
RU224-51

UHF RFID Reader

User Guide



SCANNEL

Scannel RU224-51 UHF RFID Reader

User Guide

VERSION: 3.0

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Revision History

Version	Date	Name	Description
1.0	03/11/2019	Christian Tan	Initial Version
2.0	08/08/2019	ChristianTan	Added FCC Warning & S/W revision
3.0	12/18/2019	Christian Tan	
4.0	08/15/2024	Christian Tan	API Software Guide

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Test standard: FCC rules Part 15 subpart B

Test Result: Radiated Emission. FCC Part 15.109/15.107 Class B Test passed.

Test standard: FCC rules Part 15 subpart C 15.247 (2017 - 10)

Test Result: No deviations from the technical specification(s) were ascertained in the course of the tests performed.

Warning

Federal Communication Commission (FCC) Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Contains transmitter module: FCC ID: 2ABCB-RPI3BP, FCC ID: WXARU224RB

LIMITED WARRANTY

Scannel warrants that the products sold pursuant to this Agreement will perform in accordance with Scannel's published specifications. This warranty shall be provided only for a period of **one year** from the date of the shipment of the product from Scannel (the "Warranty Period"). This warranty shall apply only to the "Buyer" (the original purchaser, unless that entity resells the product as authorized by Scannel, in which event this warranty shall apply only to the first re-purchaser).

During the Warranty Period, should this product fail to conform to Scannel's specifications, Scannel will, at its option, repair or replace this product at no additional charge except as set forth below. Repair parts and replacement products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become the property of Scannel. This limited warranty does not include service to repair damage to the product resulting from accident, disaster, unreasonable use, misuse, abuse, negligence, or modification of the product not authorized by Scannel. Scannel reserves the right to examine the alleged defective goods to determine whether the warranty is applicable. Without limiting the generality of the foregoing, Scannel specifically disclaims any liability or warranty for goods resold in other than Scannel's original packages, and for goods modified, altered, or treated without authorization by Scannel.

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Introduction to RU224-51

The RU224-51 is part of the Next Generation UHF RFID Reader Series from Scannel. It is developed using the best high performance hardware technology in order to quickly adapt with the fast-evolving technological advances in the age of Internet of Things / Industrial Internet of Things.

Using UHF RFID Technology has never been easier with RU224-51 integrated with a Linux-based micro-computer and high performance R2000 UHF RFID Chip. The device offers a long read range with the capability of reading multiple tags at fast speeds using its four(4) antenna ports. It complies with EPC Global UHF Class 1 Gen 2 / ISO18000-6C and ISO18000-6B. With advanced heat sink casing design, overheating is prevented when it is at maximum performance. It has built-in multiple connectivity (WiFi, BLE, and TCP/IP) and self-powered GPIO to simplify installation and deployment in various applications.

RU224-51 RFID Reader (referred to hereafter as “Reader/reader”) is suitable for RFID applications in supply chain management, logistics inventory management, cargo tracking management, warehouse management, shop floor management, class management, etc.

For more information, kindly visit: www.scannel.net or email us at info@scannel.net

Getting Started

Hardware and Software required for configuration and application of the RU224-51 are as follows:

1. Hardware:
 - 1.1. RU224-51 UHF RFID Reader
 - 1.2. HDMI Cable (Full Size Type A)
 - 1.3. UHF RFID Antenna with TNC Male Connector to SMA
 - 1.4. Power Adapter (12V / 3A)
 - 1.5. Optional: Input/Output devices such as LED Indicator Lights, Sensors, Switches, etc.
2. Software:
 - 2.1. RU224-51 ReaderTool V24.02

RU224-51 Specifications

Technical Specifications / Features

RF Specifications	
Air Interface Protocol	EPC global UHF Class 1 Gen 2 / ISO 18000-6C / ISO 18000-6B
UHF Frequency	865Mhz - 928Mhz (ETSI/FCC)
Output Power	0 - 30dBm (1W) (Configurable)
Peak Inventory Speed	>700 tags/sec
Antenna Port	4 Ports (RP-TNC-Female)
Max Baud Rate	115200 bps
System Specifications	
CPU	1.2 Ghz Quad-Core ARM Cortex-A53
RAM	1GB LPDDR2 SDRAM
Storage	16GB
WiFi	Dual-Band 802.11ac wireless LAN (2.4Ghz/5Ghz)
Bluetooth	Bluetooth 4.2
Ethernet	Gigabit Ethernet over USB2.0 (max300Mbps)
Display	HDMI (Full Size Type A)
USB	4 Ports (USB2.0)
GPIO (12V)	4 Input / 4 Output
Operating System	Linux
Software Development	Python / Java /
General Specifications	
Power	Input: 12V / Output: 12V
Dimension	230mm (L) x 160mm (W) x 28mm (H)
Weight	1.8Kg
Operating Temperature	-20°C ~ +55°C
Storage Temperature	-20°C ~ +85°C

Key Features

Impinj R2000 Chip	Top of the line, High Performance UHF RFID Reader Chip.
GS1 EPC Gen2 Protocol	Follows the globally accepted air interface protocol.
Multi-Connectivty	Ethernet, WiFi, Bluetooth(BLE)
Built-in Micro-computer	The RU224-51 can work independently without the need for a separate computer.
Storage Drive	16GB storage capable to save scanned data for long periods.
HDMI Ready	Allows easy connection for a display screen.
Linux Operating System	The OS makes the RU224-51 work like a desktop computer.
Multiple Programming Language	Develop your own software using Python, Java, C...
GPIO	Control the GPIO with the UHF Software or independently
12V Power Output	Provides power to your external device without the need for external power adapters.
4 USB Ports	4 USB ports allows you to connect various peripherals such as keyboard, mouse, USB drives, Barcode Scanners, etc.
RTC	Built-in Real-time clock to manage and save current date and time.
4 UHF RFID Antenna Ports	Offers 4 antenna ports for various applications such as portal readers, tunnel readers, etc. RF power can be set independently from each antenna port. Software can recognize which antenna port was used to read a Tag.
RU224-51 ReaderTool Software	Developed to provide users with a software that has functions and features which can be used in real-life applications such as direct transfer of data to the users database using WiFi or Ethernet. Save data on the local storage to prevent data loss during transfers.

