderOutputConfiguration – add szCharsetName and clearPreviousData parameters▶ Modified: 1.3.1 Set_ReaderOutputConfiguration - add szCharsetName and clearPreviousData parameters▶ Modified: 1.5.3 Codabar Class – “Start/Stop characters” description for notisEditingType added▶ Modified: 1.5.3 Codabar Class – notisEditing marked as “Reserved”▶ New: Appendix III – Code Type & Symbology
1.02	Oct. 26, 2015	<ul style="list-style-type: none">▶ 1.5.3 Codabar Class – notes for Modulo_7DR of verifyCheckDigit added

1.01	Oct. 12, 2015	<ul style="list-style-type: none">▶ 1.3.1 Get_ReaderOutputConfiguration - replace Enable_State with KeyboardEmulationType▶ 1.3.1 Set_ReaderOutputConfiguration - replace Enable_State with KeyboardEmulationType▶ 1.5.1 Get_UserPreferences - TriggerType.PulseMode, BlinkingMode, HostMode, PresentationMode removed▶ 1.5.2 Get_Symbology - Codabar, GS1DataBarLimited updated▶ 1.5.3 - Codabar Class updated▶ 1.5.18 - GS1DatabarLimited Class updated▶ Appendix III - Sample Code updated
1.00	Jul. 14, 2015	First Release

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Introduction

This Programming Guide contains necessary information for building Android applications that can tune reader module(s), capture data, or control built-in hardware on CipherLab 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.

Chapter 1

Barcode Reader API

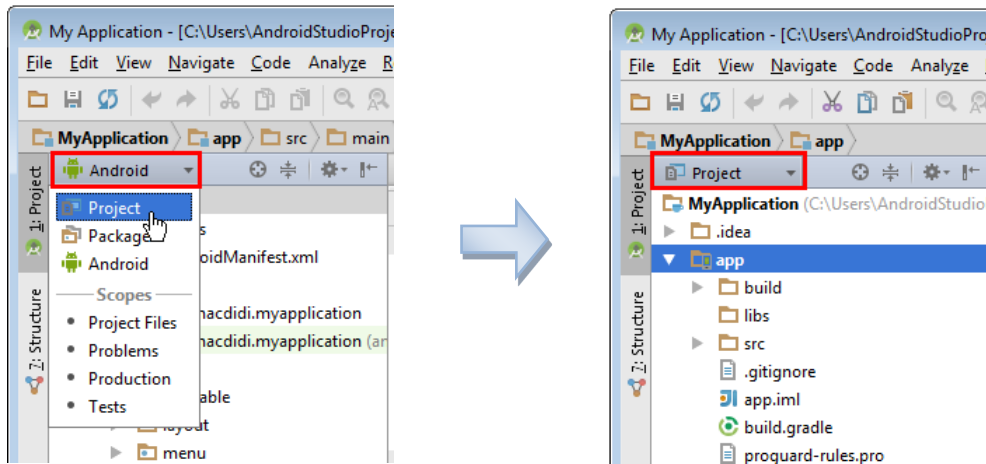
Before developing your self-made application, the offered "*barcodeapi_vx_x_xx.jar*" or "*barcodeapi_vx_x_xx.dll*" library file has to be imported into your project.

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

1.1. IMPORT LIBRARY

1.1.1 ANDROID STUDIO

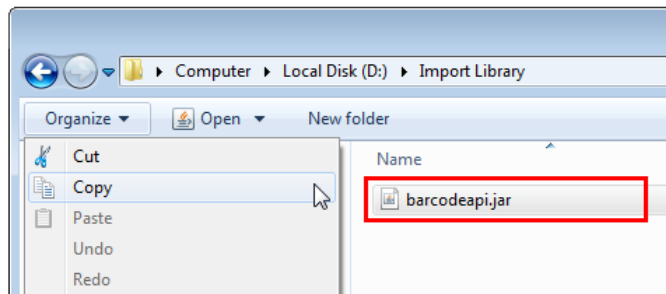
- 1) After creating an Android Studio project, click the **Android** project view icon to switch to the Traditional project view.



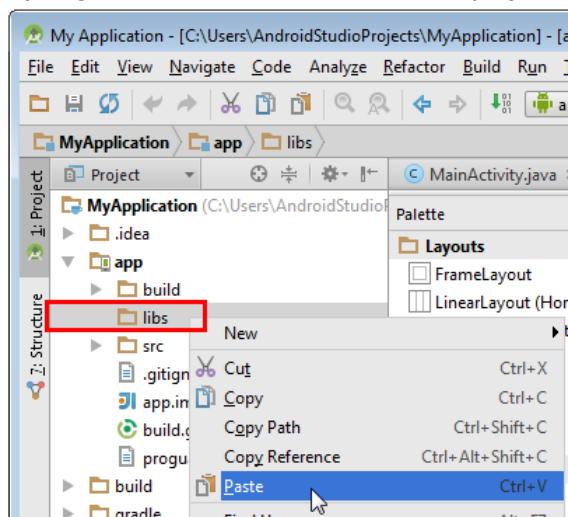
Android project view

Traditional project view

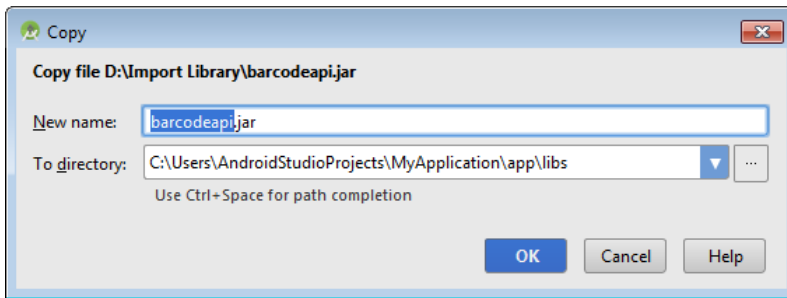
- 2) Locate the offered "**barcodeapi.jar**" library file in your file system and copy it.



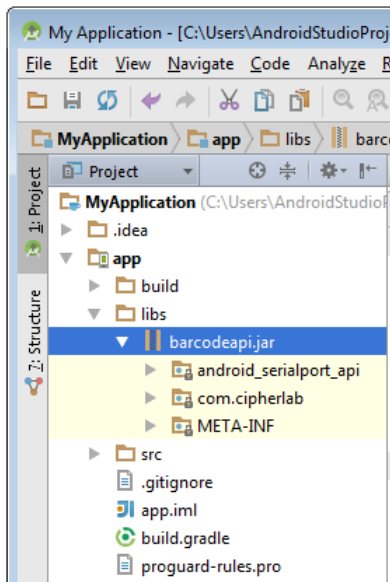
- 3) Right-click on the **libs** folder in the project view, and then select **Paste**.



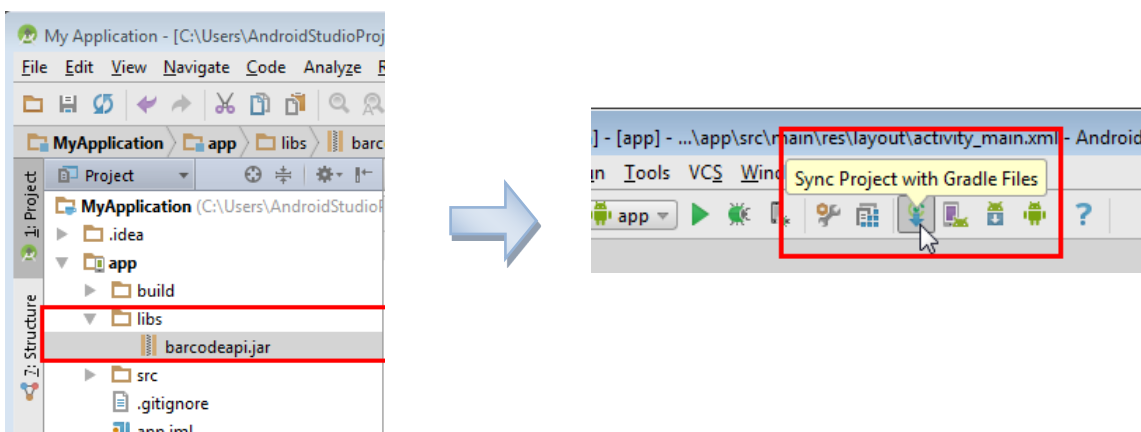
- 4) A dialog shows up indicating the file name and the destination directory to be copied. Click the **OK** button to start importing the library file.



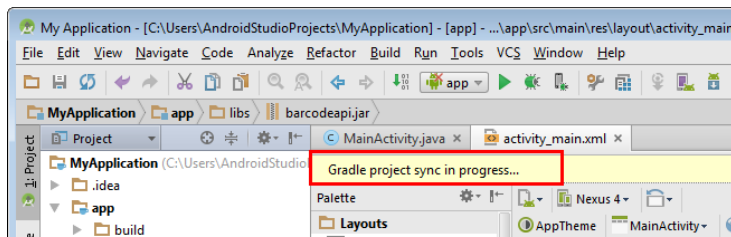
- 5) In the project view, you can see the library is imported.



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.

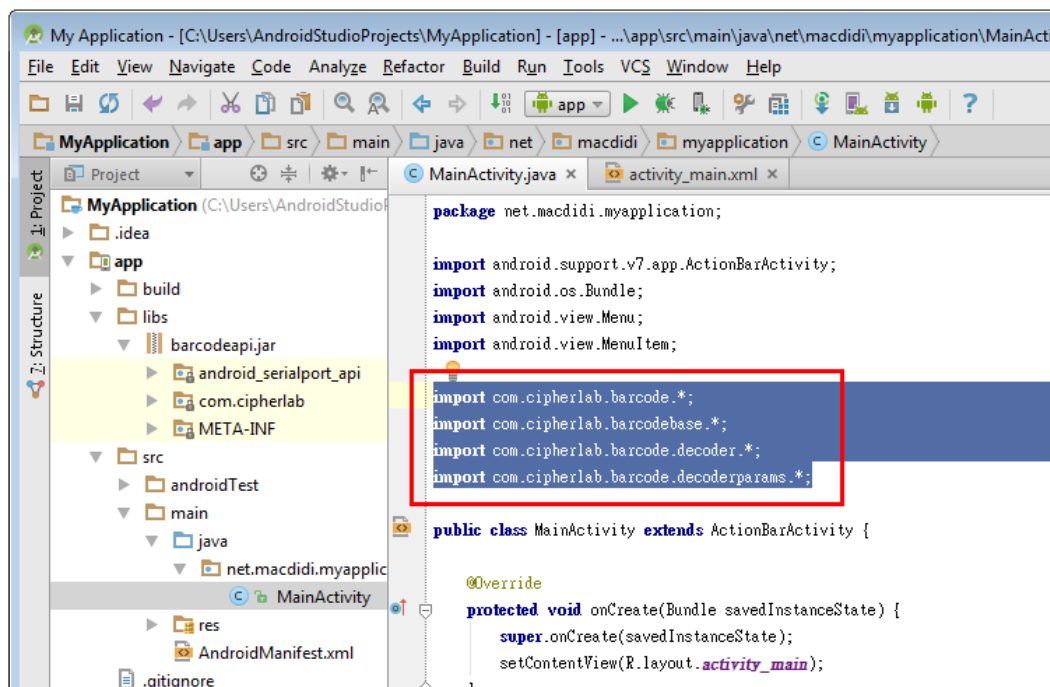


After the project sync completes, the files relating to the library will be displayed.



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

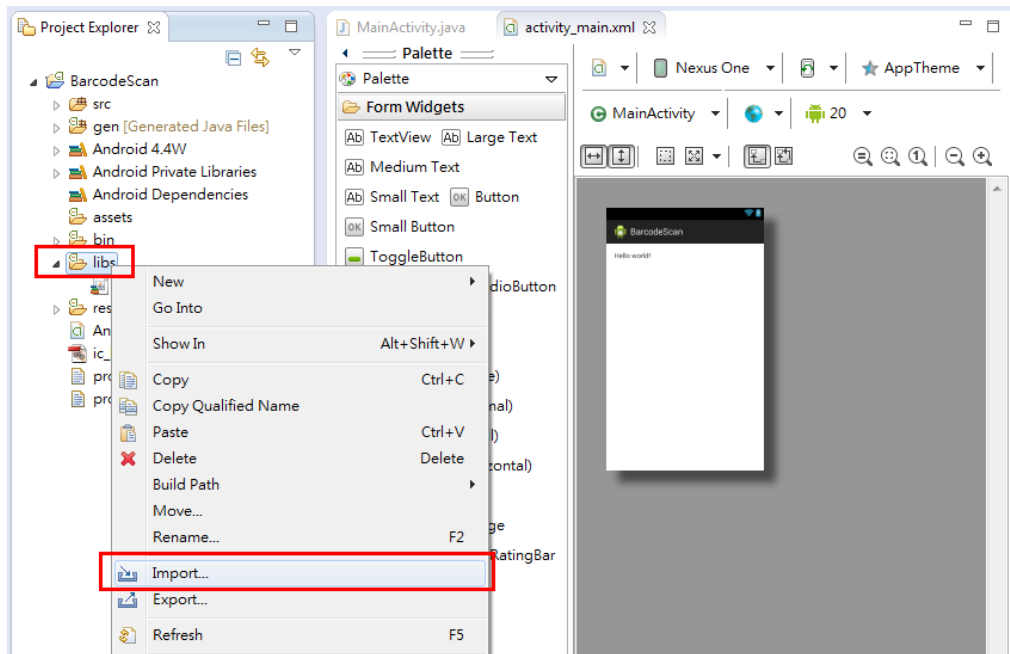
```
import com.cipherlab.barcode.*;
import com.cipherlab.barcodebase.*;
import com.cipherlab.barcode.decoder.*;
import com.cipherlab.barcode.decoderparams.*;
```



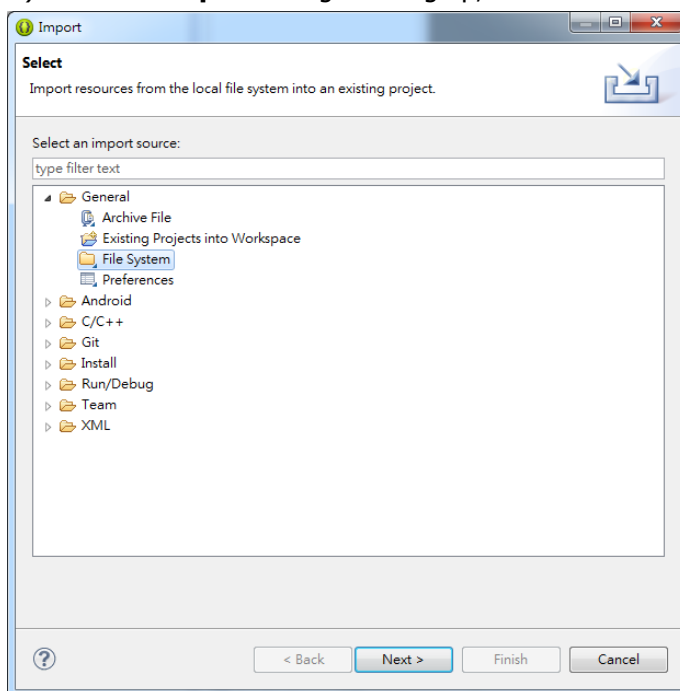
1.1.2 ECLIPSE

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

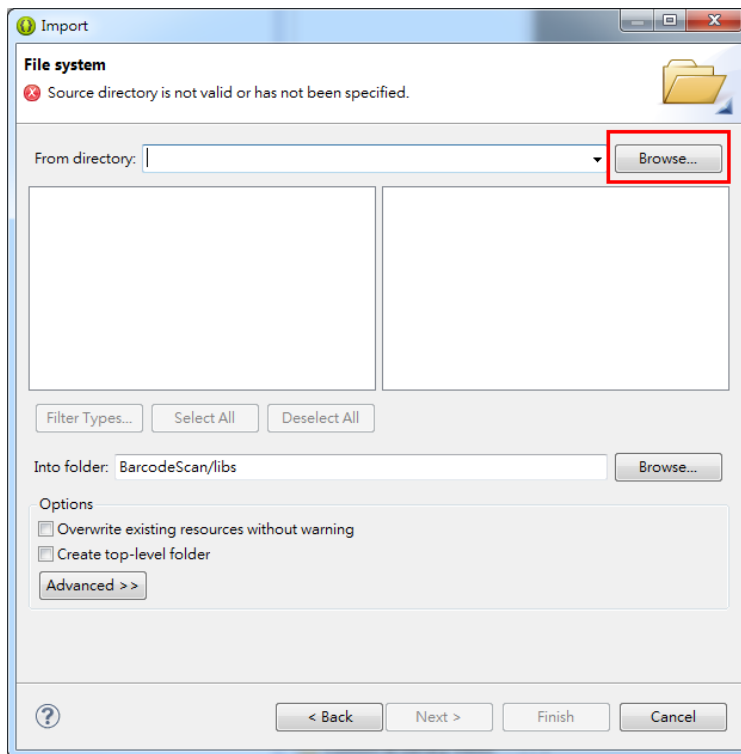
- 1) In the **Project Explorer** view, right-click the **libs** folder in your Android project and then select **Import**.



