



Newland

SCANNING MADE SIMPLE

Newland Android PDA API Handbook

Version:V1.0.6.

Revision History

Version	Description	Date
V1.0.0	Initial release.	January 16, 2018
V1.0.1	Updated the “Change the Scanner Settings” and “Reserved Keys” sections, and added the “Appendix” section.	June 19, 2018
V1.0.2	Added the “Configuring Symbologies” section.	March 25, 2019
V1.03	Updated the “Scan Barcode” and “Stop Scanning” sections	May 31, 2019
V1.04	Updated the “Configuring Scanner Parameters” section	Step.9, 2020
V1.05	Added raw data interface for scan result byte. Added settings for NFC, positioning, soft keyboard and APN.	Jun.6,2022
V1.06	Added the “Enable or Disable Recent Apps” section Added the “Delay Mode” option Added the “Send Scan Fail Broadcast” option Added the “DOTCODE” symbology Added the “Advanced Settings” section.	Jun.29,2022

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About This Manual

This manual is applicable to Newland Android Portable Data Collectors (hereinafter referred to “**the terminal**”).

Development Environment

All APIs are built based on standard Android broadcast mechanism, so there is no need for additional SDKs. The terminal application development environment is the same as Android application development environment.

Obtain Product Model Number

To get the product model number, use **android.os.Build.MODEL**. According to this, the application can adapt to manufacturers' different devices, such as MT65 and MT90.

Barcode Scanner

Scan Barcode

To activate the terminal to scan barcode, application should send the following broadcast to the system.

- Broadcast: **nlscan.action.SCANNER_TRIG**
To trigger the scan engine.
- Extra scan timeout parameter: **SCAN_TIMEOUT** (value: int, 1-9; default value: 3; unit: second)
To set scan timeout, i.e. the maximum time a scan attempt can last.
- Extra scan type parameter: **SCAN_TYPE** (value: 1 or 2; default value: 1)
To set scan type: Value = 1, read one barcode during a scan attempt
Value = 2, read two barcodes during a scan attempt (This feature is **NOT** available)

Example 1:

```
Intent intent = new Intent ("nlscan.action.SCANNER_TRIG");  
mContext.sendBroadcast(intent);
```

Example 2:

```
Intent intent = new Intent ("nlscan.action.SCANNER_TRIG");
intent.putExtra("SCAN_TIMEOUT", 4);// SCAN_TIMEOUT value: int, 1-9; unit: second
intent.putExtra("SCAN_TYPE ", 2);// SCAN_TYPE: read two barcodes during a scan attempt
mContext.sendBroadcast(intent);
```

Note: When a scan and decode session is in progress, sending the broadcast above will stop the ongoing session. When scanning barcode by pressing the Scan key, it is processed at the bottom layer, thus application does not need to listen for Scan KeyPress event or send the broadcast.

Get Barcode Data

There are three ways to get barcode data:

1. Fill in EditText directly: Output scanned data at the current cursor position in EditText.
2. Simulate keystroke: Output scanned data to keyboard buffer to simulate keyboard input and get the data at the current cursor position in TextBox.
3. Output via API: Application acquires scanned data by registering a broadcast receiver and listening for specific broadcast intents.
 - Broadcast: **nlscan.action.SCANNER_RESULT**
To get barcode data.
 - Extra scan result 1 parameter: **SCAN_BARCODE1**
To get the data of barcode 1.
Type: String
 - Extra scan result 1 raw byte parameter: **scan_result_one_bytes**
To get the byte data of barcode 1.
Type: byte[]
 - Extra scan result 2 parameter: **SCAN_BARCODE2**
To get the data of barcode 2.
Type: String
 - Extra scan result 2 raw byte parameter: **scan_result_two_bytes**
To get the byte data of barcode 2.
Type: byte[]
 - Extra symbology ID number parameter: **SCAN_BARCODE_TYPE**
Type: int (-1 indicates failure to get symbology ID Number)
To get the ID number of the barcode scanned (Refer to the “Symbology ID Number” table in

Appendix to get the barcode type).

- Extra scan state parameter: **SCAN_STATE** (value: fail or ok)
To get the status of scan operation: Value = fail, operation failed
Value = ok, operation succeeded

Type: String

Example:

Register broadcast receiver:

```
mFilter= newIntentFilter("nlscan.action.SCANNER_RESULT");  
mContext.registerReceiver(mReceiver, mFilter);
```

Unregister broadcast receiver:

```
mContext.unregisterReceiver(mReceiver);
```

Get barcode data:

```
mReceiver= newBroadcastReceiver() {  
    @Override  
    publicvoidonReceive(Context context, Intent intent) {  
        final String scanResult_1=intent.getStringExtra("SCAN_BARCODE1");  
        final String scanResult_2=intent.getStringExtra("SCAN_BARCODE2");  
        // Raw byte data of the scan result  
        final byte[] scanResultByte_1=intent. intent.getByteArrayExtra("scan_result_one_bytes");  
        final byte[] scanResultByte_2= intent. intent.getByteArrayExtra("scan_result_two_bytes");  
        final int barcodeType = intent.getIntExtra("SCAN_BARCODE_TYPE", -1); // -1:unknown  
        final String scanStatus=intent.getStringExtra("SCAN_STATE");  
        if("ok".equals(scanStatus)){  
            //Success  
        }else{  
            //Failure, e.g. operation timed out  
        }  
    }  
};
```

Stop Scanning

Note: When scanning barcode by pressing the Scan key, it is processed at the bottom layer to stop the scan session, thus application does not need to send the broadcast. Even if you scan barcode by pressing the Scan key, application only need to acquire scanned data by registering a broadcast receiver and listening for specific broadcast intents, without having to send the broadcast to activate and stop scanning.