Hardware Introduction



Top View



Front View



Back View

Operating System Introduction

The RU224-51 has a built-in Linux operating system based on the Debian distribution. The main function of the operating system in the RU224-51 is to run the UHF RFID software locally without the need of a separate computer. This differentiates the RU224-51 from the traditional UHF RFID readers which requires a controller or computer to transfer the data it scans to the user. You can develop your own software for the RU224-51 to locally collect RFID Data, process, analyze, create, and view reports locally or remotely and transfer these to your Middleware or directly to your ERP/MES/WMS database.

A notable feature is the scope of software customization it offers not only for the UHF RFID Software but also for non-related RFID software functions. You can develop your own software to perform tasks unrelated to the UHF RFID Software such as:

- Control the GPIO of the RU224-51
- Display customized information
- Save data in the local storage of the RU224-51
- Transfer data within your network
- Automate tasks
- Browse the internet
- etc.

*Note: Certain features may only be used one process at a time. (E.g. If you're UHF RFID Software is using the GPIO, your other software will not be able to run properly and vice versa.)

RU224-51 ReaderTool Software Introduction

The RU224-51 comes with pre-installed UHF RFID Reader software called ReaderTool. The software was developed to provide users with a fast and easy way to integrate the RU224-51 UHF RFID Reader into their system. The features incorporated in the software were gathered from the vast experience of the Scannel RFID Solutions team in various RFID projects.

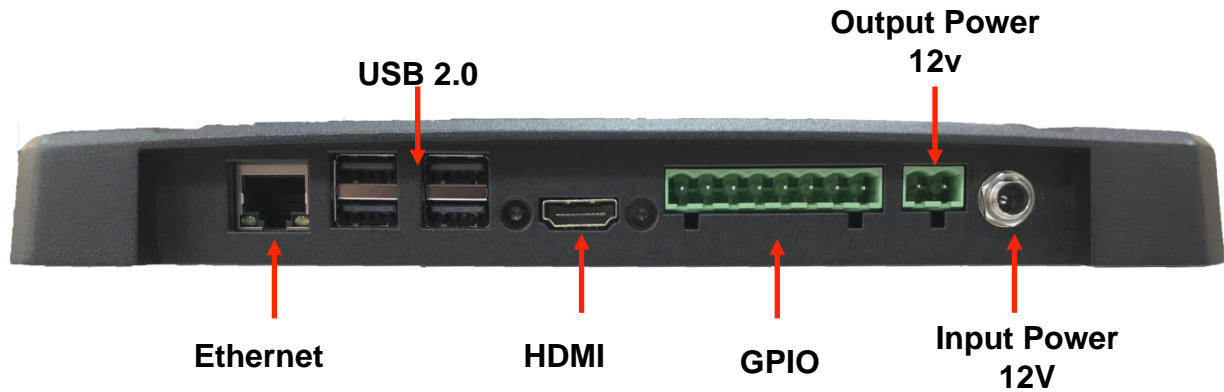
RU224-51 ReaderTool main features:

- Read - Shows Total Read Quantity, EPC in HEX and ASCII, Read Count, Read Date/Time, Frequency, Antenna Number.
- Configurable Settings - RF Output Power, Antenna Ports, Session, Target, Region
- Write - Encode UHF RFID Tags in ASCII Format
- Save Data - Save the scanned data on the local storage or to your Database via WiFi or Ethernet.
- GPIO - Start and Stop scanning using the Digital Inputs and use external device such as LED, Buzzer, etc. to indicate scan status using the Digital Outputs.

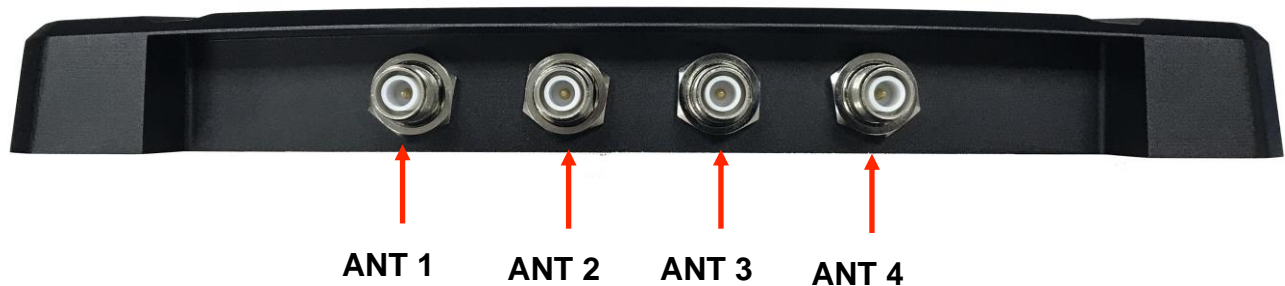


RU224-51 Settings

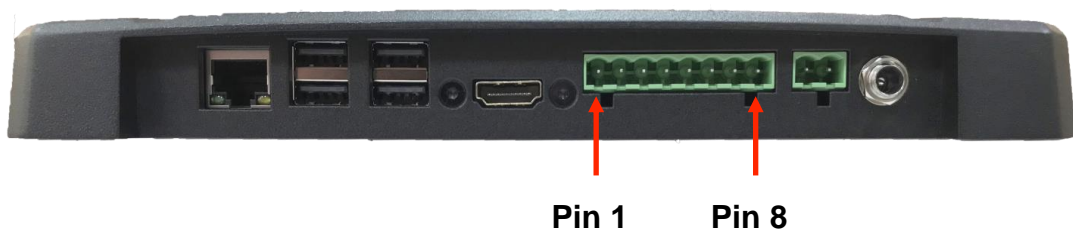
Hardware Configuration



1. Connectivity:
 - 1.1. Ethernet
 - 1.2. WiFi
 - 1.3. Bluetooth
2. USB 2.0 x 4
3. HDMI for Display
4. GPIO
 - 4.1. 4 Input
 - 4.2. 4 Output
5. Output Power - 12V for external devices (E.g. LED Status Light, Sensor, Switch, Etc.)
6. Input Power - 12V
7. UHF RFID Antenna Ports x4 (RP-TNC-Female)



GPIO Pin Definition



PIN ID	Function	Equivalent Circuit	Instructions
PIN 1	I/O Output 1		*ReaderTool Demo Software: I/O Input settings can be configured in the “Digital I/O” Tab. *Customized I/O Control: Can be controlled using various programming language. (Please contact Scannel for more information.)
PIN 2	I/O Output 2		
PIN 3	I/O Output 3		
PIN 4	I/O Output 4		
PIN 5	I/O Input 1		*ReaderTool Demo Software: I/O Output settings can be configured in the “Digital I/O” Tab. *Customized I/O Control: Can be controlled using various programming language. (Please contact Scannel for more information.)
PIN 6	I/O Input 2		
PIN 7	I/O Input 3		
PIN 8	I/O Input 4		

RU224-51 Initial Startup

1. Connect HDMI cable, Ethernet Cable (if necessary), GPIO Connectors (If Necessary), keyboard and mouse to the RU224-51.