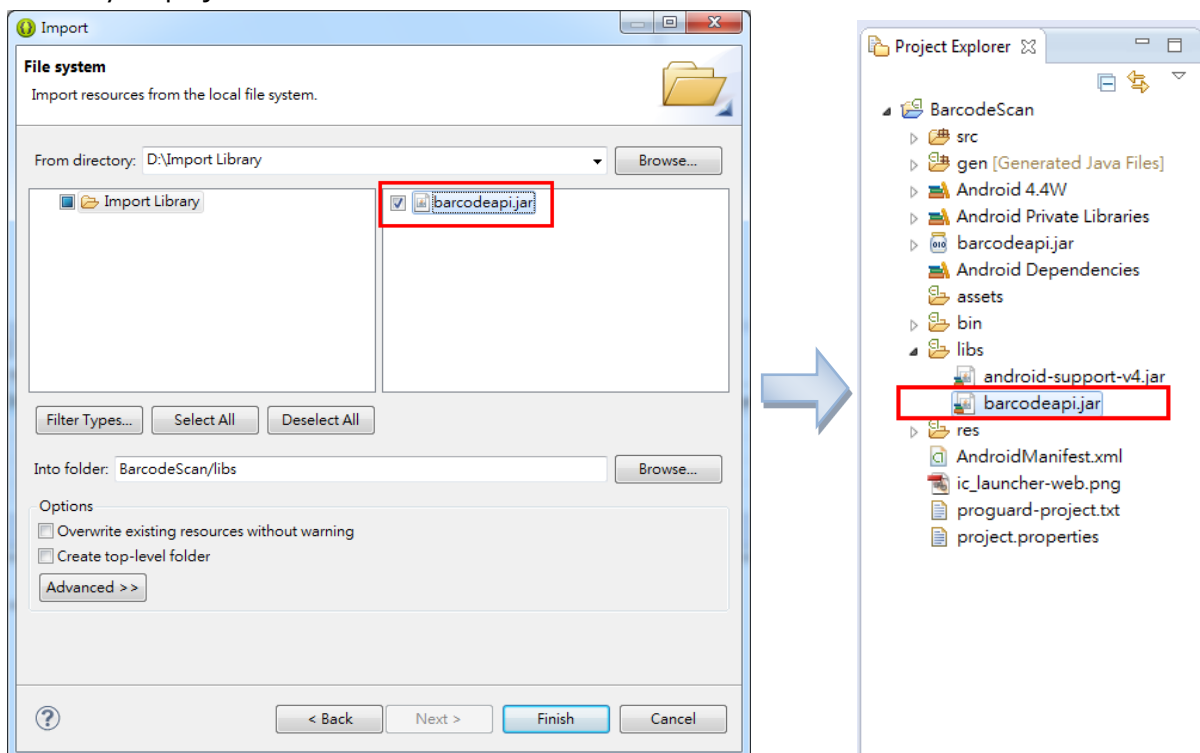
- 2) With the **Import** dialog showing up, select **General -> File System** and click the **Next** button.



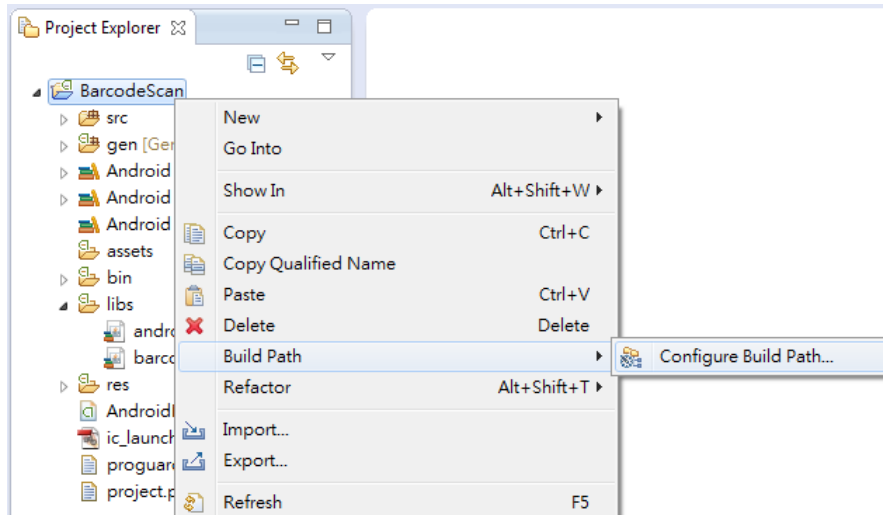
3) Click the **Browse** button to locate the library file.



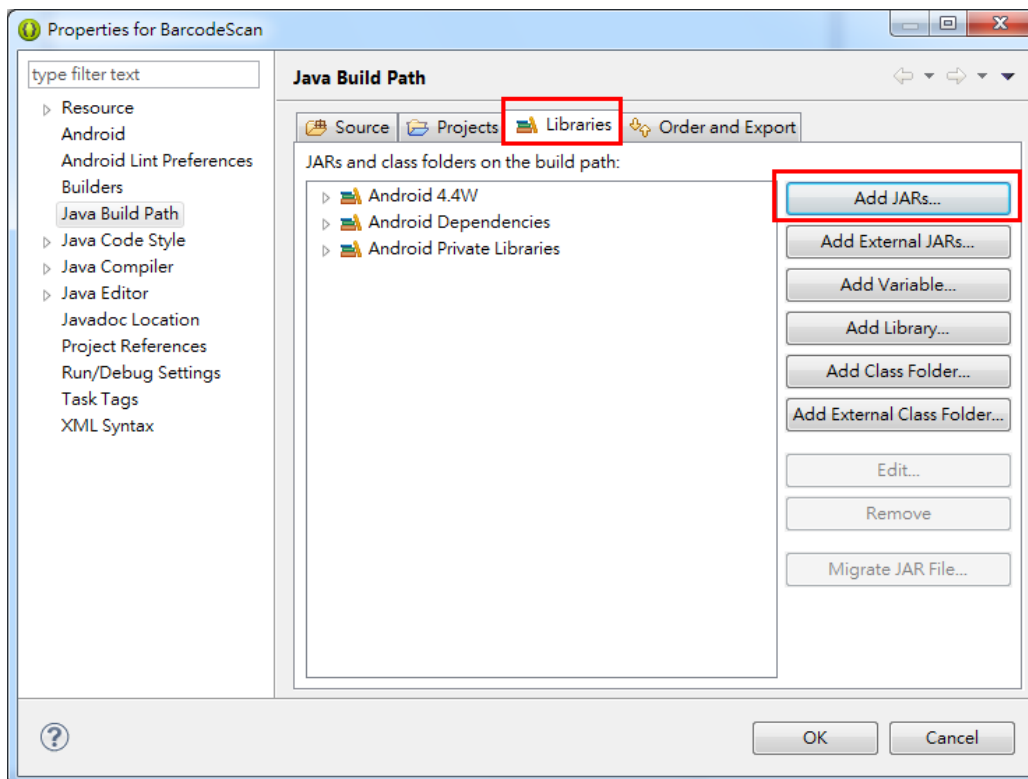
4) For example, "D:\Import Library" is the destination directory where the library file is located. Check the .JAR file in the right pane and click the **Finish** button. You will see the library has been imported into your project.



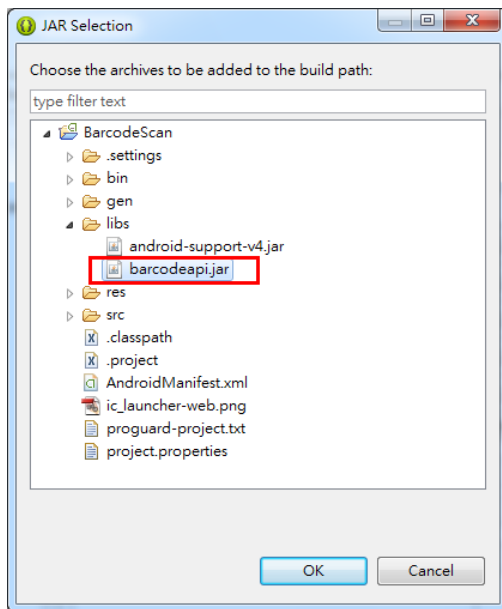
- 5) If the library is not on your build path, please right-click on the project name and then select **Build Path -> Configure Build Path** on the pop-up menu.



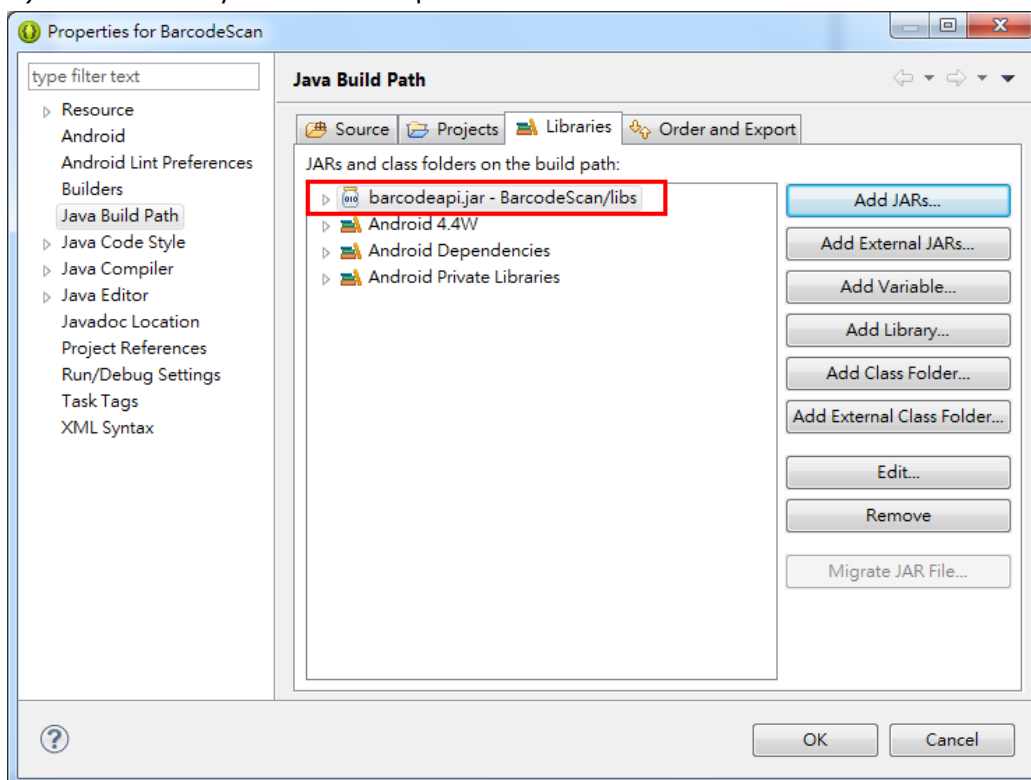
- 6) After the project properties window shows up, click the Libraries tab and then click the **Add JARs** button.



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

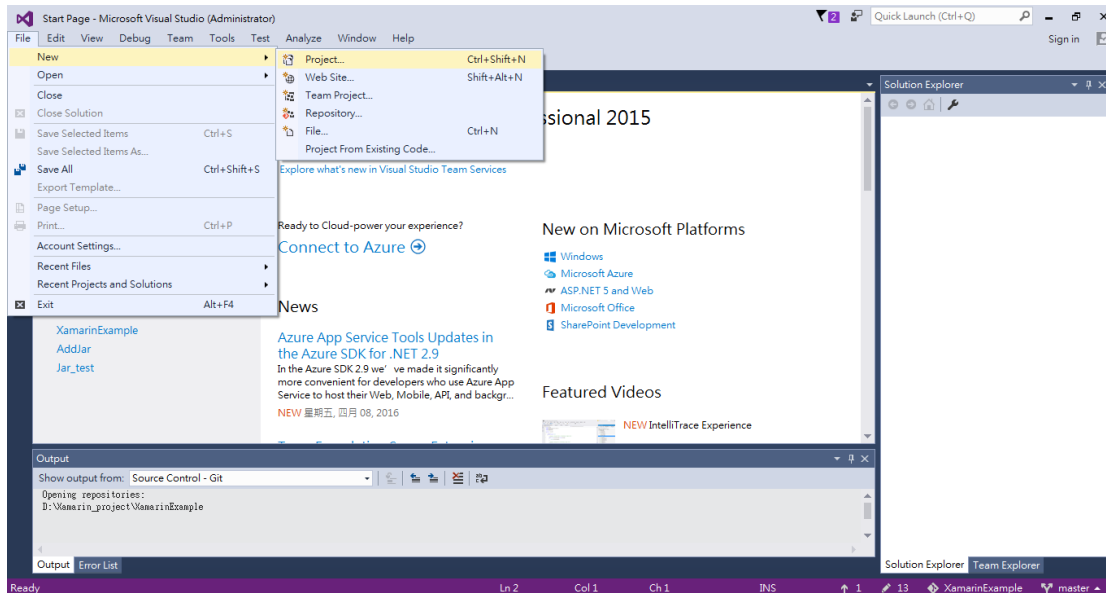


8) Now the library is on the build path.