Use the broadcast **nlscan.action.STOP_SCAN** to stop an ongoing decode session.

Example:

```
Intent stopIntent = new Intent("nlscan.action.STOP_SCAN");
mContext.sendBroadcast(stopIntent);
```

Change the Scanner Settings

Configuring Scanner Parameters

Application can set one or more scanner parameters, such as enable/disable scanner, by sending to the system the broadcast **ACTION_BAR_SCANCFG** which can contain up to 3 parameters.

Parameter	Type	Description (* indicates default)
EXTRA_SCAN_POWER	INT	Value = 0 Disable scanner = 1 Enable scanner* Note: When scanner is enabled, it will take some time to initialize during which all scan requests will be ignored.
EXTRA_TRIG_MODE	INT	Value = 0 Level mode = 1 Continuous mode = 2 Pulse mode* = 4 Delay mode*
EXTRA_SCAN_MODE	INT	Value = 1 Fill in EditText directly* = 2 Simulate keystroke = 3 Output via API
SEND_SCAN_FAIL_BROADCAST	INT	Value = 0 Disable the send scan fail broadcast = 1 Enable the send scan fail broadcast
EXTRA_SCAN_AUTOENT	INT	Value = 0 Do not add a line feed* = 1 Add a line feed
EXTRA_SCAN_NOTY_SND	INT	Value = 0 Sound notification off = 1 Sound notification on*
EXTRA_SCAN_NOTY_VIB	INT	Value = 0 Vibration notification off* = 1 Vibration notification on
EXTRA_SCAN_NOTY_LED	INT	Value = 0 LED notification off = 1 LED notification on*
SCAN_TIMEOUT	LONG	Set decode session timeout (millisecond) Value = 0-9000; default: 3000*
SCAN_INTERVAL	LONG	Set timeout between decode sessions (millisecond) Value >= 50; default: 50*
TRIGGER_MODE_MAIN	INT	Value = 0 Disable the Scan key on front panel as scan trigger = 1 Enable the Scan key on front panel as scan trigger*
TRIGGER_MODE_LEFT	INT	Value = 0 Disable the Scan key on left side as scan trigger = 1 Enable the Scan key on left side as scan trigger*
TRIGGER_MODE_RIGHT	INT	Value = 0 Disable the Scan key on right side as scan trigger

		= 1 Enable the Scan key on right side as scan trigger*
TRIGGER_MODE_BLACK	INT	Value = 0 Disable the trigger on pistol grip as scan trigger = 1 Enable the trigger on pistol grip as scan trigger* (Precondition: The terminal supports this feature)
NON_REPEAT_TIMEOUT	LONG	Set reread delay (millisecond) Value = 0 Reread same barcode with no delay* > 0 Do not allow to reread same barcode before the delay expires
SCAN_PREFIX_ENABLE	INT	Value = 0 Disable prefix = 1 Enable prefix*
SCAN_SUFFIX_ENABLE	INT	Value = 0 Disable suffix = 1 Enable suffix*
SCAN_PREFIX	STRING	Set prefix Value = Hexadecimal value of prefix character; default: null* e.g. 0x61 should be entered as 61.
SCAN_SUFFIX	STRING	Set suffix Value = Hexadecimal value of suffix character; default: null* e.g. 0x61 should be entered as 61.
SCAN_ENCODE	INT	Character encoding Value = 1 UTF-8 = 2 GBK* = 3 ISO-8859-1 = 4 AUTO = 5 Other Should enter the value of SCAN_OTHER_ENCODE at the same time = 6 windows-1251
OUTPUT_RECOVERABLE	BOOLEAN	Value = true Enable overwrite output = false Disable overwrite output*
EXTRA_OUTPUT_EDITOR_ACTION_ENABLE	INT	Value = 0 Disable software key event output * = 1 Enable software key event output
EXTRA_OUTPUT_EDITOR_ACTION	INT	Value = 0 IME_ACTION_UNSPECIFIED = 1 IME_ACTION_NONE = 2 IME_ACTION_GO = 3 IME_ACTION_SEARCH = 4 IME_ACTION_SEND = 5 IME_ACTION_NEXT = 6 IME_ACTION_DONE * = 7 IME_ACTION_PREVIOUS
BROADCAST_OUTPUT_ACTION	STRING	Broadcast output settings Action value
BROADCAST_OUTPUT_EXTRA_KEY_RESULT_1	STRING	Broadcast output settings Barcode Result 1 parameter
BROADCAST_OUTPUT_EXTRA_KEY_RESULT_2	STRING	Broadcast output settings Barcode Result 2 parameter
BROADCAST_OUTPUT_EX	STRING	Broadcast output settings Barcode type parameter

TRA__KEY_BARCODE_TY PE		
BROADCAST_OUTPUT_EX TRA__KEY_BARCODE_TY PE_NAME	STRING	Broadcast output settings Barcode type name parameter

Example 1: Disable scanner

```
Intent intent = new Intent ("ACTION_BAR_SCANCFG");
intent.putExtra("EXTRA_SCAN_POWER", 0);
mContext.sendBroadcast(intent);
```

Example 2: Output via API, add a line feed

```
Intent intent = new Intent ("ACTION_BAR_SCANCFG");
intent.putExtra("EXTRA_SCAN_MODE", 3);
intent.putExtra("EXTRA_SCAN_AUTOENT", 1);
mContext.sendBroadcast(intent);
```

Configuring Symbologies

Application can set barcode parameter, such as enable/disable a symbology, transmit check character, set minimum/maximum length by sending to the system the broadcast **ACTION_BARCODE_CFG** which contains the following three parameters.