2. Power the Reader

- 2.1. Plug the power cable to the reader, there will be a short beep sound which indicates that the reader is on.



3. Connect the Antenna(s) to the Reader

- 3.1. Connect your Antenna to the Antenna Port. Please note that arrangement of the Antennas start from the leftmost as Antenna 1. *This will direct you on how to control the Antennas using the Software.



- 3.2. Connect up to 4 Antennas according to your requirements.



Software Initial Startup

Initial Boot

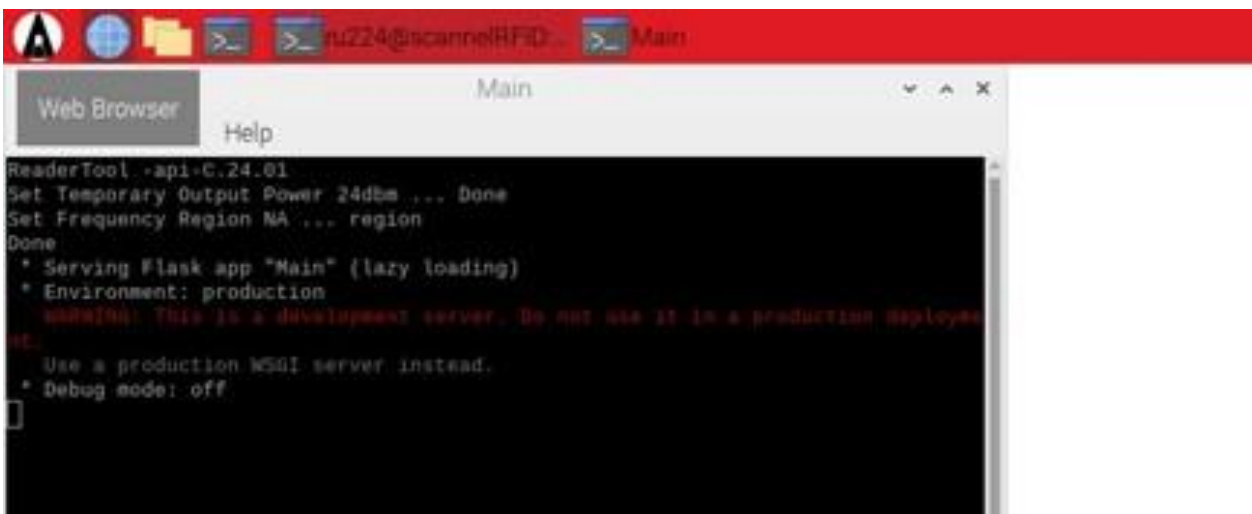
1

During the Initial Boot, the Desktop interface will be shown.



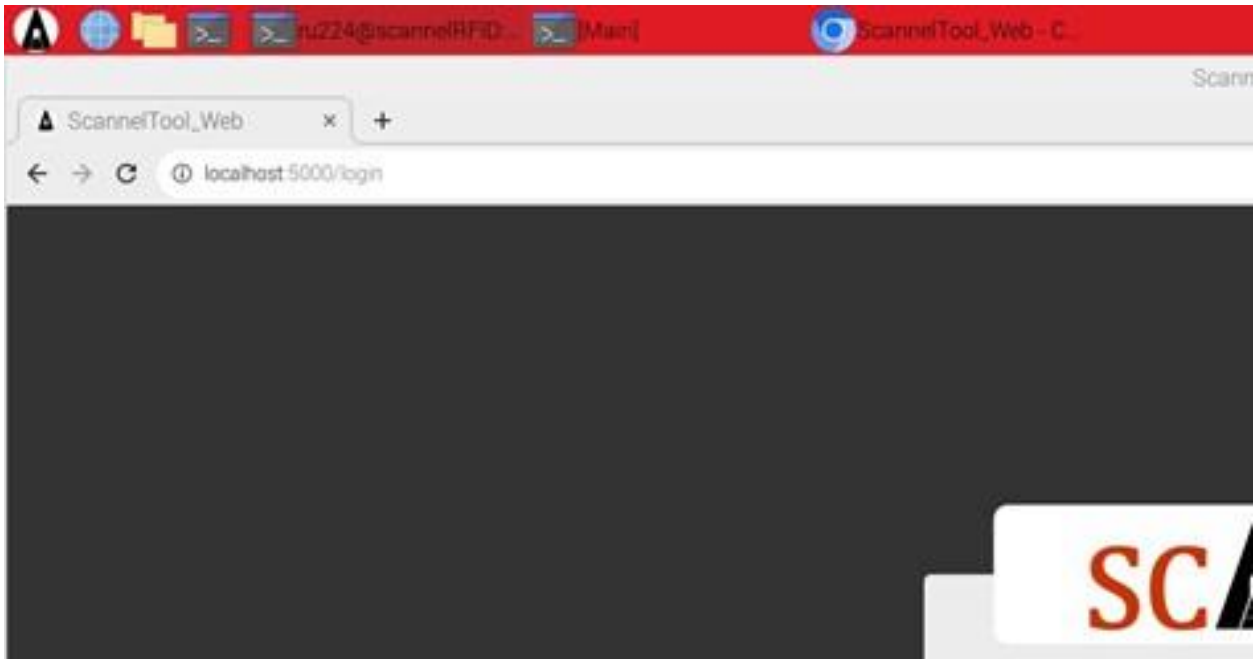
2

Open the ReaderTool software by starting the browser.