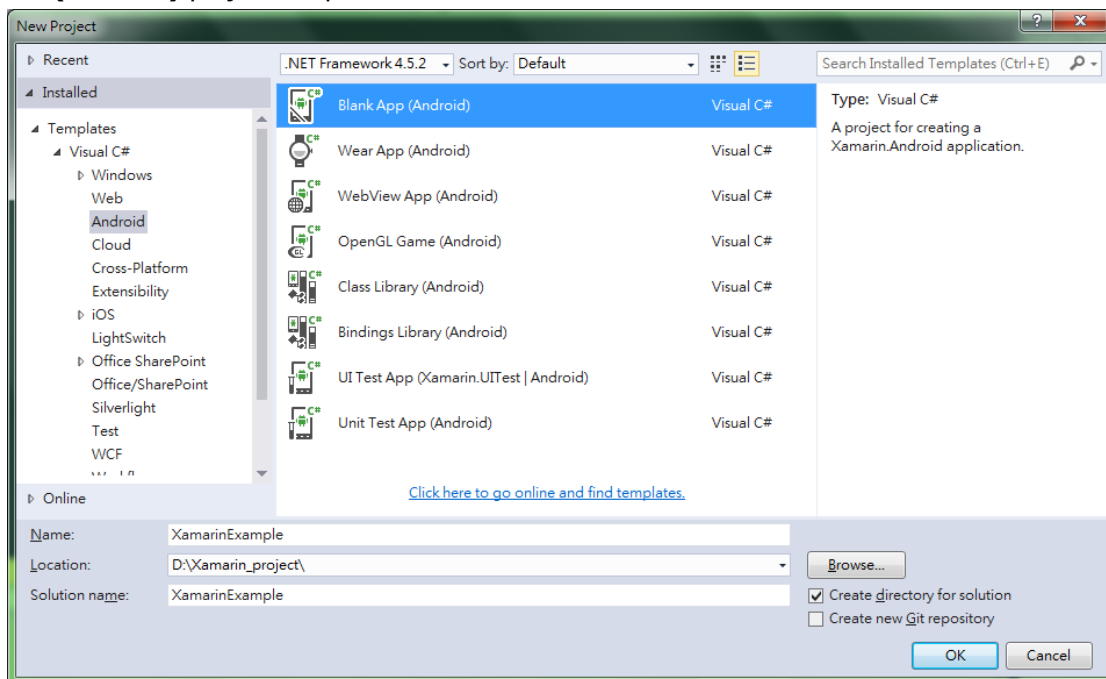


1.1.3 XAMARIN FOR VISUAL STUDIO 2015

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

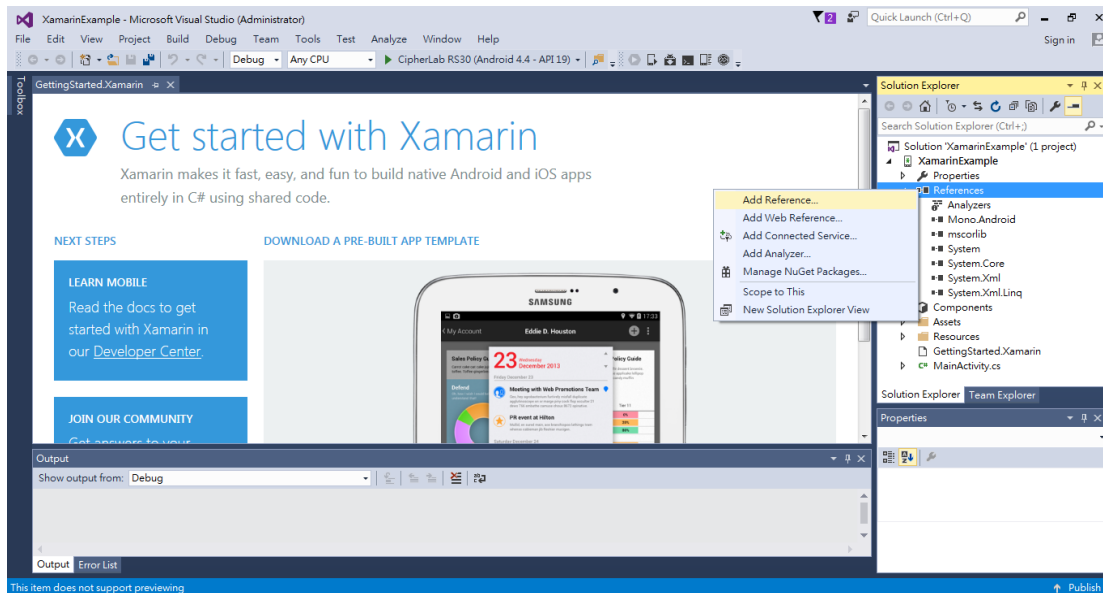


- 3) Select **File** → **New** → **Project** and then choose the **C#** → **Windows** → **Android** → **Blank APP (Android)** project template.

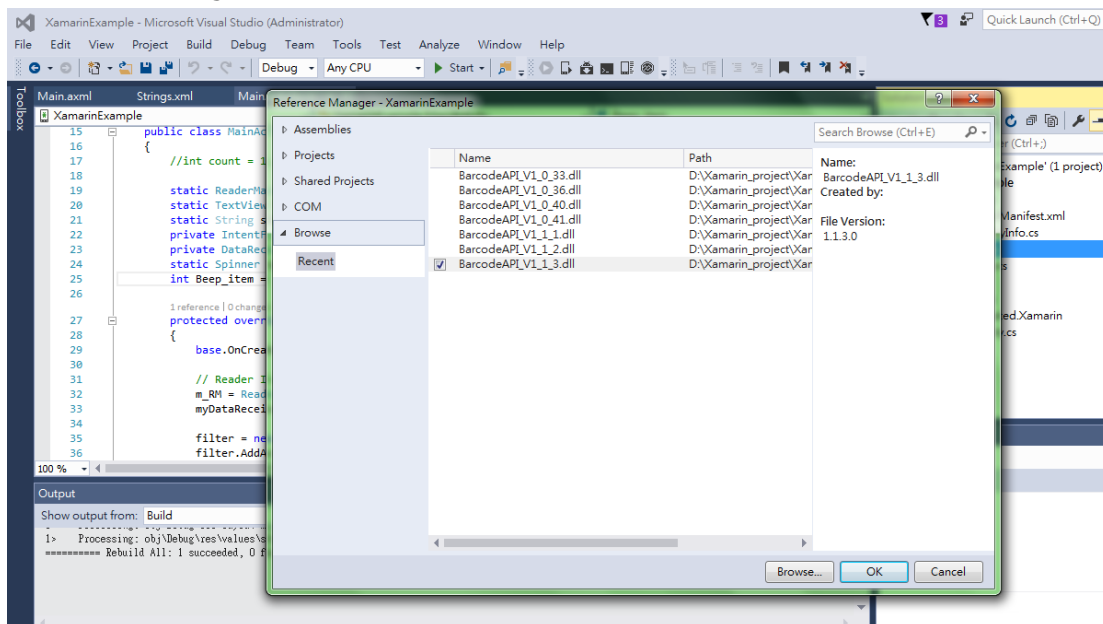


- 4) Copy the offered "*barcodeapi_vx_x_xx.dll*" library file to the new project folder.

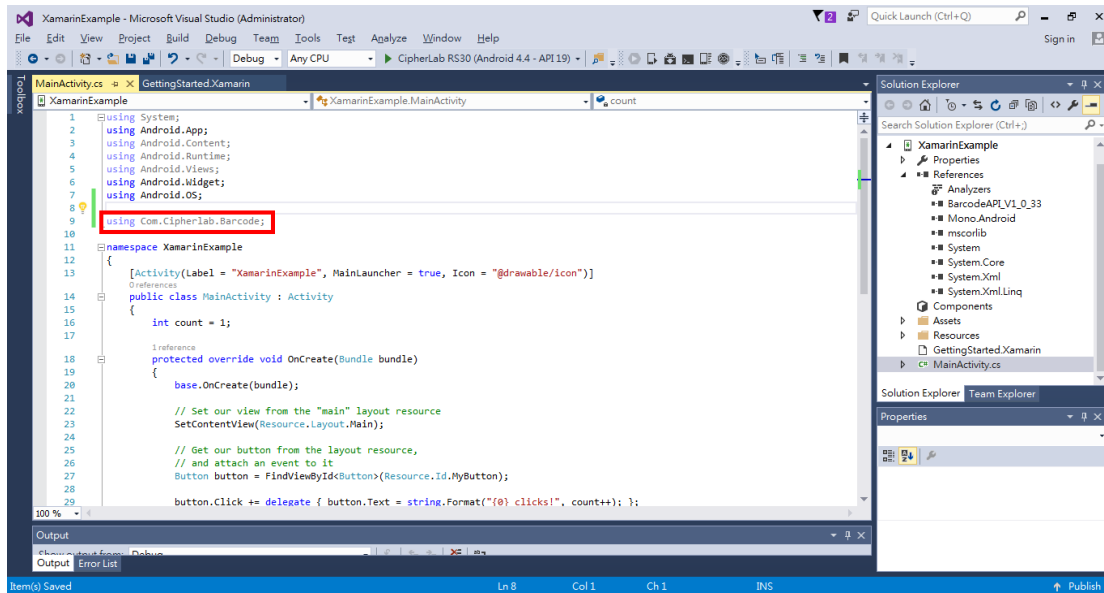
- 5) In the right pane of Visual Studio, right-click on **References** and then select **Add Reference** under the name of the new project.



- 6) 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	ReaderManager InitInstance (Context context);
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	void Release ();
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:

false	Disable
true	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.

false	Disable
true	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	<code>BcReaderType myReaderType = mReaderManager.GetReaderType();</code>
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
SE4750 DPM
Moto_1D_SE965I
Moto_1D_SE965E
CL_2D_SM2
PL3307_SE4750
SE4850ER_2D
CL_2D_SM2_SDC
SE4770_2D
SM4_SDC_2D
SE4100

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

KeyboardEmulationType. None	Disables keyboard emulation. The decoded data will be sent by the broadcast intent message.
KeyboardEmulationType. InputMethod	*Enables keyboard emulation via input method.
KeyboardEmulationType. KeyEvent	Enables keyboard emulation via key event.
KeyboardEmulationType. CopyPaste	Use Copy & Paste to output the data.

String *szCustomIntentAction*

[in][out] A string variable that specifies the intent name according to the application which receives the decode intent. When *enableKeyboardEmulation* is set to None, this variable is available.

String *szCustomIntentDecodeData*

[in][out] A string variable that defines the intent data name according to the application which receives the decode intent. When *enableKeyboardEmulation* is set to None, this variable is available.

OutputEnterWay *autoEnterWay*

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

OutputEnterWay.Disable	Disables
-------------------------------	----------

OutputEnterWay.SuffixData	*Suffixes the decoded data (= decoded data + Enter-character)
OutputEnterWay.PrefixData	Prefixes the decoded data (= Enter-character + decoded data)

OutputEnterChar *autoEnterChar*

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

OutputEnter.None	None
OutputEnter.Return	*Carriage Return
OutputEnter.Tab	Tab
OutputEnter.Comma	Comma
OutputEnter.Semicolon	Semicolon
OutputEnter.LF_Character	Line Feed
OutputEnter.CR_Character	Carriage Return character
OutputEnter.CRLF_Character	Line Feed character
OutputEnter.IME_Action	Based on the current output method of Software Panel

Enable_State *showCodeType*

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

Enable_State.FALSE	*Does not transmit
Enable_State.TRUE	Transmits

Enable_State *showCodeLen*

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

Enable_State.FALSE	*Does not transmit
Enable_State.TRUE	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.

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

String *szCharsetNme*

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

UTF-8	*Standard ASCII
windows-1250	Windows Eastern European
windows-1251	Windows Cyrillic
windows-1252	Windows Latin-1
windows-1253	Windows Greek

windows-1254	Winows Turkish
windows-1255	Winows Hebrew
windows-1256	Winows Aabic
windows-1257	Winows Baltic
windows-1258	Winows Vietnamese
big5	Traditional Chinese
shift_JIS	Japanese
GBK	Simplified Chinese

Enable_State *clearPreviousData*

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

Enable_State.FALSE	*Does not clear
Enable_State.TRUE	Clear

int *keyEventOptimizationMode*

[in][out] A value that specifies the output method of KeyEvent.

0	Via Hardware Keyboard.
1	Via Software Keyboard.
2	Directly send to Activity.

Enable_State *CopyOnly*

[in][out] A value that specifies whether to enable the CopyOnly or not.

Enable_State.FALSE	Disables the CopyOnly.
Enable_State.TRUE	Enables the CopyOnly.

Enable_State *IntentviaStartActivity*

[in][out] A value that specifies whether to enable the transmission of Intent data through StartActivity or not.

Enable_State.FALSE	Disables the IntentviaStartActivity.
Enable_State.TRUE	Enables the IntentviaStartActivity.

String *szStartActivityPackageName*

[in][out] A string variable that specifies the package name to be transmitted through StartActivity.

String *szStartActivityClassName*

[in][out] A string variable that specifies the class name to be transmitted through StartActivity.

Enable_State *SendControlCharactersasEvents*

[in][out] A value that specifies whether to enable the conversion of Control Characters into KeyEvent for the output or not.

Enable_State.FALSE	Disables the SendControlCharactersasEvents.
Enable_State.TRUE	Enables the SendControlCharactersasEvents.

Return Value

If successful, it returns CResult.S_OK.

Otherwise, it returns CResult.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 Refer to Get_ReaderOutputConfiguration above for details.

OutputEnter.None	None
OutputEnter.Return	*Carriage Return (= 0x0d)
OutputEnter.Tab	Tab
OutputEnter.Space	Space (= 0x20)
OutputEnter.Comma	Comma (= 0x2c)
OutputEnter.Semicolon	Semicolon (= 0x3b)
OutputEnter.LF_Character	Line Feed (0x101)

Enable_State *showCodeType*

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

Enable_State.FALSE	*Does not transmit
Enable_State.TRUE	Transmits

Enable_State *showCodeLen*

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

Enable_State.FALSE	*Does not transmit
Enable_State.TRUE	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.

0	*No delimiter
----------	---------------

1~127	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.

UTF-8	*Standard ASCII
windows-1250	Winows Eastern European
windows-1251	Winows Cyrillic
windows-1252	Winows Latin-1
windows-1253	Winows Greek
windows-1254	Winows Turkish
windows-1255	Winows Hebrew
windows-1256	Winows Aabic
windows-1257	Winows Baltic
windows-1258	Winows Vietnamese
big5	Traditional Chinese
shift_JIS	Japanese
GBK	Simplified Chinese

Enable_State *clearPreviousData*

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

Enable_State.FALSE	*Does not clear
Enable_State.TRUE	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 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 `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

Get_NotificationParams

Purpose Gets notification settings.

Syntax **ClResult Get_NotificationParams (NotificationParams settings)**

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

BeepType *ReaderBeep*

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

BeepType.Mute
BeepType.Default
BeepType.Hwandsw
BeepType.MenuPop
BeepType.MsgBox
BeepType.Notify
BeepType.VoiceBeep
BeepType.Alarm2
BeepType.Alarm3
BeepType.LowBatt

Enable_State *enableVibrator*

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

Enable_State.FALSE	Disables Vibrator*
Enable_State.TRUE	Enables Vibrator

int *vibrationCounter*

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

0	No vibration
1 ~ 10	*1 (in increments of 0.5 seconds)

int *ledDuration*

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

0	*Disables
1 ~ 5000	Enables LED and sets lighting duration (millisecond)

BeepType *timeoutBeep*

[in][out] A value that specifies the sound to play when the decoding is timeout.

