



Newland AIDC
Scanning Made Simple

Newland Software Decoding SDK 3.0

Developer Guide

Revision History

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1 Introduction

1.1 Overview

The Newland Software Decoding SDK for Android (with limited support for Linux platforms) enables devices to capture and process images from the scan engine. The Software Decoding Library performs image filtering, exposure adjustment, and decoding operations, then returns decoded data to the application layer via a callback. The Software Decoding Library is designed for integration into Android device service applications and supports configuring symbology settings, usage scenarios, and illumination controls.

The software decoding library works together with the scan engine and low-level drivers to form a complete barcode decoding solution. This solution includes the camera data stream interface (MIPI) and the I²C interface for sensor control. Developers can customize the provided sample drivers and integrate the software decoding library to support their hardware platforms. For further assistance, Newland technical support team is available.

1.2 System Architecture of Software Decoding

Solution

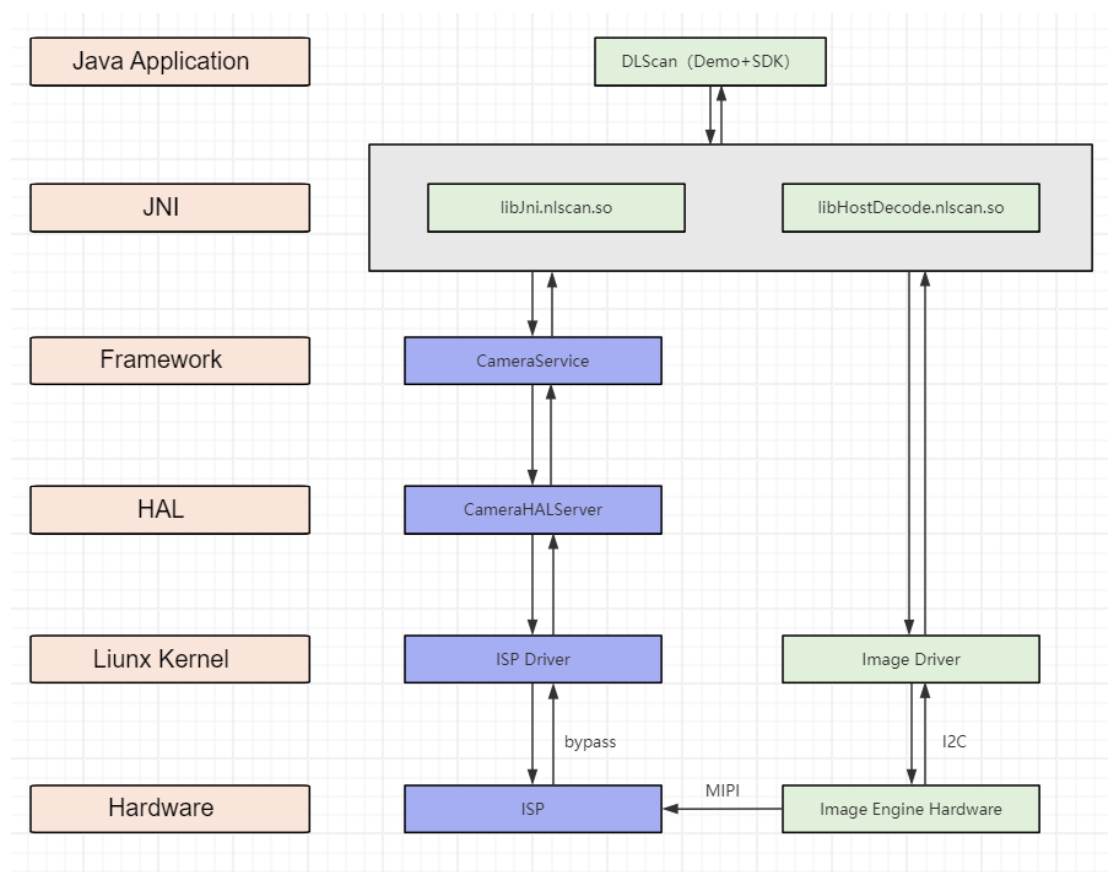


Table 1-1

Green blocks represent modules provided by Newland.

Purple blocks indicate Android system frameworks.

Process Overview:

- 1) The scan engine is controlled by the decoding library to start image acquisition. To obtain the best quality image, both the engine and the decoding library perform illumination adjustments, which must be configured separately.
- 2) Image data is transmitted via MIPI to the ISP. Since ISP processing is unnecessary, the data is passed through transparently. Different platforms have different pass-through configurations. The data is then forwarded to the JNI layer.
- 3) The decoding library at the JNI layer applies preliminary filtering and brightness adjustment before decoding.
- 4) Upon successful decoding, the result data is sent to the Java application via callback.

1.3 Supported Symbolologies

1D	2D	POST	OCR
AIM 128	Aztec Code	Australia Post	Passport
China Post(DataLogic 2-of-5)	Code One	Japanese Post	TD1
Codabar	DMRE	KIX Code(Dutch Post,Netherlands)	TD2
CODABLOCK F	Data Matrix	Royal Mail(British Post,RM4SCC,UK Postal C0de)	VISA-A
CODABLOCK A	Data Matrix Setup	UPU 4-State ID-tag	VISA-B
Code 11	DotCode	USPS Intelligent Mail(USPS 4-State Customer Barcode)	Exit-Entry Permit for Travelling to and from Hong Kong, Macao and Taiwan
Code 128	Grid Matrix	USPS Planet	Mainland Travel Permit for Hong Kong and Macao Residents
Code 16K	Han Xin Code(Chinese Sensible)	USPS Postnet	Mainland Travel Permit for Taiwan Residents
Code 32(Italian Pharmacode)	MicroPDF417		Resident Identity Card of the People's Republic of China
Code 39(Regular)	PDF417		Hong Kong Permanent Identity Card
Code 39 Full ASCII	QR Code		Macao Special Administrative Region Permanent Resident Identity Card
Code 49	QR Code Model 1		Foreigner's

			Permanent Residence Identity Card
Code 93i	Rectangular Micro QR Code		Swiss Driving License
Deutsche Post Identcode	Vericode		Digital Display OCR
Deutsche Post Leitcode	LPCode		Recipient Phone Number on Waybill
EAN-13 EAN-13 Composite EAN-13 with 2-digit add-on EAN-13 with 5-digit add-on	EarMark		Custom OCR
EAN-8 EAN-8 Composite EAN-8 with 2-digit add-on EAN-8 with 5-digit add-on	BlackLabel		
Febraban	Maxicode		
GS1-128 GS1-128 Composite	Aztec Rune		
GS1 Databar GS1 Databar Composite GS1 Databar Limited GS1 Databar Limited Composite GS1 Databar Expanded GS1 Databar Expanded Composite GS1 Databar Stacked GS1 Databar Stacked Composite GS1 Databar Expanded Stacked GS1 Databar Expanded Stacked Composite			
Industrial 2-of-5			
ISBN ISBN with 2-digit add-on ISBN with 5-digit add-on			
ISBT 128			
ISSN ISSN with 2-digit add-on ISSN with 5-digit add-on			