Parameter	Type	Description
CODE_ID	STRING	Value = Barcode type e.g. "CODE128"
PROPERTY	STRING	Value = Barcode parameter e.g. "Enable", "Minlen", or "TrsmtChkChar"
VALUE	STRING	Value = Value of the barcode parameter e.g. To enable a symbology, set the value to "1"

Example: Transmit EAN-8 check character

```
Intent intent = new Intent ("ACTION_BARCODE_CFG");
intent.putExtra("CODE_ID", "EAN8");
intent.putExtra("PROPERTY", "TrsmtChkChar");
intent.putExtra("VALUE", "1"); // "1" Enable EAN-8, "0" Disable EAN-8
mContext.sendBroadcast(intent);
```

The following table describes in details the programmable barcode parameters through the above-mentioned broadcast. Note that programmable barcode parameters depend on the scan engine integrated in the terminal.

Barcode Parameter		Parameter Settings
Code 128	Enable/Disable Code 128	CODE_ID: "CODE128" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Code 128 "1": Enable Code 128
	Set minimum length	CODE_ID: "CODE128" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 1)
	Set maximum length	CODE_ID: "CODE128" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)
	Transmit check character	CODE_ID: "CODE128" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
GS1-128 (UCC/EAN-128)	Enable/Disable GS1-128	CODE_ID: "UCCEAN128" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1)
	Set minimum length	CODE_ID: "UCCEAN128" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 1)
	Set maximum length	CODE_ID: "UCCEAN128" PROPERTY: "Maxlen" VALUE: "1" - "127" (default: 48)
AIM 128	Enable/Disable AIM 128	CODE_ID: "AIM128" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable AIM 128 "1": Enable AIM 128
	Set minimum length	CODE_ID: "AIM128" PROPERTY: "Minlen" VALUE: "1" - "127" (default: 1)
	Set maximum length	CODE_ID: "AIM128" PROPERTY: "Maxlen"

		VALUE: "1" - "127" (default: 48)
	Transmit check character	CODE_ID: "AIM128" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
EAN-8	Enable/Disable EAN-8	CODE_ID: "EAN8" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable EAN-8 "1": Enable EAN-8
	Transmit check character	CODE_ID: "EAN8" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 1) "0": Do not transmit EAN-8 check character "1": Transmit EAN-8 check character
	2-digit add-on code	CODE_ID: "EAN8" PROPERTY: "Digit2" VALUE: "0" or "1" (default: 0) "0": Disable 2-digit add-on code "1": Enable 2-digit add-on code
	5-digit add-on code	CODE_ID: "EAN8" PROPERTY: "Digit5" VALUE: "0" or "1" (default: 0) "0": Disable 5-digit add-on code "1": Enable 5-digit add-on code
	Add-on code required	CODE_ID: "EAN8" PROPERTY: "AddonRequired" VALUE: "0" or "1" (default: 0) "0": EAN-8 add-on code not required "1": EAN-8 add-on code required
	Enable EAN-8 zero extend	CODE_ID: "EAN8" PROPERTY: "MsgtoEan13" VALUE: "0" or "1" (default: 0) "0": Disable EAN-8 zero extend "1": Enable EAN-8 zero extend
	Convert EAN-8 to EAN-13	CODE_ID: "EAN8" PROPERTY: "TypetoEan13" VALUE: "0" or "1" (default: 0) "0": Do not convert EAN-8 to EAN-13

		"1": Convert EAN-8 to EAN-13
EAN-13	Enable/Disable EAN-13	CODE_ID: "EAN13" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable EAN-13 "1": Enable EAN-13
	Transmit check character	CODE_ID: "EAN13" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 1) "0": Do not transmit EAN-13 check character "1": Transmit EAN-13 check character
	2-digit add-on code	CODE_ID: "EAN13" PROPERTY: "Digit2" VALUE: "0" or "1" (default: 0) "0": Disable 2-digit add-on code "1": Enable 2-digit add-on code
	5-digit add-on code	CODE_ID: "EAN13" PROPERTY: "Digit5" VALUE: "0" or "1" (default: 0) "0": Disable 5-digit add-on code "1": Enable 5-digit add-on code
	Add-on code required	CODE_ID: "EAN13" PROPERTY: "AddonRequired" VALUE: "0" or "1" (default: 0) "0": EAN-13 add-on code not required "1": EAN-13 add-on code required
ISSN	Enable/Disable ISSN	CODE_ID: "ISSN" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable ISSN "1": Enable ISSN
ISBN	Enable/Disable ISBN	CODE_ID: "ISBN" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable ISBN "1": Enable ISBN
	Set ISBN format	CODE_ID: "ISBN" PROPERTY: "Length" VALUE: "0" or "1" (default: 1) "0": ISBN-13