BeepType.Mute
BeepType.Default
BeepType.Hwandsw

BeepType.MenuPop
BeepType.MsgBox
BeepType.Notify
BeepType.VoiceBeep
BeepType.Alarm2
BeepType.Alarm3
BeepType.LowBatt

Example	<pre>NotificationParams settings = new NotificationParams(); mReaderManager.Get_NotificationParams(settings);</pre>
Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
See Also	<code>Set_NotificationParams</code>

Set_NotificationParams

Purpose	Configures notification settings.
Syntax	<code>CIResult Set_NotificationParams (NotificationParams settings)</code>
Parameters	Refer to <code>Get_NotificationParams</code> above for details.
Example	<pre>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);</pre>
Return Value	If successful, it returns <code>CIResult.S_OK</code> . Otherwise, it returns <code>CIResult.S_ERR</code> .
See Also	<code>Get_NotificationParams</code>

1.5. CONFIGURE SCAN ENGINE

1.5.1. PREFERENCES

Get_Decoders_Status

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

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableAztec*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCompositeCC_AB*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableCompositeCC_C*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCompositeTlc39*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableCode11*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCode39*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCode93*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCode128*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableCodabar*

Enable_State.FALSE	Disabled
---------------------------	----------

Enable_State.TRUE	*Enabled
--------------------------	----------

Enable_State *enableChinese2Of5*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableDataMatrix*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableDutchPostal*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableEanJan8*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableEanJan13*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableGs1128*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableGs1DataBar14*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableGs1DataBarLimited*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableGs1DataBarExpanded*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableGs1DatabarToUpcEan*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableIsbt128*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableIndustrial2Of5*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableInterleaved2Of5*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableJapanPostal*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableKorean3Of5*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableMatrix2Of5*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableMaxiCode*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableMicroPDF417*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableMicroQR*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableMsi*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enablePDF417*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableQRcode*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableTriopticCode39*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableUpca*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUpce*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUpcE1*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableUccCoupon*

Enable_State.FALSE	*Disabled
Enable_State.TRUE	Enabled

Enable_State *enableUKPostal*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUPUFICSPostal*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUSPostnet*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUSPlanet*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableUSPSPostal*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enablePlessey*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableTelepen*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableHanxin*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableFrenchPharmacode*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableMRZ*

Enable_State.FALSE	Disabled
Enable_State.TRUE	*Enabled

Enable_State *enableDotCode*

Enable_State.FALSE	Disabled
---------------------------	----------

	<table><tr><td>Enable_State.TRUE</td><td>*Enabled</td></tr></table>	Enable_State.TRUE	*Enabled
Enable_State.TRUE	*Enabled		
Return Value	If successful, it returns <code>CiResult.S_OK</code> . Otherwise, it returns <code>CiResult.S_ERR</code> .		
Example	<pre>Decoders settings = new Decoders(); mReaderManager.Get_Decoders_Status(settings); if (Enable_State.NotSupport == settings.enableAustraliianPostal) { // 1D is not supported }</pre>		
Remarks	<code>Enable_State.FALSE</code> means the reader is disabled to decode the symbology. <code>Enable_State.TRUE</code> means the reader is enabled to decode the symbology.		
See Also	<code>Set_Decoders_Status</code>		

Set_Decoders_Status

Purpose	Sets symbology status (enabled or disabled) of the reader.
Syntax	CIResult Set_Decoders_Status (Decoders settings)
Parameters	Refer to Get_Decoders_Status above for details.
Return Value	If successful, it returns CIResult.S_OK. Otherwise, it returns CIResult.S_ERR.
Example	<pre>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();</pre>
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

Get_UserPreferences

Purpose	Gets user preference settings of the barcode reader.								
Syntax	CIResult Get_UserPreferences (UserPreference settings)								
Parameters	<p>A default value comes with an asterisk "*".</p> <p><i>int addonSecurityLevel</i></p> <p>[in][out] A value that specifies decode security level for reading UPC/EAN when "Decode with Addons (=Auto-discriminate)" is applied.</p> <table border="1"> <tr> <td>2~30</td><td>*10 (times of supplementary decoding)</td></tr> </table> <p><i>Enable_State displayMode</i></p> <p>[in][out] A value that specifies whether to enable display mode.</p> <table border="1"> <tr> <td>Enable_State.FALSE</td><td>*Disables</td></tr> <tr> <td>Enable_State.TRUE</td><td>Enables</td></tr> </table> <p><i>int laserOnTime</i></p> <p>[in][out] A value that specifies the maximum time for decoding a printed barcode during a scan act.</p> <table border="1"> <tr> <td>500 ~ 9900</td><td>*3000 (millisecond)</td></tr> </table> <p><i>InverseType negativeBarcodes</i></p>	2~30	*10 (times of supplementary decoding)	Enable_State.FALSE	*Disables	Enable_State.TRUE	Enables	500 ~ 9900	*3000 (millisecond)
2~30	*10 (times of supplementary decoding)								
Enable_State.FALSE	*Disables								
Enable_State.TRUE	Enables								
500 ~ 9900	*3000 (millisecond)								

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

InverseType.RegularOnly	*Regular barcode
InverseType.InverseOnly	Negative barcode
InverseType.AutoDetect	AutoDetection

Enable_State *pickListMode*

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

Enable_State.FALSE	*Disables
Enable_State.TRUE	Enables

RedundancyLevel *redundancyLevel*

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

RedundancyLevel.One	*The following barcodes must be successfully read twice before being decoded:	
	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
RedundancyLevel.Two	All barcodes must be successfully read twice before being decoded.	
RedundancyLevel.Three	All barcodes must be successfully read twice before being decoded except for the following that must be read three times:	
	Barcode Types “Excluded”	Code Length
	MSI	4 characters or less
	Industrial 25 (Discrete 25)	8 characters or less
	Interleaved 25	8 characters or less
RedundancyLevel.Four	All barcodes must be successfully read three times before being decoded.	

ScanAngleType *scanAngle*

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

ScanAngleType.Narrow	Narrow Angle (35 degrees)
ScanAngleType.Wide	*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.

SecurityLevel.Zero	*Security Level 0 – The default. It allows the scan engine to operate aggressively enough to decode most “in-spec” barcodes.
SecurityLevel.One	Security Level 1 – Select this option if misdecodes occur.

	This level should fix most misdecodes.
SecurityLevel.Two	Security Level 2 – Select this option if Security Level 1 fails to fix misdecodes.
SecurityLevel.Three	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.

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

int *timeoutPresentationMode*

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

This parameter applies to Continuous mode.

60000 ~ 1800000	*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.

TransmitCodeIDType.None	*Transmits none
TransmitCodeIDType.AimCodeID	Transmits AIM Code ID Character

TriggerType *triggerMode*

[in][out] A value that specifies the mode to scan. Supported trigger modes may vary depending on the reader equipped.

TriggerType.LevelMode	*Level mode
TriggerType.ContinuousMode	Continuous mode
TriggerType.PresentationMode	Presentation mode
TriggerType.ReleaseScanMode	Press trigger to aim and then release it to decode.
TriggerType.TypicalAimMode	Typical Aiming mode. First trigger to aim; second trigger to decode.
TriggerType.CombinedLevelandAimMode	First trigger to aim; second trigger to decode. After decoding, it keeps aiming.
TriggerType.TriggerPresentationMode	Press the trigger key to control the scanner behaviour defined in Presentation mode.
TriggerType.OnePullOnSecondPullOffPresentationMode	Press the trigger to enable/disable Presentation mode.

Enable_State *decodingillumination*

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

Enable_State.FALSE	Disables decoding illumination
---------------------------	--------------------------------

Enable_State.TRUE	*Enables decoding illumination
--------------------------	--------------------------------

IlluminationPowerLevel *decodingIlluminationPowerLevel*

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

IlluminationPowerLevel.Zero ~IlluminationPowerLevel.Ten	*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.

Enable_State.FALSE	Disables decode aiming pattern
Enable_State.TRUE	*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.

InterCharacterGapSize.Normal	*Normal intercharacter gaps
InterCharacterGapSize.Large	Large intercharacter gaps

AimerMode *aimerMode*

[in][out] A value that specifies how the aimer behaves (EX25 only).

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

Enable_State.FALSE	Disables center decoding
Enable_State.TRUE	*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.

0 ~ 100	*0 (no tolerance allowed)
----------------	---------------------------

int *timeoutAimMode*

[in][out] A value that specifies the minimum time interval of aiming.

1000 ~ 30000	*3000 (millisecond)
---------------------	---------------------

int *sensitivityLevel*

[in][out] A value that specifies the auto-sense detection level ranging from 0 to 7.

0 ~ 7	*4
--------------	-----------

AimingPowerLevel *decoding*aimingPowerLevel

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

AimingPowerLevel.Zero ~ AimingPowerLevel.Ten	*AimingPowerLevel.Ten – The default is set to Ten which is the maximum power level.
---	---

Enable_State multiDecodeMode

[in][out] A value that specifies whether to enable the decoding multiple bar codes

Enable_State.FALSE	*Disables the decoding multiple bar codes.
Enable_State.TRUE	Enables the decoding multiple bar codes.

Enable_State multiDecodeFullRead

[in][out] A value that specifies the time to generate a decode event to the calling application as Multi Decode Mode is enabled.

Enable_FALSE	Generate a decode event after one or more bar codes are decoded.
Enable_TRUE	* Generate a decode event when at least the number of bar codes set in Multi Decode Number are decoded.

int multiDecodeNumber

[in][out] A value that specifies the number of bar codes ranging from 1 to 10 to read as Multi Decode Mode is enabled.

1 ~10	*1
--------------	-----------

SecurityLevel quietZoneLevel1D

[in][out] A value that specifies the level of aggressiveness in decoding bar codes with a reduced quiet zone(the area in front of and at the end of a bar code), and applies to symbologies enabled by a Reduced Quiet Zone parameter. Because higher levels increase the decoding time and risk of misdecodes, we strongly recommends enabling only the symbologies which require higher quiet zone levels, and leaving Reduced Quiet Zone disabled for all other symbologies. Options are listed as follows:

SecurityLevel.Zero	The decoder performs normally in terms of quiet zone.
SecurityLevel.One	The decoder performs more aggressively in terms of quiet zone.
SecurityLevel.Two	The decoder only requires one side EB (end of bar code) for decoding.
SecurityLevel.Three	The decoder decodes anything in terms of quiet zone or end of bar code.

Return Value If successful, it returns CResult.S_OK.

Otherwise, it returns CResult.S_ERR.

Remarks RK25 Series don't support Presentation Mode.

Example

```
UserPreference settings = new UserPreference();
mReaderManager.GetUserPreferences(settings);
if (Enable_State.NotSupport == settings.displayMode)
{
}
}
```

See Also Set_UserPreferences

Set_UserPreferences	
----------------------------	--

Purpose	Sets user preference settings of the barcode reader.
Syntax	ClResult Set_UserPreferences (UserPreference <i>settings</i>)
Parameters	Refer to Get_UserPreferences above for details.
Return Value	If successful, it returns ClResult.S_OK. Otherwise, it returns ClResult.S_ERR.
Example	<pre>UserPreference settings = new UserPreference(); settings.addonSecurityLevel = 2; settings.laserOnTime = 3000; settings.negativeBarcodes = InverseType.AutoDetect; settings.scanAngle = ScanAngleType.Wide; if (ClResult.S_ERR == mReaderManager.Set_UserPreferences(settings)) Toast.makeText(this, "Set_UserPreferences was failed", Toast.LENGTH_SHORT).show(); else Toast.makeText(this, "Set_UserPreferences was successful", Toast.LENGTH_SHORT).show();</pre>
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 symbology parameters implemented as objects. Please refer to symbology class sections below for further details.
Return Value	If successful, it returns CIResult.S_OK. Otherwise, it returns CIResult.S_ERR.
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	Set_Symbology

Set_Symbology

Purpose	Sets symbology settings by implementing a symbology interface instance.
Syntax	CIResult Set_Symbology (SymbologyInterface settings)
Parameters	This function provides symbology parameters implemented as objects. Please refer to symbology class sections below for further details.
Return Value	If successful, it returns CIResult.S_OK. Otherwise, it returns CIResult.S_ERR.
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;
}
```

Data Type	Member Name	Description
Enable_State	transmitCheckDigit	<div>A value specifying whether to transmit check digit.</div> <div><div>*TRUE</div><div>FALSE</div></div>
CodabarDigitAlgorithm	verifyCheckDigit	<div>A value specifying whether and how to verify check digit.</div> <div><div>*None</div><div>Modulo_16</div><div>Modulo_7DR</div><div>Modulo_Both</div></div> <div>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'.</div>
NOTISEditingType	notisEditingType	<div>A value specifying whether to transform it to NOTIS editing format (Start/Stop characters) and the way it is transformed.</div> <div><div>*None</div><div>ABCD_Upper</div><div>Abcd_Lower</div></div>
Enable_State	enable	<div>A value specifying whether to enable Codabar.</div> <div><div>*TRUE</div><div>FALSE</div></div>
int	length1	<div>Length qualification</div> <div><div>*4 (0 ~ 55)</div></div>
int	length2	<div>Length qualification</div> <div><div>*55 (0 ~ 55)</div></div>
Enable_State	clsiEditing	<div>A value specifying whether to edit CLSI.</div>

		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 Enable_State reducedQuietZone;
public int length1;
public int length2;
}

```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable Code 39. <div>TRUE</div> <div>*FALSE</div>
Enable_State	checkDigitVerification	A value that specifies whether to verify check digit. <div>*TRUE</div> <div>FALSE</div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div>TRUE</div> <div>*FALSE</div>
Enable_State	fullASCII	A value that specifies whether to support Code 39 Full ASCII. <div>TRUE</div> <div>*FALSE</div>
Enable_State	convertToCode32	A value that specifies whether to convert Code 39 to Code 32 (= Italian Pharmacode). <div>TRUE</div> <div>*FALSE</div>
Enable_State	convertToCode32Prefix	A value that specifies whether to transmit prefix for Code 32 data. <div>TRUE</div> <div>*FALSE</div>
Enable_State	reducedQuietZone	A value that specifies whether to enable decoding Code 39 bar codes with reduced quiet zones or not. <div>TRUE</div> <div>*FALSE</div>
int	length1	Length qualification <div>*4 (0 ~ 55)</div>
int	length2	Length qualification <div>*55 (0 ~ 55)</div>

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;
    public int length1;
    public int length2;
}
```

Data Type	Member Name	Description
Code128SecurityLevel	securitylevel	<div>A value that specifies the decode security level while reading Code128.</div> <div><div>*High</div><div>Low</div></div>
Enable_State	enable	<div>A value that specifies whether to enable Code 128.</div> <div><div>*TRUE</div><div>FALSE</div></div>
int	length1	<div>Length qualification</div> <div><div>*4 (0 ~ 55)</div></div>
int	length2	<div>Length qualification</div> <div><div>*55 (0 ~ 55)</div></div>

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. INDUSTRIAL2OF5 CLASS

```
public class Industrial2Of5
{
    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. <div>*TRUE</div> <div>FALSE</div>
int	length1	Length qualification <div>*4 (0 ~ 55)</div>
int	length2	Length qualification <div>*55 (0 ~ 55)</div>

1.5.14. INTERLEAVED2OF5 CLASS

```
public class Interleaved 25
{
    public Enable_State enable;
    public int length1;
    public int length2;
    public I2Of5CheckDigitVerification checkDigitVerification;
    public Enable_State transmitCheckDigit;
    public Enable_State convertToEan13;
    public SecurityLevel securityLevel;
}
```

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

I20f5CheckDigitVerification	checkDigitVerification	<p>A value that specifies whether and how to verify check digit.</p> <table><tr><td>*Disable</td></tr><tr><td>USS</td></tr><tr><td>OPCC</td></tr></table>	*Disable	USS	OPCC	
*Disable						
USS						
OPCC						
Enable_State	transmitCheckDigit	<p>A value that specifies whether to transmit check digit. It is available only when I20f5CheckDigitVerification is not disabled.</p> <table><tr><td>TRUE</td></tr><tr><td>*FALSE</td></tr></table>	TRUE	*FALSE		
TRUE						
*FALSE						
Enable_State	convertToEan13	<p>A value that specifies whether to convert Interleaved 25 to EAN-13.</p> <table><tr><td>TRUE</td></tr><tr><td>*FALSE</td></tr></table>	TRUE	*FALSE		
TRUE						
*FALSE						
SecurityLevel	securityLevel	<p>A value that specifies the decode security level while reading GS1 DataBar 14.</p> <table><tr><td>Zero</td></tr><tr><td>*One</td></tr><tr><td>Two</td></tr><tr><td>Three</td></tr></table>	Zero	*One	Two	Three
Zero						
*One						
Two						
Three						

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. <div>TRUE</div> <div>*FALSE</div>
Enable_State	checkDigitVerification	A value that specifies whether to verify check digit. <div>TRUE</div> <div>*FALSE</div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div>TRUE</div> <div>*FALSE</div>

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. <div>TRUE</div> <div>*FALSE</div>

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. <div>*1 (0 ~ 3)</div>
Enable_State	enable	A value that specifies whether to enable GS1 DataBar-14. <div>*TRUE</div> <div>FALSE</div>

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

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

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.

