



# Newland

SCANNING MADE SIMPLE



## NQuire 300 series customer information terminal user guide

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## Revision History

Version	Description	Date
V1.0.0	Initial release.	March 31, 2017
V1.0.1	<ol style="list-style-type: none"><li>1. Added the “Enabling MTP” section in Chapter 2.</li><li>2. Added the Code ID editing and RFID programming features in Chapter 3</li><li>3. Added a new chapter – Chapter 8 Using an External Barcode Scanner.</li><li>4. Added the “Code ID Table” in Appendix.</li></ol> <p>Note: Firmware version V1.00.006 or later is required for the new features in Items 2 &amp; 3 above.</p>	July 6, 2017
V1.0.2	Added the “GPIO Device” section in Chapter 4.	January 23, 2018

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# Chapter 1 About This Guide

## Introduction

This guide provides instructions for installing, programming and operating the NLS-NQuire300 series customer information terminal (hereinafter referred to as “**the NQuire**”).

## Chapter Descriptions

- ✧ *Chapter 1 About This Guide* Provides general description of this manual.
- ✧ *Chapter 2 Getting Started* Provides information on getting the NQuire up and running for the first time.
- ✧ *Chapter 3 Configuring the NQuire* Describe how to program the NQuire with a web-based tool and with barcodes.
- ✧ *Chapter 4 Using the NQuire* Explains how to scan barcodes, read RFID tags and use a GPIO device.
- ✧ *Chapter 5 ESC Commands* Explains how to control the NQuire with ESC commands.
- ✧ *Chapter 6 System Update* Introduces two methods to update system.
- ✧ *Chapter 7 ADB Debug* Describes how to use the ADB tool.
- ✧ *Chapter 8 Using an External Barcode Scanner* Describes how to configure an external handheld barcode scanner to work with the NQuire.
- ✧ *Chapter 9 Maintenance & Troubleshooting* Provides troubleshooting solutions for issues that might occur when using the NQuire.
- ✧ *Appendix* Provides some sample barcodes for the user to test the NQuire.

## Chapter 2 Getting Started

### Introduction to the NQuire

The NQuire (including NQuire301/302/304) is designed to read/scan, inform and interact with your customer.

This small and attractive information terminal reads multiple data carriers; from 1D barcodes (such as EAN/UPC) to complex 2D barcodes displayed on mobile phones. It also comes with unprecedented RFID reading capabilities.

The NQuire complies with the specifications of standard VESA 75 bracket, enabling easy mounting on shelves and walls. Furthermore, it is possible to add USB or Bluetooth (optional) peripherals to expand this solution with a printer, a handheld scanner for scanning large or bulky items, a magnetic stripe card reader and more.

The NQuire supports 10/100Mbps Ethernet, Wifi 802.11b/g/n (optional) and Bluetooth 4.0 LE(optional) and Power-over-Ethernet, so it can be easily integrated into your existing wireless or wired LAN.

The NQuire can be used for various applications such as Price Check, Inventory Check, Informational Product Videos, Gift Card/Coupon Lookup, Guided Selling, Digital Advertising/Signage, Call for Assistance, Store Maps and more.

### Unpacking

Carefully remove all protective material from the pack and verify that the following items are present:

- ✧ NQuire300 x1





- 
- ✧ Power adapter x 1, plug x 5



- ✧ VESA 75 mount x1, screwdriver x 1, port cover x 2

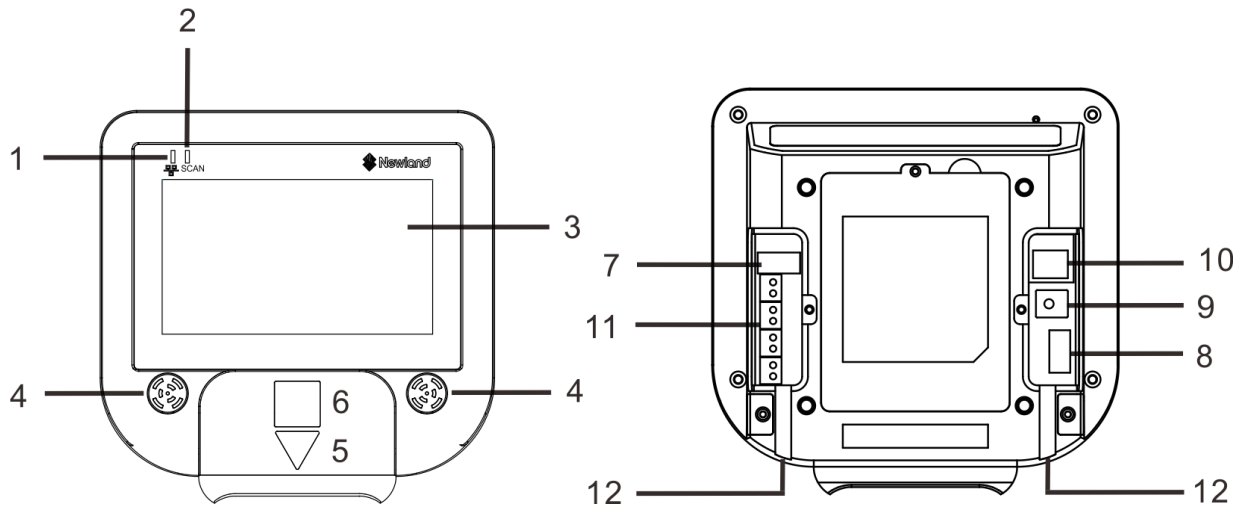


- ✧ Plastic wall anchor x 4, GPIO connector x 4, small screw x 6, large screw x 4



- ✧ Quick Start Guide x 1

## Product Outline



1	Network LED	2	Good Read LED
3	LCD (Touch) Display	4	Speaker
5	“Where to Scan Barcode” Arrow	6	RFID Antenna
7	USB Host/Slave Port	8	USB Host Port
9	Power Jack	10	Ethernet Port
11	GPIO Connectors	12	Cable Trough

## LEDs on the NQuire

Network LED	
Blue LED on	Wifi/ Ethernet/ Bluetooth is available
Good Read LED	
Green LED flashes once	A barcode has been scanned and decoded.

---

## Work Procedure

1. The NQuire receives its input via:
  - ✧ 1D barcode scan engine (NQuire301) or
  - ✧ 2D barcode scan engine (NQuire302/ NQuire304) or
  - ✧ RFID reader.
2. The NQuire sends the input to application program which runs on a remote PC or server.
3. Application program sends information back to the terminal for display.

## Mounting

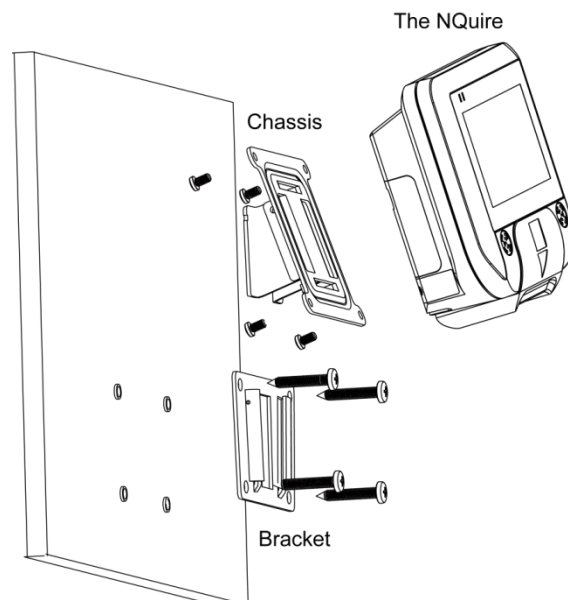
The NQuire comes standard with a VESA 75 mount. The VESA 75 mount consists of a bracket and a chassis. Please follow the instructions below to mount the NQuire onto the VESA 75 mount.

Step 1: Select a mounting location that is convenient for operation.

Step 2: For wall mounting, install the four plastic expansion anchors in a wall and then secure the bracket of VESA 75 mount to the wall using the four large screws. For countertop/shelf mounting, secure the bracket of VESA 75 mount to a countertop/shelf using the four large screws.

Step 3: Attach the chassis of VESA 75 mount to the back of the NQuire using the four small screws.

Step 4: Follow the instructions in the following “Wiring” section to complete the cable connections. Then slide the NQuire into the bracket.



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## Wiring

### Physical Ports on the NQuire

✧ **Power jack:**

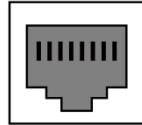
It uses the center pin for positive and the outer tab for ground.

Input power requirement: DC 9-25V, 2A

✧ **Ethernet port:**

PIN	Description
1	Tx_D1+
2	Tx_D1-
3	Rx_D2+
4	BI_D3+ / PoE
5	BI_D3- / PoE
6	Rx_D2-
7	BI_D4+ / PoE
8	BI_D4- / PoE

1 2 3 4 5 6 7 8



✧ **USB Host port:** It can be connected to a handheld barcode scanner, printer, magnetic stripe card reader or other external device.

✧ **GPIO connectors (General Purpose Input/Output interface):**

Two in (Each contains 2 pins); two out (Each contains 2 pins)

### Wiring Instructions

Select one of the following power supply solutions and make the cable connections accordingly.

#### Power adapter solution

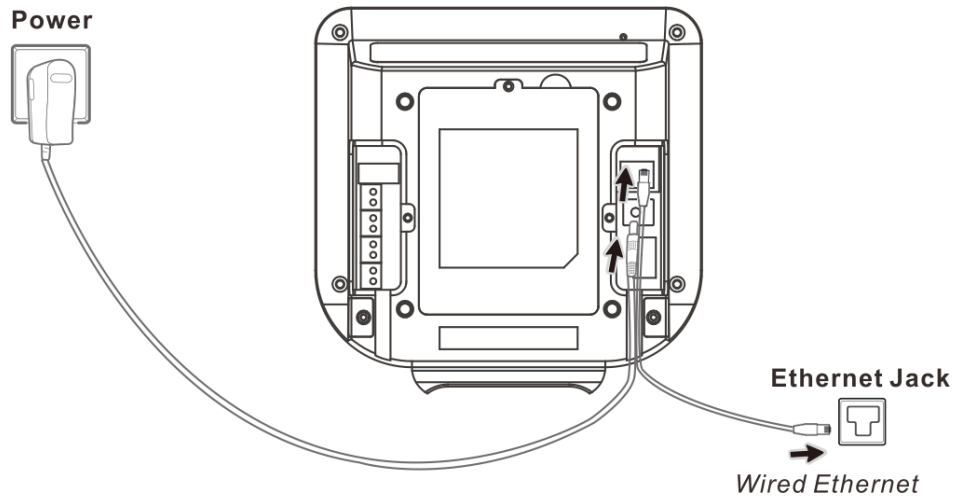
Step 1: Put the NQuire face down. Remove the port cover on the right.

Step 2: Attach the appropriate plug type to the power adapter and plug it into the power jack on the NQuire.

Step 3: Lead the cable through the cable trough for appropriate routing.

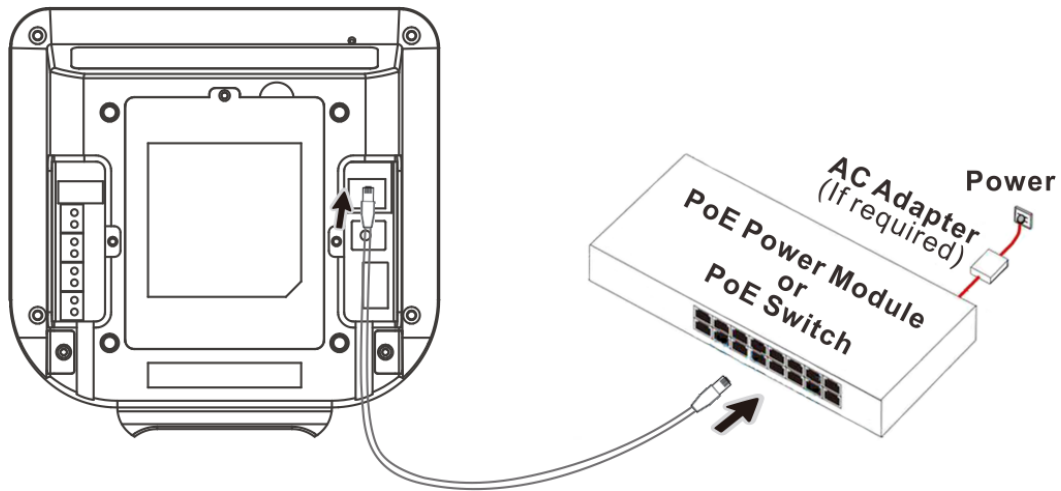
Step 4: Wired Ethernet: Connect an Ethernet cable to the Ethernet port on the NQuire, replace the port cover and fasten it with the screw.

Wireless Ethernet: Replace the port cover and fasten it with the screw.



**Power-over-Ethernet (PoE) solution**

- Step 1: Put the NQire face down. Remove the port cover on the right.
- Step 2: Connect one end of an Ethernet cable to the Ethernet port on the NQire.
- Step 3: Lead the cable through the cable trough for appropriate routing.
- Step 4: Replace the port cover and fasten it with the screw.
- Step 5: Connect the other end of the Ethernet cable to a PoE power module or a PoE switch (NOT supplied by Newland). The NQire supports both the Mid-span and End-span PoE protocol.
- Step 6: Connect DC power to either the third-party PoE power module or PoE switch if required.

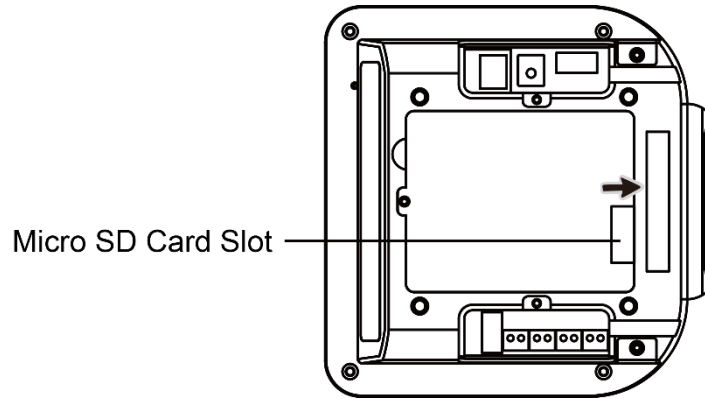


Note: Do not connect power adapter to the power jack on the NQire when adopting PoE solution. Otherwise there is a risk of damage to the NQire.