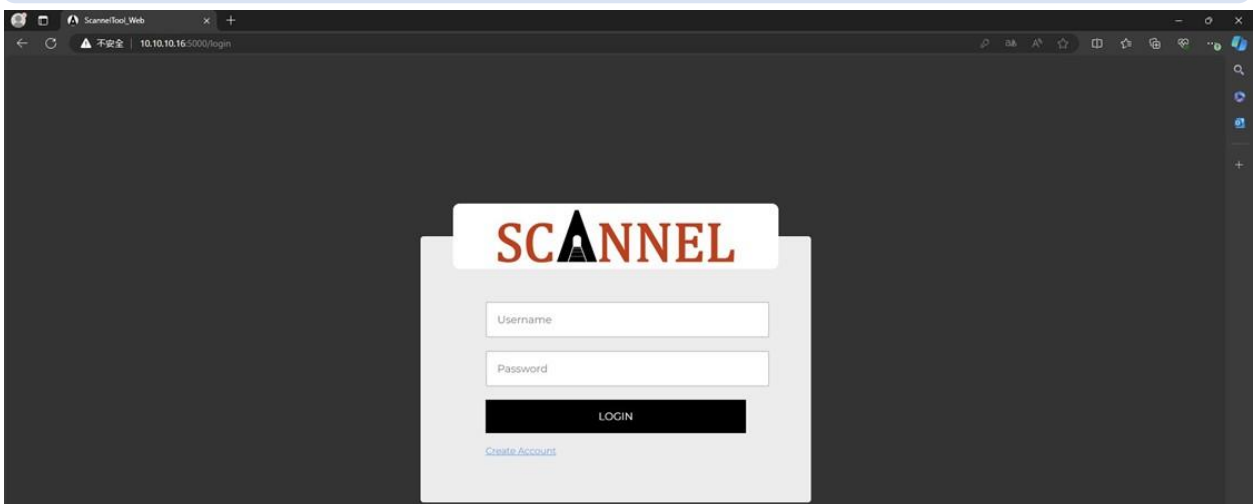
3

On the browser, enter the following on the address bar – localhost:5000



4

Please enter your username and password to log in. The default admin account is: Username: [scannel](#) , Password: [26954214](#)



5 The Inventory page will be shown after a successful login.

The screenshot displays the SCANNEL web application interface. At the top, there's a navigation bar with the SCANNEL logo and a 'Log Out' button. Below the navigation bar, there are several menu items: Inventory, Advanced Setting, RF Setting, Device Setting, Device State, Database & MQTT, Encode, Account, and Software Update.

The main content area is divided into three sections:

- RF Settings:** This section contains configuration options for the device. It includes 'Session' (S0, S1, S2, S3), 'Target' (A, B), 'Enabled Antenna' (1-8), 'Multiplexer State' (toggle), and 'Output Power' (1-8 for each antenna). A 'Save' button is located at the bottom of this section.
- Total Inventory Count:** A large display showing the number '21'.
- Inventory Data Table:** A table with columns for PC, EPC, ReaderID, AntennaID, Time, RSSI, Frequency, and Count. The table contains 21 rows of data representing individual inventory items.

PC	EPC	ReaderID	AntennaID	Time	RSSI	Frequency	Count
64 00	0001680008880000000001540000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186584Z	-86	912.0	6
64 00	00016800088800000000015A0000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186995Z	-74	912.0	9
64 00	FFFF680008880000000001360000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590285Z	-69	926.0	9
64 00	000168000888000000000130000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590831Z	-72	905.5	4
64 00	00016800088800000000014A0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591174Z	-66	926.0	9
64 00	0001680008880000000001380000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591488Z	-64	926.0	10
64 00	00016800088800000000012D0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591790Z	-64	926.0	9
64 00	00016800088800000000012C0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592089Z	-68	920.5	10
64 00	0001680008880000000001310000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592429Z	-66	926.0	9
64 00	00016800088800000000012B0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592740Z	-67	926.0	9
64 00	00016800088800000000012E0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.593033Z	-69	920.5	10
64 00	0001680008880000000001490000000000000000000000000000	testReader	8	2024-07-15T06:56:14.593334Z	-65	926.0	9
64 00	00016800088800000000012F0000000000000000000000000000	testReader	8	2024-07-15T06:56:14.794730Z	-78	926.0	9
64 00	FFFF680008880000000001370000000000000000000000000000	testReader	8	2024-07-15T06:56:14.795150Z	-72	926.0	9
64 00	0001680008880000000001580000000000000000000000000000	testReader	1	2024-07-15T06:56:14.800276Z	-65	912.0	8
64 00	0001680008880000000001440000000000000000000000000000	testReader	1	2024-07-15T06:56:14.800670Z	-61	912.0	8
64 00	00016800088800000000013A0000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801008Z	-62	912.0	8
64 00	0001680008880000000001550000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801605Z	-80	912.0	8
64 00	0001680008880000000001560000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801897Z	-84	912.0	8
64 00	0001680008880000000001590000000000000000000000000000	testReader	1	2024-07-15T06:56:14.802189Z	-81	912.0	8

Network Login

1

Connect the device to your network via Ethernet or Wifi. If connecting via Wifi, click the icon in the top taskbar and find your Wifi Network. Enter your Wifi password, once successful, the icon will turn Blue.



2

Find your device IP address by hovering your mouse to the Wifi Icon or open a terminal and type `ifconfig` and your network information will be displayed in the terminal.