Note: The securityLevel elements included in GS1DataBar14 and GS1dataBarExpanded symbologies correspond to each other; changing either of the element value of a particular symbology will also change the other one.

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	<div>A value that specifies whether to enable EAN-8.</div> <div><div>*TRUE</div><div>FALSE</div></div>
AddonsType	addon2	<div>A value that specifies the way processing addon2.</div> <div><div>*IgnoresAddon</div><div>AutoDiscriminate</div></div>
AddonsType	addon5	<div>A value that specifies the way processing addon5.</div> <div><div>*IgnoresAddon</div><div>AutoDiscriminate</div></div>
Enable_State	transmitCheckDigit	<div>A value that specifies whether to transmit check digit.</div> <div><div>*TRUE</div><div>FALSE</div></div>
Enable_State	convertToEan13	<div>A value that specifies whether to convert EAN-8 to EAN-13.</div> <div><div>TRUE</div><div>*FALSE</div></div>

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

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	<div>A value that specifies whether to enable EAN-13.</div> <div><div>*TRUE</div><div>FALSE</div></div>
AddonsType	addon2	A value that specifies the way processing addon2.

		<div>*IgnoresAddon</div> <div>AutoDiscriminate</div>	
AddonsType	addon5	A value that specifies the way processing addon5. <div> <div>*IgnoresAddon</div> <div>AutoDiscriminate</div> </div>	
Enable_State	convertToISBN	A value that specifies whether to convert EAN-13 to ISBN. <div> <div>TRUE</div> <div>*FALSE</div> </div>	
Enable_State	convertToISSN	A value that specifies whether to convert EAN-13 to ISSN. <div> <div>TRUE</div> <div>*FALSE</div> </div>	
ISBNFormat	booklandISBNFormat	If you enabled Bookland EAN, select one of the following formats for Bookland data. <div> <div>ISBN_10</div> <div>ISBN_13</div> </div>	
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div> <div>*TRUE</div> <div>FALSE</div> </div>	

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

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. <div><div>*TRUE</div><div>FALSE</div></div>
AddonsType	addon2	A value that specifies the way processing addon2. <div><div>*IgnoresAddon</div><div>AutoDiscriminate</div></div>
AddonsType	addon5	A value that specifies the way processing addon5. <div><div>*IgnoresAddon</div><div>AutoDiscriminate</div></div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div><div>*TRUE</div><div>FALSE</div></div>
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-A preamble. <div><div>None</div><div>*SysNumOnly</div><div>SysNumAndCtyCode</div></div>
Enable_State	convertToEan13	A value that specifies whether to convert to EAN-13. <div><div>TRUE</div><div>*FALSE</div></div>

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. <div>*TRUE</div> <div>FALSE</div>
AddonsType	addon2	A value that specifies the way processing addon2. <div>*IgnoresAddon</div> <div>AutoDiscriminate</div>
AddonsType	addon5	A value that specifies the way processing addon5. <div>*IgnoresAddon</div> <div>AutoDiscriminate</div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div>*TRUE</div> <div>FALSE</div>
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-E preamble. <div>None</div> <div>*SysNumOnly</div> <div>SysNumAndCtyCode</div>
Enable_State	convertToUpcA	A value that specifies whether to convert to UPC-A. <div>TRUE</div> <div>*FALSE</div>

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. <div> *TRUE FALSE </div>
AddonsType	addon2	A value that specifies the way processing addon2. <div> *IgnoresAddon AutoDiscriminate </div>
AddonsType	addon5	A value that specifies the way processing addon5. <div> *IgnoresAddon AutoDiscriminate </div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div> *TRUE FALSE </div>
Preamble	transmitSystemNumber	A value that specifies whether to verify (transmit) UPC-E1 preamble. <div> None *SysNumOnly SysNumAndCtyCode </div>
Enable_State	convertToUpcA	A value that specifies whether to convert to UPC-A. <div> TRUE *FALSE </div>

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

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

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	<div>A value that specifies whether to use the escape character.</div> <div><div>TRUE</div><div>*FALSE</div></div>
Enable_State	transmitControlHeader	<div>A value that specifies whether to transmit the control header.</div> <div><div>TRUE</div><div>*FALSE</div></div>

1.5.35. MICROPDF417 CLASS

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

Data Type	Member Name	Description
Enable_State	enable	<div>A value that specifies whether to enable MicroPDF417.</div> <div><div>TRUE</div><div>*FALSE</div></div>
Enable_State	code128Emulation	<div>A value that specifies whether to enable Code 128 Emulation for certain MicroPDF417 barcodes.</div> <div><div>TRUE</div><div>*FALSE</div></div>

1.5.36. DATAMATRIX CLASS

```
public class DataMatrix
{
    public Enable_State enable;
    public String fieldSeparator;
    public MatrixMirrorImage mirrorImage;
    public Enable_State enableApplicationIdentifier; // Default is disable
    public String applicationIdentifierMark1;
    public String applicationIdentifierMark2;
    public InverseType inverseType;
}
```

Data Type	Member Name	Description
Enable_State	enable	<div>A value that specifies whether to enable Data Matrix.</div> <div><div>*TRUE</div><div>FALSE</div></div>

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.			
MatrixMirrorImage	mirrorImage	A value that specifies whether to decode mirror image Data Matrix barcodes. <table><tr><td>*Never</td></tr><tr><td>Always</td></tr><tr><td>Auto</td></tr></table>	*Never	Always	Auto
*Never					
Always					
Auto					
Enable_State	enableApplicationIdentifier	A value that specifies whether to enable the application identifier. <table><tr><td>TRUE</td></tr><tr><td>*FALSE</td></tr></table>	TRUE	*FALSE	
TRUE					
*FALSE					
String	applicationIdentifierMark1	Application ID mark 1			
String	applicationIdentifierMark2	Application ID mark 2			
InverseType	inverseType	A value that specifies whether to transmit check digit. <table><tr><td>*Regular only</td></tr><tr><td>Inverse only</td></tr><tr><td>Inverse Auto-detect</td></tr></table>	*Regular only	Inverse only	Inverse Auto-detect
*Regular only					
Inverse only					
Inverse Auto-detect					

1.5.37. MAXICODE CLASS

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

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

1.5.38. QR CODE CLASS

```
public class QRCode
{
    public Enable_State enable;
    public MirrorImage mirrorImage;
    public InverseType inverseType;
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable QR Code. <div>*TRUE</div> <div>FALSE</div>
MirrorImage	mirrorImage	A value that specifies whether to decode mirror image. <div>*Never</div> <div>Always</div> <div>Auto-discriminate</div>
InverseType	inverseType	A value that specifies whether to transmit check digit. <div>*Regular only</div> <div>Inverse only</div> <div>Inverse Auto-detect</div>

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. <div>*TRUE</div> <div>FALSE</div>

1.5.40. AZTEC CLASS

```
public class Aztec
{
    public Enable_State enable;
    public MirrorImage mirrorImage;
    public InverseType inverseType;
}
```

Data Type	Member Name	Description
Enable_State	enable	<div>A value that specifies whether to enable Aztec.</div> <div><div>*TRUE</div><div>FALSE</div></div>
MirrorImage	mirrorImage	<div>A value that specifies whether to decode mirror image.</div> <div><div>*Never</div><div>Always</div><div>Auto-discriminate</div></div>
InverseType	inverseType	<div>A value that specifies whether to transmit check digit.</div> <div><div>*Regular only</div><div>Inverse only</div><div>Inverse Auto-detect</div></div>

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	<div>A value that specifies whether to enable Telepen.</div> <div><div>*TRUE</div><div>FALSE</div></div>
TelepenFormat	format	<div>A value that sets output format. "0" represents ASCII, while "1" represents Numeric.</div> <div><div>*0</div><div>1</div></div>
int	length1	<div>Length qualification</div> <div><div>*0 (0 ~ 55)</div></div>
int	length2	<div>Length qualification</div> <div><div>*0 (0 ~ 55)</div></div>

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. <div> *TRUE FALSE </div>
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). <div> *TRUE FALSE </div>
Enable_State	transmitCheckDigit	A value that specifies whether to transmit check digit. <div> *TRUE FALSE </div>
int	length1	Length qualification <div> *0 (0 ~ 55) </div>
int	length2	Length qualification <div> *0 (0 ~ 55) </div>

1.5.43. HANXIN

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

Data Type	Member Name	Description
Enable_State	enable	<div>A value that specifies whether to enable HanXin.</div> <div><div>*TRUE</div><div>FALSE</div></div>

1.5.44. FRENCH PHARMACODE

```
public class French Pharmacode
{
    public Enable_State enable;
    public Enable_State transmitCheckDigit
}
```

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

1.5.45.DOTCODE

```
public class DotCode
{
    public Enable_State enable;
    public MirrorImage mirrorImage;    //Zebra
    public InverseType inverseType;    //Zebra
    public Enable_State prioritize;    //Zebra
}
```

Data Type	Member Name	Description
Enable_State	enable	A value that specifies whether to enable DotCode. <div> *TRUE FALSE </div>
MirrorImage	mirrorImage	A value that specifies whether to decode mirror image. <div> *Never Always Auto-discriminate </div>
InverseType	inverseType	A value that specifies whether to transmit check digit. <div> *Regular only Inverse only Inverse Auto-detect </div>
Enable_State	prioritize	A value that specifies whether to activate better performance for DotCode reading. <div> TRUE *FALSE </div>

1.5.46.MRZ

```
public class MRZ
{
    public Enable_State enable;
    public MRZMode mode;
}
```

Data Type	Member Name	Description
Enable_State	enable	<div>A value that specifies whether to enable Plessey.<div><div>*TRUE</div><div>FALSE</div></div></div>
MRZMode	mode	<div>A value that automatically recognizes the travel document read.<div><div>TravelDocument_V1_3Line</div><div>TravelDocument_V2_2Line</div><div>TravelDocument_AutoDetect</div><div>Passport</div><div>Visa_TypeA</div><div>Visa_TypeB</div><div>ICAO_TravelDocuments</div><div>NotSupport</div></div></div>

1.6. RESET READER

ResetReaderToDefault

Purpose	Resets reader module(s).
Syntax	CIResult ResetReaderToDefault ()
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.	
Parameters	GeneralString.BcReaderData	Decode data (Post-Process by Reder Service)
	GeneralString.BcReaderDataArray	Raw decode data
	GeneralString.BcReaderCodeType	Decode code type (refer to Appendix III Code Type & Symbology)
	GeneralString.BcReaderCodeTypeStr	Decode code type string
Syntax	getStringExtra(GenralString.BcReaderData) getBytesExtra(GenralString.BcReaderDataArray) getIntExtra(GenralString.BcReaderCodeType) getStringExtra(GenralString.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.	
Parameters	GeneralString.BcReaderData	Decode data (Post-Process by Reder Service)
	GeneralString.BcReaderDataArray	Raw decode data
	GeneralString.BcReaderCodeType	Decode code type (refer to Appendix III Code Type & Symbology)
	GeneralString.BcReaderCodeTypeStr	Decode code type string
Syntax	getStringExtra(GenralString.BcReaderData) getBytesExtra(GenralString.BcReaderDataArray) getIntExtra(GenralString.BcReaderCodeType) getStringExtra(GenralString.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	GeneralString.BcReaderDecodeError	Only for Codabar check digit verification. (DecodeErrorType.ERROR_Codabar_Verify_Check_Digit)
Syntax	getIntExtra(GenralString.BcReaderDecodeError)	

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).

1.7.6. PHYSICAL SCAN BUTTON SIMULATION

Purpose	Simulate the scan button press and release.	
Parameters	android.intent.action.FUNC_BUTTON	Press the scan button.
	android.intent.action.FUNC_RELEASE_BUTTON	Release the scan button.

Example

```
Intent idown = new Intent("android.intent.action.FUNC_BUTTON");
sendBroadcast(idown);
Intent iup = new Intent("android.intent.action.FUNC_RELEASE_BUTTON");
sendBroadcast(iup);
```

1.7.7. LED CONTROL (RK95 ONLY)

Purpose Control the RK95 LED indicators.

Intent Name **sw.cipherlab.led.control**

Intent Parameter

Parameter Name	Value
LEDOn	true - turn on led false - turn off led
LEDColor	0 – Green 1 – Red 2 – Blue 3 - Yellow

Example

```
Intent RTintent = new Intent("sw.cipherlab.led.control");
RTintent.putExtra("LEDOn", true); // true - turn on led, false - turn
off led
RTintent.putExtra("LEDColor", 0); // 0 - Green, 1 - Red, 2 - Blue,
3 - Yellow
mContext.sendBroadcast(RTintent);
```

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	void SetReaderCallback(ReaderCallback readerCallback);
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	boolean GetReaderCallbackStatus();
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();
}

}
```

1.9. EXTENDED FUNCTIONS

The following functions are offered for additional applications.

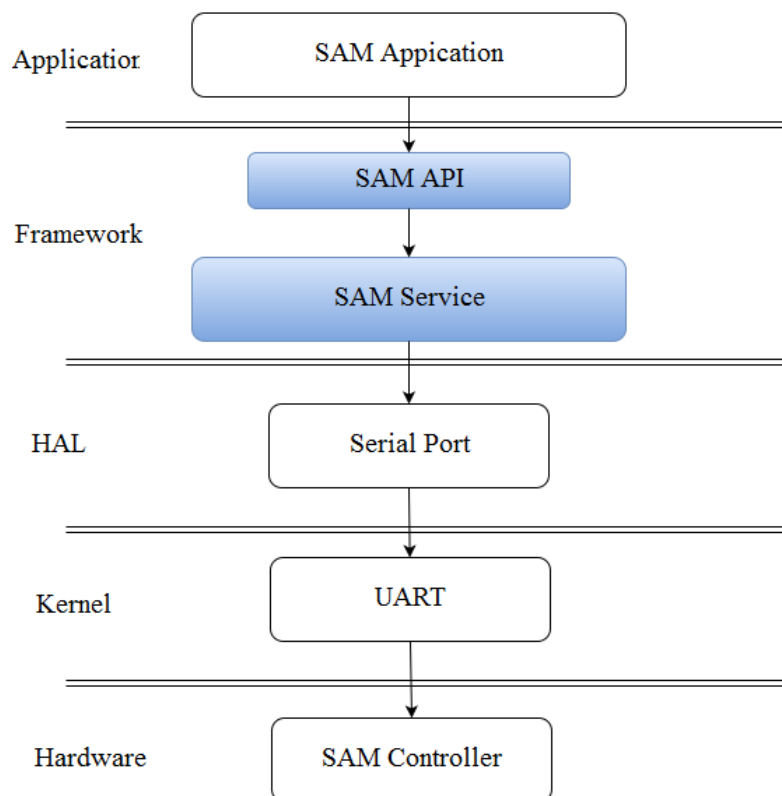
1.9.1. TAKEPICTURE

TakePicture	
Purpose	The reader take picture function.
Syntax	CIResult TakePicture(String FileName, boolean bEnableIllumination, boolean bEnableAimingPattern);
Parameters	FileName : stored in the directory of sdcard/ bEnableIllumination : Enable Illumination or not. (Available for some readers) bEnableAimingPattern : Enable Aiming Pattern or not. (Available for some readers)
Example	<pre>// The picture that is captured will be saved in /sdcard/Test01.png mReaderManager.TakePicture("Test01", false, false);</pre>

Chapter 2

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.