		"1": ISBN-10
UPC-E	Enable/Disable UPC-E	CODE_ID: "UPCE" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable UPC-E "1": Enable UPC-E
	Transmit check character	CODE_ID: "UPCE" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 1) "0": Do not transmit UPC-E check character "1": Transmit UPC-E check character
	2-digit add-on code	CODE_ID: "UPCE" PROPERTY: "Digit2" VALUE: "0" or "1" (default: 0) "0": Disable 2-digit add-on code "1": Enable 2-digit add-on code
	5-digit add-on code	CODE_ID: "UPCE" PROPERTY: "Digit5" VALUE: "0" or "1" (default: 0) "0": Disable 5-digit add-on code "1": Enable 5-digit add-on code
	Add-on code required	CODE_ID: "UPCE" PROPERTY: "AddonRequired" VALUE: "0" or "1" (default: 0) "0": UPC-E add-on code not required "1": UPC-E add-on code required
	Transmit system character	CODE_ID: "UPCE" PROPERTY: "TrsmtSysDigit" VALUE: "0" or "1" (default: 1) "0": Do not transmit system character "1": Transmit system character
	Enable UPC-E extend	CODE_ID: "UPCE" PROPERTY: "MsgToupca" VALUE: "0" or "1" (default: 0) "0": Disable UPC-E extend "1": Enable UPC-E extend
	UPC-A	Enable/Disable UPC-A

		"1": Enable UPC-A
Transmit check character	CODE_ID: "UPCA" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 1) "0": Do not transmit UPC-A check character "1": Transmit UPC-A check character	
2-digit add-on code	CODE_ID: "UPCA" PROPERTY: "Digit2" VALUE: "0" or "1" (default: 0) "0": Disable 2-digit add-on code "1": Enable 2-digit add-on code	
5-digit add-on code	CODE_ID: "UPCA" PROPERTY: "Digit5" VALUE: "0" or "1" (default: 0) "0": Disable 5-digit add-on code "1": Enable 5-digit add-on code	
Add-on code required	CODE_ID: "UPCA" PROPERTY: "AddonRequired" VALUE: "0" or "1" (default: 0) "0": UPC-A add-on code not required "1": UPC-A add-on code required	
Transmit preamble character	CODE_ID: "UPCA" PROPERTY: "TrsmtSysDigit" VALUE: "0" or "1" (default: 0) "0": Do not transmit UPC-A preamble character "1": Transmit UPC-A preamble character	
Enable UPC-A + Coupon	CODE_ID: "UPCA" PROPERTY: "Coupon" VALUE: "0" or "1" (default: 0) "0": Enable UPC-A + Coupon "1": Disable UPC-A + Coupon	
Require coupon	CODE_ID: "UPCA" PROPERTY: "ReqCoupon" VALUE: "0" or "1" (default: 0) "0": Do not require coupon "1": Require coupon	
Coupon GS1 Databar output	CODE_ID: "UPCA" PROPERTY: "Gs1Coupon" VALUE: "0" or "1" (default: 0) "0": GS1 output off	

		"1": GS1 output on
Interleaved 2 of 5	Enable/Disable Interleaved 2 of 5	CODE_ID: "ITF" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Interleaved 2 of 5 "1": Enable Interleaved 2 of 5
	Set minimum length	CODE_ID: "ITF" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 6)
	Set maximum length	CODE_ID: "ITF" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 80)
	Check character verification	CODE_ID: "ITF" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification
	Transmit check character	CODE_ID: "ITF" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
ITF-6	Enable/Disable ITF-6	CODE_ID: "ITF6" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable ITF-6 "1": Enable ITF-6
	Transmit check character	CODE_ID: "ITF6" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
ITF-14	Enable/Disable ITF-14	CODE_ID: "ITF14" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable ITF-14 "1": Enable ITF-14
	Transmit check character	CODE_ID: "ITF14" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0)

		<p>"0": Do not transmit check character "1": Transmit check character</p>
Matrix 2 of 5	Enable/Disable Matrix 2 of 5	<p>CODE_ID: "MATRIX25" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Matrix 2 of 5 "1": Enable Matrix 2 of 5</p>
	Set minimum length	<p>CODE_ID: "MATRIX25" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 4)</p>
	Set maximum length	<p>CODE_ID: "MATRIX25" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 80)</p>
	Check character verification	<p>CODE_ID: "MATRIX25" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification</p>
	Transmit check character	<p>CODE_ID: "MATRIX25" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character</p>
Industrial 25	Enable/Disable Industrial 25	<p>CODE_ID: "IND25" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Industrial 25 "1": Enable Industrial 25</p>
	Set minimum length	<p>CODE_ID: "IND25" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 6)</p>
	Set maximum length	<p>CODE_ID: "IND25" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)</p>
	Check character verification	<p>CODE_ID: "IND25" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification</p>
	Transmit check	<p>CODE_ID: "IND25"</p>

	character	PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
Standard 25	Enable/Disable Standard 25	CODE_ID: "STD25" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Standard 25 "1": Enable Standard 25
	Set minimum length	CODE_ID: "STD25" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 6)
	Set maximum length	CODE_ID: "STD25" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)
	Check character verification	CODE_ID: "STD25" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification
	Transmit check character	CODE_ID: "STD25" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
Code 39	Enable/Disable Code 39	CODE_ID: "CODE39" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Code 39 "1": Enable Code 39
	Set minimum length	CODE_ID: "CODE39" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 1)
	Set maximum length	CODE_ID: "CODE39" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)
	Check character verification	CODE_ID: "CODE39" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification

		"1": Enable check character verification
	Transmit check character	CODE_ID: "CODE39" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
	Transmit start/stop character	CODE_ID: "CODE39" PROPERTY: "TrsmtStasrtStop" VALUE: "0" or "1" (default: 0) "0": Do not transmit start/stop character "1": Transmit start/stop character
	Code 39 Full ASCII	CODE_ID: "CODE39" PROPERTY: "FullAscii" VALUE: "0" or "1" (default: 0) "0": Disable Code 39 Full ASCII "1": Enable Code 39 Full ASCII
Codabar	Enable/Disable Codabar	CODE_ID: "CODABAR" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Codabar "1": Enable Codabar
	Set minimum length	CODE_ID: "CODABAR" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 2)
	Set maximum length	CODE_ID: "CODABAR" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 60)
	Check character verification	CODE_ID: "CODABAR" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification
	Transmit check character	CODE_ID: "CODABAR" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
	Transmit start/stop character	CODE_ID: "CODABAR" PROPERTY: "TrsmtStasrtStop" VALUE: "0" or "1" (default: 0)

		<p>"0": Do not transmit start/stop character "1": Transmit start/stop character</p>
	Start/Stop character format	<p>CODE_ID: "CODABAR" PROPERTY: "StartStopMode" VALUE: "0" or "1" (default: 0) "0": ABCD/ABCD "1": ABCD/TN*E</p>
Code 93	Enable/Disable Code 93	<p>CODE_ID: "CODE93" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Code 93 "1": Enable Code 93</p>
	Set minimum length	<p>CODE_ID: "CODE93" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 1)</p>
	Set maximum length	<p>CODE_ID: "CODE93" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)</p>
	Check character verification	<p>CODE_ID: "CODE93" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification</p>
	Transmit check character	<p>CODE_ID: "CODE93" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character</p>
Code 11	Enable/Disable Code 11	<p>CODE_ID: "CODE11" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Code 11 "1": Enable Code 11</p>
	Set minimum length	<p>CODE_ID: "CODE11" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 4)</p>
	Set maximum length	<p>CODE_ID: "CODE11" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)</p>
	Check character	<p>CODE_ID: "CODE11"</p>

	verification	PROPERTY: "ChkMode" VALUE: "0" - "5" (default: 1) "0": Disable "1": 1 check character, MOD11 "2": 2 check characters, MOD11/MOD11 "3": 2 check characters, MOD11/MOD9 "4": 1 check character, MOD11; 2 check characters, MOD11/MOD11 "5": 1 check character, MOD11; 2 check characters, MOD11/MOD9
	Transmit check character	CODE_ID: "CODE11" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
Plessey	Enable/Disable Codabar	CODE_ID: "PLSY" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Plessey "1": Enable Plessey
	Set minimum length	CODE_ID: "PLSY" PROPERTY: "Minlen" VALUE: "1" - "127" (default: 1)
	Set maximum length	CODE_ID: "PLSY" PROPERTY: "Maxlen" VALUE: "1" - "127" (default: 127)
	Check character verification	CODE_ID: "PLSY" PROPERTY: "Check" VALUE: "0" - "1" (default: 0) "0": Disable check character verification "1": Enable check character verification
	Transmit check character	CODE_ID: "PLSY" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
MSI-Plessey	Enable/Disable MSI-Plessey	CODE_ID: "MSIPLSY" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable MSI-Plessey

		"1": Enable MSI-Plessey
	Set minimum length	CODE_ID: "MSIPLSY" PROPERTY: "Minlen" VALUE: "1" – "127" (default: 4)
	Set maximum length	CODE_ID: "MSIPLSY" PROPERTY: "Maxlen" VALUE: "1" – "127" (default: 48)
	Check character verification	CODE_ID: "MSIPLSY" PROPERTY: "ChkMode" VALUE: "0" - "3" (default: 1) "0": Disable "1": 1 check character, MOD10 "2": 2 check characters, MOD10/MOD10 "3": 2 check characters, MOD10/MOD11
	Transmit check character	CODE_ID: "MSIPLSY" PROPERTY: "TrsmtChkChar" VALUE: "0" or "1" (default: 0) "0": Do not transmit check character "1": Transmit check character
PDF417	Enable/Disable PDF417	CODE_ID: "PDF417" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable PDF417 "1": Enable PDF417
	Set minimum length	CODE_ID: "PDF417" PROPERTY: "Minlen" VALUE: "1" – "2710" (default: 1)
	Set maximum length	CODE_ID: "PDF417" PROPERTY: "Maxlen" VALUE: "1" – "2710" (default: 2710)
	PDF417 twin code	CODE_ID: "PDF417" PROPERTY: "CodeNum" VALUE: "1" or "2" (default: 1) "1": Read single PDF417 code "2": Read two PDF417 codes
	Fixed number of barcodes on an image	CODE_ID: "PDF417" PROPERTY: "NumFixed" VALUE: "0" or "1" (default: 1) "0": Varied number of barcodes on an image "1": Fixed number of barcodes on an image