Interleaved 2-of-5			
ITF-14			
ITF-6			
Korea Post			
Matrix 2-of-5			
MSI Plessey			
UK Plessey			
PHARMA-CODE			
Setup 128			
Standard 2-of-5			
Telepen			
UPC-A UPC-A with 2-digit add-on UPC-A with 5-digit add-on UPC-A Composite			
UPC-E UPC-E with 2-digit add-on UPC-E with 5-digit add-on UPC-E Composite			
Trioptic 39			

1.4 Operating Modes

The Software Decoding Library supports the following operating modes:

- **Decoding Mode:** for decoding barcode.
- **Capture Mode:** for capturing an image.
- **Video Mode:** provide a video of the subject.

1.5 System Requirements

Supported Platforms:

- Qualcomm
- MTK
- Unisoc
- Rockchip
- Linux (Ingenic, Rockchip)

Supported Scan Engines:

- CM30 (refer to the *NLS-CM30 Integration Guide*)
- CM47 (refer to the *NLS-CM47 Integration Guide*)
- CM60 (refer to the *NLS-CM60 Integration Guide*)
- CM60E (refer to the *NLS-CM60E Integration Guide*)

1.6 Software Decoding Files

Directory	File Name	Description
/system/lib64(lib)	libHostDecode.nlsan.so	JNI interface implementation functions
/system/lib64(lib)	libJni.nlsan.so	Provides JNI interface for the Java layer use
DLScan/libscan/src/main/java/com/dawn/decoderapijni	ServiceTools.java	Encapsulation of initialization, firmware upgrade, symbology functions
DLScan/libscan/src/main/java/com/dawn/decoderapijni	SoftEngine.java	Encapsulation of JNI interfaces into functional modules, providing an SDK for application layer integration.
DLScan/app	DLScan.apk	Demonstration application showing SDK usage
/system/etc/nlsan	profiles.json	Configures scan engine parameters

2 Software Decoding Library Operation

2.1 Introduction

This chapter describes how the application layer interacts with the scan engine via the SDK to perform barcode decoding, configure symbology, and manage illumination control.

2.2 Initialization and De-initialization

The user application initializes the soft decoding library and accesses it via the `SoftEngine` class, which interfaces with the scan engine.

Loading the library:

```
static {  
    try {  
        // Load the local library  
        System.loadLibrary("Jni.nlscan");  
    } catch (Exception e) {  
        e.printStackTrace();  
    }  
}
```

Initialization method:

`SoftEngine.getInstance().init()`

It is recommended to use the encapsulated method:

`ServiceTools.getInstance().startInit()`

This method should be executed only once after the application starts. Avoid invoking it multiple times.

De-initialization method:

`SoftEngine.getInstance().deinit()`

Call this method to release all resources occupied by the decoding library when it is no longer needed.

2.3 Scan Engine Connection

When the application needs to perform decoding, first call:

SoftEngine.getInstance().open()

In the provided demo, this call has already been included inside:

ServiceTools.getInstance().startInit()

This method powers on the scan engine and opens the camera, establishing the connection.

If **SoftEngine.getInstance().open()** returns true, it indicates success. The application can then configure the scan engine and perform image processing.

2.4 Scan Engine Shutdown

When decoding is no longer required or another application needs to use the camera, call:

SoftEngine.getInstance().close()

This powers off the scan engine and closes the camera.

To avoid conflicts, mutual exclusion for camera access should be implemented at the framework level. In addition, open and close can be called repeatedly in matched pairs.

2.5 Firmware Upgrade

Use the following method to upgrade firmware:

ServiceTools.getInstance().updateFirmware()

This method is fully encapsulated. If you need a custom upgrade process, please modify the implementation as required.

2.6 Parameter Instructions

2.6.1 Symbology Parameters

These parameters are primarily used to enable or disable different barcodes and set related attributes. They cover 1D, 2D, Postal, and OCR symbologies.

To set symbology configuration, call: **SoftEngine.getInstance().setCodeAttribute()**

To retrieve symbology configuration, call: **SoftEngine.getInstance().getCodeAttribute()**

To enumerate batch symbology attributes, call:

SoftEngine.getInstance().enumCodeAttribute(). It can be combined with:

SoftEngine.getInstance().callBackCodeAttrProp() as a callback interface to populate the symbology configuration screen in the DLScan app

2.6.2 Module Control Parameters

These parameters are used to control lighting, scan timeouts, and other scan module settings.

Most controls are implemented via **SoftEngine.getInstance().ioctl()**.

To set the fill light mode, call **SoftEngine.getInstance().setFillLightMode()**.

To set the scan timeout, call **SoftEngine.getInstance().setScanTimeout()**.

2.6.3 Information Retrieval

The SDK provides APIs to retrieve version details of the decoding library and associated hardware components.

It is strongly recommended that you integrate version reporting into your application to help facilitate debugging and troubleshooting.

To get the scan engine SN, call: **SoftEngine.getInstance().getSN()**

To get the decoding library version, call: **SoftEngine.getInstance().getDecoderVersion()**

For reference, see **VersionShowActivity Class** in the DLScan app.

2.6.4 Image Data Retrieval

The SDK provides APIs for capturing decoded images, enabling video preview, and exporting images in batch for troubleshooting.

To get the latest decoded image, call: **SoftEngine.getInstance().getDecodedImage()**

To enable video preview, call

SoftEngine.getInstance().ioctl(SoftEngine.ioctlCmd.SET_CALC_SESSION, 0, Object);

For implementation details, refer to the **MySqWindowManagerFloatView Class** in the DLScan app.

Capturing bulk images:

Save path property: **vendor.nlscan.img_save_path**

The application must have write access to this location.

Save mode property: **vendor.nlscan.img_save_mode**

Four modes are supported:

failed: Save images only when decoding fails

all: Save all captured images

last: Save only the last captured image

none: Disable image saving.

Example:

```
adb shell setprop vendor.nlscan.img_save_path "/sdcard/raw"
```

```
adb shell setprop vendor.nlscan.img_save_mode "all"
```

3 Software Decoding API

3.1 Introduction

This chapter mainly describes the usage of APIs provided in `SoftEngine.java`.