---

## Installing the Micro SD Card

Step 1: Loosen the screw on the back cover of the NQuire and remove the back cover. Slide the slot cover rightward and lift the left end of it.



Step 2: Insert the Micro SD card into the slot, with its metal contacts facing down.

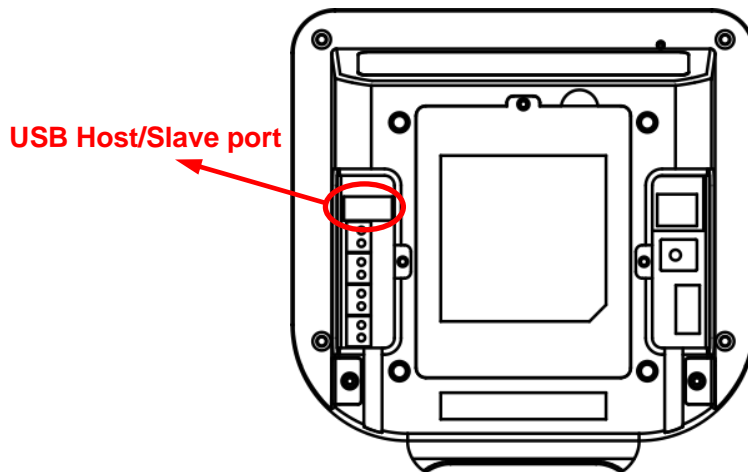
Step 3: Close the slot cover and slide it leftward until it clicks.

Step 4: Replace the back cover and fasten it with the screw removed in Step 1.


## Enabling MTP

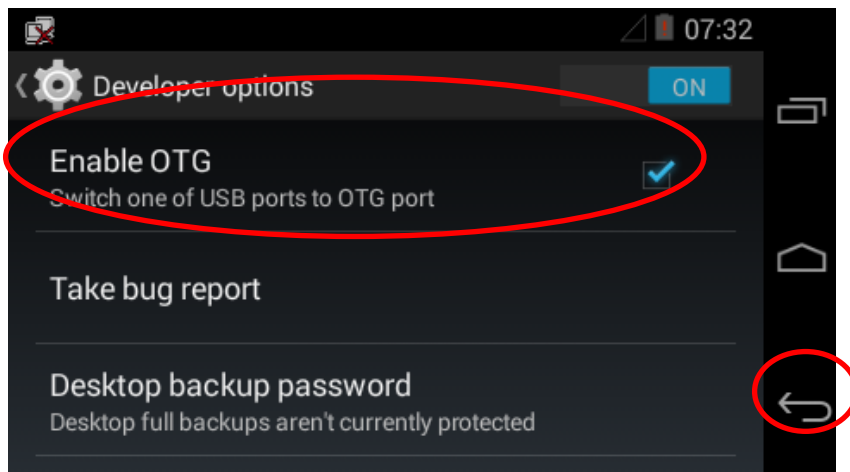
MTP (Media Transfer Protocol) lets you transfer files between your NQuire and a PC. To enable it, follow the steps below:

Step 1: Connect the USB Host/Slave port on the NQuire to PC with a USB cable (purchase separately).

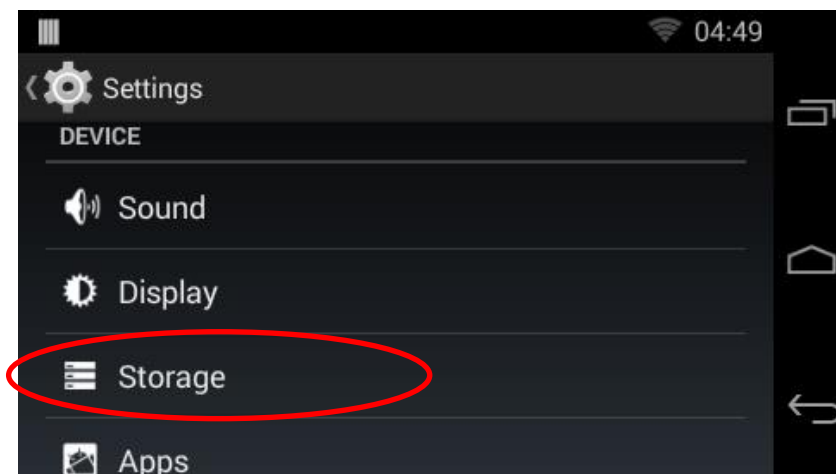


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Step 2: Follow the steps described in the “Using the ADB” section in Chapter 7 to enable OTG. Tap  to return to the Settings menu.

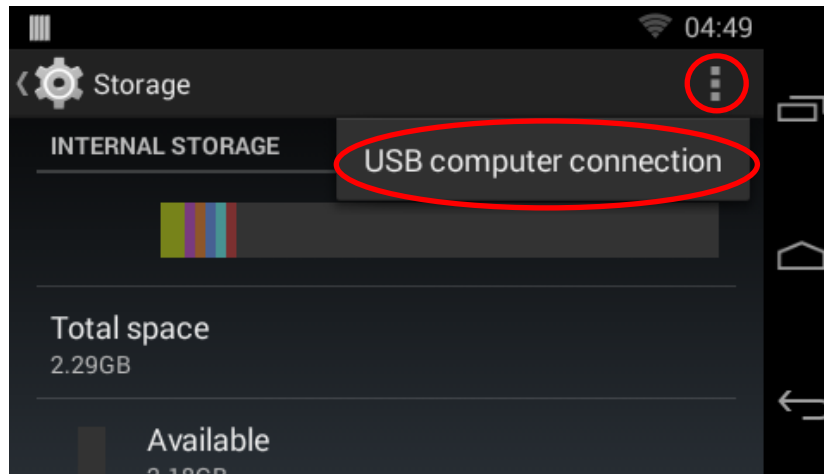


Step 3: Tap “Storage”.

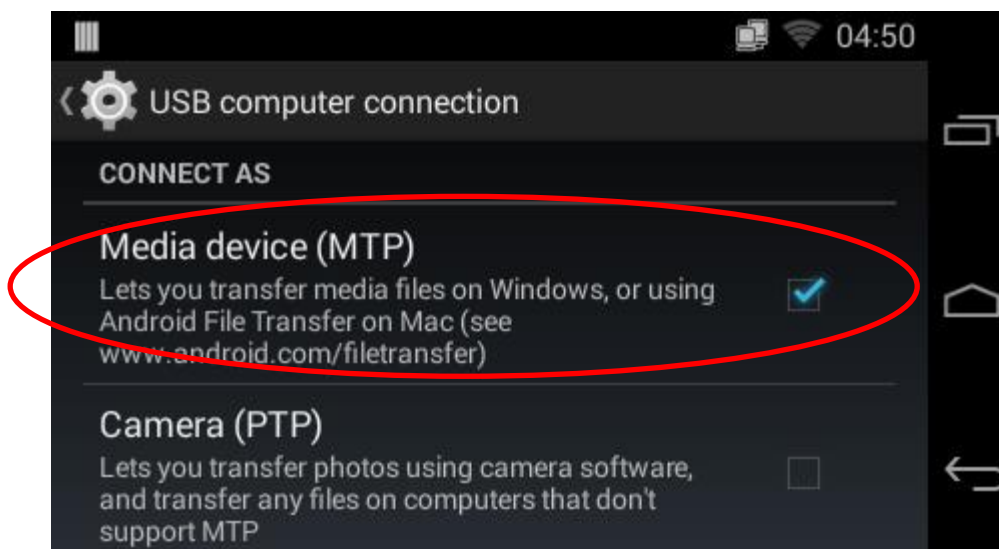


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Step 4: Tap  and then “USB computer connection”.



Step 5: Select “Media device (MTP)”.





## Chapter 3 Configuring the NQuire

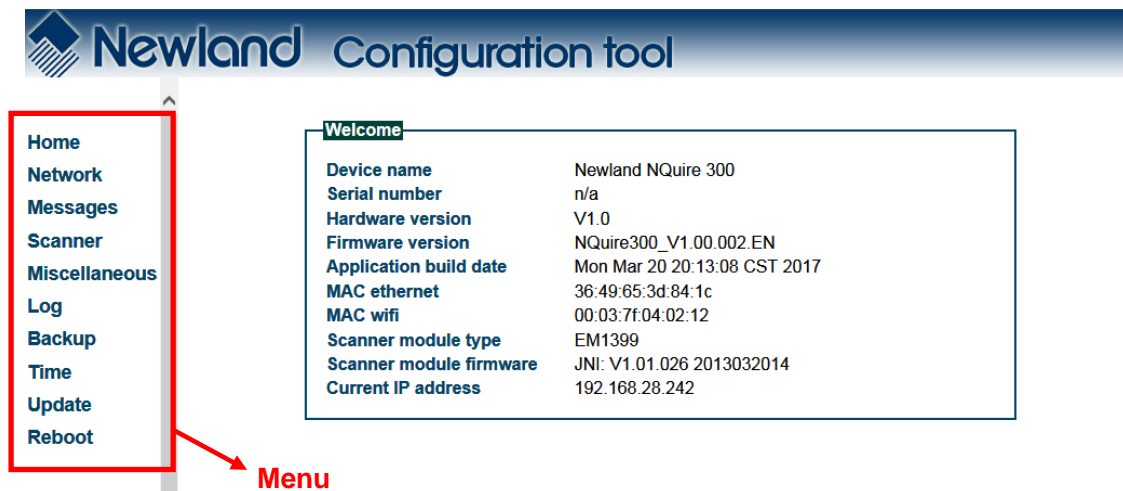
### Introduction

You may configure the NQuire with the web-based tool or by scanning programming barcodes.

### Configuring the NQuire with the Web-based Tool

The NQuire has a built-in web server which can be used for device configuration. This configuration method effectively bypasses the restrictions imposed by operating system. You may access the configuration tool by following the instructions below.

1. Open a web browser on your PC (IE11 is recommended).
2. Enter the NQuire's default IP address 192.168.1.200 in the address bar and then press Enter to open the NQuire configuration tool homepage.



If an error page is displayed, please try pinging the NQuire.

- i. Make sure your PC is in the same IP range as the NQuire, e.g. 192.168.1.198.
- ii. Type "ping 192.168.1.200" in your Command Prompt (MS Windows: cmd.exe) and then press Enter.
- iii. If the problem still persists, please double-check the IP address and physical Ethernet connection.

3. Click a menu item on the left pane and set the parameters as per your needs. When you finish making changes to the parameters in a box, click “Apply settings” to save the changes. For the details, see the following sections.

## Network Settings

When you click “Network” in the menu, the following page opens. You can specify your own specific network settings here.

The screenshot shows the 'Newland Configuration tool' interface. The left sidebar contains a menu with the following items: Home, Network, Messages, Scanner, Miscellaneous, Log, Backup, Time, Update, and Reboot. The 'Network' menu item is selected. The main content area displays three configuration sections:

- wifi**: Includes fields for ESSID, Wireless key type (set to WPA or WPA2), Wireless key, and Use DHCP (radio buttons for No and Yes, with Yes selected). An 'Apply settings' button is at the bottom right.
- Ethernet**: Includes a Use DHCP section (radio buttons for No and Yes, with No selected), and fields for IP address (192.168.1.200), Netmask (255.255.255.0), Gateway (192.168.1.1), Nameserver 1 (8.8.8.8), and Nameserver 2 (8.8.4.4). An 'Apply settings' button is at the bottom right.
- NQuire protocol settings**: Includes fields for Mode (set to UDP), UDP port (9000), TCP port (9101), and Remote IP address (192.168.1.190). An 'Apply settings' button is at the bottom right.

**Wifi:** Set the SSID, wireless key, wireless key type and DHCP of the AP the NQuire is going to connect to.

1. Wireless key type: You can choose between three security levels:

None: No encryption key is needed. The NQuire is, via your wireless router, available to all Wifi enabled devices.

WEP: Entry-level encryption with a wireless key to limit network access.

WPA/WPA2: High-end encryption with a wireless key to limit network access.

2. Wireless key: Enter the key which is going to be used to encrypt wireless data communication.

**Ethernet:** Set the Ethernet port parameters.

Use DHCP: If DHCP is used, an IP address will be automatically assigned to the NQuire; if DHCP is not used, the NQuire has a fixed IP address.

**NQuire protocol settings:** Set the connect mode, UDP/TCP port and IP address of the server the NQuire is going to connect to.

1. Set connection mode: server (UDP active), client (UDP active), (pure) UDP, TCP server (no UDP), TCP client (no UDP) and TCP client on scan (for non-continuous Ethernet connections such as ISDN). When in server mode, the NQuire will listen to connections on the configured TCP port; when in client mode, the NQuire will try to make the connection using the configured “remote IP address” and “TCP port”. When there are multiple connections (server mode only), scanned data will be sent to all connected servers and sent to the configured UDP server port.
2. Set UDP/TCP port
3. Set remote IP address

**Note:** 1. The NQuire ignores Wifi when Ethernet is available.

2. When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

## Messages Settings

When you click “Messages” in the menu, the following page opens. You can configure idle/error messages and font size here.

**Idle message**

Text	X Pos	Y Pos	Vert Align	Hor Align	Size
Welcome	0	10	top	center	large
Scan your product	0	50	top	center	small
↓↓↓↓	0	80	top	center	small

Apply settings

**Error message**

Text	X Pos	Y Pos	Vert Align	Hor Align	Size
Please ask	0	30	top	center	small
for assistance	0	60	top	center	small

Apply settings

**Font sizes**

Font size small	18
Font size large	28

Apply settings

---

**Idle message:** You can specify what message (containing three lines of text) to be displayed when nothing is scanned. You can define how long the NQuire wait before displaying the idle message after a scan by setting the idle message timeout, as instructed in the “Miscellaneous Settings” section.