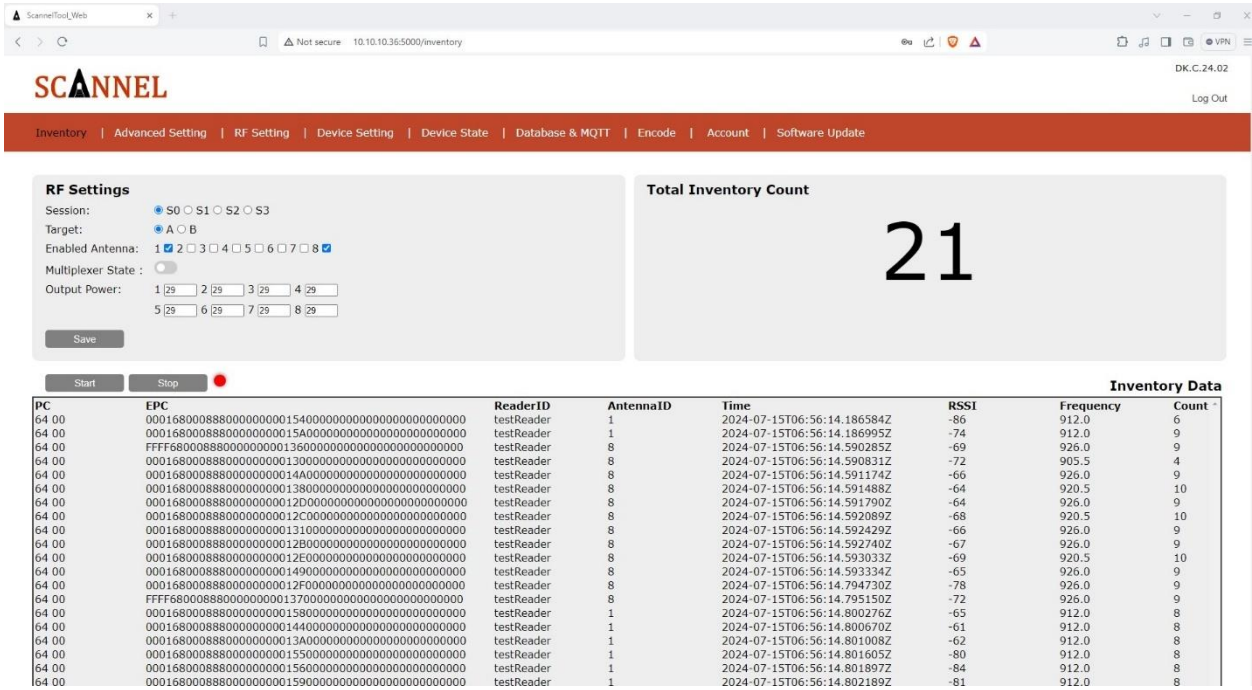


3

On your laptop/desktop/mobile (MUST be connected to the same network as the device). Open your browser and enter the IP address of the device followed by :5000 (example: 10.10.10.16:5000) to access the ReaderTool software.

ReaderTool Software

Inventory



PC	EPC	ReaderID	AntennaID	Time	RSSI	Frequency	Count
64 00	000168000888000000000154000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186584Z	-86	912.0	6
64 00	000168000888000000000015A000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186995Z	-74	912.0	9
64 00	FFFF68000888000000000136000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590285Z	-69	926.0	9
64 00	00016800088800000000013000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590831Z	-72	905.5	4
64 00	00016800088800000000014A000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591174Z	-66	926.0	9
64 00	000168000888000000000138000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591488Z	-64	920.5	10
64 00	00016800088800000000012D000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591790Z	-64	926.0	9
64 00	00016800088800000000012C000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592089Z	-68	920.5	10
64 00	000168000888000000000131000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592429Z	-66	926.0	9
64 00	00016800088800000000012B000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592740Z	-67	926.0	9
64 00	00016800088800000000012E000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.593033Z	-69	920.5	10
64 00	000168000888000000000149000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.593334Z	-65	926.0	9
64 00	00016800088800000000012F000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.794730Z	-78	926.0	9
64 00	FFFF68000888000000000137000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.795150Z	-72	926.0	9
64 00	000168000888000000000158000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.800276Z	-65	912.0	8
64 00	000168000888000000000144000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.800670Z	-61	912.0	8
64 00	00016800088800000000013A000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801008Z	-62	912.0	8
64 00	000168000888000000000155000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801605Z	-80	912.0	8
64 00	000168000888000000000156000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.801897Z	-84	912.0	8
64 00	000168000888000000000159000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.802189Z	-81	912.0	8

RF Settings:	
Session**	Select the session used during inventory.
Target**	Select Target Flag of the RFID Tags.
Enabled Antenna	Select Antenna to be used during inventory.
Multiplexer State	Enable or Disable Multiplexer Function*
Multiplexer	Select which antenna the Multiplexer is connected to.
Output Power	Individually select RF Power of each antenna port.
Save	Saves the configuration for your RF Settings.
Total Inventory Count	Displays the total count of unique RFID tags.
Start	Starts the inventory.
Stop	Stops the inventory.
Indicator	Green – Inventory Ongoing / Red – Inventory Stopped.
*Multiplexer only available if a Multiplexer device is connected to the UM904/UM908-DK.	

**Session

Session refers to a function in the EPC Gen2 standard for inventory of UHF RFID tags. There are four sessions available in the settings. The following are the recommended settings in various scenarios:

S0	Fast Tag Response. Suitable for Tag Population <100
S1	Average Tag Response. Suitable for Tag Population >100
S2	Normally used when two readers need to do separate inventories and a much longer persistence time can be tolerated. Less often tag response rate
S3	

Note: Persistence time is dependent of each Tag IC manufacturer's specifications.

**Target:

Target - There are two statuses for the target, A and B. Target determines whether a UHF RFID Tag will be read in which state, A or B. It is advised that Target be set at A unless necessary.

For more information about Session and Target, kindly visit GS1 website:
<https://www.gs1.org/standards/epc-rfid/uhf-air-interface-protocol>