3.2 Profies.json Configuration

The Software Decoding Library reads the **profiles.json** file at initialization.

By default, this file must be located in **/system/etc/nlscan**. The path can be customized if required, but the application must have read permissions and the structure of the file must remain unchanged

The code for reading this file is located in the **init()** method of **SoftEngine.java**.

Configuration (Only the commonly adjusted settings are documented here.)

Parameter	Description	Value	Notes
I2cFile	I2C communication channel	/dev/i2c-x	X refers to the specified communication channel; values include 0, 1, 2, etc.
imageGrabMode	Image acquisition method	camera	Others
		/dev/mem_nls	MTK
		/dev/nlscan_hostde code	Memory node
cameraMode	Camera control method	java	DLScanAPP interface
		ndk	AndroidNdkCamera interface
		server	Proprietary server interface
javaCameraClass	Effective only when cameraMode is java.	com/dawn/decoderapijni/ScanCamera	camera1Api
		com/dawn/decoderapijni/ScanCamera2	camera2Api
		com/dawn/decoderapijni/PreviewByOpenCamera	Preview stream control with Camera2 API
camera2Preview Format	Image preview format	yuv	camera2Api Image format
		raw10	
		raw_private	

		raw_sensor	
cameraId	The ID of openCamera	x	x refers to the actual ID; values include 0, 1, 2, etc.
imageFormat	Image decoding format	raw8	Default value
		right_padded_raw10	Used by Qualcomm when the image format is not raw8
		sprd_raw10	Used by Spreadtrum when the image format is not raw8
cameraStopDelayMs	The delay time in milliseconds before stopping image capture after a successful decode. Reducing this value can lower power consumption but may increase decoding time during continuous scanning.	3000	Default value
mipiLaneCount	MIPI LANE counts	1	Other scan engine
		2	CM60 and CM60E
fps	Frame rate.	30	Lower frame rate reduces power consumption.
		40	
		50	
		60	Default value
customDefaultCodeSets	Custom default symbology attributes.	"CODE128": {//Symbology "Inverse": "1"//attributes: value	See 5.4 Description

Example:

```
{
  "i2cFile": "/dev/i2c-4",
  "imageGrabMode": "camera",
  "cameraMode": "java",
  "javaCameraClass": "com/dawn/decoderapijni/ScanCamera2",
  "camera2PreviewFormat": "raw10",
```

```

"cameraId": 2,
"powerControl": "/dev/camera_power",
"imageFormat": "raw8",
"cameraStopDelayMs": 3000,
"engine": [
    {
        "name": "CM60",
        "previewWidth": 1280,
        "previewHeight": 800,
        "mipiLaneCount": 2,
        "pixelBits": 8,
        "fps": 60
    },
    {
        "name": "CM30",
        "previewWidth": 640,
        "previewHeight": 480,
        "mipiLaneCount": 1,
        "pixelBits": 8,
        "fps": 60
    },
    {
        "name": "CM60E",
        "previewWidth": 1280,
        "previewHeight": 800,
        "mipiLaneCount": 2,
        "pixelBits": 8,
        "fps": 60
    },
    {
        "name": "CM47",
        "previewWidth": 1280,
        "previewHeight": 800,
        "mipiLaneCount": 1,
        "pixelBits": 8,
        "fps": 60
    }
]
}

```

3.3 SDK API Reference

For detailed API documentations, see [javadoc/index.html](#)

4 User Preference Parameters

4.1 Introduction

This chapter describes the parameters that users can configure based on their preferences while using the decoding library.

4.2 Specific Parameters

4.2.1 Set Fill Light Brightness

Method	public int setLightingBrightness(int percent)
Parameter	percent : brightness percentage (1–100). Default is 100 .
Return	0 for success, -1 for failure.
Note	It is generally not recommended to change this value, as it may impact decoding performance.

4.2.2 Set Single Scan Timeout

Method	public boolean setScanTimeout(int timeout)
Parameter	timeout : in milliseconds. Default is 3000 .
Return	true for success, false for failure
Note	

4.2.3 Set Fill Light Operating Mode

Method	public boolean setFillLightMode(int mode)
Parameter	mode Parameters SoftEngine.FILL_LIGHT_MODE_OFF : Turn off fill light SoftEngine.FILL_LIGHT_MODE_ENGINE_DIMMING : Engine dimming SoftEngine.FILL_LIGHT_MODE_SDK_DIMMING : SDK dimming (default) SoftEngine.FILL_LIGHT_ENGINE_LOOP_DIMMING : Engine loop dimming (for strong ambient light)
Return	true for success, false for failure.
Note	

4.2.4 Set High Light

Method	public boolean setHighLight(boolean enable)
Parameter	enable : enable or disable high light (true = enable, false = disable)
Return	true for success, false for failure.
Note	

4.2.5 Set Aimer

Method	public boolean setAimerEnable(boolean enable)
Parameter	enable : enable or disable aimer (true = enable, false = disable)
Return	true for success, false for failure.
Note	

4.2.6 Set Camera Mode

Method	SoftEngine.getInstance().ioctl(SoftEngine.ioctlCmd.SET_CAMERA_RUN_MODE, 0, Object obj)
Parameter	obj : JSON data format. Trigger Mode (default): { "name":"trigger" } Sense Mode: { "name":"sense", "senseThreshold":"10" //Sensitivity (range: 3–22), default: 10 "senseInterval":"0" //Interval time in ms }
Return	0 for success, <0 for failure.
Note	See CameraRunMode.java in the DLScan demo app

4.2.7 Set Scan Mode

Method	SoftEngine.getInstance().ioctl(SoftEngine.ioctlCmd.SET_SCAN_MODE, 0, Object obj)
Parameter	obj: JSON format. The following modes can be selected simultaneously. Focused Scan (precise decode requiring the cross aimer to align with the barcode): <pre>{ "mode":["focus"] }</pre> Focus Calibration (used when precise alignment needs recalibration; automatically enables focused scan): <pre>{ " mode":["fix_focus"] }</pre> Batch Mode (After activation, multiple undecoded barcodes can be scanned within the configured timeout period.): <pre>{ " mode":["batch "] }</pre> Normal Mode: <pre>{ " mode":[""] }</pre>
Return	0 for success, <0 for failure.
Note	See ScanModeSettings.java in the DLScan demo app.

