



Solaria

User Guide



Release Notes

Dates	Release	Description
2023 03 14	Version 1.0	Initial Release

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1. Regulatory Regions

1.1. FCC Statement and IC Statement

FCC STATEMENT

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 or more 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.*

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body

IC STATEMENT

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device. In addition, this device complies with ICES-003 of the Industry Canada (IC) Rules.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Industry Canada licence-exempt RSS standard(s). 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 or more 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.*

This equipment complies with RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Note: French version please see end page.

1.2. European CE

Frequency range (CE) for RFID operation comprises:

1. 865-868 MHz band with 4 frequency channels

2. Introduction

2.1. SOLARIA Intelligent Integrated Reader with 1 External Port

The SOLARIA Integrated reader is an intelligent reader designed to work standalone in an autonomous manner. An intelligent Event Engine is embedded with configurable complex logic sequence, triggers and resultant actions that are automatically activated on power up. The settings can be saved and further deployed to as many readers, as many sites as you want, thus providing easy scalability for system integrators. SOLARIA integrated reader has 1 embedded antenna, plus 1 RF port that connects to an external antenna.



Figure 1. The SOLARIA reader has the following connectivity: Ethernet; GPIO; N-Type Antenna Port.

2.2. Software development kits

Software development kits are available in SSI website:

- 1) .NET API (HTTP)
- 2) .JAVA API
- 3) Custom Embedded RFID: sample codes in /opt

3. Reader Basics

3.1. Basic Hardware

The SOLARIA is an Integrated RFID reader.

Below is a side view of the SOLARIA Integrated Reader.

The LED indicators show the operating status of the reader.



Figure 2. SOLARIA connectors and LED indicators

LED	Operational description
Power [PWR]	GREEN indicates power is applied to the reader
Transmit [TX]	GREEN when transmitting
Error [ERR]	RED indicates one or more radio error have occurred.
STATUS	Ethernet Status. AMBER indicates the Link while the GREEN indicates the activity of the ethernet connection



Figure 3. SOLARIA connection diagram

Interface	Description
LAN	PoE+ (IEEE 802.3at Compliant (Type 2); Ethernet interface: IEEE 802.3 10BASE-T/100BASE-TX IEEE 802.3 compliant Ethernet transceiver through an RJ-45 connector that has PoE+ magnetics.
Power	DC power supply - 12V, 5A (60 Watts) Or PoE+ (IEEE 802.3at Compliant, 30W)
GPIO	4 pairs Opto-isolated inputs and outputs
Antenna Port	External Antenna port with N-type connector

3.2. Connectors pin out details.

The following diagram provides specific details regarding each connector type:

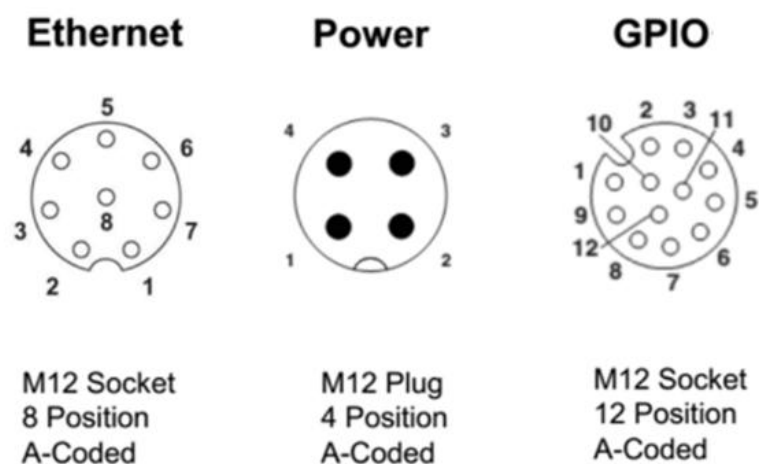


Figure 4. Different types of M12 connectors

Ethernet - LAN(PoE+):

Pin	Mode A	Mode B	Description
1	Rx+, DC+	Rx+	LAN Rx+, DC+ for Mode A PoE Spec
2	Rx-, DC+	Rx-	LAN Rx-, DC+ for Mode A PoE Spec
3	Tx+, DC-	Tx+	LAN Tx+, DC- for Mode A PoE Spec
4	Unused	DC+	DC+ for Mode B PoE Spec
5	Unused	DC+	DC+ for Mode B PoE Spec
6	Tx-, DC-	Tx-	LAN Tx-, DC- for Mode A PoE Spec
7	Unused	DC-	DC- for Mode B PoE Spec
8	Unused	DC-	DC- for Mode B PoE Spec

Power - DC:

Pin	Signal	Description	Color
1	+V	Voltage (12-57v)	Brown
2	GND	Ground	White

GPIO

PIN	Signal	Description	Color
1	GPO3	Open Collector General Purpose Output #3	Brown
2	GPI1_3_Return	Optically isolated Input #1 and #3 common return	Blue
3	GPI2	Optically isolated input #2	White
4	GPI3	Optically isolated input#3	Green
5	GPO2_3_Return	Open Collector General purpose output #2 and #3 common return	Pink
6	GPI1	Optically isolated input #1	Yellow
7	GPO2	Open Collector General Purpose Output #2	Black
8	GPO0_1_Return	Open Collector General purpose output #0 and #1 common return	Gray
9	GPI0	Optically isolated input #0	Red
10	GPO1	Open Collector General Purpose Output #1	Purple
11	GPI0_2_Return	Optically isolated Input #0 and #2 common return	Red/Gray
12	GPO0	Open Collector General Purpose Output #0	Red/Blue

3.3. Hardware set up

a) DC Power

The Solaria reader can be powered up by (1) AC/DC power or (2) PoE+ (802.3at PSE,30W) injector

1) Option 1: By AC Adaptor Unit [Optional Accessory]

SOLARIA connect the AC adapter via the M12 Power cable and DC converter (optional).

Please screw tight the lock on the M12 connector to ensure reliable power connection.

By that way, the connector pair would not loosen up over time.

With the power connected, the Power LED indicator should light up immediately.

2) Option 2: PoE+ (802.3at PSE,30W)

SOLARIA also supports the use of Power over Ethernet (PoE+) to power up.

NOTE: It must be PoE Plus (comply with 802.3at) rated at 30W PSE to make sure enough power to SOLARIA.

Make sure you use PoE+ port or a PoE+ Switch to ensure SOLARIA receive enough power to operate. Alternatively, use a PoE+ injector for the power source.

b) RFID External Antenna Connection

With the external antenna port, SOLARIA can connect with one external RFID antenna with wrench (8mm torque with 100 N-cm).

Note: External antenna info as below:

1) Model: Kuma Gain : 10dBi Manufacturer: STAR Systems International Ltd.

2) Model: Avalon Gain : 13 dBi Manufacturer: STAR Systems International Ltd.

3) Model: Cheetah Gain : 12dBi Manufacturer: STAR Systems International Ltd.