1. X Pos/ Y Pos: Set the x and y positions (x: 0-239; y: 0-127) of pixel.
2. Vert Align/ Hor Align: Set the vertical/ horizontal alignment of text. X positions will be ignored unless horizontal alignment is set to “left”; y positions will be ignored unless vertical alignment is set to “top”.
3. Size: Choose between small font and large font.

**Error message:** You can specify what message (containing two lines of text) to be displayed if the NQuire does not receive a response from the remote server within a preset period of time (i.e. error message timeout) after a scan. See the “Miscellaneous Settings” section to learn how to set the error message timeout.

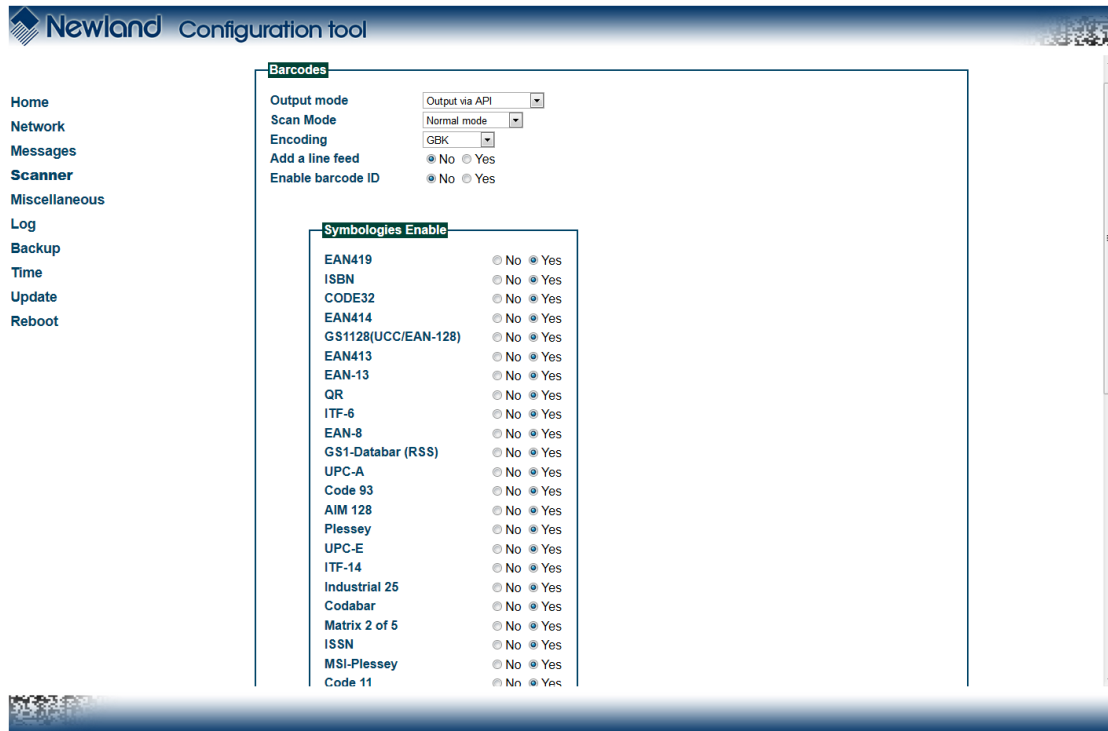
- ✧ X Pos/ Y Pos: Set the x and y positions (x: 0-239; y: 0-127) of pixel.
- ✧ Vert Align/ Hor Align: Align the text to a position. X positions will be ignored unless horizontal alignment is set to “left”; y positions will be ignored unless vertical alignment is set to “top”.
- ✧ Size: Choose between small font and large font.

**Font Size:** Set the size of small/ large font by selecting an option from the corresponding dropdown list.

**Note:** When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

## Scanner Settings

When you click “Scanner” in the menu, the following page opens. You can configure barcode scanner and Mifare scanner parameters here.



### Barcodes

#### 1. Output mode

- ✧ Output via API: Application acquires scanned data by receiving system broadcasts. For the preinstalled CIT app, you should select this output mode.
- ✧ Simulate keystroke: Output scanned data to keyboard buffer to simulate keyboard input.
- ✧ Fill in EditText directly: Output scanned data at the current cursor position in EditText.

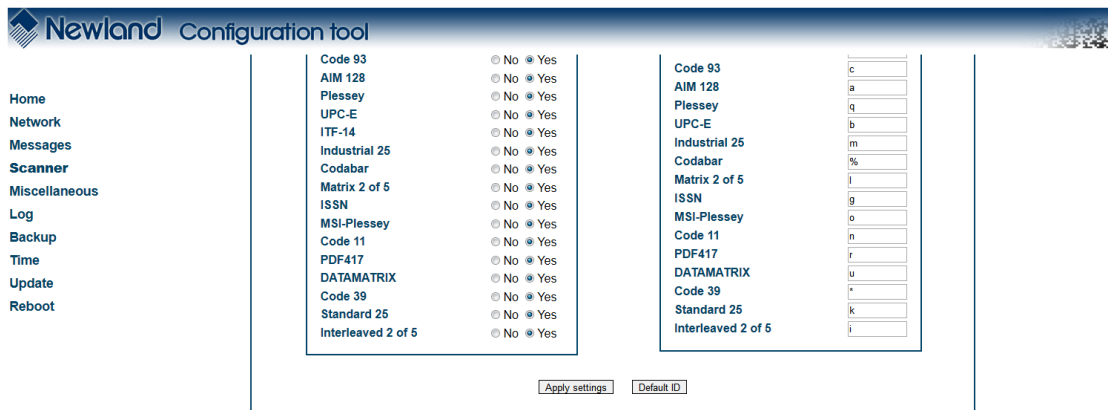
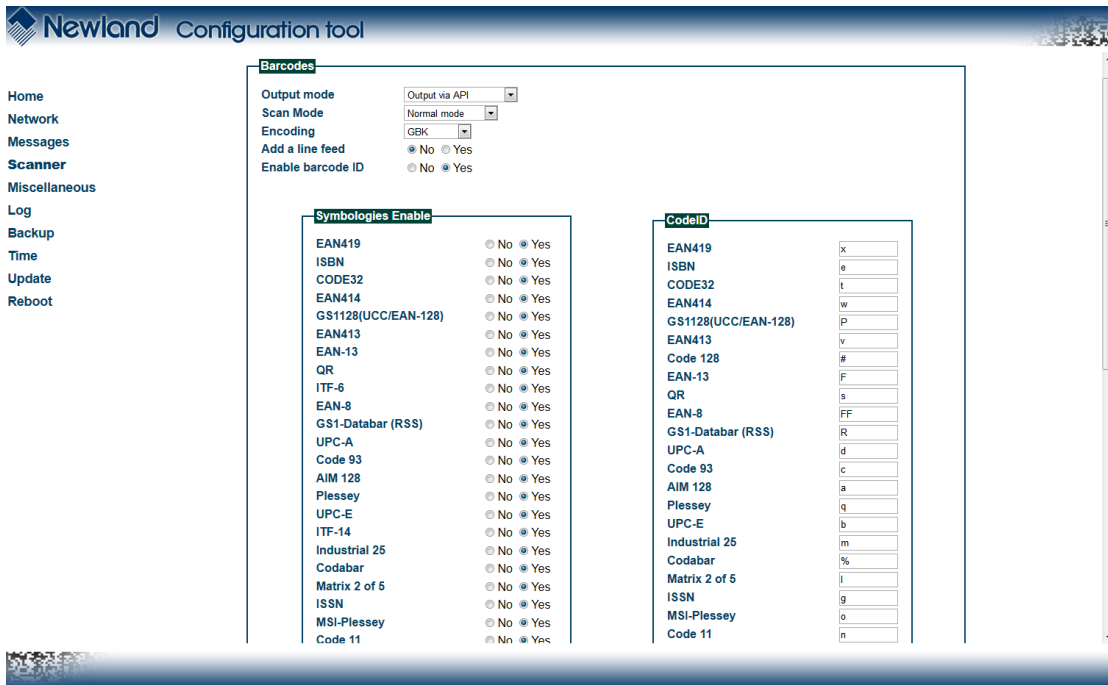
#### 2. Scan Mode

- ✧ Normal mode: Presenting a barcode to the NQuire activates a decode session.
- ✧ Continuous mode: The NQuire automatically starts one decode session after another.

#### 3. Encoding: Choose a character encoding to interpret barcode data.

- ✧ UTF-8: Dominant Unicode encoding.
- ✧ GBK: A character encoding for Chinese characters.
- ✧ ISO-8859-1: A common character encoding which covers Western European languages.

4. Add a line feed: Choose whether to add a line feed after each barcode scanned.
5. Enable barcode ID: Choose whether to add Code ID before each barcode scanned; customize the Code IDs for symbologies. To add Code ID before scanned data, select “Yes” beside the “Enable barcode ID” item and then click “Apply settings”. To set the Code ID of a symbology, select “Yes” beside the “Enable barcode ID” item, enter your desired Code ID in the corresponding text box beside that symbology and then click “Apply settings”. To restore the default Code IDs of all symbologies, select “Yes” beside the “Enable barcode ID” item and then click “Default ID”. See the “Code ID Table” in Appendix for a complete list of default Code IDs.



6. Symbologies Enable: Choose whether to enable the NQire to identify the symbologies.

**Note:** When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

**Mifare scanner:** Besides scanning barcodes, the CIT app that comes preinstalled on the NQuire also allows users to read from and write to Mifare Classic Mini/1K/2K/4K tags/cards. The following provides instructions for setting the Mifare scanner parameters.

**Mifare scanner**

<b>Rfid message prefix</b>	<input type="text" value="MF"/>
<b>Access key A</b>	<input type="text" value="FFFFFFFFFFFF"/>
<b>Sectors to read</b>	<input type="text"/>
<b>Cardnum formatting</b>	hexadecimal ▾
<b>Send card number only</b>	<input checked="" type="radio"/> No <input type="radio"/> Yes
<b>Sector data format</b>	base 64 ▾
<b>Sector data separator</b>	none ▾
<b>Suppress scan beep</b>	<input checked="" type="radio"/> No <input type="radio"/> Yes
<b>Access violation</b>	<input type="text" value="Card access\ndenied"/>
<b>Incomplete scan</b>	<input type="text" value="Wait for beep\nwhen scanning"/>
<b>Write error message</b>	<input type="text" value="Transaction failed!\n\nThis is logged."/>
<input type="button" value="Apply settings"/>	

1. Rfid message prefix: Enter the character(s) (up to 5 characters) you want to add before RFID message.
2. Access key A: Enter the access key A as hexadecimal characters (no key B can be inserted) which has been defined for your Mifare tags/cards.
3. Sector to read: Define which sector(s) and block(s) of the Mifare tag/card should be read in the format of **sector:block,sector:block,...sector:block**. For example, **14:0,14:1,15:0** means to read blocks 0 and 1 in sector 14 and block 0 in sector 15.
4. Cardnum formatting: Specify whether tag/card number is transmitted as a hexadecimal number or a binary number.
5. Send card number only: No sectors will be read, just the tag/card number will be sent to the server.
6. Sector data format: Specify whether sector data is transmitted in binary, base64 or hexadecimal format.
7. Sector data separator: Specify what separator is used to separate the different blocks read.
8. Suppress scan beep: Set whether to turn off the beep when the NQuire reads a tag/card.
9. Access violation/ Incomplete scan/ Write error message: You can change these messages as per your actual needs.

**Note:** When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

## Miscellaneous Settings

When you click “Miscellaneous” in the menu, the following page opens. You can configure scanner parameters here.

**Newland Configuration tool**

- Home
- Network
- Messages
- Scanner
- Miscellaneous**
- Log
- Backup
- Time
- Update
- Reboot

**Device**

Device name:

**Authentication**

Enable authentication:  No  Yes  
Username:   
Password:   
Confirm Password:

**Programming barcode security**

Programming mode timeout:    
Enable security code:  No  Yes  
Barcode programming security code:

**Text and messages**

Idle message timeout:   
Error message timeout:   
Font codepage:    
Scan event separator:    
Message encryption:    
Use Custom NQuire identifier:  No  Yes  
Custom NQuire identifier:   
Currency symbol:

**Interaction**

Disable beep after scan:  No  Yes  
Enable launch CIT on boot:  No  Yes  
Enable persistent immersive:  No  Yes  
Display brightness:    
Scanner sensitivity:

**GPIO**

Server message prefix:   
Append event counter:  No  Yes  
Method:    
Poll speed (seconds):

**Touch screen**

Touch message prefix:   
Touch keyboard timeout[seconds]:



---

**Device name:** Type a random name used for your own administration.

**Authentication:** You can set a username and password to allow only authorized personnel to log in to the NQuire configuration tool.

**Programming barcode security**

1. Programming mode timeout: The period of time allowed to elapse before the NQuire returns to idle state when no programming barcode is scanned in seconds. When the timeout expires, the NQuire automatically exits the setup mode.
2. Barcode programming security code: You can set a security code to allow only authorized personnel to program the NQuire with barcodes. After a security code is set and enabled, you need to follow the procedure below for barcode programming: Scan the Enter Setup barcode, then the security code then the other programming barcodes.

**Text and messages**

1. Idle message timeout: The period of time before the idle message is displayed after a scan in seconds.
2. Error message timeout: The period of time the NQuire waits for a response from the remote server in seconds. When the timeout expires, the error message will be displayed for 5 seconds.
3. Font codepage: Choose either UTF-8 (a multi-byte codepage, universal fontset which supports most used language fonts) or one of the following single-byte codepages.