4.2.8 Configure GS1 Parsing Format

Class	GSAiParamInfo(String json, byte[] mesg)
Paramters	json: the data format used for parsing GS1 codes The following is the default configuration used by the DLScan Demo: <pre>{ "fixedElementSuffix" : "\n", //Appends a suffix after each fixed-length AI segment "variableElementSuffix": "\n", //Appends a suffix after each variable-length AI segment. "aiPrefix": "(", //Defines the string inserted before the AI portion. "aiSuffix": ")", //Defines the string inserted after the AI portion.</pre>

	<pre> "sendNoAi":0, //Defines whether to remove the AI portion. "Check":0, //Defines whether to send a check character. "AIMID":AIMID //AIMID } mesg: The raw input data. </pre>
Return	Null
Note	See ScanModeSettings.java in the DLScan demo app

4.2.9 Convert Data to GS1 Format

Method	public int convertToGs1Syntax(GSAiParamInfo gs1Info)
Parameter	gs1Info : Instance created using GSAiParamInfo. After execution, the output field will contain the converted result.
Return	0 for success, <0 for failure.
Note	See ScanModeSettings.java in the DLScan demo app.

4.2.10 Custom Decode Callback

Method	public void setCustomDeocodeCallback(CustomDeocodeCallback callback)
Parameter	customDeocodeCallback : A user-implemented callback function that can be used to forward the decoded images to a third-party service for further processing or to display a video preview.
Return	Null
Note	See CustomScanSettings.java in the DLScan demo app.

4.2.11 Set Decoding Task Mode

Method	public boolean enableCalcRunnable (String name,boolean enabled)
Parameter	name : NormalCalcRunnable ----- Normal decoding mode. AiOcrRunnable ----- AIOCR decoding mode. DigimarcCalcRunnable ----- Digimarc decoding mode. enable : set to enable or disable the task (true = enable, false = disable)
Return	true for success, otherwise failure.
Note	See CustomScanSettings.java in the DLScan demo app.

4.2.12 Enable Multi-code Mode

Method	public boolean enableMultiCode (boolean enabled)
Parameter	enabled : set to enable or disable the multi-code mode (true = enable, false = disable)
Return	true for success, otherwise failure.
Note	See CustomScanSettings.java in the DLScan demo app. Multi-code decoding only works when NormalCalcRunnable mode is enabled. If NormalCalcRunnable is disabled, multi-code decoding will not be effective.

5 Symbology Parameters

5.1 Introduction

This chapter describes how to configure the symbology settings supported by the Software Decoding SDK. All parameters are input as strings.

5.2 Symbology Attribute Methods

5.2.1 Set Symbology Attribute

Method	public boolean setCodeAttribute(String Id, String Param1, String Param2)
Parameter	Id : The barcode type Param1 : The attribute name Param2 : The attribute value
Return	true for success, otherwise failure.
Note	Example: setCodeAttribute("CODE39", "Check", "1"), enables the check character verification for Code 39.

5.2.2 Get Symbology Attribute

Method	public String getCodeAttribute(String Id, String Param1)
Parameter	Id : The barcode type Param1 : The attribute name
Return	A String representing the value of the attribute.
Note	Example: getCodeAttribute("CODE39", "Check"), retrieves the check character for Code 39.

5.3 Attribute Descriptions

5.3.1 Normal

Description	Standard decoding (regular)
Value	[0- Disabled] [1-Enabled]

5.3.2 Inverse

Description	Inverse decoding
Value	[0- Disabled] [1-Enabled]

5.3.2 Minlen

Description	Minimum data length for decoding
Value	[1- MaxLen]

5.3.3 MaxLen

Description	Maximum data length for decoding
Value	[1- 7168]

5.3.4 MinCnt

Description	Minimum number of barcodes that can be decoded from a single image.
Value	[1- MaxCnt]

5.3.5 MaxCnt

Description	Maximum number of barcodes that can be decoded from a single image.
Value	[1-127]

5.3.6 TrsmtSysDigit

Description	Transmit a system character, typically the first digit of the barcode.
Value	[0- Disabled] [1-Enabled]

5.3.7 Mirror

Description	Flips the barcode image (mirror image)
Value	[0- Disabled] [1-Enabled]

5.3.8 TrsmtECI

Description	Transmit ECI information, which is typically a 6-bit data used for character set encoding
Value	[0- Disabled] [1-Enabled]

5.3.9 TrsmtComposite

Description	Transmit composite code data
Value	[0- Disabled] [1-Enabled]

5.3.10 Check

Description	Check character validation
Value	Default: [0- Disabled] [1-Enabled] GS1_DATABAR [DISABLE] : Disable Check Character Verification [MARGIN_CHECK] : Margin checking CODABAR [DISABLE] : Disable Check Character Verification [AIM16] : AIM16 [NW7-] : NW7 [COULTER] : COULTER [AIM16_NW7] : AIM16/NW7 CODE11 [DISABLE] : Disable Check Character Verification [M11] : One Check Character, MOD11 [M11_M11] : Two Check Characters, MOD11/MOD11 [M11_M9] : Two Check Characters, MOD11/MOD9 [M11_L10_M11_M11] : MOD11 One Check Character (Len<=10) , MOD11/MOD11 Two Check Characters (Len>10) [M11_L10_M11_M9] : MOD11 One Check Character (Len<=10) , MOD11/MOD9 Two Check Characters (Len>10) MSIPLSY [DISABLE] : Disable Check Character Verification [M10] : One Check Character, MOD10 [M10_M10] : Two Check Characters, MOD10/MOD10 [M10_M11] : Two Check Characters, MOD10/MOD11

	TELEPEN Symbology [AIM] : AIM [ORIGINAL] : Original
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5.3.11 TrsmtAddon

Description	Transmit add-on data
Value	[0- Disabled] [1-Enabled]

5.3.12 TrsmtStartStop

Description	Transmit start/stop characters
Value	[0- Disabled] [1-Enabled]

5.3.13 StartStopMode

Description	Select start/stop characters (applicable to Codabar)
Value	[ABCD_ABCD] : ABCD/ABCD [ABCD_TNSE] : ABCD/TNSE [abcd_abcd] : abcd/abcd [abcd_tnse] : abcd/tnse

5.3.14 TransformToEAN13

Description	Convert to EAN-13 (applicable to EAN-8)
Value	[0- Disabled] [1-Enabled]

5.3.15 TransformToUPCA

Description	Convert to UPC-A (applicable to UPC-E)
Value	[0- Disabled] [1-Enabled]

5.3.16 TransformTo10Characters

Description	Convert to 10-character format (applicable to ISBN)
Value	[0- Disabled] [1-Enabled]

5.3.17 TransformTo 8Characters

Description	Convert to 8-character format (applicable to ISSN)
Value	[0- Disabled] [1-Enabled]

5.4 Detailed Symbology Descriptions

The symbology type corresponds to the id parameter in setCodeAttribute().