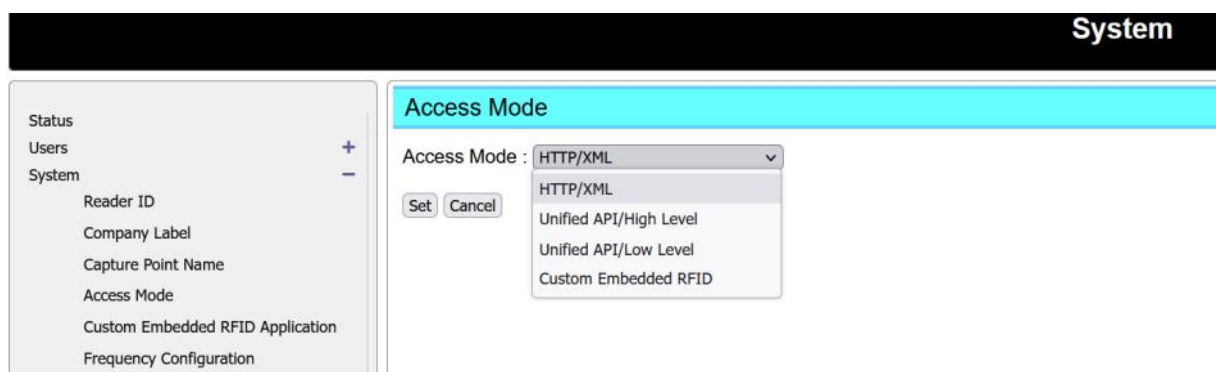
4) Model: Avior Gain : 15dBi Manufacturer: STAR Systems International Ltd.

3.5. How to Connect to and Configure SOLARIA

User can connect to SOLARIA reader via Ethernet in the following ways:

- 1) Use the browser interface and the built-in event engine to configure the reader to run automatically based on certain logic sequence.
- 2) Write embedded program in the Linux OS inside directly to configure and control the reader.

To switch the connection interface, go to the browser interface, System/Access Mode page, and then choose the Access Mode, as shown below:



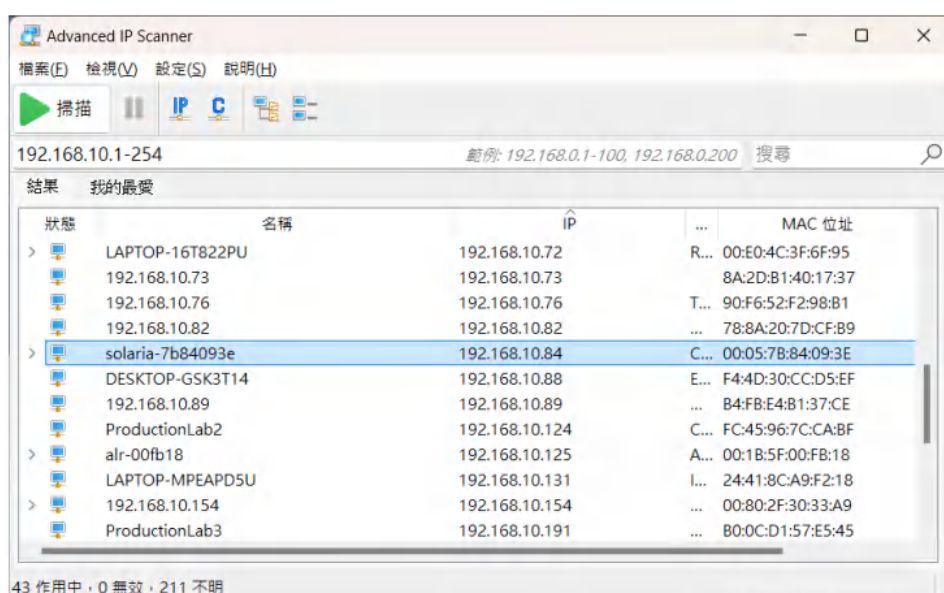
3.6. Connecting to the SOLARIA reader using Browser

SOLARA Reader is set to connect to Ethernet in DHCP mode.

Connect Ethernet cable from your PC to the reader directly, or via an Ethernet switch while the reader is powered by DC adapter. Make sure the host is configured to work as a DHCP server. If the reader is powered up by PoE+ Switch or PoE+ injector, make sure the host is set in the same subnet and there should be a DHCP server in the subnet.

The reader may take up to 1 minute to boot up after connected the power.

Use a 3rd party IP scanning tool like [Advance IP Scanner](#). Look for the Solaria Reader and its corresponding IP:



Open the browser and type in the IP found in the previous step. It is 192.168.10.84 in this example.

A User Login page will be shown

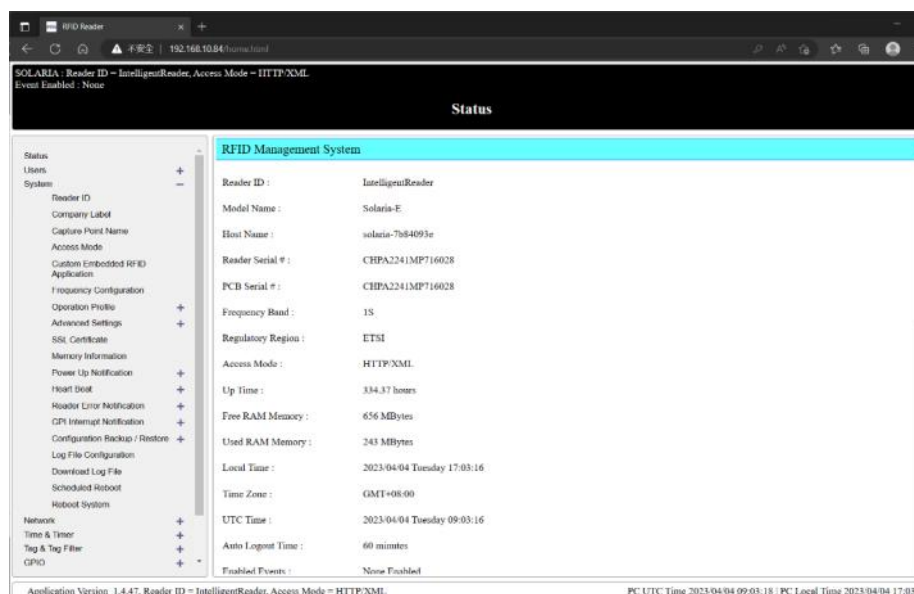
Key in User Name: **stars**, Password: **systems** then click Login

User Login

User Name :

Password :

The Status page is showed up after login.



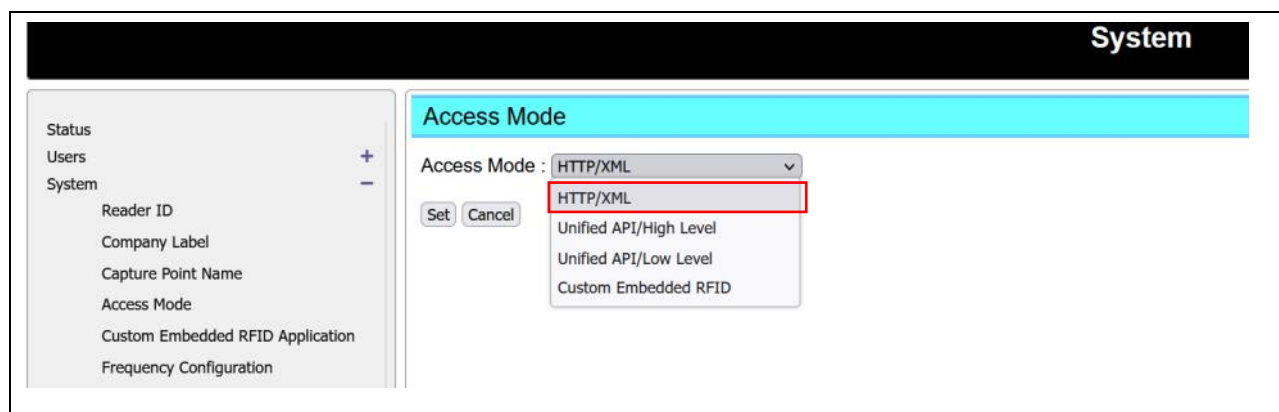
The screenshot shows a web browser window displaying the 'Status' page of an RFID Management System. The page title is 'Status'. The main content area is titled 'RFID Management System' and displays various system parameters. A left sidebar contains a tree view of system settings.