Codepage	Description
851	DOS Greek
852	“Multilingual” West European Latin-1
866	Cyrillic DOS codepage
874	Thai
1250	Central and East European Latin
1251	Cyrillic
1252	West European Latin-2
1253	Greek
1254	Turkish
1257	Baltic

4. Scan event separator: Scan event separator is added after each barcode scanned. You can set the separator to LF, CR or CRLF.
5. Message encryption: Choose “none” or “base64” as per your application needs.
6. Use custom NQuire identifier: NQuire identifier can be used to distinguish data acquired by one NQuire unit from another. You can choose whether to send the user-defined NQuire identifier or not after a scan. The default NQuire identifier is  $\{\text{serial}\}$  which means the NQuire’s serial number.
7. Currency symbol: When a single-byte codepage is selected, received ASCII value 0x80 is displayed as the currency symbol chosen here.

---

## Interaction

1. Disable beep after scan: Enable or disable the emission of good read beep.
2. Enable launch CIT on boot: Choose whether to start built-in CIT app on boot or not.
3. Enable persistent immersive: If you disable the persistent immersive mode by selecting “No”, the status bar and navigation bar will appear with an inward swipe from the top or right edge of the screen when the CIT app is in the immersive mode.
4. Display brightness: Choose an appropriate screen brightness level as per the user environment.
5. Scanner sensitivity: There are three options for setting the IR sensitivity. Choose an appropriate sensitivity level that fits the user environment.

## GPIO

1. Server message prefix: Set the prefix that will be added before GPIO input data.
2. Append event counter: Choose to append the count of signal level changes or not as per your actual needs.
3. Method: Choose one of the following three methods to read data from GPIO port:
  - On read GPIO**—Read data using a read command
  - On change**—Read data when signal level changes
  - Poll**—Read data by polling the port
4. Poll speed(seconds): Set the polling interval.

## Touch screen

1. Server message prefix: You can define a prefix so that the database identifies the touch “key” similar to identifying a barcode.
2. Touch keyboard timeout(seconds): The time during which the keyboard/button is shown on the screen before the NQuire returns to idle state.

**Note:** When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

## Log Settings

When you click “Log” in the menu, the following page opens. You can configure and manage log level settings here.

**Newland Configuration tool**

- Home
- Network
- Messages
- Scanner
- Miscellaneous
- Log
- Backup
- Time
- Update
- Reboot

### System log

```
----- beginning of /dev/log/system
----- beginning of /dev/log/main
03-21 06:00:02.417 D/NquireLog(697): nquiremainervice> MainService.onCreate
03-21 06:00:02.592 D/NquireLog(697): nquiremainervice> SetupSocketThread.run
03-21 06:00:02.595 D/NquireLog(697): nquiremainervice> MainService.onStartCommand
03-21 06:00:02.634 D/NquireLog(697): nquiremainervice> nquiresyssettingsservice connected
03-21 06:00:02.883 D/NquireLog(697): nquiremainervice> nquire350main connected
03-21 06:00:02.894 D/NquireLog(697): nquiremainervice> nquireupdateservice connected
03-21 06:00:02.916 D/NquireLog(993): nquire350main> DisplayActivity.onCreate
03-21 06:00:02.944 D/NquireLog(1008): nquireupdateservice> no update package in extsd.
03-21 06:00:02.944 D/NquireLog(1008): nquireupdateservice> no update package in extsd.
03-21 06:00:02.944 D/NquireLog(1008): nquireupdateservice> Can not get update package in usdisk
03-21 06:00:02.986 D/NquireLog(993): nquire350main> DisplayActivity.onStart
03-21 06:00:02.989 D/NquireLog(993): nquire350main> NqMainSvcCommThread thread start
03-21 06:00:03.026 D/NquireLog(993): nquire350main> nquiresyssettingsservice connected
03-21 06:00:03.112 D/NquireLog(993): nquire350main>
citServiceConnection.onServiceConnected
03-21 06:00:03.164 D/NquireLog(993): nquire350main> restart remote connection. nquire protocol
mode:UDP
03-21 06:00:03.170 D/NquireLog(993): nquire350main> UdpClientThread thread start
03-21 06:00:03.214 D/NquireLog(993): nquire350main> UdpClientThread connect to remote udp
server. remote ip:/192.168.1.190 remote udp port:9000 local ip:/192.168.28.242 local udp port:9000
03-21 06:00:06.152 D/NquireLog(993): nquire350main> restart remote connection. nquire protocol
mode:UDP
03-21 06:00:06.161 D/NquireLog(993): nquire350main> UdpClientThread thread start
03-21 06:00:06.162 D/NquireLog(993): nquire350main> UdpClientThread connect to remote udp
server. remote ip:/192.168.1.190 remote udp port:9000 local ip:/192.168.28.242 local udp port:9000
```

### Log settings

Logging level

**Note:** When you finish making changes to the parameters, do not forget to click “Apply settings” to save the changes.

---

## Backup

When you click “Backup” in the menu, the following page opens. You can import/export configuration data here.

The screenshot shows the 'Newland Configuration tool' interface. On the left is a vertical menu with the following items: Home, Network, Messages, Scanner, Miscellaneous, Log, Backup, Time, Update, and Reboot. The 'Backup' menu item is highlighted. The main content area contains two sections:

- Backup:** A box with the text 'Click the button below to backup settings:' and a single 'Backup' button.
- Restore:** A box with the text 'Click the button below to Restore settings:'. Below this text is a text input field, a 'Browse...' button, and a 'Restore' button.

**Backup:** Export all settings from the configuration tool into a json file.

**Restore:** Import a configuration file into the NQuire.

---

## Time

When you click “Time” in the menu, the following page opens. You can set date and time here.

The screenshot shows the 'Newland Configuration tool' interface. On the left is a vertical menu with the following items: Home, Network, Messages, Scanner, Miscellaneous, Log, Backup, Time, Update, and Reboot. The 'Time' menu item is highlighted. The main content area contains two panels. The top panel, titled 'Time', has a sub-header 'Automatic date & time' with radio buttons for 'No' (selected) and 'Yes'. Below this are dropdown menus for Year (2017), Month (3), Day (21), Hour (14), and Minute (24). An 'Apply settings' button is at the bottom right. The bottom panel, titled 'Timezone', has a sub-header 'Automatic time zone' with radio buttons for 'No' (selected) and 'Yes'. Below this is a dropdown menu for Timezone (GMT (GMT+0:00)) and an 'Apply settings' button at the bottom right.

### Time

Automatic date & time: Choose whether to automatically adjust the date and time of the NQuire or not. Make sure the NQuire is properly connected to the Internet before using this feature.

### Timezone

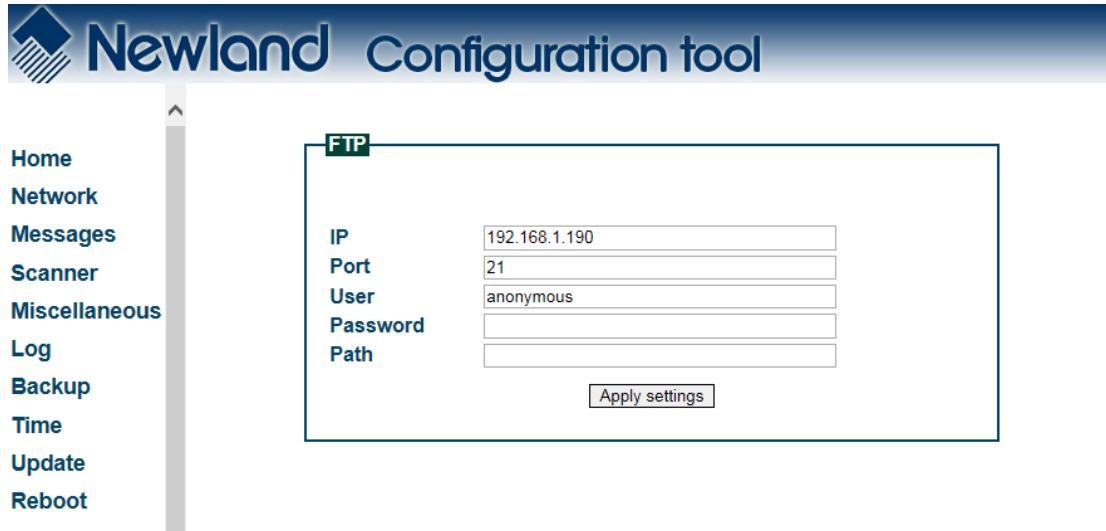
Automatic time zone: Choose whether to automatically adjust the time zone of the NQuire or not. Make sure the NQuire is equipped with a cellular module and a SIM card from your local carrier before using this feature.

**Note:** When you finish making changes to the parameters in a box, do not forget to click “Apply settings” to save the changes.

---

## Update

When you click “Update” in the menu, the following page opens. When you want to update system via FTP, you can set the FTP server here.



The screenshot displays the 'Newland Configuration tool' interface. On the left is a vertical navigation menu with the following items: Home, Network, Messages, Scanner, Miscellaneous, Log, Backup, Time, Update, and Reboot. The 'Update' option is highlighted. The main content area is titled 'FTP' and contains the following form fields:

IP	<input type="text" value="192.168.1.190"/>
Port	<input type="text" value="21"/>
User	<input type="text" value="anonymous"/>
Password	<input type="text"/>
Path	<input type="text"/>

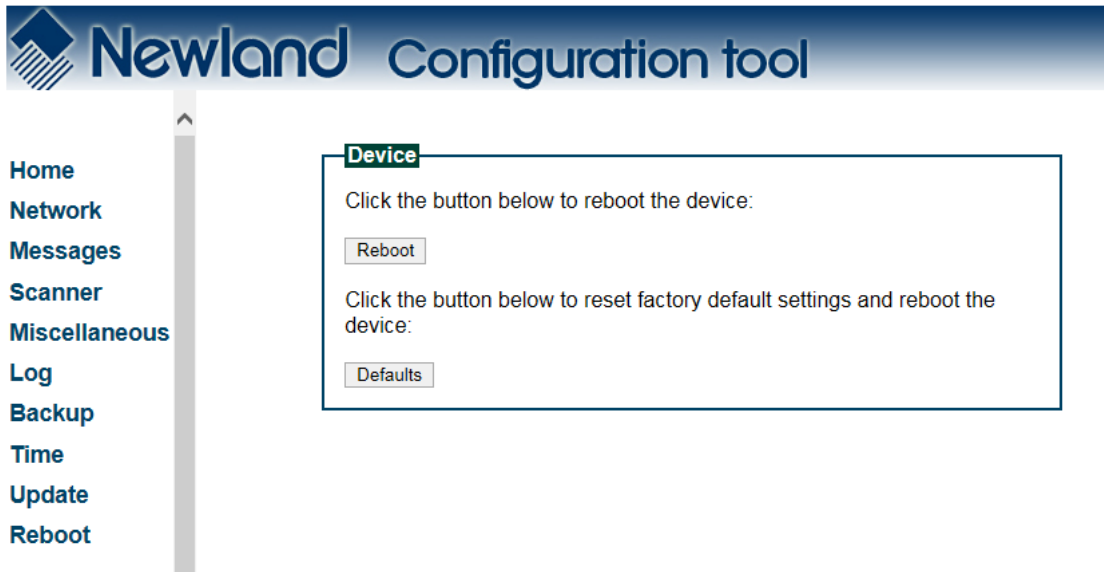
Below the form fields is an 'Apply settings' button.

**Note:** When you finish making changes to the parameters, do not forget to click “Apply settings” to save the changes.

---

## Reboot

When you click “Reboot” in the menu, the following page opens. You can reboot the NQuire and reset it to factory settings here.



Resetting the NQuire to factory settings will delete all data in user space, including user-defined settings and user-installed apps.

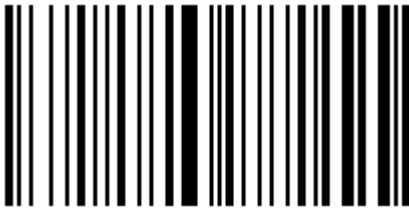
---

## Configuring the NQuire with Programming Barcodes

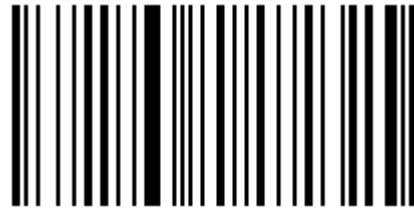
The NQuire can be configured by scanning programming barcodes which are created in the format of Code 128.

### Enter/Exit the Setup Mode

Scanning the **Enter Setup** barcode can enable the NQuire to enter the setup mode. Then you can scan a number of programming barcodes to configure the NQuire. To exit the setup mode, scan the **Exit Setup** barcode.