Library required:

SamAPI.jar

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, AduOutputData 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 AduOutputData object. <i>timeout</i> – [in] An integer value (ms).
Example	<pre>int[] cmd={0x00,0x01,0x02,0x03,0x04,0x05}; AduOutputData outputData=new AduOutputData(); if (CiResult.S_OK == m_SM.ExecuteApu(cmd, outputData, 2000)) { tvOutput.setText("Len is " + outputData.length + "\nData is " + intArrayToHex(outputData.outputData)); } //Details of the AduOutputData object //public class AduOutputData { // public int[] outputData; // public int length; //}</pre>
Return Value	If successful, it returns CiResult.S_OK. Otherwise, it returns CiResult.S_ERR.

CiResult ExecuteApduEx(int[] SamId, int[] cmd, ApduOutputData outputData, int timeout)

Purpose	Sends APDU command and get response of the specified IC card.
Parameters	<i>SamId</i> – SAM slot index <i>cmd</i> – [in] An integer array (APDU command) <i>outputData</i> – [out] An ApduOutputData object <i>timeout</i> – [in] An integer value (ms)
Return Value	If successful, it returns CiResult.S_OK. Otherwise, it returns CiResult.S_ERR.

Release

Purpose	Unbinds SAM service.
Syntax	void Release ();
Example	<pre>@Override protected void onDestroy() { super.onDestroy(); m_SM.Release(); }</pre>
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.

CiResult ResetEx(int SamId)

Purpose	Reset the specified SAM controller.
Parameters	<i>SamId</i> – [in] SAM slot index
Return Value	If successful, it returns CiResult.S_OK. Otherwise, it returns CiResult.S_ERR.

public CResult PowerOnSAMCard(ApduOutputData outputData)

Purpose	Power on SAM card and get ATR response of the SAM card.
Parameters	<i>outputData</i> – [out] An ApduOutputData object.
Example	<pre>ApduOutputData ATR = new ApduOutputData(); if (CResult.S_OK == m_SM.PowerOnSAMCard(ATR)) { }</pre>
Return Value	If successful, it returns CResult.S_OK. Otherwise, it returns CResult.S_ERR.

public CResult PowerOffSAMCard()

Purpose	Power off SAM card.
Return Value	If successful, it returns CResult.S_OK. Otherwise, it returns CResult.S_ERR.

public CResult PowerOnSAMCardEx(int SamId, ApduOutputData outputData)

Purpose	Power on the specified SAM card and get ATR response of the SAM card.
Parameters	<i>SamId</i> – SAM slot index <i>outputData</i> – [out] An ApduOutputData object.
Return Value	If successful, it returns CResult.S_OK. Otherwise, it returns CResult.S_ERR.

public CResult PowerOffSAMCardEx(int SamId)

Purpose	Power off the specified SAM card.
Parameters	<i>SamId</i> – SAM slot index
Return Value	If successful, it returns CResult.S_OK. Otherwise, it returns CResult.S_ERR.

2.2 SERVICE INFORMATION

Get_SamServiceVer

Purpose	Gets SAM service version of the device.
Syntax	String Get_SamServiceVer ();
Example	<code>String ver = m_SM.Get_SamServiceVer();</code>

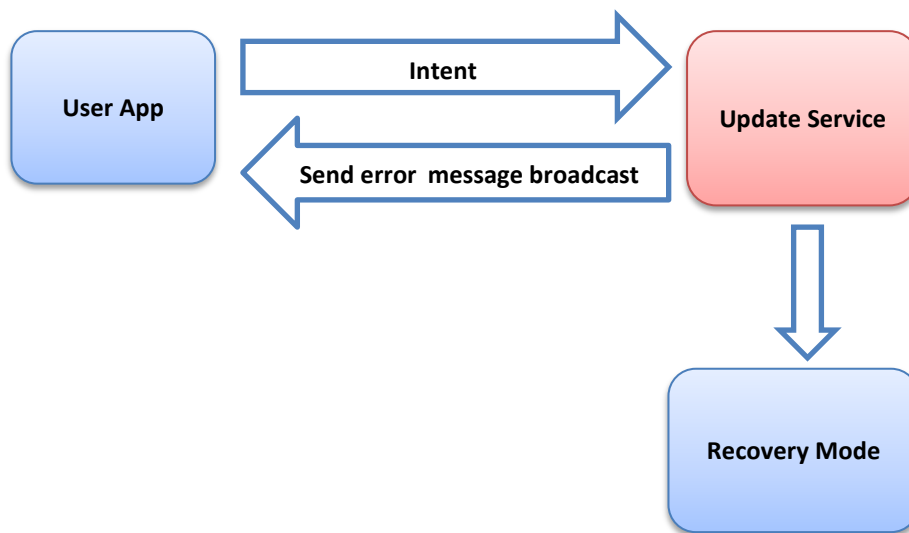
Chapter 3

OS UPDATE

OS update (including upgrade and downgrade) supply Intent for users to proceed with the update task by SD card or OTA.

3.1 FUNCTIONS FOR UPDATE

The diagram below depicts the OS Update.



OS Update function diagram

Please refer to functions described below for OS update.

3.1.1 SD CARD UPDATE

Users can install upgrade/downgrade package on internal storage or an external SD card to perform OS update.

Notes: End users themselves should ensure the source of download package is official and safe.

Purpose	Launch the OS update with intent using SD.
Intent Name	com.cipherlab.otaupdate.OtaUpdateService
Intent Action	com.cipherlab.OtaUpdateService.SD
Intent Parameters	Data_SDPath
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.

Storage device where upgrade/downgrade package file is located	File path (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. Log is kept in the path below.

Models	LOG path
RK25/RS51/RK95	/storage/sdcard0/systemupdatelog
RS31/RS50	/storage/sdcard0/mtklog/systemupdatelog

3.1.2 OTA AUTO-UPDATE

Users can also employ the OTA method to distribute OS update to the client device.

Purpose	Launch the OS update with intent using OTA.
Intent Name	com.cipherlab.otauupdate.OtaUpdateService
Intent Action	com.cipherlab.OtaUpdateService.Auto
Intent Parameters	Data_OTA_Error , Data_OTA_Download (Default: Error is true; Download is false)
Example	<pre>Intent autoIntent = new Intent(); autoIntent.setClassName("com.cipherlab.otauupdate", "com.cipherlab.otauupdate.OtaUpdateService"); autoIntent.setAction("com.cipherlab.OtaUpdateService.Auto"); mContext.startService(autoIntent); Intent autoIntent = new Intent(); autoIntent.setClassName("com.cipherlab.otauupdate", "com.cipherlab.otauupdate.OtaUpdateService"); autoIntent.setAction("com.cipherlab.OtaUpdateService.Auto"); Bundle bundle = new Bundle(); bundle.putBoolean("Data_OTA_Error", true); bundle.putBoolean("Data_OTA_Download", false); autoIntent.putExtras(bundle); mContext.startService(autoIntent);</pre>

3.1.3 OTA AUTO-UPDATE CANCELLATION

Users can cancel the OS update which is in progress.

Purpose	Cancel the OS update in progress.
Intent Name	com.cipherlab.otauupdate.OtaUpdateService
Intent Action	com.cipherlab.OtaUpdateService.CancelAuto
Remarks	Only available during the OTA download
Example	<pre>Intent CancelAutoIntent = new Intent(); CancelAutoIntent.setClassName("com.cipherlab.otauupdate", "com.cipherlab.otauupdate.OtaUpdateService"); CancelAutoIntent.setAction("com.cipherlab.OtaUpdateService.CancelAuto"); mContext.startService(CancelAutoIntent);</pre>

3.1.4 OTA NEW VERSION QUERY

Users can employ this intent to check OS version.

Purpose	Query the server to check for update.
Intent Name	com.cipherlab.otauupdate.OtaUpdateService
Intent Action	com.cipherlab.OtaUpdateService.QueryVersion
Example	<pre>Intent queryIntent = new Intent(); queryIntent.setClassName("com.cipherlab.otauupdate", "com.cipherlab.o taupdate.OtaUpdateService"); queryIntent.setAction("com.cipherlab.OtaUpdateService.QueryVersion"); mContext.startService(queryIntent);</pre>

3.1.5 RETURN VALUE OF OTA NEW VERSION

Users can employ this intent to get the string value of new OS version.

Purpose	Get the return string value of OS version.
Intent Name	com.cipherlab.OtaUpdateService.NewVersion
Intent Parameter Value	Data_NewVersion
Example	<pre>else if (intent.getAction().equals("com.cipherlab.OtaUpdateService.NewVersi on")) { Log.d(TAG, "onReceive -> Intent_NewVersion"); Bundle GetTestbundle = intent.getExtras(); String value = GetTestbundle.getString("Data_NewVersion"); TextViewVaule += "QueryVersion = " + value+ "\n"; }</pre>

3.1.6 RETURN VALUE OF OTA IMAGE DOWNLOAD PERCENTAGE

Users can employ this intent to get the integer value of OS image download percentage.

Purpose	Get the return integer value of OS image download percentage.
Intent Name	com.cipherlab.OtaUpdateService.DownloadImage
Intent Parameter Value	Data_DownloadImage
Example	<pre>else if (intent.getAction().equals("com.cipherlab.OtaUpdateService.Download Image")) { Bundle GetTestbundle = intent.getExtras(); int value = GetTestbundle.getInt("Data_DownloadImage"); DownloadPercent_TextView.setText(Integer.toString(value)); }</pre>

3.2 ERROR MESSAGE

Users can employ this intent to get error message that occurs during OS update.

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 Value
(Integer)

Error Message	Description	Value
HTTP_RESPONSE_SUCCESS	Success	1000
HTTP_RESPONSE_AUTHEN_ERROR	Authentication error occurs	1002
HTTP_RESPONSE_ILLEGAL_ACCESS	Illegal access	1004
HTTP_RESPONSE_TOKEN_REQUIRE	Token is required	1005
HTTP_RESPONSE_TOKEN_INVALID	Invalid token	1006
HTTP_RESPONSE_SN_LOST	Serial number lost	1008
HTTP_RESPONSE_VERSION_REQUIRE	Device OS version required	1009
HTTP_RESPONSE_NO_NEW_VERSION	There's no newer version	1010
HTTP_RESPONSE_DATABASE_ERROR	Database error	1103
HTTP_RESPONSE_PARAM_ERROR	Parameter error occurs	1104
HTTP_RESPONSE_VERSION_ILLEGAL	Illegal version	1105
HTTP_RESPONSE_VERSION_DELETE	The version no longer exists	1106
HTTP_RESPONSE_NETWORK_ERROR	Network error occurs	1201
HTTP_RESPONSE_REQUEST_TOO_LONG	Request timeout	1202
HTTP_RESPONSE_DELTA_DELETE	Delta file deleted	1900
HTTP_DETECTED_SDCARD_CRASH_OR_UNMOUNT	No mounted SD card or the detected SD card crashes	1901
HTTP_DETECTED_SDCARD_ERROR	SD card error occurs	1902
HTTP_DETECTED_SDCARD_INSUFFICIENT	Insufficient SD card space	1903
HTTP_FILE_NOT_EXIST	File not exists	1904
HTTP_UNKNOWN_ERROR	Unknown error occurs	2000
HTTP_SERVER_VERSION_ERROR	Server version error occurs	2001
HTTP_RESPONSE_UNZIP_ERROR	Unzipping error occurs	2002
HTTP_RESPONSE_UNZIP_CKSUM	Unzipping checksum	2003
SD_UNZIP_ERROR	Failure to unzip upgrade /downgrade package on SD card	2100
SD_NO_FILE_ERROR	Upgrade/downgrade package does not exist or incorrect format on SD card	2101
SD_LOW_BATTERY_ERROR	Battery capacity less than 50%	2102
SD_NOT_ENOUGH_SPACE_ERROR	Insufficient storage space to unzip upgrade/downgrade package	2103

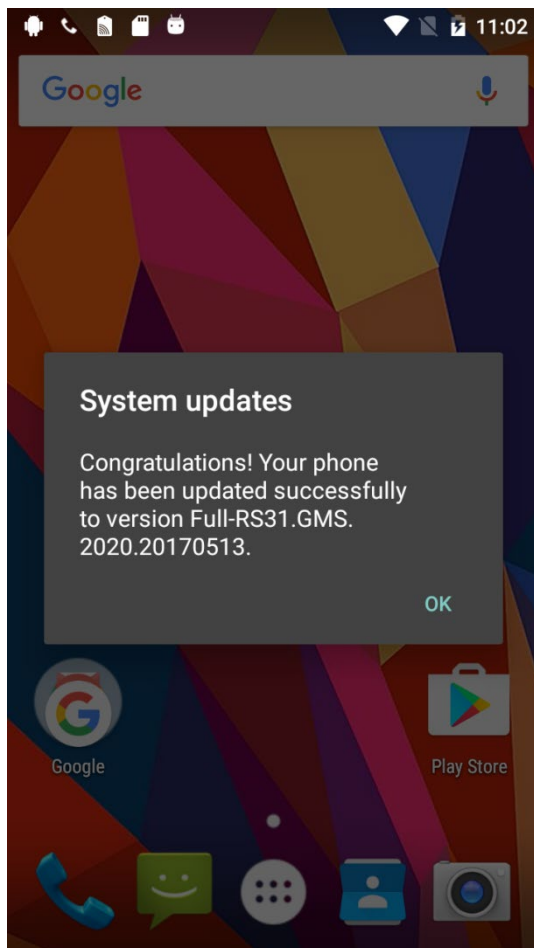
Example

```
If(intent.getAction().equals("com.cipherlab.OtaUpdateService.ErrorM
```

```
essage"))  
{  
    Bundle GetErrorbundle = intent.getExtras();  
    int value = GetErrorbundle.getInt("Data_ErrorMessage");  
    TextViewVaule = "ErrorMessage = " + value + "\n";  
}
```

3.3 OS UPDATE RESULT

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



3.4 SAMPLE CODE

```
package com.example.sduupdateexample;

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.OtaUpdateService");

    //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();
}
}
```


Chapter 4

Other Functions

Functions unsorted are depicted in this chapter.

4.1 SYSTEM INFORMATION

GetSystemProperty

(applicable to Android 10 or later)

Purpose Gets the system properties of the mobile device.

Syntax `GetSystemProperty(String key);`

Parameters String *key*

Key	Description
<code>persist.sys.deviceinfo.serialnumber</code>	Serial number
<code>persist.sys.deviceinfo.imei</code>	IMEI
<code>persist.sys.deviceinfo.meid</code>	MEID
<code>persist.sys.deviceinfo.simserialnumber</code>	Sim serial number
<code>persist.sys.deviceinfo.subscriberid</code>	Subscriber ID
<code>persist.sys.deviceinfo.wifimac</code>	Wifi MAC
<code>persist.sys.deviceinfo.btmac</code>	Bluetooth MAC

Example

```

textView = (TextView) findViewById(R.id.textView1);
textView.setText("SerialNumber: " +
GetSystemProperty("persist.sys.deviceinfo.serialnumber"));

public String GetSystemProperty(String key) {
    String value = "";

    try {
        Class<?> c = Class.forName("android.os.SystemProperties");
        Method get = c.getMethod("get", String.class, String.class);
        value = (String) (get.invoke(c, key, "unknown"));
    } catch (Exception e) {
    }

    return value;
}

```

Return Value If successful, it returns the specified property.