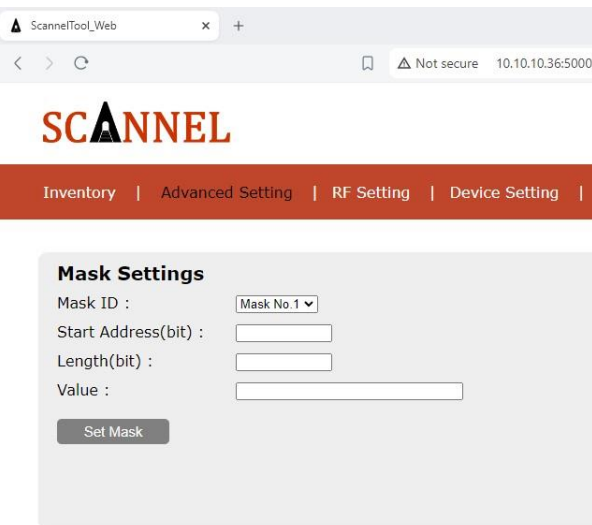
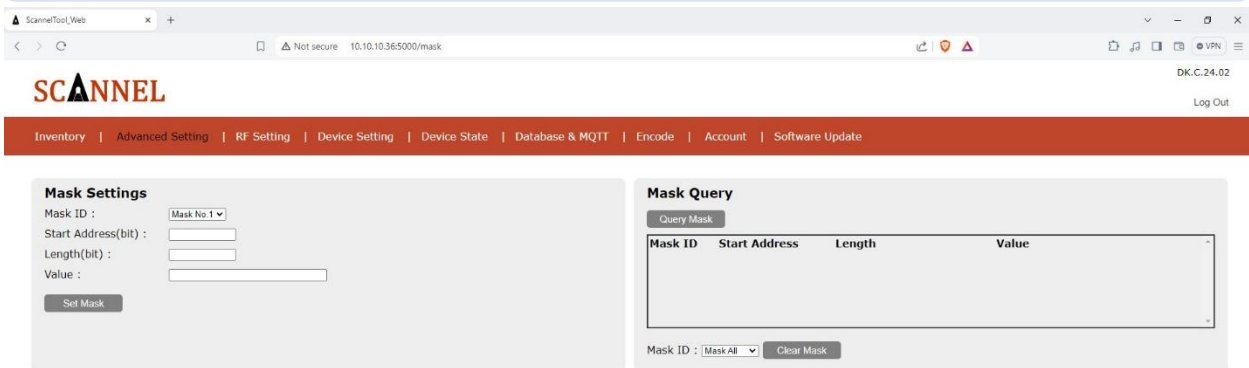
Start		Stop		Inventory Data				
PC	EPC	ReaderID	AntennaID	Time	RSSI	Frequency	Count	
64 00	000168000888000000000154000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186584Z	-86	912.0	6	
64 00	00016800088800000000015A000000000000000000000000000000	testReader	1	2024-07-15T06:56:14.186995Z	-74	912.0	9	
64 00	FFFF68000888000000000136000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590285Z	-69	926.0	9	
64 00	00016800088800000000013000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.590831Z	-72	905.5	4	
64 00	00016800088800000000014A000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591174Z	-66	926.0	9	
64 00	000168000888000000000138000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591488Z	-64	920.5	10	
64 00	00016800088800000000012D000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.591790Z	-64	926.0	9	
64 00	00016800088800000000012C000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592089Z	-68	920.5	10	
64 00	000168000888000000000121000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592429Z	-66	926.0	9	
64 00	00016800088800000000012B000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.592740Z	-67	926.0	9	
64 00	00016800088800000000012E000000000000000000000000000000	testReader	8	2024-07-15T06:56:14.593033Z	-69	920.5	10	

Inventory Data:	
PC	Displays the PC of the RFID Tag.
EPC	Displays the EPC of the RFID Tag in HEX or ASCII format.
ReaderID	Displays the Name of the Device that scanned the RFID Tag.
AntennaID	Displays which Antenna Port scanned the RFID Tag.
Time	Displays when the RFID Tag was scanned
RSSI	Displays the RSSI value of the scanned RFID Tag.
Frequency	Displays the RF Frequency of the scanned RFID Tag.
Count	Displays the total number of times the RFID Tag was scanned.
Note: 1. All the information shown in the Inventory Data can be transmitted to a server via SQL/API/MQTT. 2. EPC display format can be configured in the Device Setting tab. 3. ReaderID can be configured in the "Device ID" of the RF setting or Device setting tab	

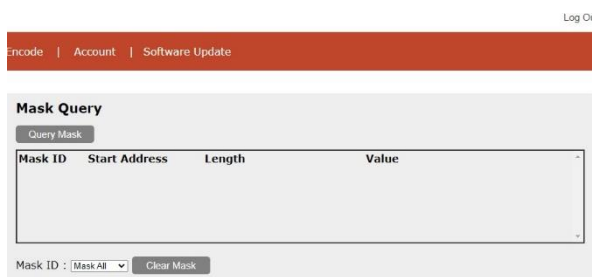
Advanced Setting

1

Mask Settings allow you to configure the device to scan RFID tags that corresponds to the value saved in the Mask Settings. (Example: Setting saved is Start address: “32”, Length: “16”, value: “AA00” – Only RFID tags with EPC starting in AA00 will be scanned during inventory.)



Mask Settings:	
Mask ID	Two parameters can be saved and used during inventory.
Start Address	Set the start location on the EPC where the value will be counted.
Length	The length of the value you will use as the Mask.
Value	The value in the EPC that you will use.
Set Mask	Saves the configuration of your Mask Settings.



Mask Query:
Displays the available mask settings that are saved.

RF Setting

RF Settings

Device ID:

Session: S0 S1 S2 S3

Target: A B

Enabled Antenna: 1 2 3 4 5 6 7 8

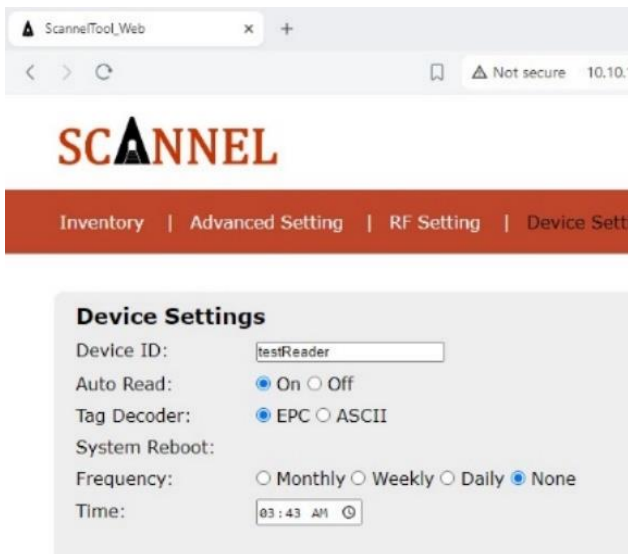
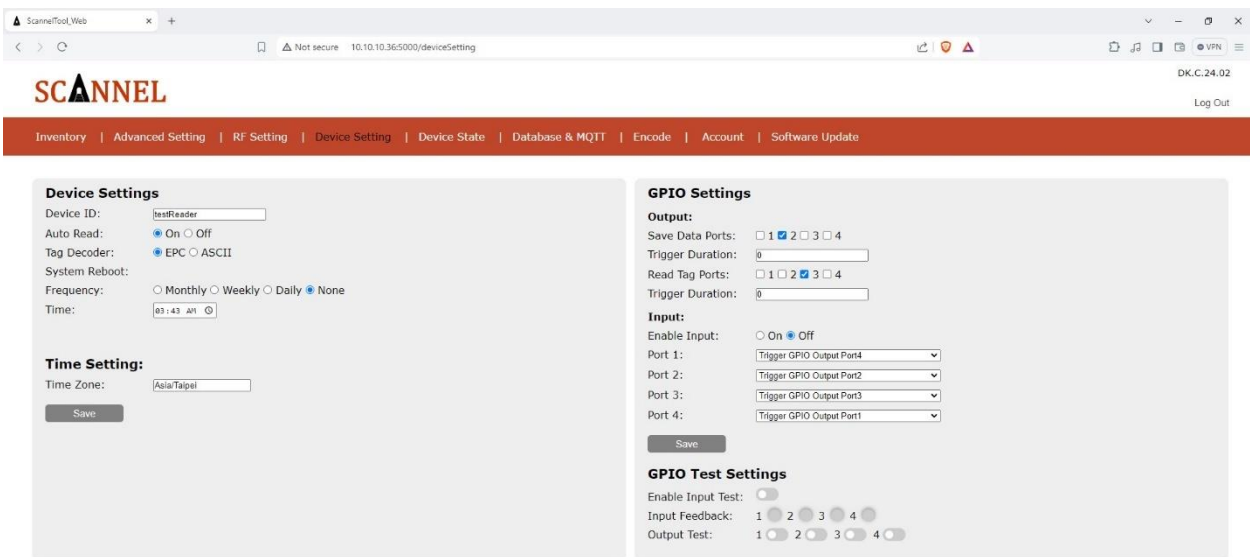
Output Power: 1 2 3 4
5 6 7 8

Region: ALL NA EU BR

RF Settings:	
Device ID	Set the Name of the Device.
Session	Select the session used during inventory.
Target	Select Target Flag of the RFID Tags.
Enabled Antenna	Select Antenna to be used during inventory.
Output Power	Individually select RF Power of each antenna port.
Region	Set the frequency region of the RF Module.
Apply	Saves the configuration of your RF Settings.

Device Setting

1 Device Setting allows you to configure various functions of the reader such as GPIO, Timezone, etc.



Device Settings	
Device ID	Set the Name of the Device.
Auto Read	Inventory starts when device is turned ON.
Tag Decoder	Data format shown during inventory.
System Reboot	Schedules automatic reboot of the device.

GPIO Settings

Output:

Save Data Ports: 1 2 3 4

Trigger Duration:

Read Tag Ports: 1 2 3 4

Trigger Duration:

Input:

Enable Input: On Off

Port 1:

Port 2:

Port 3:

Port 4:

GPIO Test Settings

Enable Input Test:

Input Feedback: 1 2 3 4

Output Test: 1 2 3 4

GPIO Settings:	
Output:	
Save Data Ports	Selected Output Port will only be triggered when RFID Tags in inventory is successfully sent to database or API. (Only available when Database or API is used.)
Trigger Duration	Length in seconds of how long the output will stay in triggered condition.
Read Tag Ports	Selected Output Port will be triggered when RFID tags are scanned during inventory.
Trigger Duration	Length in seconds of how long the output will stay in triggered condition.
Input:	
Enabled Input	Enable/Disable the Input.
Port	Select which input port is used and the function that will be performed when the input is triggered.
Save	Saves the GPIO settings.
GPIO Test Settings	
Enable Input Test	Enable/Disable the Inputs for testing.
Input Feedback	Shows the results of the Input tests. Green – Input Triggered / Red – Input is idle.
Output Test	Triggers the selected output port.

ScannelTool_Web x +

10.10.10.36

SCANNEL

Inventory | Advanced Setting | RF S...

Device Settings

Device ID: testReader

Auto Read: On Off

Tag Decoder: EPC ASCII

System Reboot:

Frequency: Monthly Weekly

Time: 03 : 43 AM

Time Setting:

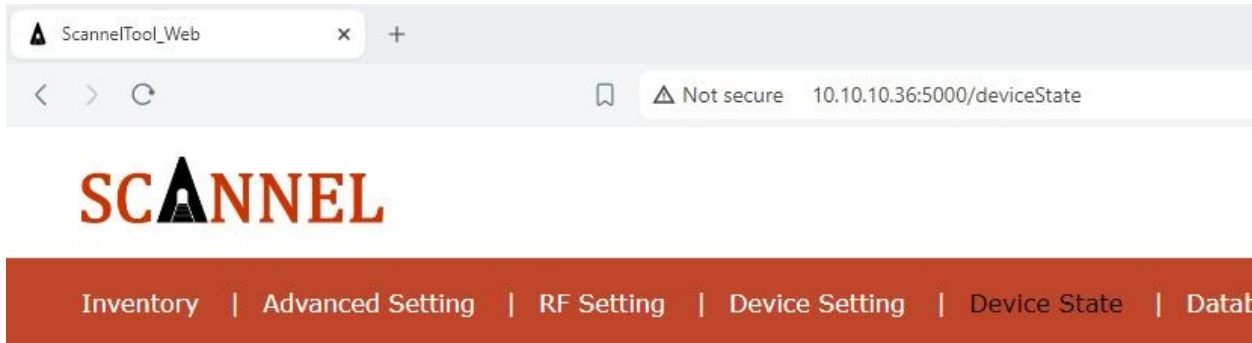
Time Zone: Asia/

Save

- Asia/Almaty
- Asia/Amman
- Asia/Anadyr
- Asia/Aqtau
- Asia/Aqtobe
- Asia/Ashgabat
- Asia/Atyrau
- Asia/Baghdad
- Asia/Baku
- Asia/Bangkok
- Asia/Barnaul
- Asia/Beirut
- Asia/Bishkek
- Asia/Chita
- Asia/Choibalsan
- Asia/Colombo
- Asia/Damascus
- Asia/Dhaka

Time Setting:	
Time Zone	Set the time zone of the Device.