Attribute names correspond to param1, and attribute values to param2.

(Refer to Section [5.3Description](#))

5.4.1 CODE128

Symbology	CODE128
typeName	Code 128
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

5.4.2 SETUP128

Symbology	SETUP128
typeName	Setup 128
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

5.4.3 ISBT_128

Symbology	ISBT_128
typeName	ISBT 128
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
TrsmtSysDigit	0

5.4.4 GS1_128

Symbology	GS1_128
typeName	GS1-128
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

5.4.5 AIM128

Symbology	AIM128
typeName	AIM 128
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

5.4.6 CODABLOCK_F

Symbology	CODABLOCK_F
typeName	CODABLOCK F
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0

5.4.7 GS1_128_COMPOSITE

Symbology	GS1_128_COMPOSITE
typeName	GS1-128 Composite
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0
TrsmtComposite	0

5.4.8 CODE39

Symbology	CODE39
typeName	Code 39 (Regular)
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtStartStop	0

TrsmtChkChar	0
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5.4.9 CODE39_FULL_ASCII

Symbology	CODE39_FULL_ASCII
typeName	Code 39 Full ASCII
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtStartStop	0
TrsmtChkChar	0

5.4.10 CODE32

Symbology	CODE32
typeName	Code 32 (Italian Pharmacode)
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
TrsmtSysDigit	0
TrsmtStartStop	0
TrsmtChkChar	0

5.4.11 EAN8

Symbology	EAN8
typeName	EAN-8
Attributes	Default Values
Normal	1
Inverse	0
MinCnt	1
MaxCnt	1

TransformToEAN13	0
TrsmtStartStop	1
TrsmtChkChar	1

5.4.12 EAN8_WITH2

Symbology	EAN8_WITH2
typeName	EAN-8 with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformToEAN13	0
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	1

5.4.13 EAN8_WITH5

Symbology	EAN8_WITH5
typeName	EAN-8 with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformToEAN13	0
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	1

5.4.14 EAN8_COMPOSITE

Symbology	EAN8_COMPOSITE
typeName	EAN-8 Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1

TransformToEAN13	0
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	0
Mirror	0
TrsmtECI	0
TrsmtComposite	1

5.4.15 EAN13

Symbology	EAN13
typeName	EAN-13
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	1
TrsmtChkChar	1

5.4.16 EAN13_WITH2

Symbology	EAN13_WITH2
typeName	EAN-13 with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	1

5.4.17 EAN13_WITH5

Symbology	EAN13_WITH5
typeName	EAN-13 with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1

MaxCnt	1
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	1

5.4.18 EAN13_COMPOSITE

Symbology	EAN13_COMPOSITE
typeName	EAN-13 Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	1
TrsmtChkChar	1
TrsmtAddon	1
Mirror	0
TrsmtECI	0
TrsmtComposite	1

5.4.19 UPCA

Symbology	UPCA
typeName	UPC-A
Attributes	Default Values
Normal	1
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0

5.4.20 UPCA_WITH2

Symbology	UPCA_WITH2
typeName	UPC-A with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0

MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	1

5.4.21 UPCA_WITH5

Symbology	UPCA_WITH5
typeName	UPC-A with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	1

5.4.22 UPCA_COMPOSITE

Symbology	UPCA_COMPOSITE
typeName	UPC-A Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	0
Mirror	0
TrsmtECI	0
TrsmtComposite	1

5.4.23 UPCE

Symbology	UPCE
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typeName	UPC-E
Attributes	Default Values
Normal	1
Inverse	0
MinCnt	1
MaxCnt	1
TransformToUPCA	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0

5.4.24 UPCE_WITH2

Symbology	UPCE_WITH2
typeName	UPC-E with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformToUPCA	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	1

5.4.25 UPCE_WITH5

Symbology	UPCE_WITH5
typeName	UPC-E with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformToUPCA	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	1

5.4.26 UPCE_COMPOSITE

Symbology	UPCE_COMPOSITE
typeName	UPC-E Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformToUPCA	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtSysDigit	0
TrsmtAddon	0
Mirror	0
TrsmtECI	0
TrsmtComposite	1

5.4.27 ISBN

Symbology	ISBN
typeName	ISBN
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo10Characters	0
TrsmtStartStop	0
TrsmtChkChar	0

5.4.28 ISBN_WITH2

Symbology	ISBN_WITH2
typeName	ISBN with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo10Characters	0

TrsmtStartStop	0
TrsmtChkChar	0
TrsmtAddon	1

5.4.28 ISBN_WITH5

Symbology	ISBN_WITH5
typeName	ISBN with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo10Characters	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtAddon	1

5.4.29 ISSN

Symbology	ISSN
typeName	ISSN
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo8Characters	0
TrsmtStartStop	0
TrsmtChkChar	0

5.4.30 ISSN_WITH2

Symbology	ISSN_WITH2
typeName	ISSN with 2-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo8Characters	0

TrsmtStartStop	0
TrsmtChkChar	0
TrsmtAddon	1

5.4.31 ISSN_WITH5

Symbology	ISSN_WITH5
typeName	ISSN with 5-digit add-on
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TransformTo8Characters	0
TrsmtStartStop	0
TrsmtChkChar	0
TrsmtAddon	1

5.4.32 GS1_DATABAR

Symbology	GS1_DATABAR
typeName	GS1 Databar
Attributes	Default Values
Normal	1
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
Check	MARGIN_CHECK

5.4.33 GS1_DATABAR_COMPOSITE

Symbology	GS1_DATABAR_COMPOSITE
typeName	GS1 Databar Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtECI	0

TrsmtComposite	1
Mirror	0

5.4.34 GS1_DATABAR_LIMITED

Symbology	GS1_DATABAR_LIMITED
typeName	GS1 Databar Limited
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
Check	MARGIN_CHECK

5.4.35 GS1_DATABAR_LIMITED_COMPOSITE

Symbology	GS1_DATABAR_LIMITED_COMPOSITE
typeName	GS1 Databar Limited Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtECI	0
TrsmtComposite	1
Mirror	0

5.4.36 GS1_DATABAR_EXPANDED

Symbology	GS1_DATABAR_EXPANDED
typeName	GS1 Databar Expanded
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1

5.4.37 GS1_DATABAR_EXPANDED_COMPOSITE

Symbology	GS1_DATABAR_EXPANDED_COMPOSITE
typeName	GS1 Databar Expanded Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtComposite	1
Mirror	0