Parameter	Value
Reader ID	IntelligentReader
Model Name	Solaris-E
Host Name	solaris-7b84093e
Reader Serial #	CHPA2241MP716028
PCB Serial #	CHPA2241MP716028
Frequency Band	1S
Regulatory Region	ETSI
Access Mode	HTTP/XML
Up Time	334.37 hours
Free RAM Memory	656 MBytes
Used RAM Memory	243 MBytes
Local Time	2023/04/04 Tuesday 17:03:16
Time Zone	GMT+08:00
UTC Time	2023/04/04 Tuesday 09:03:16
Auto Logout Time	60 minutes
Enabled Events	None Enabled

Application Version: 1.4.47, Reader ID = IntelligentReader, Access Mode = HTTP/XML. PC UTC Time 2023/04/04 09:03:18 | PC Local Time 2023/04/04 17:03:1

Default Access Mode should be HTTP/XML. Change the Access Mode if reader is not in HTTP/XML mode

- In order to read and show RFID tags in Web page, please change the Access Mode to “HTTP/XML” as shown below in System page.
- Please click “Set” to confirm the change.

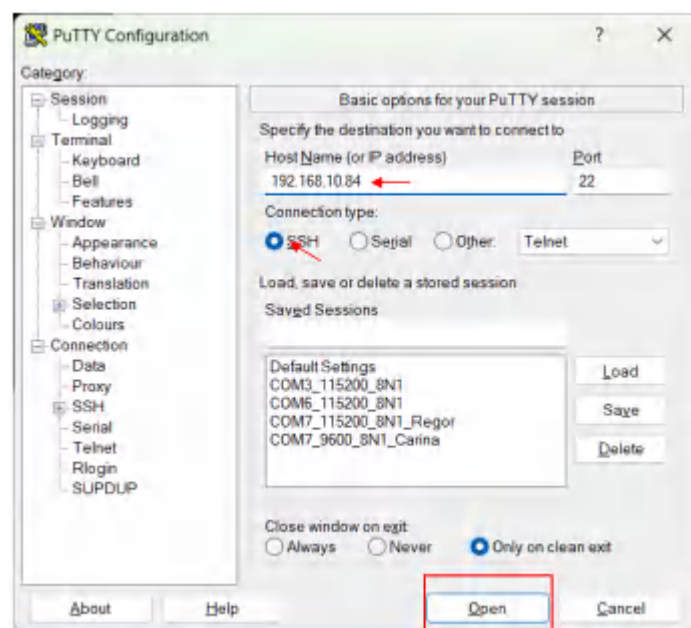


3.7. Connecting to the SOLARIA reader via SSH

Another popular way to connect to a Linux device is via SSH.

Choose SSH on the front page if using the application [PuTTY](#) or other SSH terminal program:

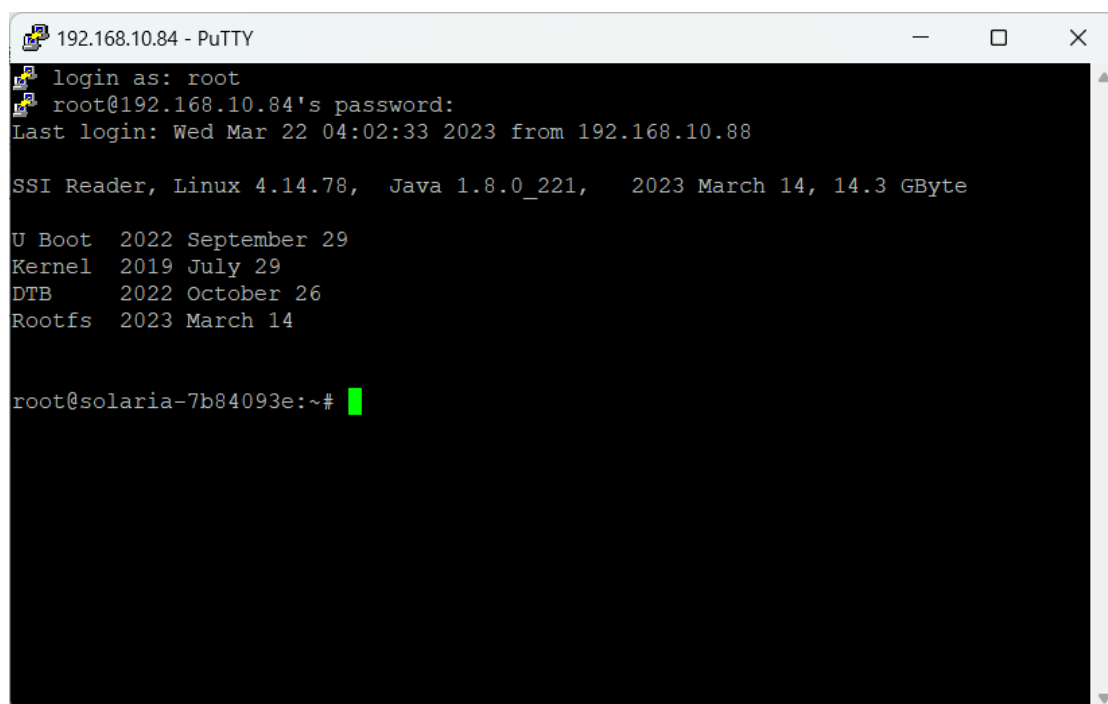
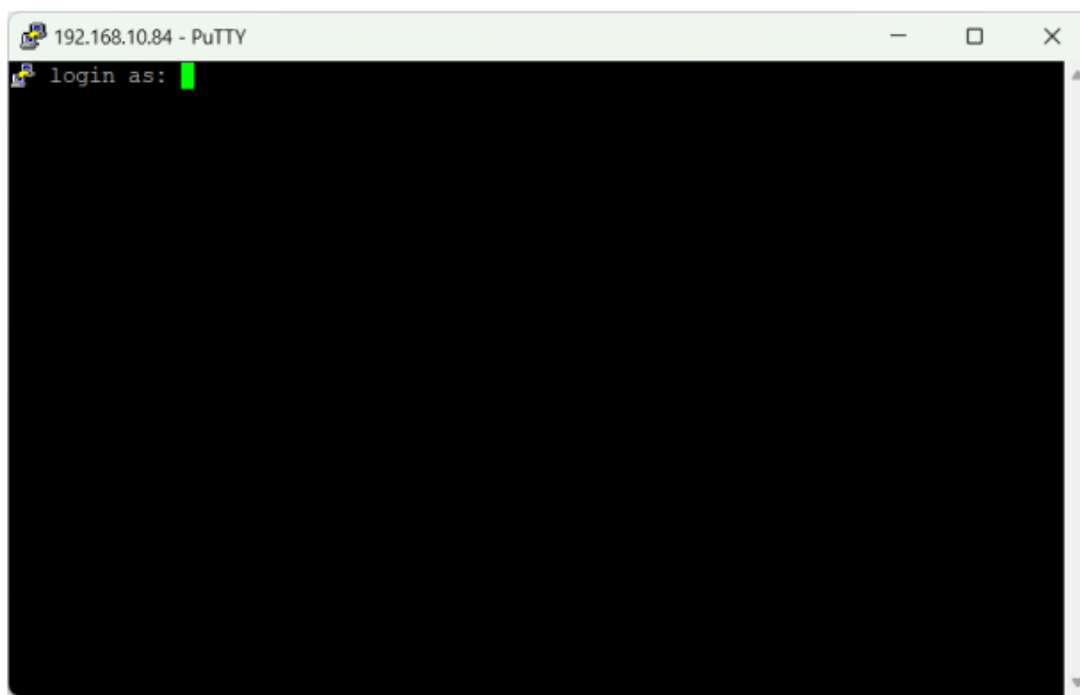
Start Putty, select SSH on Connection Type and type in IP address of SOLARIA, then click Open