Enter Setup

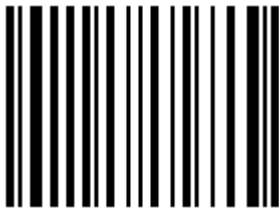


Exit Setup

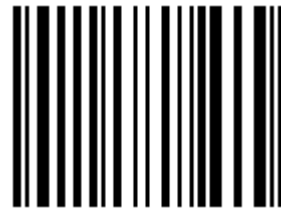
### Enable/Disable DHCP

If DHCP is disabled, the NQuire will have a fixed IP address and it will use the most recently configured IP address. The default IP address is 192.168.1.200

If DHCP is enabled, the NQuire will function in DHCP mode and it is not necessary to put your own network environment in the default range 192.168.1.xxx



Enable DHCP

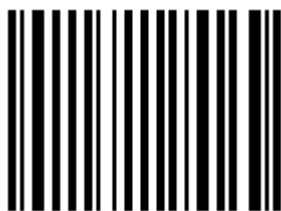


Disable DHCP

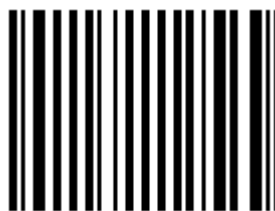


---

## Screen Brightness



Level 1 (Low)



Level 2 (Medium)



Level 3 (High)

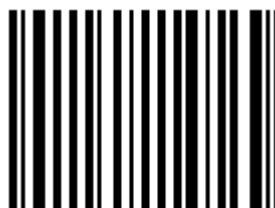


Level 4 (Extra High)

## Scanner Sensitivity



Normal



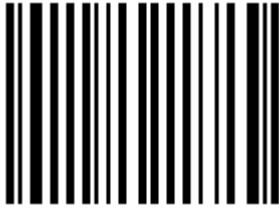
High



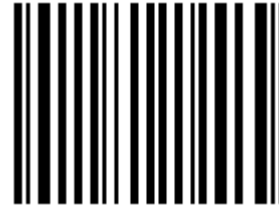
Max

---

## Beeper

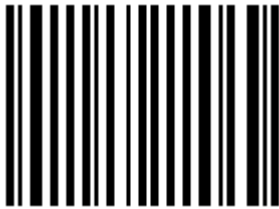


Beeper OFF

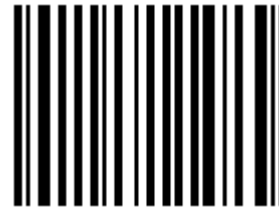


Beeper ON

## Reboot

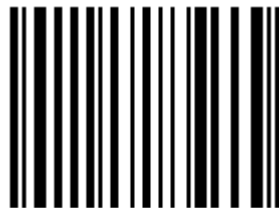


Reboot



Restore Factory Settings & Reboot

## Return to Desktop



Return to Desktop

---

## Query Configuration

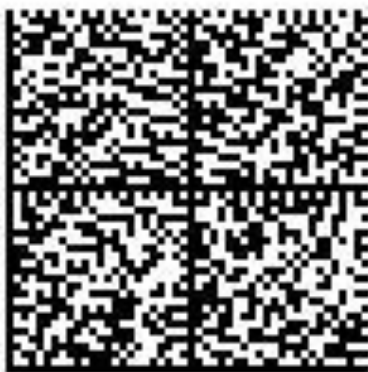


Query Configuration

## Customizing Configuration Barcodes

To streamline the programming process, you may as well create 2D Data Matrix barcodes using existing JSON configuration files or those (cit.json) exported from the web-based NQuire configuration tool. Refer to the “Backup” section in this chapter to learn how to export configuration files from the tool. Note that the data of a customized configuration barcode should be a valid JSON object. It is recommended that you export configuration file using the NQuire configuration tool and then edit it as per your needs.

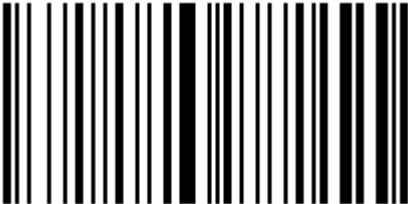
The following is an example of a user-defined configuration barcode.



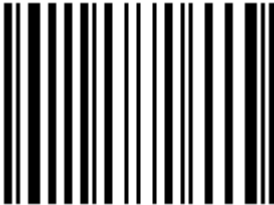
```
{"Network Ethernet": {  
  "Gateway": "192.168.28.254",  
  "Netmask": "255.255.255.0",  
  "Nameserver1": "8.8.8.8",  
  "Nameserver2": "8.8.4.4",  
  "Use DHCP": "No",  
  "IP address": "192.168.28.246"  
}}
```

---

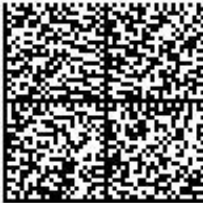
To put a user-defined configuration barcode into use, scan the following barcodes. (Use the example above.)



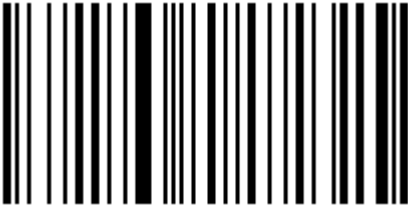
**Enter Setup**



**Enable User-Defined Configuration Barcode**



**Batch Barcode**



**Exit Setup**

## Chapter 4 Using the NQuire

### Introduction

The NQuire receives its input via:

- ✧ 1D barcode scan engine (NQuire301) or
- ✧ 2D barcode scan engine (NQuire302/ NQuire 304) or
- ✧ RFID reader.

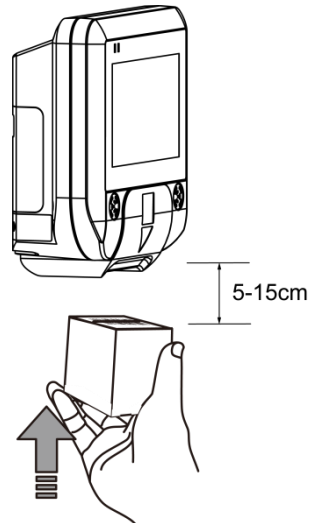
To scan a barcode or read an RFID tag with the NQuire, follow the instructions below. You may scan a barcode in the “Sample Barcodes” section in Appendix to check if the NQuire reads barcode properly.

### Scanning Barcodes with NQuire301

NQuire301 is only able to read 1D barcodes. It emits a red strip-shaped aiming beam to help the user to easily position the target barcode within the terminal’s field of view to increase scan efficiency.



**Optimal Scan Angle**



**Optimal Scan Distance**

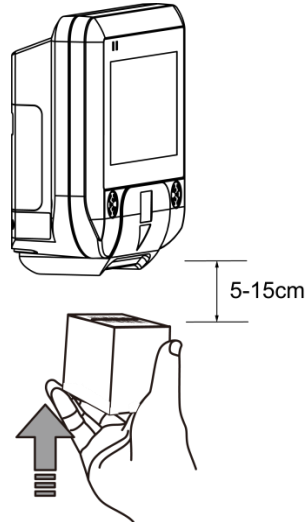
---

## Scanning Barcodes with NQuire302/304

NQuire302/304 is able to read 1D and 2D barcodes. It emits a red crosshair aiming pattern to help the user to easily position the target barcode within the terminal's field of view to increase scan efficiency.



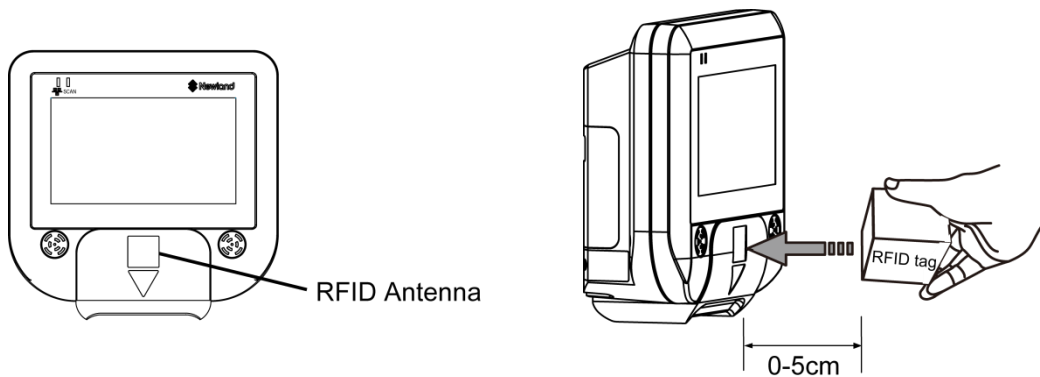
Omnidirectional Scanning (360°)



Optimal Scan Distance

## Reading RFID Tags

NQuire 301/302/304 is equipped with an RFID reader, which is widely used for access control applications. To read an RFID tag or card, place it 0-5cm in front of the RFID antenna.

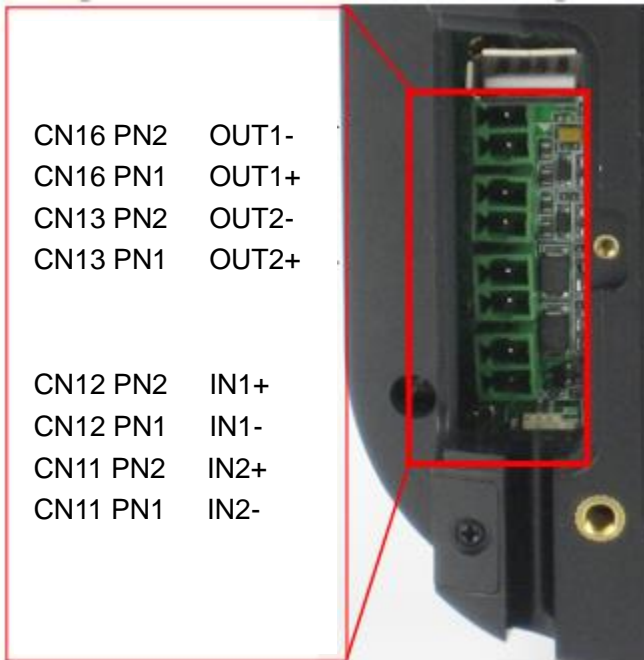


---

## GPIO Device

The NQuire supports interfacing with a GPIO device such as an entry/exit gate, door lock or LED lamp by connecting the signal wires to the GPIO ports.

The pin definitions of the GPIO ports are as follows:



### Command to set GPO output

```
\x1b\x7e<param1><param2>
```

Parameter definition:

Param1:\x30 = OUT1

\x31 = OUT2

Param2:\x30 = low

\x31 = high

E.g. setting OUT2 to low:

```
\x1b\x7e\x31\x30
```

### Command to get GPI input

```
\x1b\x7f<param>
```

Param can be 1 of:

\x30 = IN1

\x31 = IN2

E.g. requesting the state of IN1:

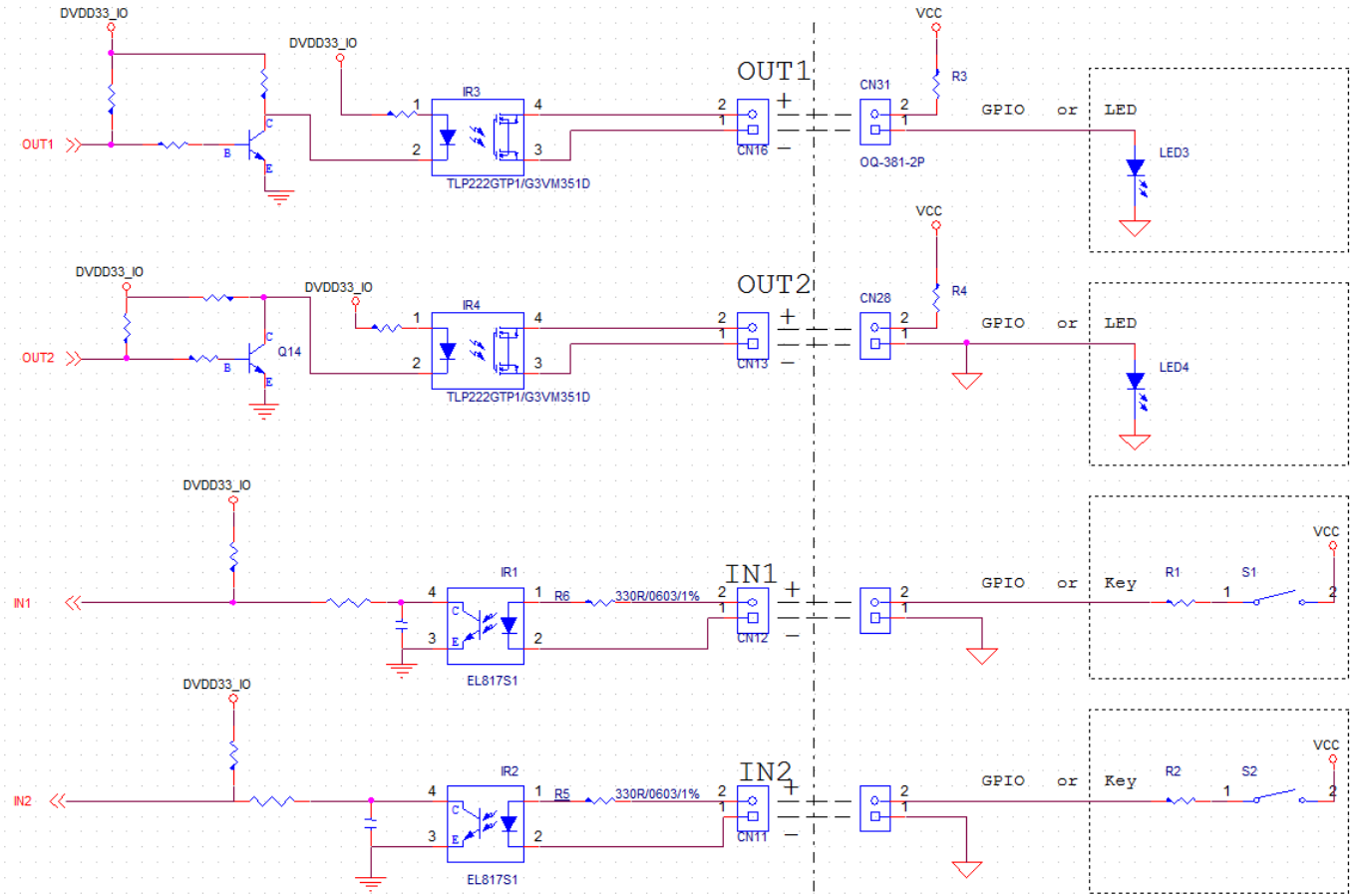
```
\x1b\x7f\x30
```

This send the value back using the following format:

```
<prefix><pin><value>
```

E.g. with the default prefix for IN1, value high:I01

Please find below an example of how a GPO integration could look like:



**Output:**

	Out High	Output Low
OUT1/OUT2	High	Open
LED	ON	OFF
GPIO	High	Low

**Input:**

	Input High	Input Low
S1/S2	Close	Open
GPIO	High	0V
IN1/IN2	Low	High



---

**R1/R2:**

Voltage	3.3V	5V	9V	>9V
R1/R2	0Ω	0Ω	0Ω	(50*VCC-390)Ω

## Chapter 5 ESC Commands

### Introduction

The NQuire supports ESC commands that perform device controls such as controlling cursor, clearing screen and aligning text.