5.4.38 GS1_DATABAR_STACKED

Symbology	GS1_DATABAR_STACKED
typeName	GS1 Databar Stacked
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0

5.4.39 GS1_DATABAR_STACKED_COMPOSITE

Symbology	GS1_DATABAR_STACKED_COMPOSITE
typeName	GS1 Databar Stacked Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtStartStop	0
TrsmtECI	0
TrsmtComposite	1
Mirror	0

5.4.40 GS1_DATABAR_EXPANDED_STACKED

Symbology	GS1_DATABAR_EXPANDED_STACKED
typeName	GS1 Databar Expanded Stacked
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1

5.4.41 GS1_DATABAR_EXPANDED_STACKED_COMPOSITE SITE

Symbology	GS1_DATABAR_EXPANDED_STACKED_COMPOSITE
typeName	GS1 Databar Expanded Stacked Composite
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtComposite	1
Mirror	0

5.4.42 ITF

Symbology	ITF
typeName	Interleaved 2-of-5
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.42 ITF6

Symbology	ITF6
typeName	ITF-6
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtChkChar	0

5.4.43 ITF14

Symbology	ITF14
typeName	ITF-14
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtChkChar	0

5.4.44 DEUTSCHE_POST_IDENTCODE

Symbology	DEUTSCHE_POST_IDENTCODE
typeName	Deutsche Post Identcode
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1
TrsmtChkChar	0

5.4.45 DEUTSCHE_POST_LEITCODE

Symbology	DEUTSCHE_POST_LEITCODE
typeName	Deutsche Post Leitcode
Attributes	Default Values
Normal	0
Inverse	0

MinCnt	1
MaxCnt	1
TrsmtChkChar	0

5.4.46 FEBRABAN

Symbology	FEBRABAN
typeName	Febraban
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1

5.4.46 IND25

Symbology	IND25
typeName	Industrial 2-of-5
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.47 STD25

Symbology	STD25
typeName	Standard 2-of-5
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.48 MATRIX25

Symbology	MATRIX25
typeName	Matrix 2-of-5
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.49 CHNPOST

Symbology	CHNPOST
typeName	China Post (Datalogic 2-of-5)
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.50 CODE93I

Symbology	CODE93I
typeName	Code 93i
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
TrsmtECI	0

5.4.51 CODABAR

Symbology	CODABAR
typeName	Codabar
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	DISABLE
TrsmtStartStop	0
TrsmtChkChar	0
StartStopMode	ABCD_ABCD

5.4.52 CODE11

Symbology	CODE11
typeName	Code 11
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	DISABLE
TrsmtChkChar	0

5.4.53 MSIPLSY

Symbology	MSIPLSY
typeName	MSI Plessey
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

Check	DISABLE
TrsmtChkChar	0

5.4.54 PLSY

Symbology	PLSY
typeName	UK Plessey
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	0
TrsmtChkChar	0

5.4.55 CODE49

Symbology	CODE49
typeName	Code 49
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0

5.4.56 CODE16K

Symbology	CODE16K
typeName	Code 16K
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1

Mirror	0
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5.4.57 KOREA_POST

Symbology	KOREA_POST
typeName	Korea Post
Attributes	Default Values
Normal	0
Inverse	0
MinCnt	1
MaxCnt	1

5.4.58 TELEPEN

Symbology	TELEPEN
typeName	Telepen
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Check	AIM

5.4.59 QR

Symbology	QR
typeName	QR Code
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.60 QR_MODEL1

Symbology	QR_MODEL1
typeName	QR Code Model 1
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.61 MICROQR

Symbology	MICROQR
typeName	Micro QR Code
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.62 RMQR

Symbology	RMQR
typeName	Rectangular Micro QR Code
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.63 DM

Symbology	DM
typeName	Data Matrix
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.64 DM_SETUP

Symbology	DM_SETUP
typeName	Data Matrix Setup
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.65 DM_RE

Symbology	DM_RE
typeName	Data Matrix Rectangular Extension
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.66 PDF417

Symbology	PDF417
typeName	PDF417
Attributes	Default Values
Normal	1
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.67 MICROPDF

Symbology	MICROPDF
typeName	MicroPDF417
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.68 AZTEC

Symbology	AZTEC
typeName	Aztec Code
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.69 DOTCODE

Symbology	DOTCODE
typeName	DotCode
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.70 GM

Symbology	GM
typeName	Grid Matrix
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.71 MAXIC

Symbology	MAXIC
typeName	Maxicode
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.71 CSC

Symbology	CSC
typeName	Han Xin Code (Chinese Sensible)
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.73 CODE_ONE

Symbology	CODE_ONE
typeName	Code One
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
Mirror	0
TrsmtECI	0

5.4.74 AUSPOST

Symbology	AUSPOST
typeName	Australia Post
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0

5.4.75 JAPANPOST

Symbology	JAPANPOST
typeName	Japanese Post
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtChkChar	0

5.4.76 KIXCODE

Symbology	KIXCODE
typeName	KIX Code (Dutch Post, Netherlands)
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0

5.4.77 RM4SCC

Symbology	RM4SCC
typeName	Royal Mail (British Post, RM4SCC, UK Postal Code)
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtChkChar	0

5.4.78 INTELLIMAIL

Symbology	INTELLIMAIL
typeName	USPS Intelligent Mail (USPS 4-State Customer Barcode)
Attributes	Default Values
Normal	0

MinCnt	1
MaxCnt	1
TrsmtECI	0

5.4.79 PLANET

Symbology	PLANET
typeName	USPS Planet
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtChkChar	0

5.4.80 POSTNET

Symbology	POSTNET
typeName	USPS Postnet
Attributes	Default Values
Normal	0
MinCnt	1
MaxCnt	1
TrsmtECI	0
TrsmtChkChar	0

5.4.81 UPU_ID_TAG

Symbology	UPU_ID_TAG
typeName	UPU 4-State ID-tag
Attributes	Default Values
Normal	0
Inverse	0
Mirror	0
MaxCnt	1

5.4.82 PASSPORT

Symbology	PASSPORT
typeName	Passport

Attributes	Default Values
Normal	0
Check	0

5.4.83 VISA_A

Symbology	VISA_A
typeName	Visa-A
Attributes	Default Values
Normal	0
Check	0

5.4.84 VISA_B

Symbology	VISA_B
typeName	Visa-B
Attributes	Default Values
Normal	0
Check	0

5.4.85 TD1

Symbology	TD1
typeName	TD1
Attributes	Default Values
Normal	0
Check	0

5.4.86 TD2

Symbology	TD2
typeName	TD2
Attributes	Default Values
Normal	0
Check	0

5.4.87 HKMACAOTW_PASS

Symbology	HKMACAOTW_PASS
-----------	----------------

typeName	Exit-Entry Permit for Travelling to and from Hong Kong, Macao and Taiwan
Attributes	Default Values
Normal	0
Check	0