Next, you should type in

Login name : root

Password : hRd29sLr23



3.8. Embedded Linux Applications Development

By using SSH of SOLARIA reader, you can develop embedded Linux codes in the usual Linux development manner.

The SOLARIA Reader is using Yocto Linux.

For popular open source software, you can use the command “dnf” to download popular precompiled binaries (dnf is similar to apt-get) by the following steps below:

Step 1: type the command “dnf --refresh makecache” (beware of the double dash) to refresh the directory of available precompiled binaries

Step 2: type the command “dnf list” to list the available precompiled binaries in long name format.

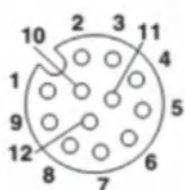
Step 3: type the command “dnf list | grep <keyword of the application you want>” to narrow your search to those in long name format.

Step 4: type the command “dnf install <long name of the application as obtained from Step 3>”

3.9. GPIO Port and Accessories for Connection

SOLARIA has 4 General Purpose Inputs and 4 General Purpose Outputs, all of them are optically isolated, and also an isolated 12 Volt DC output power supply with a rating of 2 Watt.

GPIO



M12 Socket
12 Position
A-Coded

4. GPIO Ports Connection Guide

SOLARIA GPIO ports are optically isolated switches only. There are various ways one can connect them up for common peripheral control. The following sub-chapters describe typical ways to connect up for General Purpose Input (GPI) and General-Purpose Output (GPO) operations.

The GPIO ports are optically isolated. To work with external relays or switches, an external power supply is needed. Some of the examples show how this is done in a safe manner. The important thing to remember is to handle exception cases when the load encounters a shorting failure, and the unlimited current can pass through that, and the optical isolated switch can be damaged if a protective resistor (high power resistor) is not placed in series with the power supply path. As long as a protective resistor is there, the overall circuit is protected. This is a standard industry practice.

4.1. General Purpose Input (GPI)

GPI ports contain an optical isolator inside. The input line has a series resistor of 1K Ohm with 1.5 Watt rating for protection. This will withstand external voltage up to 36 volts as shown below.

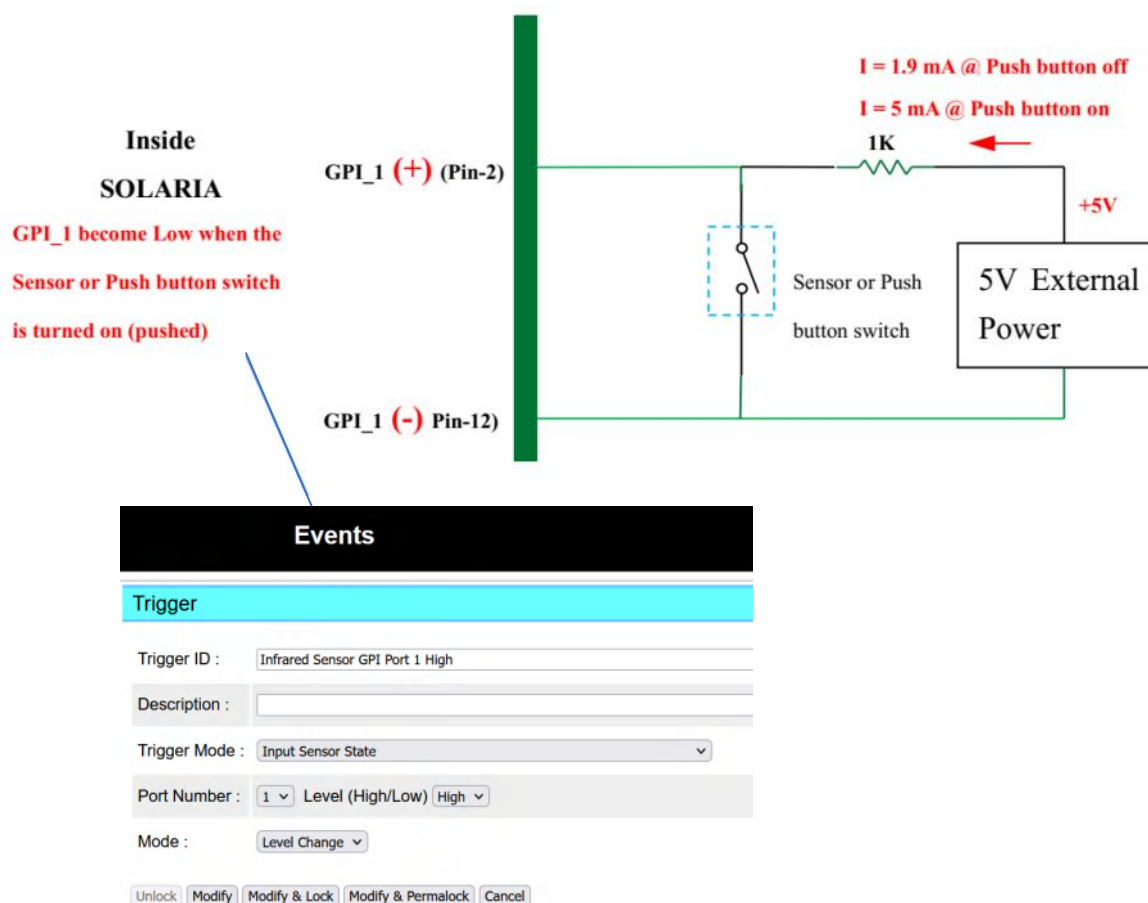
$$P = V^2 / R$$

$$P = 36^2 / 1000 = 1.296 \text{ Watt} < 1.5 \text{ Watt}$$

As such, the highest voltage the GPI port of the SOLARIA reader can be “seen” to be 36 volts.