### Text Display

The NQuire uses proportional fonts (every single character has its own specific width) for displaying text. For example, the letter “i” takes up much less horizontal space than the letter “m”. As a result, you hardly know precisely how many characters fit on one line. If a text is too long to fit on one line, some characters will not be shown on the screen. Averagely speaking, up to 20 characters can be display on a single line.

**Note:** Every received ASCII value (between 20 and 255), which is not part of a command, is normally displayed on the screen.

The following commands control the position and control of text:

- ✧ Carriage Return (for going to the start position of the next line): ESC 0x0D
- ✧ Line Feed (for going to the start position of the next line): ESC 0x0A
- ✧ Set cursor (for predefined cursor positions): ESC 0x27
- ✧ Set pixel position (for placing the cursor on any pixel location): ESC 0x2C
- ✧ Align text (for aligning text to a position such as center of the screen, right of the screen) : ESC 0x2E

## NQuire Command Set

ESC	HEX	DEC	CHAR	DESCRIPTION	PARAMETER	
ESC	24 or 25	36 or 37	\$ or %	Clear the screen and move the cursor to the top-left corner of the screen.		
ESC	27	39	'	Set the cursor position <sup>1</sup>	<POS> 0x30-0x3F	<LINE> 0x30-0x34
ESC	2C	44	,	Set the current pixel position <sup>2</sup>	<POS> 0x30-0xAF	<LINE> 0x30-0X6F
ESC	2E	46	.	Align a string of text <sup>3</sup>	<ALIGN>0x30-0x3E	<DATA>"..."[0x03]
ESC	42	66	B	Select a font set Small font: 0x30 Large font: 0x31	<FONTSET>0x30-0x31	
ESC	5A	90	Z	Reboot the NQuire		
ESC	5B	91	[	Enable/disable barcode scanning	<MODE> Disable: 0x30 Enable: 0x31	
ESC	5E	94	^	Generate the default beep		

<sup>1</sup> The actual pixel position depends on the currently selected font set:

- ✧ Every x-position is a multiple of 8 pixels.
- ✧ Every y-position depends on the currently selected font set (height of 24 or 32 pixels)
- ✧ <POS>: 0-15 (0x30 - 0x3F)
- ✧ <LINE>: 0-4 (0x30 - 0x34)

<sup>2</sup> This allows a text to be displayed anywhere on the screen. Note that a character will be partly displayed when it does not fully fit on the screen.

- ✧ <POS>: 0-127 (0x30 - 0xAF)
- ✧ <LINE>: 0-63 (0x30 - 0x6F)

<sup>3</sup> Display a text, using the currently selected font set, on a calculated position on the screen.

<ALIGN>	DESCRIPTION
0x30	Left top
0x31	Center top
0x32	Right top
0x33	Left center
0x34	Center
0x35	Right center
0x36	Left bottom
0x37	Center bottom
0x38	Right bottom

<ALIGN>	DESCRIPTION
0x39	Left, using current y-coordinate
0x3A	Center, using current y-coordinate
0x3B	Right, using current y-coordinate
0x3C	Top, using current x-coordinate
0x3D	Center, using current x-coordinate
0x3E	Bottom, using current x-coordinate

<DATA> field has a maximum length of 25 characters. Use 0x03 (ETX) as the last character, if less characters are used.

## Examples

### Example 1

COMMAND	DESCRIPTION
<ESC> 0x42 0x30	Small font
<ESC> 0x25	Clear the screen, move cursor to top left corner
"Cheese"	Text to be displayed
0x0d	Carriage Return
"500 gr."	Text to be displayed
<ESC> 0x42 0x31	Large font
<ESC> 0x2E 0x38 "€ 5.69" 0x03	Align text to right bottom



### Example 2

COMMAND	DESCRIPTION
<ESC> 0x42 0x31	Large font
<ESC> 0x24	Clear the screen, move cursor to top left corner
<ESC> 0x2E 0x31 "Special offer!" 0x03	Align text to center top
<ESC> 0x42 0x30	Small font
<ESC> 0x2E 0x34 "6-pack water 0.5L" 0x03	Align text to center
<ESC> 0x42 0x31	Large font
<ESC> 0x2E 0x37 "€ 0.99" 0x03	Align text to center bottom



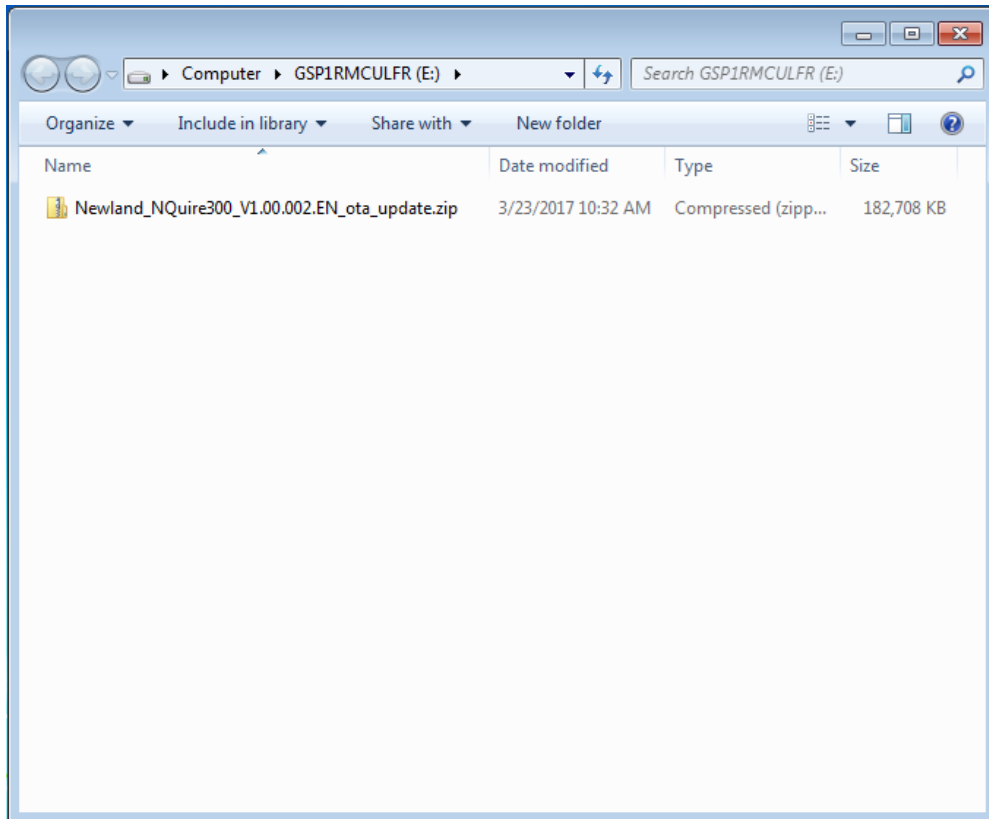
## Chapter 6 System Update

### Introduction

The NQuire system can be updated using a USB flash drive or via FTP.

### Updating System with a USB Flash Drive

1. Download the NQuire OTA update zip file from the Newland website at [www.newlandaidc.com](http://www.newlandaidc.com) and save it under the root directory of a USB flash drive (FAT32 format). Do not change the file name.

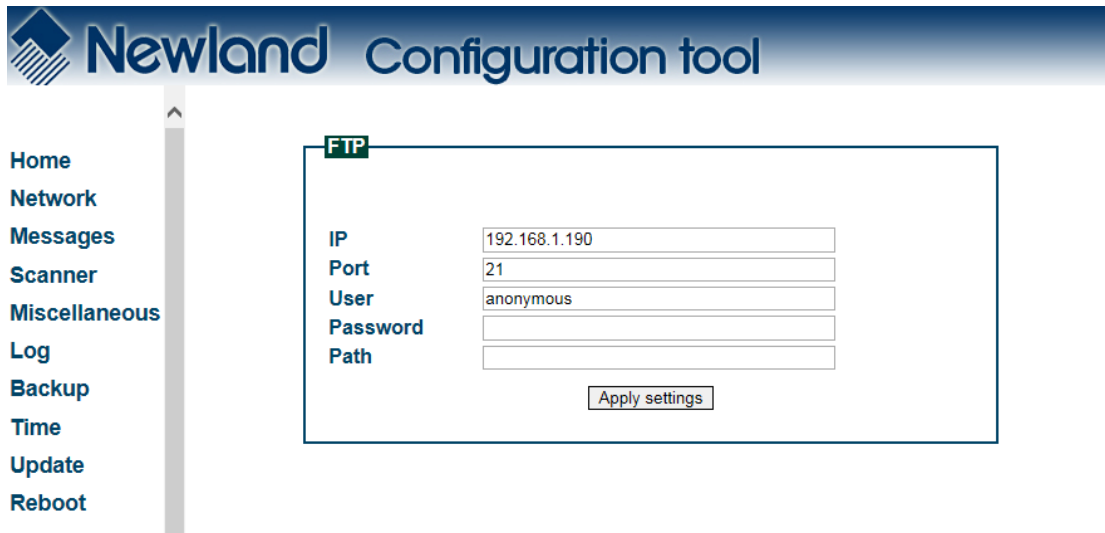


2. De-energize the NQuire, plug the USB flash drive into the USB Host or USB Host/Slave port on the back of the NQuire and re-energize the NQuire. Then the NQuire will automatically begin the update process.
3. Wait for the update process to complete and for the NQuire to automatically reboot.

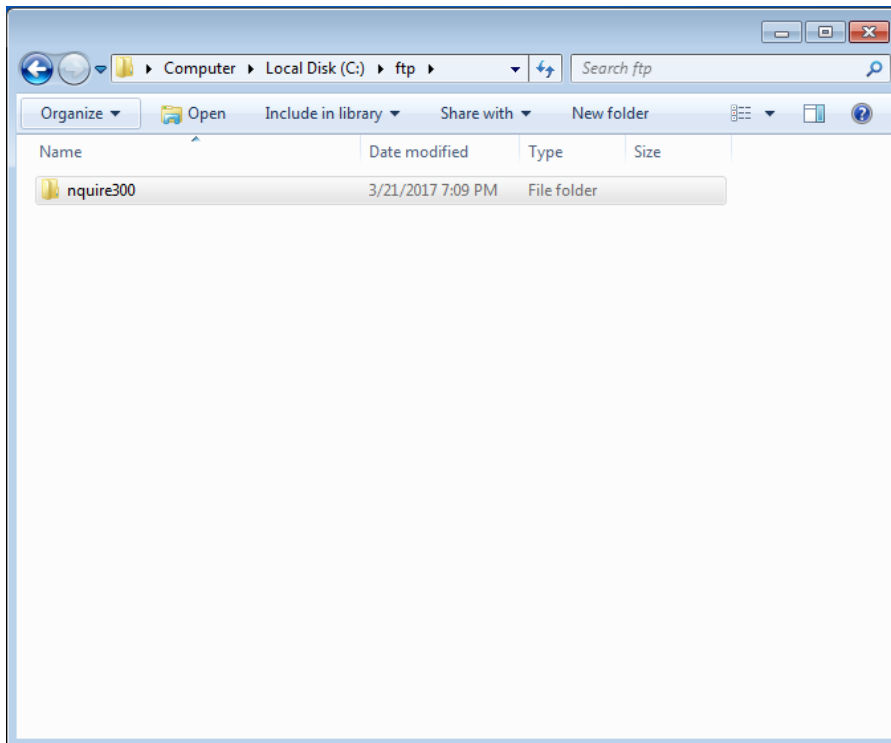
---

## Updating System via FTP

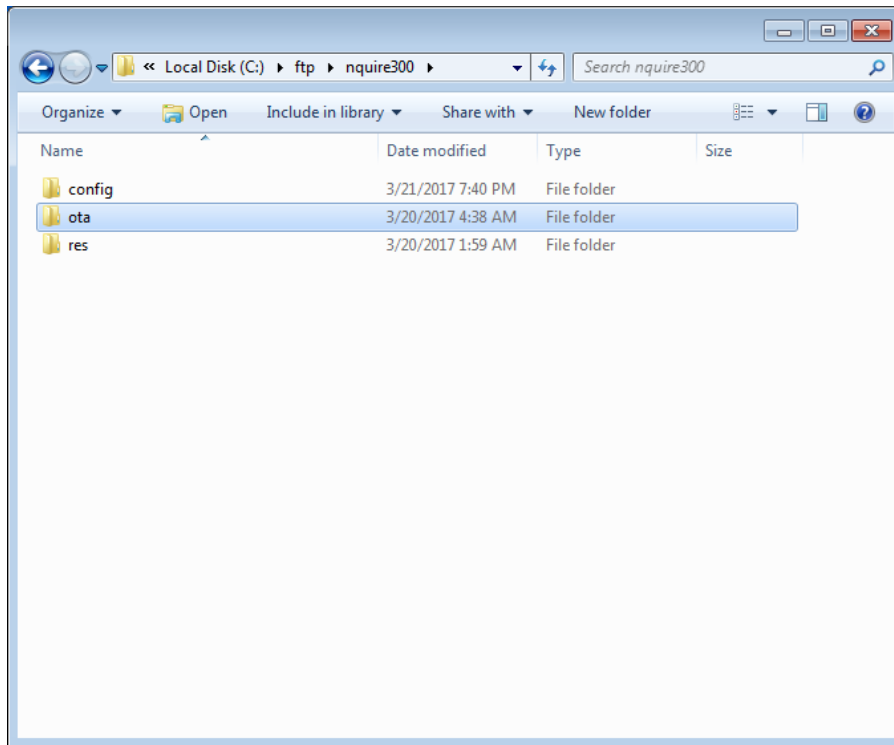
1. Ensure that the NQuire and the FTP server are on the same LAN, that network settings are properly configured for the NQuire and that you can connect to the FTP server. Open a web browser and access the NQuire Configuration Tool homepage. Click “Update” and then configure the FTP server and click “Apply settings” to save the settings. For more information, see the “Update” section in Chapter 3.