	PDF417 inverse	CODE_ID: "PDF417" PROPERTY: "VideoMode" VALUE: "0" or "2" (default: 0) "0": Decode regular PDF417 barcodes only "1": Decode inverse PDF417 barcodes only "2": Decode both
QR Code	Enable/Disable QR Code	CODE_ID: "QR" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable QR Code "1": Enable QR Code
	Set minimum length	CODE_ID: "QR" PROPERTY: "Minlen" VALUE: "1" – "7089" (default: 1)
	Set maximum length	CODE_ID: "QR" PROPERTY: "Maxlen" VALUE: "1" – "7089" (default: 7089)
	QR twin code	CODE_ID: "QR" PROPERTY: "CodeNum" VALUE: "1" or "2" (default: 1) "1": Read single QR code "2": Read two QR codes
	Fixed number of barcodes on an image	CODE_ID: "QR" PROPERTY: "NumFixed" VALUE: "0" or "1" (default: 1) "0": Varied number of barcodes on an image "1": Fixed number of barcodes on an image
	QR Code inverse	CODE_ID: "QR" PROPERTY: "VideoMode" VALUE: "0" or "2" (default: 0) "0": Decode regular QR barcodes only "1": Decode inverse QR barcodes only "2": Decode both
Data Matrix	Enable/Disable Data Matrix	CODE_ID: "DM" PROPERTY: "Enable" VALUE: "0" or "1" (default: 1) "0": Disable Data Matrix "1": Enable Data Matrix
	Set minimum length	CODE_ID: "DM" PROPERTY: "Minlen"

		VALUE: "1" – "3116" (default: 1)
	Set maximum length	CODE_ID: "DM" PROPERTY: "Maxlen" VALUE: "1" – "3116" (default: 3116)
	Rectangular barcode	CODE_ID: "DM" PROPERTY: "RectAngle" VALUE: "0" or "1" (default: 1) "0": Disable rectangular DM "1": Enable rectangular DM
	Data Matrix twin code	CODE_ID: "DM" PROPERTY: "CodeNum" VALUE: "1" or "2" (default: 1) "1": Read single Data Matrix code "2": Read two Data Matrix codes
	Fixed number of barcodes on an image	CODE_ID: "DM" PROPERTY: "NumFixed" VALUE: "0" or "1" (default: 1) "0": Varied number of barcodes on an image "1": Fixed number of barcodes on an image
	Data Matrix inverse	CODE_ID: "DM" PROPERTY: "VideoMode" VALUE: "0" or "2" (default: 0) "0": Decode regular Data Matrix barcodes only "1": Decode inverse Data Matrix barcodes only "2": Decode both
Chinese Sensible (CS) Code	Enable/Disable CS Code	CODE_ID: "CSC" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable CS Code "1": Enable CS Code
	Set minimum length	CODE_ID: "CSC" PROPERTY: "Minlen" VALUE: "1" – "7827" (default: 1)
	Set maximum length	CODE_ID: "CSC" PROPERTY: "Maxlen" VALUE: "1" – "7827" (default: 7827)
	CS twin code	CODE_ID: "CSC" PROPERTY: "CodeNum" VALUE: "1" or "2" (default: 1) "1": Read single CS code

		"2": Read two CS codes
	Fixed number of barcodes on an image	CODE_ID: "CSC" PROPERTY: "NumFixed" VALUE: "0" or "1" (default: 1) "0": Varied number of barcodes on an image "1": Fixed number of barcodes on an image
	CS Code inverse	CODE_ID: "CSC" PROPERTY: "VideoMode" VALUE: "0" or "2" (default: 0) "0": Decode regular CS barcodes only "1": Decode inverse CS barcodes only "2": Decode both
Aztec	Enable/Disable Aztec	CODE_ID: "AZTEC" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Aztec "1": Enable Aztec
	Set minimum length	CODE_ID: "AZTEC" PROPERTY: "Minlen" VALUE: "1" – "3832" (default: 1)
	Set maximum length	CODE_ID: "AZTEC" PROPERTY: "Maxlen" VALUE: "1" – "3832" (default: 3832)
	Aztec twin code	CODE_ID: "AZTEC" PROPERTY: "CodeNum" VALUE: "1" or "2" (default: 1) "1": Read single Aztec code "2": Read two Aztec codes
	Fixed number of barcodes on an image	CODE_ID: "AZTEC" PROPERTY: "NumFixed" VALUE: "0" or "1" (default: 1) "0": Varied number of barcodes on an image "1": Fixed number of barcodes on an image
	Aztec inverse	CODE_ID: "AZTEC" PROPERTY: "VideoMode" VALUE: "0" or "2" (default: 0) "0": Decode regular Aztec barcodes only "1": Decode inverse Aztec barcodes only "2": Decode both
MicroPDF417	Enable/Disable	CODE_ID: "MICROPDF"

	MicroPDF417	PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable MicroPDF417 "1": Enable MicroPDF417
	Set minimum length	CODE_ID: "MICROPDF" PROPERTY: "Minlen" VALUE: "1" – "366" (default: 1)
	Set maximum length	CODE_ID: "MICROPDF" PROPERTY: "Maxlen" VALUE: "1" – "366" (default: 366)
Micro QR	Enable/Disable Micro QR	CODE_ID: "MICROQR" PROPERTY: "Enable" VALUE: "0" or "1" (default: 0) "0": Disable Micro QR "1": Enable Micro QR
	Set minimum length	CODE_ID: "MICROQR" PROPERTY: "Minlen" VALUE: "1" – "35" (default: 1)
	Set maximum length	CODE_ID: "MICROQR" PROPERTY: "Maxlen" VALUE: "1" – "35" (default: 35)

Reserved Keys

The terminal provides reserved keys, for example:

MT90 provides one reserved key: F6.

MT65 provides four reserved keys: F1、F2、F3、F4.