Device State



Heartbeat

OS Version: 11
 Software Version: DK.C.24.02
 CPU Usage: 0.5 %
 Total Disk Space: 14.29 GB
 Free Disk Space: 8.84 GB
 Used Disk Space: 4.82 GB
 CPU Temp: 53.56°C
 RF Module Temp: 29°C

Heartbeat: (Displays the current state of the device)	
OS Version	The current operating system version.
Software Version	Displays the current software version.
CPU Usage	Current usage capacity of the CPU.
Total Disk Space	Displays the storage capacity of the device.
Free Disk Space	Displays the current available space of the device.
Used Disk Space	Displays the used space of the device.
CPU Temp	Current temperature of the CPU.
RF Module Temp	Current temperature of the RFID Module.

Database & MQTT

1

Settings for data transfer of scanned RFID Tags using SQL, API, or MQTT. An option to save the data to the internal storage is also available.

The screenshot shows the SCANNEL web interface with two main configuration panels: Database Settings and MQTT Settings. The browser address bar shows the URL 10.10.10.36:5000/databasePage. The navigation menu includes: Inventory | Advanced Setting | RF Setting | Device Setting | Device State | Database & MQTT | Encode | Account | Software Update.

Database Settings

- Database Connection: Enable Disable
- Database Type: RESTAPI
- IP Address: 10.10.10.24
- Port: 1433
- Database Name: tagData
- User ID: scannelTest
- Password: AA26954214
- Table Name: tagTable
- Reader ID: testReader
- API: http://10.10.10.28:5000/api/
- Save Data in Disk: On Off

MQTT Settings

- Connection: Enable Disable
- MQTT Type: Mqtt
- Broker URL: test.mosquitto.org
- Broker Port: 1883
- Broker Topic: test/tag/Topic
- Client Name: testMqtt1
- Field(EPC): EPC
- Field(Reader ID): readerId
- Field(Time): transTime
- Field(Antenna ID): antennalId
- Field(PC): PC
- Field(RSSI): RSSI
- Field(Frequency): Frequency
- Field(Timezone): Timezone

Database Settings:	
Database Connection	Enable/Disable Data Transfer
Database Type	SQL or API
SQL Settings	
IP Address	Address of the destination server.
Port	Port of the destination server.
Database Name	Database name in your SQL server.
User ID	User ID of your SQL server.
Password	Password of your SQL server.
Table Name	Table name where data will be stored.
Reader ID	Device name to be recognized by your server.
API Settings	
API	Destination address for your API server.
Local Save	
Save Data in Disk	Enable/Disable saving of inventory data to device storage.*
*Data will be stored in /home/ru224/SCTool_Web-C.24.01/Main/Tag Log	

Encode | Account | Software Update

MQTT Settings

Connection: Enable Disable

MQTT Type:

Broker URL:

Broker Port:

Broker Topic:

Client Name:

Field(EPC):

Field(Reader ID):

Field(Time):

Field(Antenna ID):

Field(PC):

Field(RSSI):

Field(Frequency):

Field(Timezone):

MQTT Settings:	
Connection	Enable/Disable MQTT data transfer
MQTT Type	Select Standard MQTT or AWS MQTT
Broker URL	Address of the MQTT Broker.
Broker Port	Port of MQTT Broker.
Broker Topic	Topic used for subscription.
Client Name	Only used for AWS MQTT
Save	Saves configured MQTT settings.
Field(EPC)	Label settings for EPC during data transfer
Field(Reader ID)	Label settings for Reader ID during data transfer
Field(Time)	Label settings for Time during data transfer
Field(Antenna ID)	Label settings for Antenna ID during data transfer
Field(PC)	Label settings for PC during data transfer
Field(RSSI)	Label settings for RSSI during data transfer
Field(Frequency)	Label settings for Frequency during data transfer
Field(Timezone)	Label settings for Timezone during data transfer
Save	Saves configured Field name settings used for data transfer in SQL, API, or MQTT.

Encode

1

Used for single read of RFID Tags and Encoding of RFID tags in EPC or ASCII format.

The screenshot shows a web browser window with the title 'ScannelTool_Web' and the URL '10.10.10.36:5000/writeTag'. The page features the SCANNEL logo and a navigation menu with items: Inventory, Advanced Setting, RF Setting, Device Setting, Device State, and Database & M. The main content area is titled 'Tag Encoder' and contains the following form elements:

Tag Encoder
Encode Format: EPC ASCII

Write Tag:

Read Tag:

Account

1

Used to manage user accounts for the ReaderTool software. You can add admin/user accounts and delete accounts.

The screenshot shows a web browser window with the URL `10.10.10.36:5000/accountPage`. The page features the SCANNEL logo and a navigation menu with items: Inventory, Advanced Setting, RF Setting, Device Setting, Device State, Database & MQTT, Encode, Account, and Software Update. The main content area is divided into two sections:

- Create Admin Account:** Includes fields for Username and Password, and a `Create Admin` button.
- Create User Account:** Includes fields for Username, Password, and Retype Password, and a `Create User` button.
- Delete Account:** Includes a field for Username and a `Delete` button.
- User List:** A table with columns for Username and Password. It lists a user with Username `scannel` and Password `*****`, and an `admin` user.

Software Update

1

Used to update the ReaderTool software which can be done via Local or Network update. Click "Choose File" and select the appropriate Zip File. Click "Upload". The device will automatically restart when the software update is successful.

The screenshot shows a web browser window with the title 'ScannelTool_Web'. The address bar shows '10.10.10.36:5000/updatePa'. The page features the SCANNEL logo at the top, followed by a navigation menu with items: 'Inventory', 'Advanced Setting', 'RF Setting', 'Device Setting', and 'Device S'. Below the menu is a section titled 'Upload ReaderTool Zip File'. This section contains a file selection interface with a 'Choose File' button, the text 'No file chosen', and an 'upload' button.

For more information:

Scannel RFID

info@scannel.net

www.scannel.net

+886-2-26954214