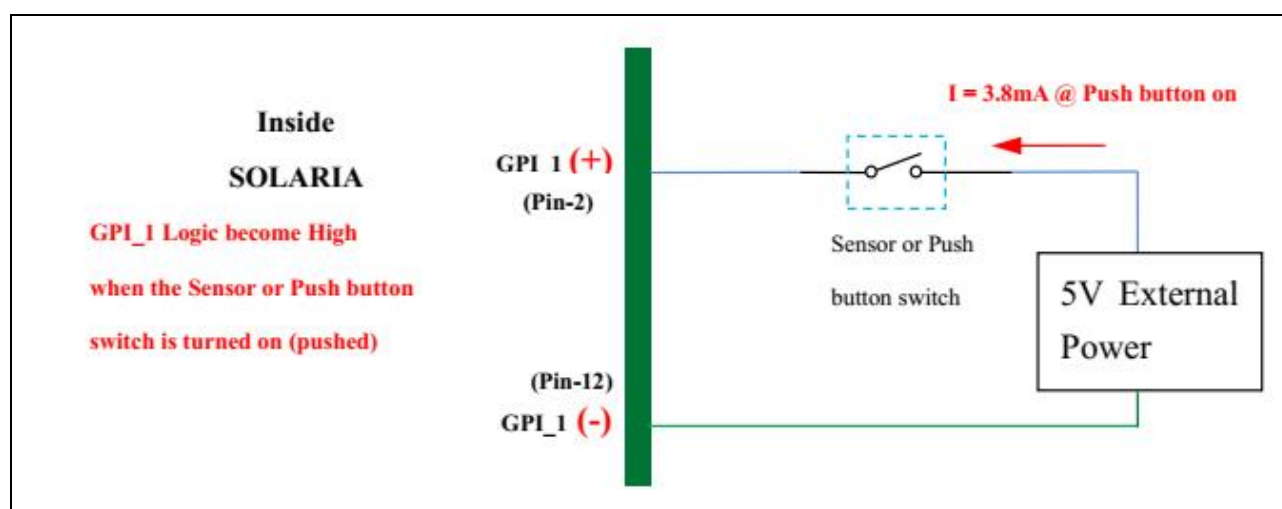
Example 1: (GPI with +5V External Power Supply)

Each GPI pin pair “looks” into an optical isolator with an operational forward voltage of 1.2 Volt, maximum 50 mA current. An internal series 1K Ohm 1.5 Watt resistor is also present for protection.



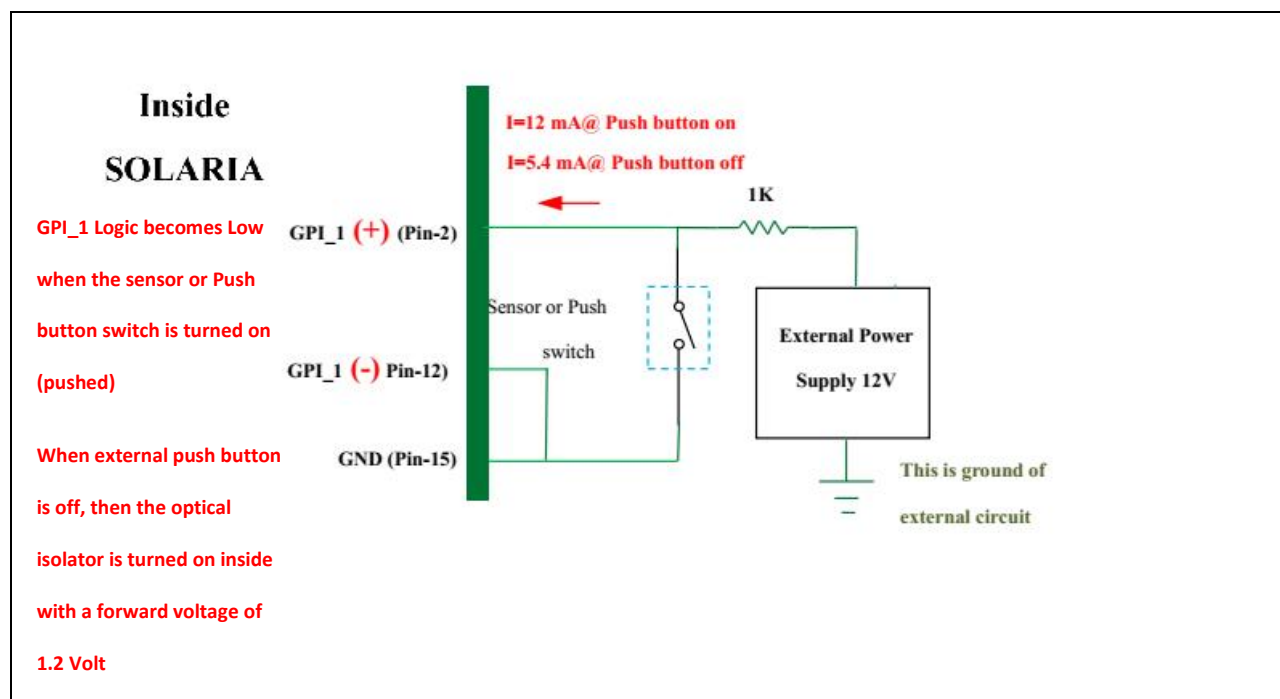
Example 2: (GPI with +5V External Power Supply)

Each GPI pin pair “looks” into an optical isolator with an operational forward voltage of 1.2 Volt, maximum 50 mA current. An internal series 1K Ohm 1.5 Watt resistor is also present for protection.



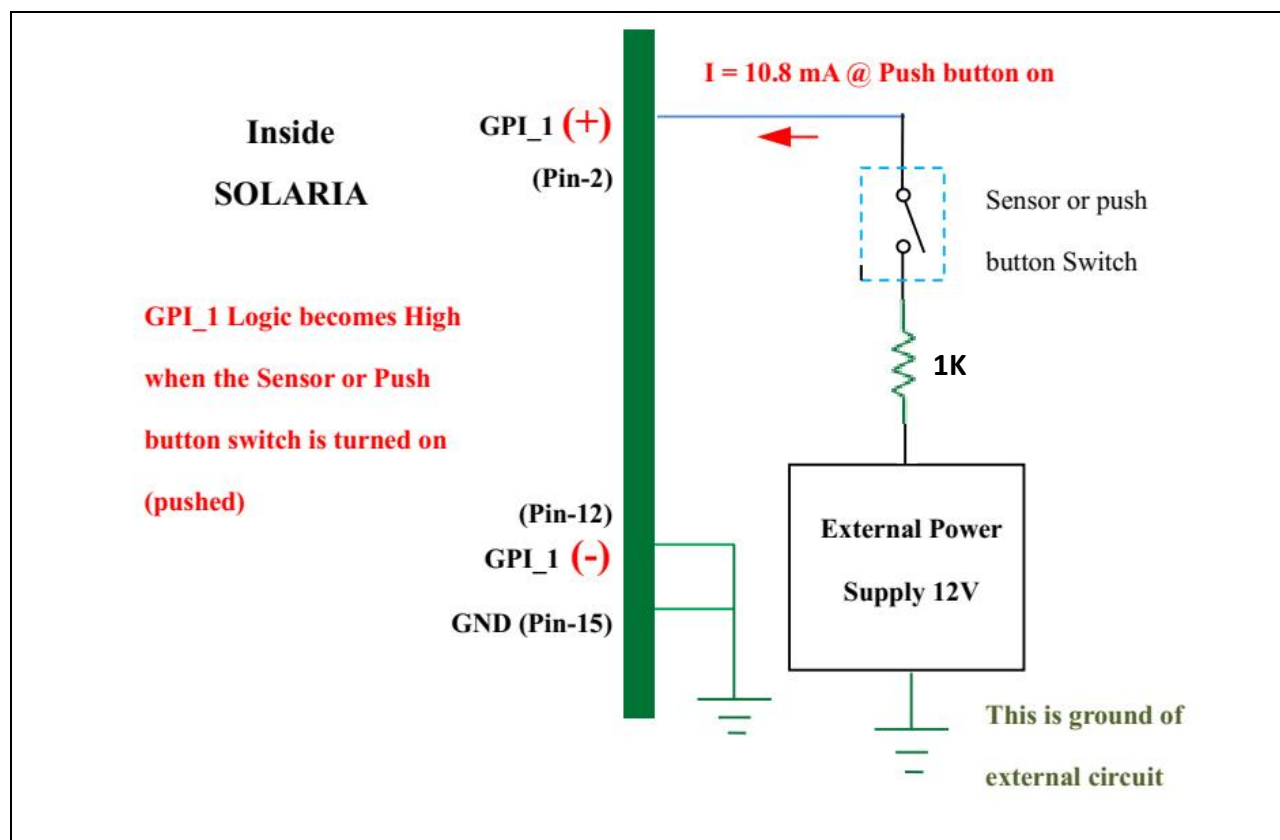
Example 3: (GPI using the **External** +12V, 2 Watt Power Supply)