Appendix I

Response Code Instructions

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

Appendix II

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
		SE965
		SE965E
		SE965I
1D	Laser	SE955
1D	Extended Range Laser (ER Laser)	SE1524
2D	2D Imager	SE4500
		SE4750SR
		SE4750MR
		SE4750 + PL3370
		SE4770
		SM2
		SM2 + SDC
		SM4 + SDC
2D	Near/Far 2D Imager (N/F 2D)	EX25
		SE4850

SYMBOLOGIES SUPPORTED

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

		SM1	SM2	SM2+ SDC, SM4+ SDC	SE955, SE965, SE965E, SE965I	SE4500 SE4750SR, SE4750MR, SE4850 SE4770 SE4100	SE4750 PL3307	EX25	SE1524	SE4750 DPM
Codabar		✓	✓	✓	✓	✓	✓	✓	✓	✓
Code 11			✓	✓	✓	✓	✓			✓
Code 39	Code 39	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Trioptic Code 39			✓	✓	✓	✓	✓	✓	✓
	Italian Pharmacode (Code 32)	✓	✓	✓	✓	✓	✓		✓	✓
	French Pharmacode (Cip39)		✓	✓						
Code 93		✓	✓	✓	✓	✓	✓	✓	✓	✓
Plessey			✓					✓		
Telepen			✓					✓		
Code 128	Code 128	✓	✓	✓	✓	✓	✓	✓	✓	✓
	GS1-128 (EAN-128)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ISBT 128	✓	✓	✓	✓	✓	✓	✓	✓	✓
Code 2 of 5	Chinese 25			✓	✓	✓	✓			✓
	Industrial 25 (Discrete 25)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Interleaved 25	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Convert Interleaved 25 to EAN-13		✓	✓	✓	✓	✓		✓	✓
	Matrix 25	✓	✓	✓		✓	✓	✓		✓
Composite Code	Composite CC-A/B		✓	✓		✓	✓	✓		✓
	Composite CC-C		✓	✓		✓	✓	✓		✓
	Compostie TLC 39			✓		✓	✓			✓
GS1 DataBar (RSS)	GS1 DataBar-14 (RSS-14)	✓	✓	✓	✓	✓	✓	✓	✓	✓

	GS1 DataBar Limited (RSS Limited)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	GS1 DataBar Expanded (RSS Expanded)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Convert to UPC/EAN			✓	✓	✓	✓		✓	✓
Korean 3 of 5				✓		✓	✓			✓
MSI		✓	✓	✓	✓	✓	✓	✓	✓	✓
Postal Codes	Australian Postal			✓		✓	✓	✓		✓
	Japan Postal			✓		✓	✓	✓		✓
	Netherlands KIX Code			✓		✓	✓	✓		✓
	US Postnet			✓		✓	✓	✓		✓
	US Planet			✓		✓	✓	✓		✓
	UK Postal			✓		✓	✓			✓
	USPSPostal			✓		✓	✓			✓
	UPUFICSPostal			✓		✓	✓			✓
EAN/UPC	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	✓		✓	✓	✓	✓	✓	✓	✓
2D Symbolologies	Aztec		✓	✓		✓	✓	✓		✓
	Data Matrix		✓	✓		✓	✓	✓		✓
	Maxicode		✓	✓		✓	✓	✓		✓
	MicroPDF417		✓	✓		✓	✓	✓		✓
	MicroQR		✓	✓		✓	✓			✓
	PDF417		✓	✓		✓	✓	✓		✓

	QR Code		✓	✓		✓	✓	✓		✓
	Han Xin		✓							
	MRZ					✓				
	DotCode		✓	✓		✓				✓

CONFIGURABLE SYMBOLOGY PROPERTIES

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

GENERAL PROPERTIES

Symbologies	Properties	SM1	SM2	SM2+ SDC, SM4+ SDC	SE955, SE965, SE965E SE965I	SE4500, SE4750SR, SE4750MR, SE4850, SE4770, SE4100, SE5500	SE4750 DPM	SE4750+ PL3307	EX25	SE1524
Codabar	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	verifyCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	notisEditingType	✓	✓	✓	✓	✓	✓	✓	✓	✓
	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	clsiEditing	✓	✓	✓	✓	✓	✓	✓	✓	✓
	notisEditing									
	securityLevel		✓	✓		✓ (Exclude SE4850)				
Code11	enable		✓	✓	✓	✓	✓	✓	✓	
	length1		✓	✓	✓	✓	✓	✓	✓	
	length2		✓	✓	✓	✓	✓	✓	✓	
	numberOfCheckDigits		✓	✓	✓	✓	✓	✓	✓ (1)	
	transmitCheckDigit		✓	✓	✓	✓	✓	✓	✓	
	securityLevel		✓							

Code39	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	checkDigitVerification	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	fullASCII	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToCode32(Italian Pharmacode)	✓	✓	✓	✓	✓	✓	✓		✓
	convertToCode32Prefix	✓		✓	✓	✓	✓	✓		✓
	securitylevel		✓	✓		✓	✓			
	transmitStartStop		✓							
	asteriskAsDataCharacters		✓							
	code32TransmitCheckDigit		✓							
	reducedQuietZone					✓ (Exclude SE4850)				
TriopticCode39	enable			✓	✓	✓	✓	✓	✓	✓
Korean30f5	enable			✓		✓	✓	✓		
Code93	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
Plessey	enable		✓						✓	
	unconventionalStop								✓	
	transmitCheckDigit		✓						✓	
	length1								✓	
	length2								✓	
	convertUKPlessey		✓							
Telepen	enable		✓						✓	
	format								✓	
	length1								✓	
	length2								✓	
	encoding		✓							
Code128	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	securityLevel	✓ (2)	✓							
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
GS1128	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	fieldSeparator	✓	✓	✓	✓	✓	✓	✓	✓	✓

ISBT128	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	concatenation		✓	✓		✓	✓	✓	✓	
	concatenationRedundancy			✓		✓	✓	✓		
Chinese2Of5	enable			✓	✓	✓	✓	✓		
	length1			✓		✓ (Exclude SE4850)				
	length2			✓		✓ (Exclude SE4850)				
Industrial2Of5	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	startStopSelection		✓							
	verifyCheckDigit		✓							
	transmitCheckDigit		✓							
Interleaved2Of5	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	checkDigitVerification	✓	✓	✓	✓	✓	✓	✓	✓ (3)	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToEan13			✓	✓	✓	✓	✓		✓
	securityLevel			✓		✓	✓	✓		
	startStopSelection		✓							
Matrix2Of5	enable	✓	✓	✓		✓		✓	✓	
	length1	✓	✓	✓		✓		✓	✓	
	length2	✓	✓	✓		✓		✓	✓	
	redundancy	✓		✓		✓				
	checkDigitVerification	✓	✓	✓		✓		✓		
	transmitCheckDigit	✓	✓	✓		✓		✓		
	startStopSelection		✓							
UccCoupon	enable			✓	✓	✓	✓	✓		✓
	couponReport			✓		✓	✓			
GS1DataBar14	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToUpceAn			✓	✓	✓	✓	✓		✓
	securityLevel		✓	✓		✓	✓			
	selectionCodeID									
	transmitCheckDigit		✓							
	transmitApplicationId		✓							

GS1DataBarLimited	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToUpcEan			✓	✓	✓	✓	✓		✓
	securityLevel		✓	✓		✓	✓	✓		
	selectionCodeID									
	transmitCheckDigit		✓							
	transmitApplicationId		✓							
GS1DataBarExpanded	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	fieldSeparator	✓		✓	✓	✓	✓	✓	✓	✓
	securityLevel		✓	✓		✓	✓			
	selectionCodeID									
MSI	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	length2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	checkDigitOption	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	checkDigitAlgorithm	✓	✓	✓	✓	✓	✓	✓		✓
Ean8	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToEan13	✓	✓	✓	✓	✓	✓	✓	✓	
Ean13	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToISBN	✓	✓	✓	✓	✓	✓	✓	✓	✓
	convertToISSN		✓	✓		✓	✓	✓	✓	
	booklandISBNFormat	✓		✓	✓	✓	✓	✓		✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	securityLevel		✓							
UpcA	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitSystemNumber	✓	✓	✓	✓	✓	✓	✓	✓ (4)	✓
	convertToEan13	✓	✓	✓	✓	✓	✓	✓	✓	✓

UpcE	enable	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon2	✓	✓	✓	✓	✓	✓	✓	✓	✓
	addon5	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitSystemNumber	✓	✓	✓	✓	✓	✓	✓	✓ (4)	✓
	convertToUpcA	✓	✓	✓	✓	✓	✓	✓	✓	✓
	selectionSystemNumber		✓							
UpcE1	enable	✓		✓	✓	✓	✓	✓	✓	✓
	addon2	✓		✓	✓	✓	✓	✓	✓	✓
	addon5	✓		✓	✓	✓	✓	✓	✓	✓
	transmitCheckDigit	✓		✓	✓	✓	✓	✓		✓
	transmitSystemNumber	✓		✓	✓	✓	✓	✓		✓
	convertToUpcA	✓		✓	✓	✓	✓	✓		✓
Composite	enableCc_C		✓	✓		✓	✓	✓	✓	
	enableCc_AB		✓	✓		✓	✓	✓	✓	
	enableTlc39			✓		✓	✓	✓		
	enableUpcMode		✓	✓		✓	✓	✓		
	enableEmulationMode			✓		✓	✓	✓		
USPostal	enablePlanet			✓		✓	✓	✓	✓	
	enablePostnet			✓		✓	✓	✓	✓	
	transmitCheckDigit			✓		✓	✓	✓	✓	
UKPostal	enable			✓		✓	✓	✓		
	transmitCheckDigit			✓		✓	✓	✓		
JapanPostal	enable			✓		✓	✓	✓	✓	
AustralianPostal	enable			✓		✓	✓	✓	✓	
DutchPostal	enable			✓		✓	✓	✓	✓	
USPSPostal	enable			✓		✓	✓	✓		
UPUFICSPostal	enable			✓		✓	✓	✓		
PDF417	enable		✓	✓		✓	✓	✓	✓	
	transmitMode									
	escapeCharacter									
	transmitControlHeader									
MicroPDF417	enable		✓	✓		✓	✓	✓	✓	
	code128Emulation			✓		✓	✓	✓	✓	

DataMatrix	enable		✓	✓		✓	✓	✓	✓	
	fieldSeparator		✓	✓		✓	✓	✓	✓	
	mirrorImage		✓	✓		✓	✓		✓ (5)	
	enableApplicationIdentifier		✓	✓		✓	✓	✓	✓	
	applicationIdentifierMark1		✓	✓		✓	✓	✓	✓	
	applicationIdentifierMark2		✓	✓		✓	✓	✓	✓	
	inverseType		✓							
MaxiCode	enable		✓	✓		✓	✓	✓	✓	
QRCode	enable		✓	✓		✓	✓	✓	✓	
	mirrorImage		✓							
	inverseType		✓							
MicroQR	enable		✓	✓		✓	✓	✓		
Aztec	enable		✓	✓		✓	✓	✓	✓	
	mirrorImage		✓							
	inverseType		✓							
French Pharmacode (Cip39)	enable		✓							
	transmitCheckDigit		✓							
Han Xin	enable		✓							
MRZ	enable					✓				
	mode					✓				
DotCode	enable		✓	✓		✓	✓			
	mirrorImage			✓		✓	✓			
	inverseType			✓		✓	✓			
	prioritize			✓		✓	✓			

READER OUTOUT CONFIGURATION

Symbologie	Properties	SM1	SM2	SM2+ DC, M4+ DC	SE955, SE965, SE965E, SE965I	SE4500, SE4750SR, SE4750MR, SE4850, SE4770, SE4100, SE5500	SE4750 DPM	SE4750+ PL3370	EX25	SE1524
Reader Output Configuration										
All	enableKeyboardEmulation	✓	✓	✓	✓	✓	✓	✓	✓	✓
	autoEnterWay	✓	✓	✓	✓	✓	✓	✓	✓	✓
	autoEnterChar	✓	✓	✓	✓	✓	✓	✓	✓	✓
	showCodeType	✓	✓	✓	✓	✓	✓	✓	✓	✓
	showCodeLen	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szPrefixCode	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szSuffixCode	✓	✓	✓	✓	✓	✓	✓	✓	✓
	useDelim	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szCharsetname	✓	✓	✓	✓	✓	✓	✓	✓	✓
	clearPreviousData	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szCustomIntentAction	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szCustomIntentDecodeData	✓	✓	✓	✓	✓	✓	✓	✓	✓
	keyEventCharDelay	✓	✓	✓	✓	✓	✓	✓	✓	✓
	timeoutBetweenInputMethod	✓	✓	✓	✓	✓	✓	✓	✓	✓
	keyEventOptimizationMode	✓	✓	✓	✓	✓	✓	✓	✓	✓
	enableCopyOnly	✓	✓	✓	✓	✓	✓	✓	✓	✓
	enableIntentviaStartActivity	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szStartActivityPackageName	✓	✓	✓	✓	✓	✓	✓	✓	✓
	szStartActivityClassName	✓	✓	✓	✓	✓	✓	✓	✓	✓
	enableSendControlCharactersasEvents	✓	✓	✓	✓	✓	✓	✓	✓	✓

NOTIFICATION PARAMS

Symbologies	Properties	SM1	SM2	SM2+ SDC, SM4+ SDC	SE955, SE965, SE965E, SE965I	SE4500, SE4750SR, SE4750MR, SE4850, SE4770, SE4100, SE5500	SE4750 DPM	SE4750+ PL3370	EX25	SE1524
Notification Params										
All	ReaderBeep	✓	✓	✓	✓	✓	✓	✓	✓	✓
	enableVibrator	✓	✓	✓	✓	✓	✓	✓	✓	✓
	vibrationCounter	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ledDuration	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TimeoutBeep		✓			✓	✓			

USER PREFERENCES

Symbologies	Properties	SM1	SM2	SM2+ SDC, SM4+ SDC	SE955, SE965, SE965E, SE965I	SE4500, SE4750SR, SE4750MR, SE4850, SE4770, SE4100, SE5500 SE5500	SE4750 DPM	SE4750 + PL3370	EX25	SE1524
User Preferences										
All	addonSecurityLevel	✓	✓	✓	✓	✓	✓	✓		✓
	displayMode		✓			✓		✓		
	laserOnTime	✓	✓		✓	✓	✓	✓		✓
	negativeBarcodes			✓		✓	✓	✓		
	pickListMode		✓			✓	✓	✓		
	redundancyLevel	✓	✓	✓	✓	✓	✓	✓		✓
	scanAngle				✓					
	securityLevel			✓	✓	✓	✓	✓		✓
	timeoutBetweenSameSymbol	✓	✓	✓	✓	✓	✓	✓	✓	✓
	transmitCodeIdChar	✓	✓	✓	✓	✓	✓	✓	✓	✓
	triggerMode	✓	✓	✓	✓	✓	✓	✓	✓	✓
	decodingIllumination					✓	✓	✓	✓	
	decodingAimingPattern		✓			✓	✓	✓		
	interCharGapSize			✓		✓	✓	✓		
	timeoutPresentationMode					✓	✓	✓	✓	
	decodingIlluminationPowerLevel					✓	✓	✓		
	aimerMode								✓	
	centerDecoding								✓	
	centerDecodingTolerance								✓	
	timeoutAimMode					✓	✓			
	sensitivityLevel		✓							
	dpmMode						✓			
	decodingAimingPowerLevel					✓ (Exclude SE4850 and SE4100)				
	multiDecodeMode			✓		✓ (Exclude SE4850)				
	multiDecodeFullRead			✓		✓ (Exclude SE4850)				
	multiDecodeNumber			✓		✓ (Exclude SE4850)				
	quietZoneLevel1D					✓ (Exclude SE4850)				

Remarks

- (1) EX25 does not support Zero number.
- (2) SM1 supports *securityLevel* only when the reader firmware version is 1.15 or later (use *GetScannerVersion()* to retrieve the version value).
- (3) EX25 only supports *Disable*, *Modulo_10* and *French_CIP_HR*.
- (4) EX25 only supports *None* and *SysNumAndCtyCode* for *transmitSystemNumber*. N6730 only support *None* and *SysNumOnly*.