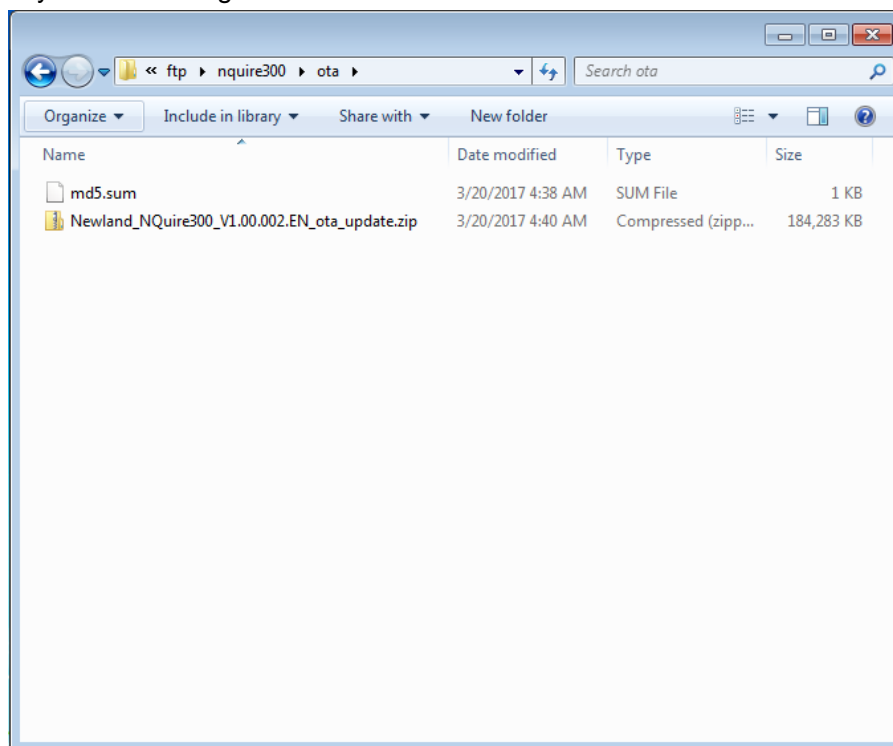
2. Create a directory called “nquire300” under the FTP server’s root directory.



3. Create three directories named "ota", "config" and "res" in the nquire300 directory.

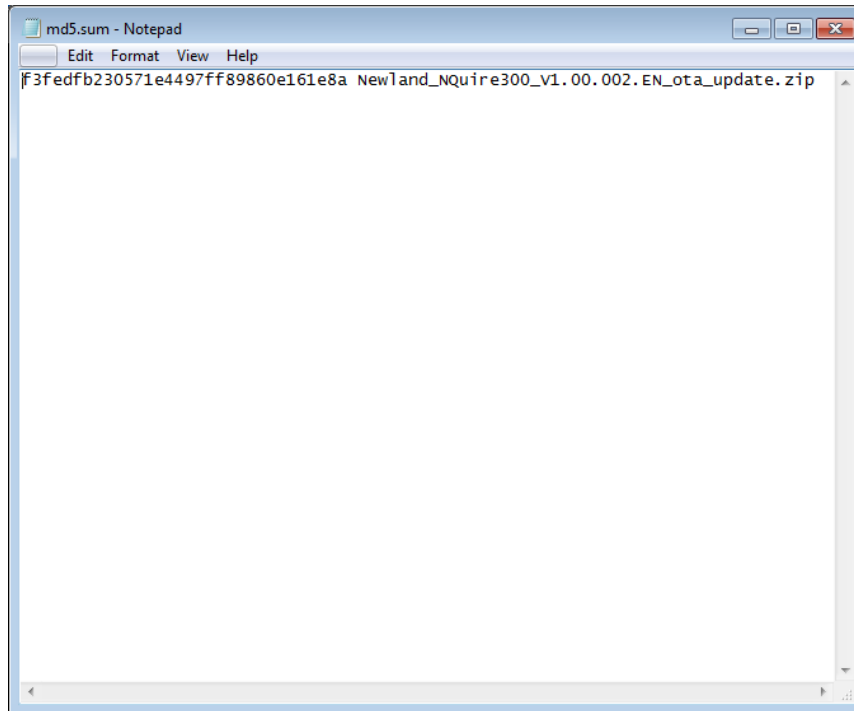


4. Download the NQire OTA update zip file from the Newland website at [www.newlandaidc.com](http://www.newlandaidc.com) and save it in the ota directory. Do not change the file name.

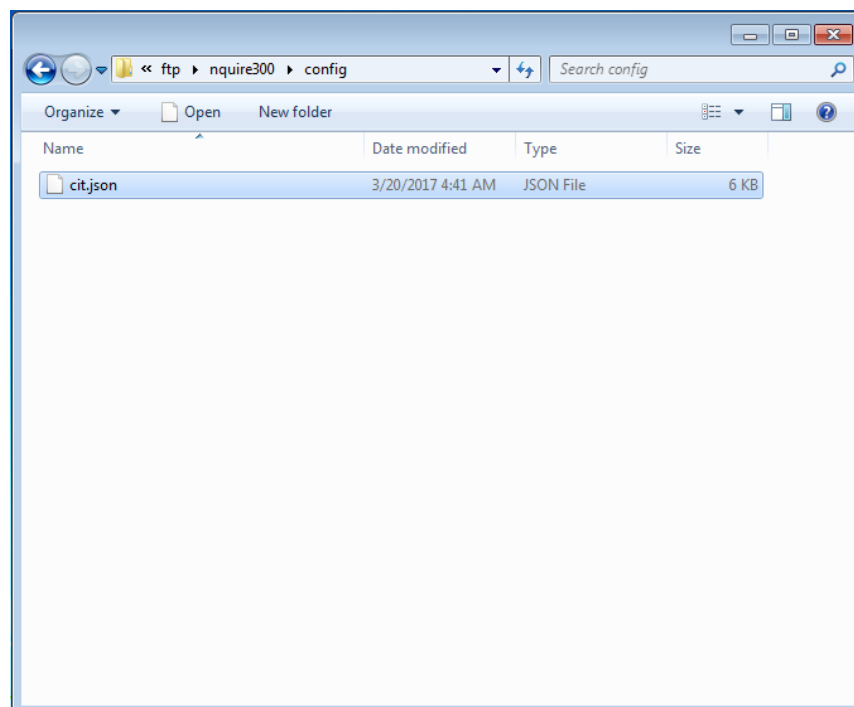


---

5. Create a text file named md5.sum inside the ota directory. This text file will contain the md5 value of the NQuire OTA update zip file and the filename of the zip file separated by a space character, as shown below.



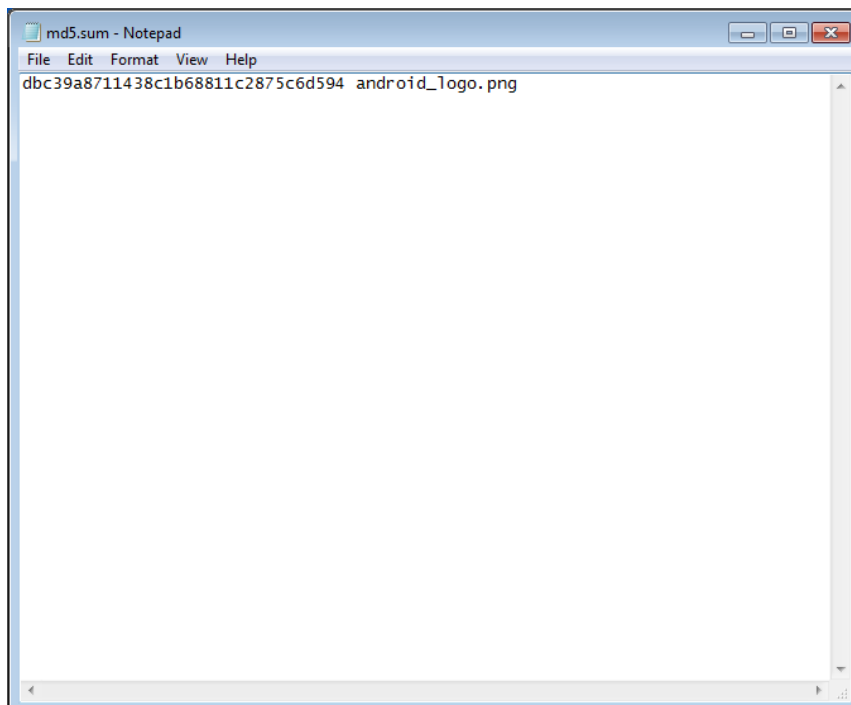
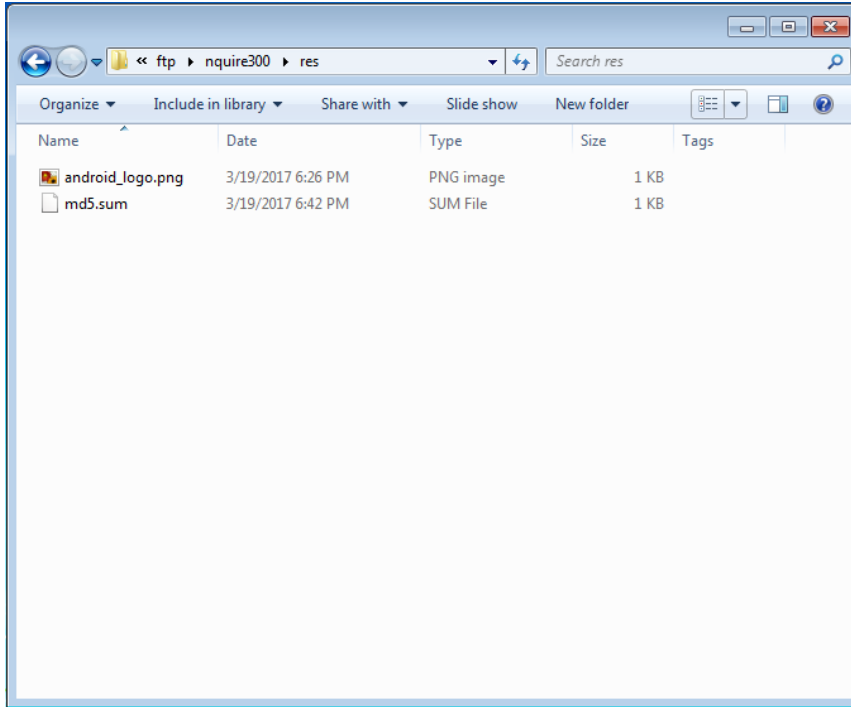
6. If you want to import a configuration file into the NQuire, place the configuration file in the config directory.





---

7. If you want to upload resource files such as pictures and video clips to the NQuire, place the files and a text file named md5.sum in the res directory. This text file will contain the md5 value and filename of each resource file separated by a space character. Note that any existing resource files on the NQuire that are not listed in the md5.sumtext file will be deleted after the NQuire downloads resource files from the FTP server and that resource files to be downloaded should not exceed available user storage space on the NQuire (2G bytes in total).



---

8. Enable FTP service and reboot the NQuire. Then the NQuire will attempt to connect to the FTP server and perform the following steps:

i. If the NQuire detects that there is a later version available on the FTP server, it will automatically reboot and begin the update process.

ii. The NQuire will automatically download the resource files in the res directory that are currently unavailable on NQuire to /mnt/sdcard/nquire300/res. Your application program may access these files via the path or using Environment.getExternalStorageDirectory()+"/nquire300/res", and use them with remote commands, such as display picture command.

iii. The NQuire will automatically download the configuration file from the FTP server if there is one. Note that a reboot is not needed for the new configuration to become effective.

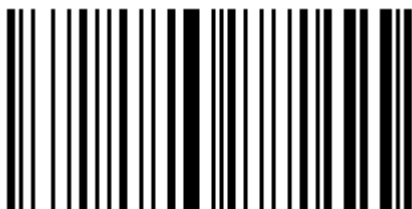
## Chapter 7 ADB Debug

### Introduction

ADB (Android Debug Bridge) tool can be used to debug apps developed for the NQuire. The following section describes how to use the ADB.

### Using the ADB

1. Turn on the NQuire. If it displays other screen other than the desktop, scan the **Enter Setup** barcode then **Return to Desktop** barcode to return to the desktop.



Enter Setup

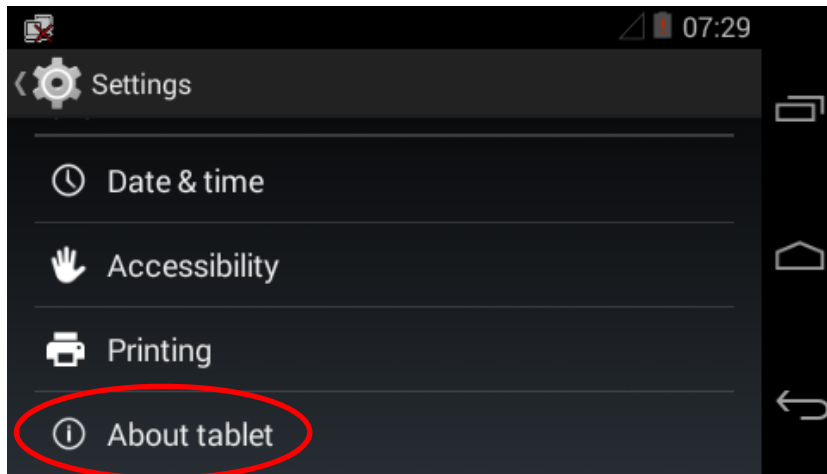


Return to Desktop

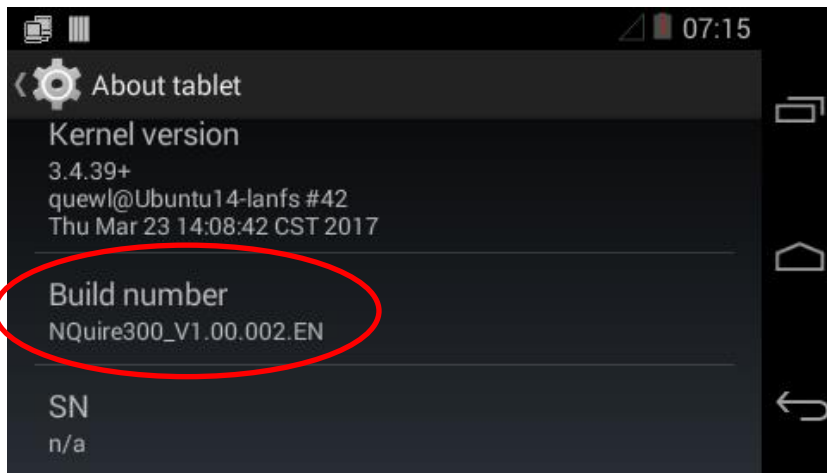
2. Tap “Settings” on the desktop.