Each GPI pin pair “looks” into an optical isolator with an operational forward voltage of 1.2 Volt, maximum 50 mA current. An internal series 1K Ohm 1.5 Watt resistor is also present for protection.



Example 4: (GPI using the External+12V, 2 Watt Power Supply)

Each GPI pin pair “looks” into an optical isolator with an operational forward voltage of 1.2 Volt, maximum 50 mA current. An internal series 1K Ohm 1.5 Watt resistor is also present for protection.



4.2. General Purpose Output (GPO)

The maximum current that can pass through the GPO optically isolated switches of the SOLARIA reader is 2 Ampere.

Therefore, a protection resistor with very high-power rating must be added in series to the external circuit to limit the current to 2 Ampere. The value of this resistor should be such that the current cannot exceed 2 A.

$$\text{Resistor Value} = \text{External Voltage} / 2 \text{ A.}$$

In addition, there is a resettable fuse internal to the GPO circuit in series with the circuit that will protect the switch as a last-ditch defense.

Example 1: GPO with +10V External Power Supply for High Load Current

A high wattage external resistor of **N** Ohm and rated to **P** Watt must be connected in case the LOAD shorts out. N and P must satisfy the following equation to limit current to 2 Ampere in such LOAD shorting situation: Resistance Value of Resistor:

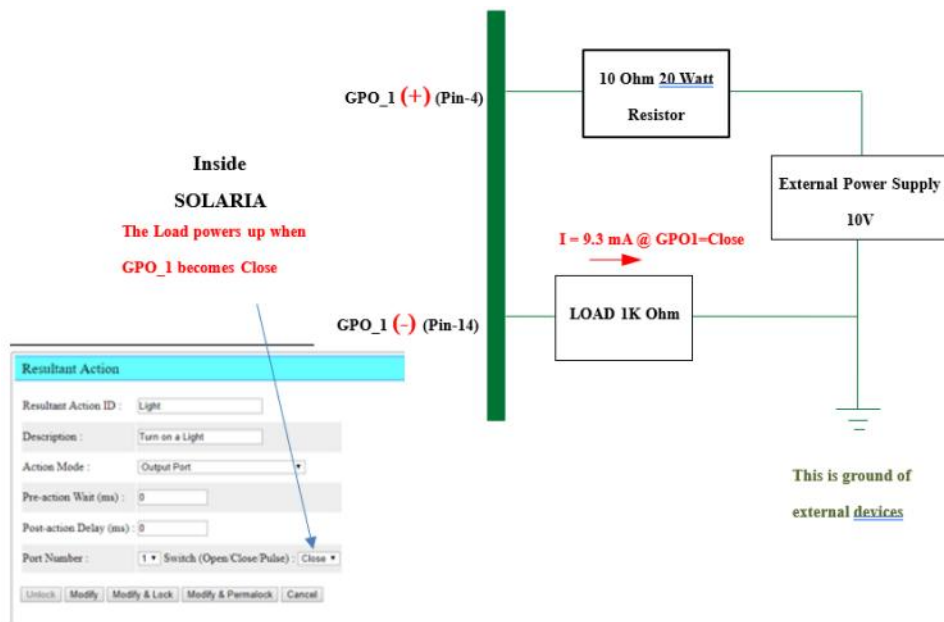
$$\mathbf{N} > \text{Voltage of External Power Supply} / 2$$

Power Rating of Resistor:

$$\mathbf{P} > (\text{Voltage of External Power Supply} / \mathbf{N})^2 * \mathbf{N}$$

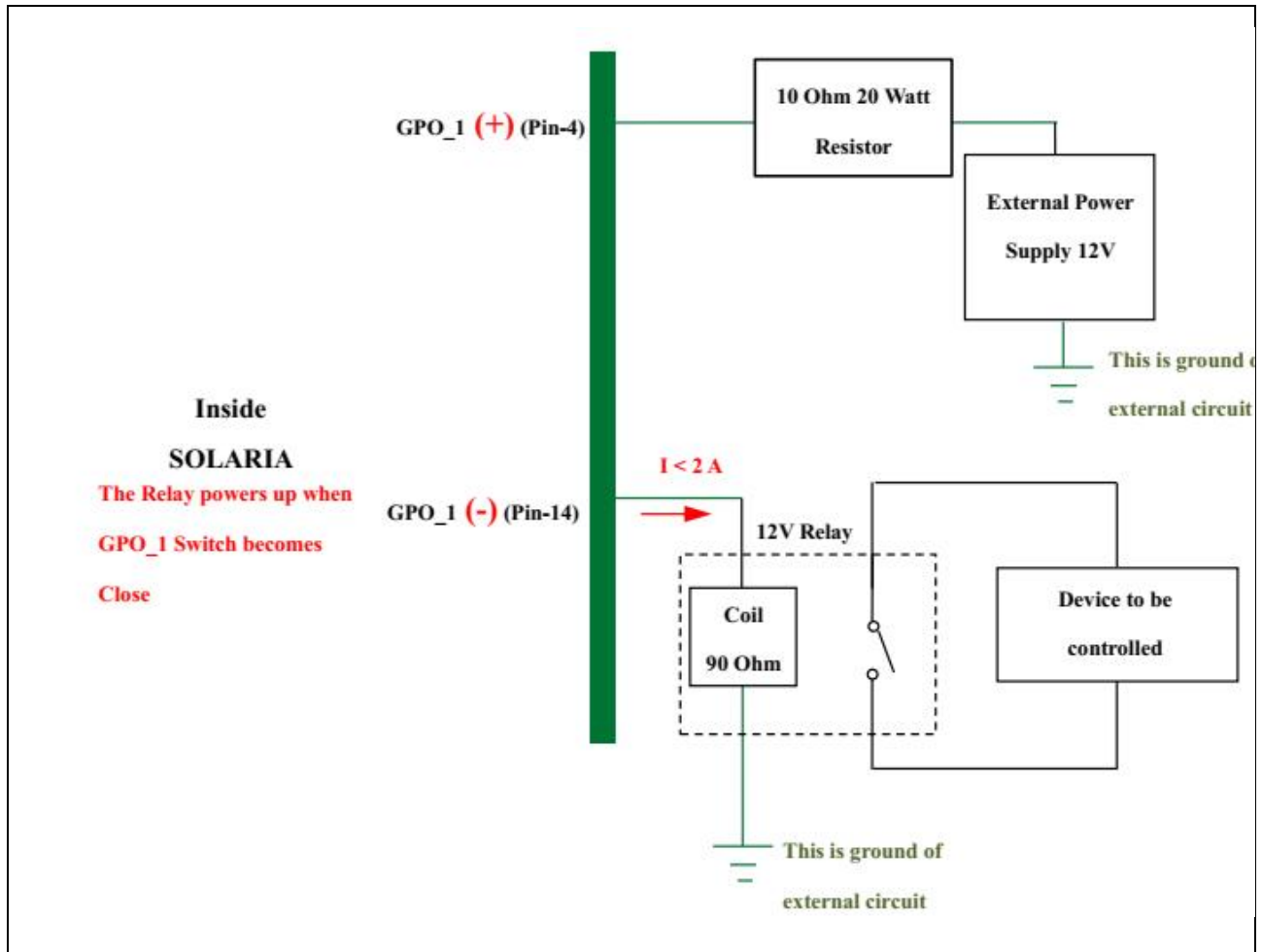
In this example, current in the load (e.g. a buzzer with 1K Ohm internal resistance) is calculated by the following equation:

$$\begin{aligned} I_{\text{LOAD}} &= (\text{Voltage of External Power Supply} - 0.6) / (\mathbf{N} + R_{\text{LOAD}}) \\ &= (10 - 0.6) / (10 + 1000) \\ &= 9.3 \text{ mA} \end{aligned}$$



Remark: The maximum current flowing through GPO pin pair is 2A

Example 2: GPO using relay for full isolation and high coil current (with External Power Supply)



Remark: The maximum current flowing through GPO pin pair is 2A

5. Web Browser Interface Details

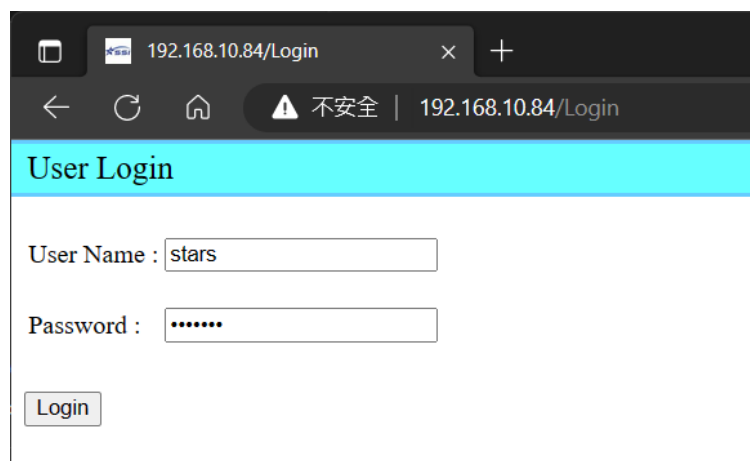
This chapter describes in detail the web browser interface. With SOLARIA, this web browser enables full control of the reader, including the event engine.

5.1. Home Page

The home page of the web-based administration interface can be entered by typing the IP address of the reader (default IP address is printed on the label) on the web browser.

For example, if the IP address of the reader is 192.168.10.84, you should type:

http://192.168.25.84



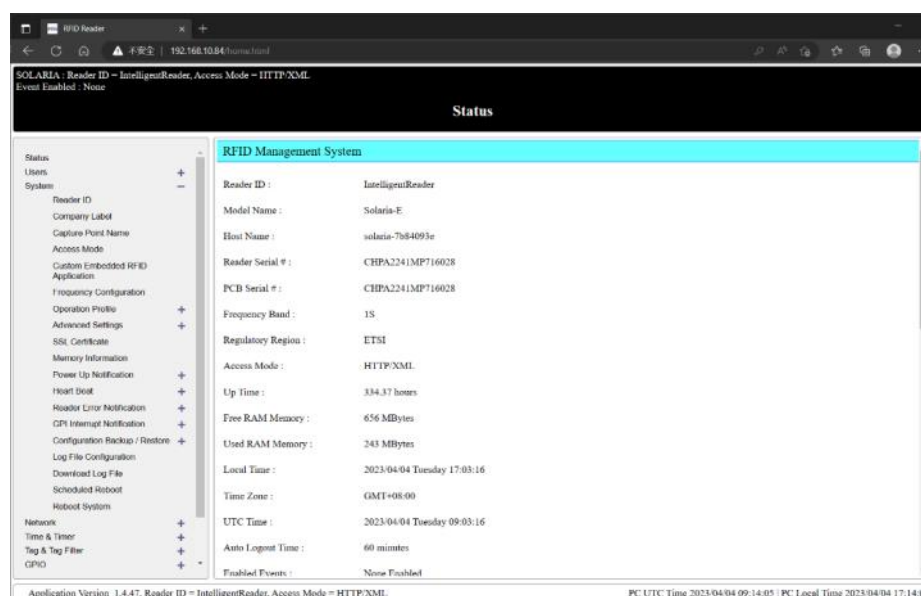
The screenshot shows a web browser window with the address bar displaying '192.168.10.84/Login'. The page has a light blue header with the text 'User Login'. Below the header, there are two input fields: 'User Name' with the value 'stars' and 'Password' with masked characters '*****'. A 'Login' button is located at the bottom left of the form area.

Use default User Name: **stars** and Password: **systems** and click Login to login to the Reader

5.2. Status

The “Status” page gives a quick overview of the status of the reader.

The reader basic information such as serial number and access mode can be found on the first page of status page



If any event was enabled and reading tag, the basic RFID related parameters will show on status page such as transmitting power, profile and session as below:

RFID Management System	
Status	+
Users	+
System	+
Network	+
Time & Timer	+
Tag & Tag Filter	+
GPIO	+
Events	-
Trigger	+
Resultant Action	+
Event Management	+
Display Format	+
Tag Inventory	-
Capture Tags Raw	
Display Tag Group/Database Record	
Display Magnus Tag Data	
Version	+
Firmware Upgrade	+

Access Mode :	HTTP/XML
Up Time :	125.22 hours
Free RAM Memory :	637 MBytes
Used RAM Memory :	244 MBytes
Local Time :	2023/03/27 Monday 19:18:43
Time Zone :	GMT+08:00
UTC Time :	2023/03/27 Monday 11:18:43
Auto Logout Time :	60 minutes
Enabled Events :	Default Event
Cloud Server Connection :	
Scheduled Reboot :	Not Enabled
Antenna Port 3 (External) Power :	Not Enabled
Antenna Port 4 (Internal) Power :	30.0 dBm
Profile ID :	Default Profile
Tag Population :	50
Session No. :	0
PCB Version :	2.8
OS Version :	Linux v4.14.78-imx_4.14.78_1.0.0_ga+g94da7bd