(5) Ex25 only supports *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 ^{Note} (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 (I)	USPS 4CB / One Code / Intelligent Mail
0x7D	125 (J)	UPU FICS Postal
0x7E	126 (~)	Macro MicroPDF417

Appendix IV

ADC Profile Deployment

Users can develop their own applications to perform ADC profile deployment tasks on the Android device. Please copy beforehand the ADC profiles located in the ADC project directory to the Android device's directories respectively.

GENERAL DEPLOYMENT

ADC profiles listed in the table below have to be copied to the target directory.

ADC Profile	Target Directory on the Android Device
AutoInstallation.json	<i>"Internal storage/ADC/Settings/"</i>
AutoRun.json	
BarcodeReader.json	
ButtonAssignment.json	
CellularData.json	
Description.json	
FileTransfer.json	
SystemSetting.json	
WiFi.json	
WirelessManager.json	

DEPLOYMENT FOR BARCODE READER, APPLOCK, TERMINAL EMULATION

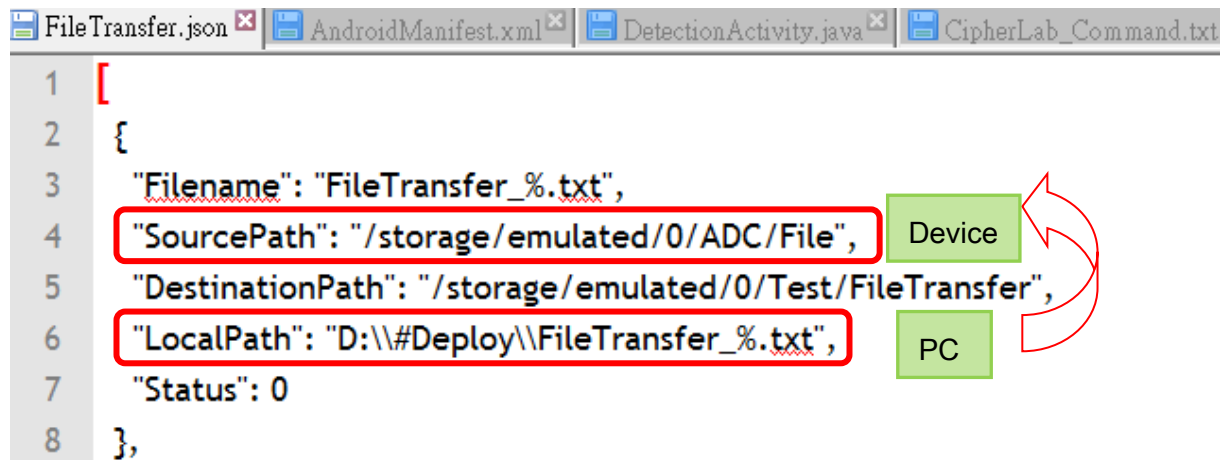
When you are planning to perform deployment tasks for Barcode Reader, AppLock, and Terminal Emulation, ADC profiles listed in the table below have to be ready.

ADC Profile	Target Directory on the Android Device
ReaderSettings.json	<i>"Internal storage/ADC/File/"</i>
AutoImport_AppLock.json	
TE_settings.json	

DEPLOYMENT FOR FILE TRANSFER

For the **File Transfer** deployment task, please open and edit the *FileTransfer.json* file where you can specify the local file directory on your PC.

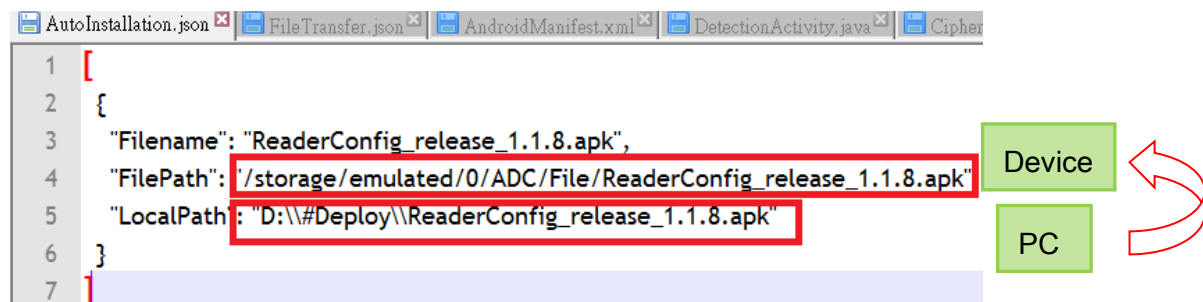
For example, the picture below illuminates that the "*FileTransfer_%.txt*" file located on your PC will be copied to **"/storage/emulated/0/ADC/File/"** on the device.



DEPLOYMENT FOR AUTOINSTALLATION

For the **AutoInstallation** deployment task, please open and edit the *AutoInstallation.json* file where you can specify the local file directory on your PC.

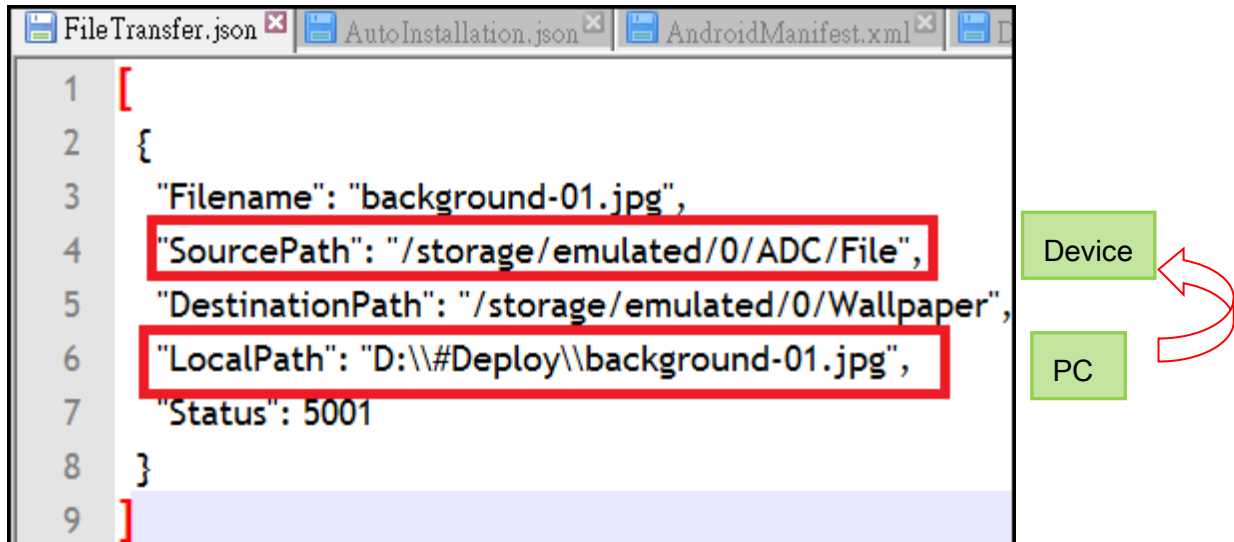
For example, the picture below illuminates that the "*ReaderConfig_release_1.1.8.apk*" file located on your PC will be copied to **"/storage/emulated/0/ADC/File/"** on the device.



DEPLOYMENT FOR SYSTEM SETTINGS

For the **System Settings** deployment task, please open and edit the *FileTransfer.json* file where you can specify the local file directory on your PC.

For example, the picture below illuminates that the "*background-01.jpg*" file located on your PC will be copied to **"/storage/emulated/0/ADC/File/"** on the device for wallpaper change.



SETTING ADC

After the file is copied, there are two ways to send the deployment intent to set the ADC.

Using ADB to send broadcast

```
adb shell am broadcast -a "sw.programme.adcclient.SetSettingAll"
```

```
adb shell am broadcast -a "sw.programme.adcclient.SystemSettings"
```

OR

Source code

```
Intent intent = new Intent("sw.programme.adcclient.SetSettingAll");
```

```
sendBroadcast(intent);
```

```
Intent intent = new Intent("sw.programme.adcclient.SystemSettings");
```

```
sendBroadcast(intent);
```

Appendix V

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 excuted.
        }
    }
}
```

```
        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);

    }

    }

};

}
```

Appendix VI

Open Source License

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

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Appendix VII

MISCELLANEOUS

BARCODE API & ANDROID VERSIONS

The Barcode API versions earlier than v1.1.19 only support Android 7.0 and lower; however, the Barcode API versions of v1.1.19 and later support Android from versions 4.4 to 10.0. Please refer the table below.

Barcode API Versions	Supported Android Versions
<i>1.1.18 and earlier versions</i>	<i>Android 4.4 ~ Android 7.0</i>
<i>1.1.19 and later versions</i>	<i>Android 4.4 ~ Android 10.0</i>

API VERSIONS OF GENERAL PROPERTIES

Symbologies	Properties	Barcode API Version
General Properties		
Codabar	transmitCheckDigit	1.1.4
	verifyCheckDigit	1.1.4
	notisEditingType	1.1.4
	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	clsiEditing	1.1.4
	notisEditing	1.1.4
	securityLevel	1.1.23
Code11	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	numberOfCheckDigits	1.1.4
	transmitCheckDigit	1.1.4
	securityLevel	1.1.23
Code39	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	checkDigitVerification	1.1.4
	transmitCheckDigit	1.1.4
	fullASCII	1.1.4
	convertToCode32	1.1.4
	convertToCode32Prefix	1.1.4
	securitylevel	1.1.23
	transmitStartStop	1.1.23
	asteriskAsDataCharacters	1.1.23
	code32TransmitCheckDigit	1.1.23
TriopticCode39	enable	1.1.4
Korean3Of5	enable	1.1.4

Code93	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
Plessey	enable	1.1.7
	unconventionalStop	1.1.7
	transmitCheckDigit	1.1.7
	length1	1.1.7
	length2	1.1.7
	convertUKPlessey	1.1.23
Telepen	enable	1.1.7
	format	1.1.7
	length1	1.1.7
	length2	1.1.7
	encoding	1.1.23
Code128	enable	1.1.4
	securityLevel	1.1.23
	length1	1.1.14
	length2	1.1.14
GS1128	enable	1.1.4
	fieldSeparator	1.1.4
ISBT128	enable	1.1.4
	concatenation	1.1.4
	concatenationRedundancy	1.1.4
Chinese2Of5	enable	1.1.4
Industrial2Of5	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	startStopSelection	1.1.23
	verifyCheckDigit	1.1.23
	transmitCheckDigit	1.1.23
Interleaved2Of5	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	checkDigitVerification	1.1.4
	transmitCheckDigit	1.1.4
	convertToEan13	1.1.4
	securityLevel	1.1.17
	startStopSelection	1.1.23
Matrix2Of5	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	redundancy	1.1.4
	checkDigitVerification	1.1.4
	transmitCheckDigit	1.1.4
	startStopSelection	1.1.23
UccCoupon	enable	1.1.4
GS1DataBar14	enable	1.1.4
	convertToUpcEan	1.1.4
	securityLevel	1.1.23
	selectionCodeID	1.1.23
	transmitCheckDigit	1.1.23
	transmitApplicationId	1.1.23
GS1DataBarLimited	enable	1.1.4
	convertToUpcEan	1.1.4
	securityLevel	1.1.23
	selectionCodeID	1.1.23
	transmitCheckDigit	1.1.23
	transmitApplicationId	1.1.23

GS1DataBarExpanded	enable	1.1.4
	fieldSeparator	1.1.4
	securityLevel	1.1.23
	selectionCodeID	1.1.23
MSI	enable	1.1.4
	length1	1.1.4
	length2	1.1.4
	checkDigitOption	1.1.4
	transmitCheckDigit	1.1.4
	checkDigitAlgorithm	1.1.4
Ean8	enable	1.1.4
	addon2	1.1.4
	addon5	1.1.4
	transmitCheckDigit	1.1.4
	convertToEan13	1.1.4
Ean13	enable	1.1.4
	addon2	1.1.4
	addon5	1.1.4
	convertToISBN	1.1.4
	convertToISSN	1.1.4
	booklandISBNFormat	1.1.4
	transmitCheckDigit	1.1.4
	securityLevel	1.1.23
UpcA	enable	1.1.4
	addon2	1.1.4
	addon5	1.1.4
	transmitCheckDigit	1.1.4
	transmitSystemNumber	1.1.4
	convertToEan13	1.1.4
UpcE	enable	1.1.4
	addon2	1.1.4
	addon5	1.1.4
	transmitCheckDigit	1.1.4
	transmitSystemNumber	1.1.4
	convertToUpcA	1.1.4
	selectionSystemNumber	1.1.23
UpcE1	enable	1.1.4
	addon2	1.1.4
	addon5	1.1.4
	transmitCheckDigit	1.1.4
	transmitSystemNumber	1.1.4
	convertToUpcA	1.1.4
Composite	enableCc_C	1.1.4
	enableCc_AB	1.1.4
	enableTlc39	1.1.4
	enableUpcMode	1.1.4
	enableEmulationMode	1.1.4
USPostal	enablePlanet	1.1.4
	enablePostnet	1.1.4
	transmitCheckDigit	1.1.4
UKPostal	enable	1.1.4
	transmitCheckDigit	1.1.4
JapanPostal	enable	1.1.4
AustralianPostal	enable	1.1.4
DutchPostal	enable	1.1.4
USPSPostal	enable	1.1.4
UPUFICSPostal	enable	1.1.4

PDF417	enable	1.1.4
	transmitMode	1.1.4
	escapeCharacter	1.1.4
	transmitControlHeader	1.1.4
MicroPDF417	enable	1.1.4
	code128Emulation	1.1.4
DataMatrix	enable	1.1.4
	fieldSeparator	1.1.4
	mirrorImage	1.1.4
	enableApplicationIdentifier	1.1.13
	applicationIdentifierMark1	1.1.13
	applicationIdentifierMark2	1.1.13
	inverseType	1.1.23
MaxiCode	enable	1.1.4
QRCode	enable	1.1.4
	mirrorImage	1.1.23
	inverseType	1.1.23
MicroQR	enable	1.1.4
Aztec	enable	1.1.4
	mirrorImage	1.1.23
	inverseType	1.1.23
Han Xin	enable	1.1.16
MRZ	enable	1.1.19
	mode	1.1.19
DotCode	enable	1.1.26
	mirrorImage	1.1.26
	inverseType	1.1.26
	prioritize	1.1.26

API VERSIONS OF READER OUTOUT CONFIGURATION

Symbologies	Properties	Barcode API Version
Reader Output Configuration		
All	enableKeyboardEmulation	1.1.4
	autoEnterWay	1.1.4
	autoEnterChar	1.1.4
	showCodeType	1.1.4
	showCodeLen	1.1.4
	szPrefixCode	1.1.4
	szSuffixCode	1.1.4
	useDelim	1.1.4
	szCharsetName	1.1.4
	clearPreviousData	1.1.4
	szCustomIntentAction	1.1.21
	szCustomIntentDecodeData	1.1.21
	keyEventCharDelay	1.1.25

API VERSIONS OF USER PREFERENCES

Symbologies	Properties	Barcode API Version
User Preferences		
All	addonSecurityLevel	1.1.4
	displayMode	1.1.4
	laserOnTime	1.1.4
	negativeBarcodes	1.1.4
	pickListMode	1.1.4
	redundancyLevel	1.1.4
	scanAngle	1.1.4
	securityLevel	1.1.4
	timeoutBetweenSameSymbol	1.1.4
	transmitCodeIdChar	1.1.4
	triggerMode	1.1.4
	decodingIllumination	1.1.4
	decodingAimingPattern	1.1.4
	interCharGapSize	1.1.4
	timeoutPresentationMode	1.1.4
	decodingIlluminationPowerLevel	1.1.6
	aimerMode	1.1.10
	centerDecoding	1.1.10
	centerDecodingTolerance	1.1.10
	triggerPresentationMode	1.1.14
	timeoutAimMode	1.1.27
	sensitivityLevel	1.1.33