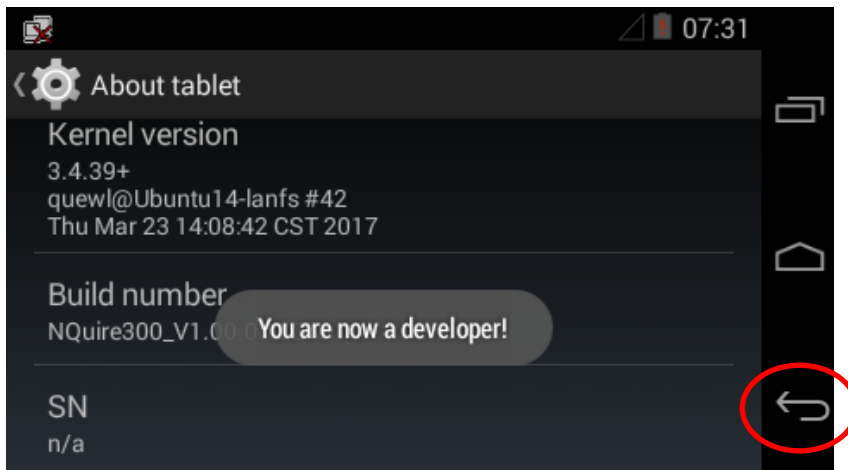
3. Tap "About tablet".



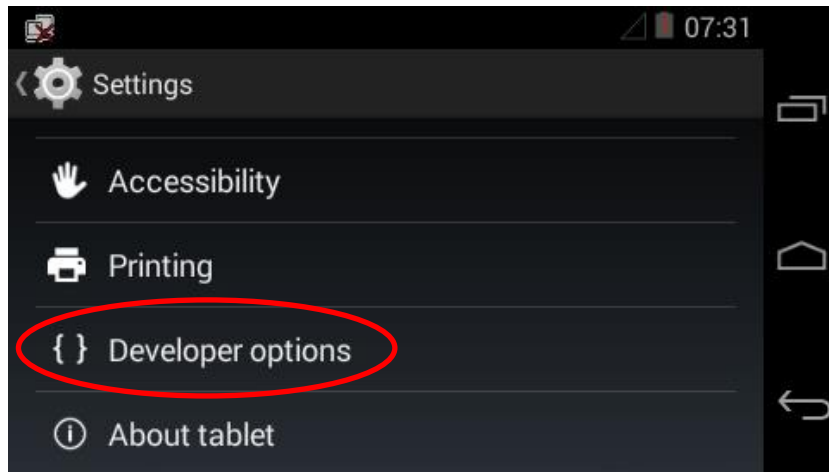
4. Tap "Build number" 7 times to become a developer.



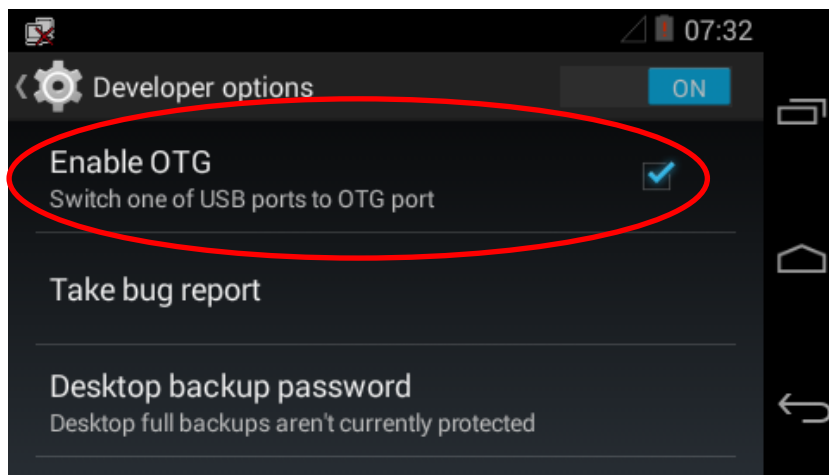
5. Tap  to return to the previous screen.



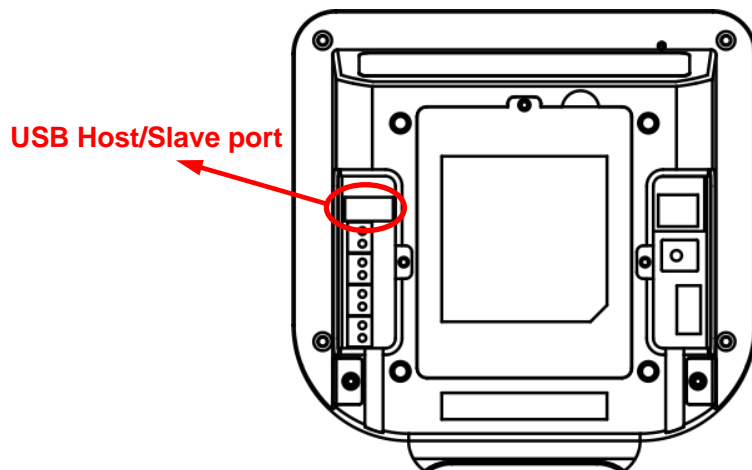
6. Tap “Developer options”.



7. Select “Enable OTG”.

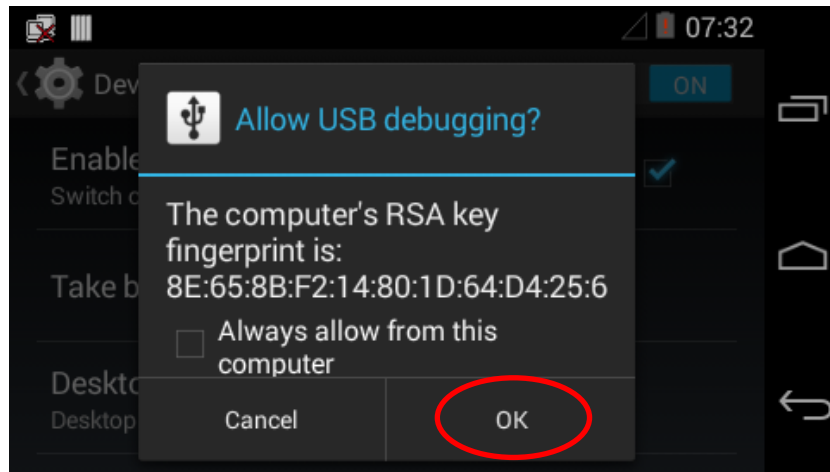


8. Connect the USB Host/Slave port on the NQire to PC with a USB cable (purchase separately).



---

9. Tap "OK".



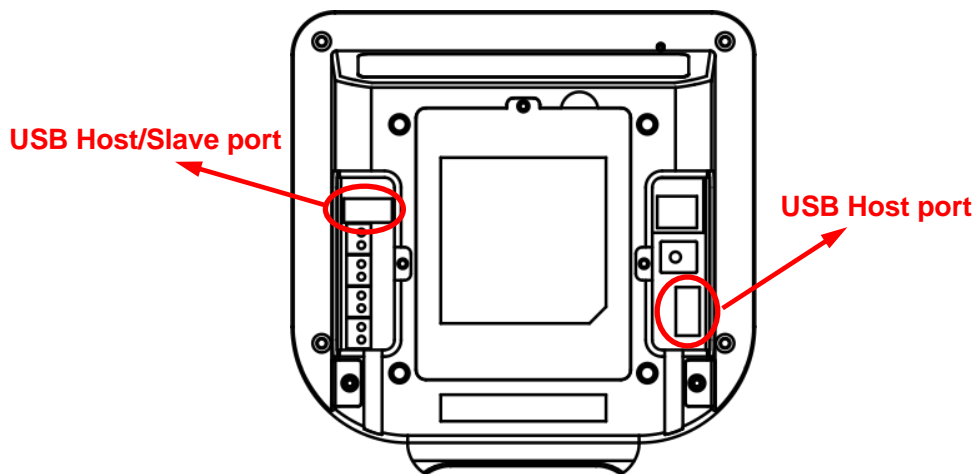
## Chapter 8 Using an External Barcode Scanner

### Introduction

Usually users scan a barcode by presenting it to the NQuire. However, that may pose a challenge to them when scanning heavy, oversized or bulky items. In this case, using an external handheld barcode scanner can be an ideal solution.

### Connecting a Barcode Scanner to the NQuire

Users can connect one of the Newland barcode scanners listed in this Chapter to the USB Host/Slave port or the USB Host port on the NQuire with a USB cable (purchase separately). When using the USB Host/Slave port, OTG must be disabled by unselecting “Enable OTG” on the NQuire. For more information, see the “Using the ADB” section in Chapter 7.



### Configuring an External Barcode Scanner

The following sections provide the programming barcodes users may need to configure an external barcode scanner to work with the NQuire.

---

## Configuring NLS-HR100

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**



**Exit Setup**



---

## Configuring NLS-HR22

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**



**Exit Setup**

---

## Configuring NLS-HR11 Plus

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



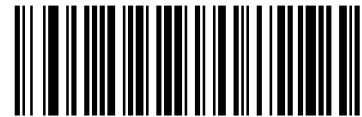
**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**

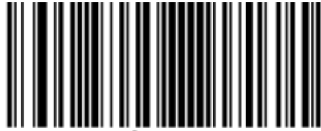


**Exit Setup**

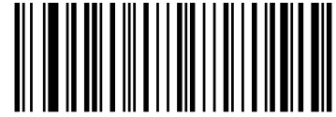
---

## Configuring NLS-HR42

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**



**Exit Setup**

---

## Configuring NLS-HR3290 (Corded)

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**



**Exit Setup**

---

## Configuring NLS-HR15 (Corded)

Use the barcode scanner to scan the barcodes below row by row, starting with the top left **Enter Setup** barcode, going from left to right, and ending with the **Exit Setup** barcode.



**Enter Setup**



**Restore All Factory Defaults**



**Enter Setup**



**USB COM Port Emulation**



**Enable AIM ID Prefix**



**Disable Terminating Character Suffix**



**Exit Setup**

## Chapter 9 Maintenance & Troubleshooting

### Maintenance

#### Keeping the NQuire Dust-free

To keep the interior of the NQuire clean and your device at peak performance, please always have the two port covers firmly attached.

#### Cleaning

Regularly clean the scan window on the bottom of the NQuire with a non-abrasive glass spray cleaner and a soft lint-free cloth to keep it free of dust, dirt and fingerprints. Cleaning can be performed during operation.

When cleaning the housing and display screen, please observe the following instructions:

- Use a mild glass spray cleaner;
- spray the cleaner on a soft lint-free cloth;
- wipe the NQuire clean.

The NQuire should **NOT** be cleaned with cleaners containing aromatic hydrocarbons, chloride, acids or oxidizing agents, abrasives, or other aggressive cleaners.

Note: The display screen and scan window are scratch-sensitive, so please clean them carefully!

## Troubleshooting

Problem	Possible Cause	Possible Solution
The NQuire will not turn on	No power to the NQuire	<p><b>Power adapter solution:</b> Connect the approved power adapter to an AC power source and to the power jack on the NQuire.</p> <p><b>PoE solution:</b></p> <ol style="list-style-type: none"> <li>1. Connect one end of an Ethernet cable to the Ethernet port on the NQuire.</li> <li>2. Connect the other end of the Ethernet cable to PoE power module or PoE switch.</li> <li>3. Connect DC power to PoE power module or PoE switch if required.</li> <li>4. Perform continuity check on the Ethernet cable.</li> </ol>
The NQuire does not respond to pings from the host computer	No communication between the NQuire and the host computer	<ol style="list-style-type: none"> <li>1. Check the cables to make sure they are securely connected to the NQuire.</li> <li>2. Ensure the NQuire's IP address is the address the host computer is pinging.</li> <li>3. Check communication parameters.</li> </ol>
The NQuire does not send data to the host computer	The NQuire is not connected to the host computer	<ol style="list-style-type: none"> <li>1. Check the cables to make sure they are securely connected to the host computer</li> <li>2. Check if the NQuire responds to pings from the host computer.</li> </ol>
Parameter changes made using web-based configuration tool were not retained after the NQuire rebooted	Parameter changes were not saved	After you change the settings, do not forget to click on "Apply settings" in the corresponding box(es)

# Appendix

## Sample Barcodes

Code 128



UCC/EAN-128



UPC-E



UPC-A



Interleaved 2 of 5



Code 39



PDF 417



QR Code



Micro QR



Data Matrix



Chinese Sensible Code





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## Code ID Table

Symbology	Code ID
Code 128	#
EAN128	P
AIM128	a
EAN-8	FF
EAN-13	F
UPC-E	b
UPC-A	d
ISBN	e
ISSN	g
Code 39	*
Code 93	c
Codabar	%
Interleaved 2 of 5	i
Deutsche 14 (Deutsche Post Leitcode)	h
Deutsche 12 (Deutsche Post Identcode)	j
Standard 25	k
Matrix 2 of 5	l
Industrial 25	m
Code 11	n
MSI-Plessey	o
Plessey	q
GS1 Codabar (RSS)	R
CODE32	t
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u
EAN413	v
EAN414	w
EAN419	x



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