Application can define reserved key's functions as per actual needs

Example 1: Process the KeyDown event of reserved key

```
public boolean onKeyDown(int keyCode, KeyEvent event) {
    switch (keyCode)
    {
    case KeyEvent.KEYCODE_F6:
        showInfo("F6 KeyDown\n");
        break;
    }
}
```

```
    }  
    return super.onKeyDown(keyCode,event);  
}
```

Example 2: Process the KeyUp event of reserved key

```
public boolean onKeyUp(int keyCode, KeyEvent event) {  
    switch (keyCode)  
    {  
        case KeyEvent.KEYCODE_F6:  
            showInfo("F6 KeyUp\n");  
            break;  
    }  
    return super.onKeyDown(keyCode, event);  
}
```

Other APIs

Notification Bar Pull-down

To enable/disable the notification bar pull-down, application should send to the system the broadcast **nlscan.action.STATUSBAR_SWITCH_STATE** with the value of Extra parameter ENABLE set to be true/false.

Example: Disable the notification bar pull-down

```
Intent intent = new Intent("nlscan.action.STATUSBAR_SWITCH_STATE");  
intent.putExtra("ENABLE", false);  
context.sendBroadcast(intent);
```

Press the Home Key to Switch to Desktop

To enable/disable the feature of switching to desktop by pressing the Home key, application should send to the system the broadcast **nlscan.action.HOMEKEY_SWITCH_STATE** with the value of Extra parameter ENABLE set to be true/false.

Example: Disable the feature of switching to desktop by pressing the Home key

```
Intent intent = new Intent("nlscan.action.HOMEKEY_SWITCH_STATE");  
intent.putExtra("ENABLE", false);  
context.sendBroadcast(intent);
```

Set the System Time

To set the system time, application should send to the system the broadcast **nlscan.action.SET_TIME** with the value of Extra parameter **TIME_MS** set to be a string represented as the number of millisecond.

Example:

```
Public long getTimeMillis(){
    Calendar c=Calendar.getInstance();
    c.set(2016,0,1,0,0,0);
    return c.getTimeInMillis();
}
Intent it = new Intent("nlscan.action.SET_TIME");
long mills = getTimeMillis();
it.putExtra("TIME_MS", String.valueOf(mills));
mContext.sendBroadcast(it);
```

Set the NFC, Positioning, Soft Keyboard, and APN

Application can set NFC, Positioning, Soft Keyboard, and APN by sending to the system the broadcast **com.nlscan.action.backuprecovery** which contains the following parameters.

Parameter	Type	Description
Set	STRING	Json String

Calling Example:

```
String json = "{\n" +
    "\t\"quick_setting\": [\n" +
    "\t\t\"quick_setting\": [\n" +
    "\t\t\t\"NFC.Enable\": \"1\"\n" +
    "\t\t}],\n" +
    "\t\t\"set_data_diff_flag\": \"0\"\n" +
    "\t}],\n" +
    "\t\"version\": \"V0.00.001\"\n" +
    "}";
String action = "com.nlscan.action.backuprecovery";
String pkg = "com.nlscan.nlsbackuprecovery";
Intent intent = new Intent(action);
intent.setPackage(pkg);
```

```
intent.putExtra("set", json);
sendBroadcast(intent);
```

Json Explanation

NFC:

```
{
  "quick_setting": [
    {
      "quick_setting": [
        {
          "NFC.Enable": "1" //1: Enable 0: Disable
        }
      ],
      "set_data_diff_flag": "1"
    }
  ],
  "version": "V0.00.001"
}
```

Soft Keyboard:

```
{
  "quick_setting": [
    {
      "quick_setting": [
        {
          "SHOWSOFTINPUT.Enable": "1" //1: Enable 0: Disable
        }
      ],
      "set_data_diff_flag": "1"
    }
  ],
  "version": "V0.00.001"
}
```

Positioning:

```
{
  "device_setting": [
    {
      "start_intent": [
        {
          "Intent.list": [
            {
              "type": "broadcast",
              "action": "nlscan.action.WRITE_SETTINGS_DB",
              "group_split_char": ";",
              "params":
"es-db-secure;es-name-location_providers_allowed;es-value-+network,gps;es-type-string"
            }
          ]
        }
      ],
      "set_data_diff_flag": "1"
    }
  ]
  "version": "V0.00.001"
}
```

APN:

```
{
  "device_setting": [
    {
      "apn": [
        {
          "RESET_APN.Enable": "1",
          "APN_LIST.list": [
            {
              "APN_PROXY": "", //proxy
              "APN_TYPE": "", //type
              "APN_SUBID": "1", //SIM card id, "0" or "1" for single SIM
            }
          ]
        }
      ]
    }
  ]
}
```

```

card
    "APN_MVNO_TYPE": "", //MVNO Type
    "APN_MMSC": "", //MMSC
    "APN_MVNO_VALUE": "", //MVNO Value
    "APN_AUTHTYPE": "", // Auth type, optional value:
PAP,CHAP,PAP OR CHAP
    "APN_SERVER": "", //Server
    "APN_APN": "11111", //APN
    "APN_USER": "", //User Name
    "APN_PROTOCOL": "IPv4/IPv6", //Protocol, optional value: IPv4, IPv6,
IPv4/IPv6
    "APN_NAME": "11111", //APN name
    "APN_PASSWORD": "", //Password
    "APN_PORT": "", //Port
    "APN_OPERTYPE": "2", // Do not change this item
    "APN_MMSPROXY": "", //MMS proxy
    "APN_ROAMING_PROTOCOL": "IPv4/IPv6", // Roaming protocol,
optional value: IPv4, IPv6, IPv4/IPv6
    "APN_MMSPORT": "", //MMS port
    "APN_BEARER": "" //Bearer system
    }
    ]
    },
    "set_data_diff_flag": "1"
    }
    ],
    "version": "V0.00.001"
}

```

Remarks for APN settings: Manually add APN on the terminal and verify that the function is normal. Then complete the json parameter according to the detailed parameter interface of the APN newly added.