5.4.88 HKMACAO_MTP

Symbology	HKMACAO_MTP
typeName	Mainland Travel Permit for Hong Kong and Macao Residents
Attributes	Default Values
Normal	0
Check	0

5.4.89 TW_MTP

Symbology	TW_MTP
typeName	Mainland Travel Permit for Taiwan Residents
Attributes	Default Values
Normal	0
Check	0

5.4.90 CHN_ID

Symbology	CHN_ID
typeName	Resident Identity Card of the People's Republic of China
Attributes	Default Values
Normal	0
Check	0

5.4.91 HK_ID

Symbology	HK_ID
typeName	Hong Kong Permanent Identity Card
Attributes	Default Values
Normal	0

Check	0
-------	---

5.4.92 FPR_ID

Symbology	FPR_ID
typeName	Foreigner's Permanent Residence Identity Card
Attributes	Default Values
Normal	0
Check	0

5.4.93 TRIOPTIC 39

Symbology	TRIOPTIC 39
typeName	Trioptic 39
Attributes	Default Values
Normal	0
Inverse	0
Minlen	1
Maxlen	7168
MinCnt	1
MaxCnt	1
TrsmtStartStop	0

5.5 nlscan id Description

The following list is based on algorithm library version 7.2.42.T42. It does not represent other algorithm library versions. It is recommended to use typeName as the unique index. AIM IDs start with the “J” character and are not listed in the table below. For example, Code 128 outputs “JC0”.

nlscan id	typeName	AIM ID	Unified ID
1	1D Symbology		
2	Code 128	C0	2
3	Setup 128		-1
4	ISBT 128	C4	21
5	GS1-128	C1	3
6	AIM 128	C2	20
7	CODABLOCK F	O4/O5	-1
8	GS1-128 Composite		3

9	Code 39 (Regular)	A0/A1/A3	13
10	Code 39 Full ASCII	A4/A5/A7	13
11	CODABLOCK A	O6	-1
12	Code 32 (Italian Pharmacode)		-1
13	TLC 39		-1
14	TRIOPTIC 39		-1
15	EAN-8	E4	4
16	EAN-8 with 2-digit add-on	E4	4
17	EAN-8 with 5-digit add-on	E4	4
18	EAN-8 Composite		4
19	EAN-13	E0	5
20	EAN-13 with 2-digit add-on	E1	5
21	EAN-13 with 5-digit add-on	E2	5
22	EAN-13 Composite		5
23	UPC-A	E0	7
24	UPC-A with 2-digit add-on	E1	7
25	UPC-A with 5-digit add-on	E2	7
26	UPC-A Composite		7
27	UPC-E	E0	6
28	UPC-E with 2-digit add-on	E1	6
29	UPC-E with 5-digit add-on	E2	6
30	UPC-E Composite		6
31	ISBN	X0	24
32	ISBN with 2-digit add-on		24
33	ISBN with 5-digit add-on		24
34	ISSN	X0	23
35	ISSN with 2-digit add-on		23
36	ISSN with 2-digit add-on		23
37	Coupon	E0/e0/C1	-1
38	GS1 Databar	e0/e1/e2/e3	31
39	GS1 Composite	e0/e1/e2/e3	30
40	GS1 Databar Limited		30
41	GS1 Databar Limited Composite		30
42	GS1 Databar Expanded		30
43	GS1 Databar Expanded Composite		30
44	GS1 Databar Stacked		30
45	GS1 Databar Stacked Composite		30
46	GS1 Databar Expanded Stacked		30
47	GS1 Databar Expanded Stacked Composite		30
48	Interleaved 2-of-5	I0/I1/I3	8
49	ITF-14	I0/I1/I3	9
50	ITF-6	I0/I1/I3	10

51	Deutsche Post Identcode		129
52	Deutsche Post Leitcode		128
53	Febraban		-1
54	Industrial 2-of-5	S0	25
55	Standard 2-of-5	R0/R1/R3	26
56	Matrix 2-of-5	X0	11
57	Coop 2-of-5		-1
58	China Post (Datalogic 2-of-5)	X0	19
59	Code 93i	G0/G2~G9/GA~GZ/Ga~Gm	17
60	Codabar	F0/F1/F2/F4	15
61	Code 11	H0/H1/H3	28
62	MSI Plessey	M0/M1	29
63	UK Plessey		27
64	Code 49	T0/T1/T2/T4	132
65	Code 16K	K0/K1/K2/K4	133
66	Korea Post		-1
67	PHARMA-CODE 1track		-1
68	PHARMA-CODE 2track		-1
69	Telepen		130
70	EAN2-digit add-on		-1
71	EAN5-digit add-on		-1
72	2D Symbology		
73	QR Code	Q1~Q6	33
74	QR Code Model 1	Q0	33
75	Micro QR Code	Q1	43
76	Rectangular Micro QR Code		-1
77	Data Matrix	d0/d1/d2/d3/d4/d5/d6	35
78	Data Matrix Setup		47
79	DMRE		-1
80	PDF417	L0~L2	32
81	MicroPDF417	L1~L5	42
82	Aztec Code	z0~z9/zA/zB	34
83	Aztec Rune	zC	34
84	DotCode	J0~J5	50
85	Grid Matrix	g0~g5	-1
86	Maxicode	U0~U3	36
87	Han Xin Code (Chinese Sensible)	h0/h1/h2/h4/h8	39
88	Code One	D0/D1/D2/D4	48
89	Vericode		-1
90	LPCode		-1
91	Ear Mark		-1

92	Black Label		-1
93	POSTSymbology		
94	Australia Post	X0	101
95	Japanese Post	X0	102
96	KIX Code (Dutch Post, Netherlands)	X0	100
97	Royal Mail (British Post, RM4SCC, UK Postal Code)	X0	98
98	USPS Intelligent Mail (USPS 4-State Customer Barcode)	X0	97
99	USPS Planet	X0	99
100	USPS Postnet	X0	96
101	UPU 4-State ID-tag		-1
102	OCR Symbology		
103	Passport		66
104	Visa-A		-1
105	Visa-B		-1
106	TD1		-1
107	TD2		-1
108	Exit-Entry Permit for Travelling to and from Hong Kong, Macao and Taiwan		68
109	Mainland Travel Permit for Hong Kong and Macao Residents		68
110	Mainland Travel Permit for Taiwan Residents		68
111	Resident Identity Card of the People's Republic of China		65
112	Hong Kong Permanent Identity Card		-1
113	Macao Special Administrative Region Permanent Resident Identity Card		-1
114	Foreigner's Permanent Residence Identity Card		-1
115	Swiss Driving License		-1
116	Digital Display OCR		-1
117	Recipient Phone Number on Waybill		-1
118	Custom OCR		-1

6 OCR Description

6.1 Introduction

This chapter describes the SDK's OCR-related settings and usage, including OCR-A, OCR-B fonts, and specific types such as PASSPORT, VISA-A, and VISA-B.