The above json can be set individually or in combination at one time as follows:

```
{
  "device_setting": [
    {
      "start_intent": [
        {
          "Intent.list": [
            {
              "type": "broadcast",
              "action": "nlscan.action.WRITE_SETTINGS_DB",
              "group_split_char": ";",
              "params":
"es-db-secure;es-name-location_providers_allowed;es-value-+network,gps;es-type-string"
            }
          ]
        }
      ],
      "apn": [
        {
          "RESET_APN.Enable": "1",
          "APN_LIST.list": [
            {
              "APN_PROXY": "",
              "APN_TYPE": "",
              "APN_SUBID": "1",
              "APN_MVNO_TYPE": "",
              "APN_MMSC": "",
              "APN_MVNO_VALUE": "",
              "APN_AUTHTYPE": "",
              "APN_SERVER": "",
              "APN_APN": "11111",
              "APN_USER": "",
              "APN_PROTOCOL": "IPv4/IPv6",
              "APN_NAME": "11111",
              "APN_PASSWORD": "",
            }
          ]
        }
      ]
    }
  ]
}
```

```

        "APN_PORT": "",
        "APN_OPERTYPE": "2",
        "APN_MMSPROXY": "",
        "APN_ROAMING_PROTOCOL": "IPv4/IPv6",
        "APN_MMSPORT": "",
        "APN_BEARER": ""
    }
}
],
"set_data_diff_flag": "1"
}
],
"quick_setting": [
    {
        "quick_setting": [
            {
                "NFC.Enable": "1",
                "SHOWSOFTINPUT.Enable": "1"
            }
        ],
        "set_data_diff_flag": "1"
    }
],
"version": "V0.00.001"
}

```

Enable or Disable Recent Apps

Application can enable or disable the recent apps by sending to the system the broadcast **nlscan.action.SWITCH_RECENTS**

Example:

```

Intent intent = new Intent("nlscan.action.SWITCH_RECENTS");
intent.putExtra("ENABLE", false); //Disable the recent apps
context.sendBroadcast(intent);

```


Appendix

Symbology ID Number

ID Number	Symbology
0	ZASETUP
1	SETUP128
2	CODE128
3	UCCEAN128
4	AIM128
5	GS1_128
6	ISBT128
7	EAN8
8	EAN13
9	UPCE
10	UPCA
11	ISBN
12	ISSN
13	CODE39
14	CODE93
15	93I
16	CODABAR
17	ITF
18	ITF6
19	ITF14
20	DPLEITCODE
21	DPIDENTCODE
22	CHNPOST25
23	STANDARD25
23	IATA25
24	MATRIX25
25	INDUSTRIAL25
26	COOP25
27	CODE11
28	MSIPLESSEY
29	PLESSEY
30	RSS14
31	RSSLIMITED

32	RSSEXPANDED
33	TELEPEN
34	CHANNELCODE
35	CODE32
36	CODEZ
37	CODABLOCKF
38	CODABLOCKA
39	CODE49
40	CODE16K
41	HIBC128
42	HIBC39
43	RSSFAMILY
44	TriopticCODE39
45	UPC_E1
256	PDF417
257	MICROPDF
258	QRCODE
259	MICROQR
260	AZTEC
261	DATAMATRIX
262	MAXICODE
263	CSCODE
264	GRIDMATRIX
265	EARMARK
266	VERICODE
267	CCA
268	CCB
269	CCC
270	COMPOSITE
271	HIBCAZT
272	HIBCDM
273	HIBCMICROPDF
274	HIBCQR
275	DOTCODE
512	POSTNET
513	ONECODE
514	RM4SCC
515	PLANET
516	KIX

517	APCUSTOM
518	APREDIRECT
519	APREPLYPAID
520	APROUTING
768	NUMOCRB
769	PASSPORT
770	TD1
2048	PRIVATE
2049	ZZCODE
65535	UNKNOWN

Advanced Settings

SETTINGS	SUBCLASS	CODE_ID	PROPERTY	VALUE	SCANNING ENGINE SUPPORTED
Acuscan	/	CENTERDECOD E	Enable	1: Enable 0: Disable Default value : 0	Generic
Output AI in brackets	/	AppldSeparato r	Enable	1: Enable 0: Disable Default value : 0	Generic
Multiple barcodes	/	MultiDecode	Enable	1: Enable 0: Disable Default value : 0	Generic
Other	Noise reduction	OTHER	Denoise	1: Enable 0: Disable Default value : 0	Generic
	Exposure level	OTHER	ExposureLevel	2: High 1: Medium 0: Low 255: Illumination off Default value : 1	CM48 CM48-V CM48MR CM26 CM60 CM60L NFT10-DE3
	Illum mode	OTHER	IllumMode	1: Normal 0: No light Default value : 1	CM60 CM60L CM30
	The power plan	OTHER	SleepTimeSwitc h	0: Power saving 1: High performance	Generic
	OCR enable	OTHER	OCRPVlenable	1: Enable 0: Disable Default value : 0	Generic

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