OCR-A and OCR-B are typically used for full-image recognition, with a small probability of decoding errors. Specific types like PASSPORT have a very low error rate.

For applications with known scenarios, it is recommended to use the corresponding specific type instead of OCR-A/OCR-B to improve decoding accuracy.

OCR decoding does not follow traditional decoding logic and requires significant CPU and GPU resources. As a result, performance improves with better hardware.

Custom OCR decoding is supported. For customization requests, please contact Newland.

6.2 OCR Configuration File Path

Adding Configuration in profiles.json

```
"defaultCalcSession": {  
  "session" : {  
    {  
      "class" : "AiOcrRunnable",  
      "onlyPreload": false,  
      "appConfigFilePath":"/system/etc/nlscan/gocr_app_config.json"  
    }  
  }  
},
```

appConfigFilePath refer to the specified path of **gocr_app_config.json**. Adjust this path based on your setup.

6.3 Provided Files

6.3.1 gocr_app_config.json

Place this file in the path specified by appConfigFilePath.

6.3.2 general_dev_config

This is the OCR model folder. Typically, simply copy it to the same directory as gocr_app_config.json. No modifications are needed to these files.

6.4 OCR Configuration Settings

(gocr_app_config.json)

In most cases, Newland engineers will configure this file during development, and no further modifications are needed. If required, typically only adjust the following parameters:

Attribute	Description	Value
apptarget	Target application	● general: General OCR tasks (default) ● date: For date parsing ● phone_number: For phone number parsing ● machine_readable_document: Specify the type of document for decoding
frame_type	Decoding area	● full_image: Decode the entire image ● roi_image: Decode the selected region
roi	Region of interest coordinates	● top: Top boundary of ROI (default 0) ● left: Left boundary of ROI (default 0) ● bottom: Bottom boundary of ROI (default 0) ● right: Right boundary of ROI (default 0)
aiming_mode	Aiming mode	● center_pick: Decodes barcodes closest to the center of the image, returning up to the number of results specified by pickup_number. If frame_type is set to roi_image, the center of the ROI is used as the center point. ● super_pick: Decodes results closest to the user-defined aiming_point and within the aiming_block, returning up to the number of results specified by pickup_number. ● None: No specific aiming is used. The SDK decodes the entire image. This is the default mode.
aiming_point	Aiming point coordinates	Active when aiming_mode is set to super_pick

		Default: x=0, y=0
pickup_number	Number of results to be output	Active when aiming_mode is set to super_pick or center_pick Default: 1
dev_config_path	Path to general_dev_config	Can be customized

Appendix A: SDK Demo Program

Newland provides a complete sample application named **DLScan**, demonstrating how to interact with the soft decoding library.

Sample Source Code

This application includes source code designed for scanning service implementation.

Note: This code is provided for demonstration purposes only. If you intend to use it commercially, you must adapt and integrate the source code yourself.

Disclaimer

This software is provided as is without any express or implied warranty of any kind including warranties of merchantability, non-infringement, or fitness for a particular purpose. In no event shall Newland Auto-ID (NLScan) be liable for any special, indirect, or consequential damages whatsoever, resulting from the use or inability to use the software, even if Newland Auto-ID (NLScan) has been advised of the possibility of such damages. Some jurisdictions prohibit the exclusion or limitation of liability for consequential or incidental damages; therefore this limitation may not apply to you.

Sample Application

The sample application DLScanAPP demonstrates the following common interactions with a software decoding library device:

- Start/stop scanning sessions via trigger controls
- Read and write related parameters
- Turn on/off the scan engine illumination
- Retrieve images from the scan engine
- Display live video preview from the scan engine
- Perform continuous scanning tests
- Display version information
- Upgrade the scan engine firmware

After installing DLScan.apk on the device and open it. Use this application to perform the following functions:

- **Decoding Functionality:**
Press and hold the "Hold Down to Scan" button to activate the red cross-hair aimer of the scan engine, which will focus on the decoding area. Once decoding is successful, the result will be displayed in the center of the screen. The

decoded result will appear in the first line (subsequent results will follow in batch mode). A beep sound will confirm a successful scan.

- Scan Key Settings:

Tap the icon  in the upper-left corner, then “Scan Key Settings” to assign the scanning function to a physical button.

- Fill Light Control:

Tap the icon , then “Fill Light” to choose options such as turning off the Fill Light, Engine Dimming, SDK Dimming, Engine Loop Dimming, Engine ROI Percentage, High Light ON, and High Light OFF. After configuration, tap “Confirm” to save settings.

- Scan Mode:

Tap the icon , then “Scan Mode”.

You can configure the Scan Timeout, enable Focused Scan, Focus Calibration, Batch Scan, and Covert to GS1 syntax. Tap “Confirm” to save settings.

- Custom Scan:

Tap the icon , then “Custom Scan”.

The default mode is multithreaded. Options include Multi-code and Optimizing low-contrast.

- Character Set:

Tap the icon , then “Character Set”.

You can switch between UTF8 and GB18030 encodings.

If other character sets are needed, you can add them manually.

- Real-time Preview:

Tap the icon , then “Real-time Preview”.

After successful decoding, tap “SAVE” to store the image at: `/storage/emulated/0/Android/data/com.dawn.java/files/LastImages`

- Real-time Video View:

Tap the icon , then “Real-time Preview” to view real-time video.

- Camera Run Mode:

Tap the icon , then “Camera Run Mode”. You can select Trigger or Sense mode. The default mode is trigger.

- Symbology Configuration:

Tap the icon  in the upper-right corner, then “Code Settings”.

You can configure parameters for 1D barcodes, 2D codes, OCR, and other types.

- Firmware Upgrade:

Tap the icon  in the upper-right corner, then “Firmware Upgrade”.

Tap the icon  to select the .bin firmware file to update. Tap “Update” and wait for the process to complete.

- Versions:

Tap the icon , then “Versions”.

The application will display SDK version, Decoder Version, and Hardware Versions, which help identify issues accurately during troubleshooting.

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