Application Version 1.4.47, Reader ID = IntelligentReader, Access Mode = HTTP/XML

All firmware versions are shown on status page.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Status

RFID Management System			
Scheduled Reboot :	Not Enabled		
Antenna Port 3 (External) Power :	Not Enabled		
Antenna Port 4 (Internal) Power :	Not Enabled		
Profile ID :			
Tag Population :			
Session No. :			
PCB Version :	2.8		
OS Version :	Linux v4.14.78-imx_4.14.78_1.0.0_ga+g94da7bd		
Java Version :	1.8.0_221		
RFID Firmware Version :	2.6.45		
Web Application Version :	1.4.47		
RFID JNI Library Version :	1.1.20		
GPIO JNI Library Version :	1.0		
Network Setting :	Ethernet <table border="1"> <tr> <td>Enable :</td> <td>true</td> </tr> </table>	Enable :	true
Enable :	true		

Application Version 1.4.47, Reader ID = IntelligentReader, Access Mode = PC UTC Time 2023/04/04 09:15:23 | PC Local Time 2023/04/04

Network information can be found on status page such as IP and Mac address

RFID Management System

Tag Population :

Session No. :

PCB Version : 2.8

OS Version : Linux v4.14.78-imx_4.14.78_1.0.0_ga+g94da7bd

Java Version : 1.8.0_221

RFID Firmware Version : 2.6.45

Web Application Version : 1.4.47

RFID JNI Library Version : 1.1.20

GPIO JNI Library Version : 1.0

Network Setting :

Ethernet

Enable : true

Connection Type : DHCP

IP Address : 192.168.10.84

MAC Address : 00057B84093E

Subnet Mask : 255.255.255.0

Gateway : 192.168.10.254

5.3. Users Management

The “Users Management” page contains sub-menu for adding, deleting and modifying password, set auto-logout time and login/logout.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Users

Status

Users —

- Add User
- Delete User
- Modify Password
- List Users
- Set Auto Logout Time
- Logout

System +

Network +

Time & Timer +

Tag & Tag Filter +

GPIO +

Events +

Version +

Firmware Upgrade +

User Account Table

User Name	Description
root	top level administrator
stars	general user

5.3.1. Modify Password

To modify password, input the current password, new password and retype new password. Then click “Modify”.

Status

Users

—

Add User

Delete User

Modify Password

List Users

Set Auto Logout Time

Logout

System

+

Network

+

Time & Timer

+

Tag & Tag Filter

+

GPIO

+

Events

+

Version

+

Firmware Upgrade

+

Modify User Password

User Name : **root**

Current Password :

New Password :

Repeat New Password :

Modify

Cancel

5.3.2. List Users

The “List Users” page lists all the users and his/her authority.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Users

Status

Users -

- Add User
- Delete User
- Modify Password
- List Users
- Set Auto Logout Time
- Logout

System +

Network +

Time & Timer +

Tag & Tag Filter +

GPIO +

Events +

Version +

Firmware Upgrade +

User Account Table

User Name	Description
root	top level administrator
stars	general user

5.3.3. Set Auto Logout Time

The “Set Auto Logout Time” page allows ones to set the time for automatic logout if the user is idle.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

System

Status

Users -

- Add User
- Delete User
- Modify Password
- List Users
- Set Auto Logout Time
- Logout

System +

Network +

Time & Timer +

Tag & Tag Filter +

GPIO +

Events +

Version +

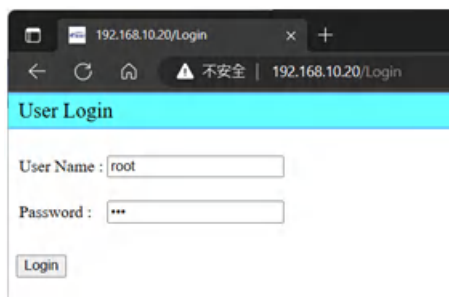
Firmware Upgrade +

Set Auto Logout Time

Auto Logout Time (minute, 0 = login session never expire) :

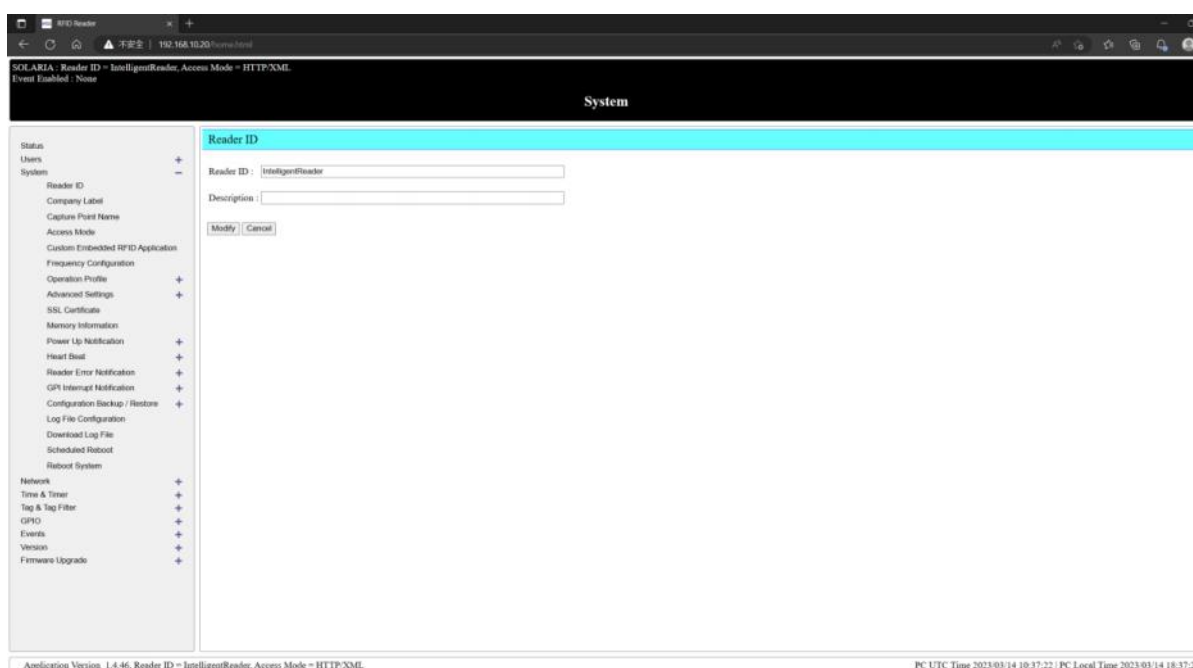
5.3.4. Login/Logout

The “Login/Logout” page is for users to login or logout the web browser interface.



5.4. System

The “System” page contains many sub-menus to configure the reader for operation. Users are recommended to access these pages to determine the required settings before any operation.



5.4.1. Reader ID

Here is the “Reader ID” submenu:

Status
Users
System
Reader ID
Company Label
Capture Point Name
Access Mode
Custom Embedded RFID Application
Frequency Configuration

Reader ID

Reader ID :
Description :

5.4.2. The Capture Point Name can be modified in this page

The name of each antenna port refers to the Capture Point Name (Some may refer to read point name).

This name can be configured. In other words, each antenna port (or capture point, or read point) can be uniquely identified and accessed or referred to. Note that the word capture and read are interchangeably used in the context of this reader. A capture point is the same as a read point.

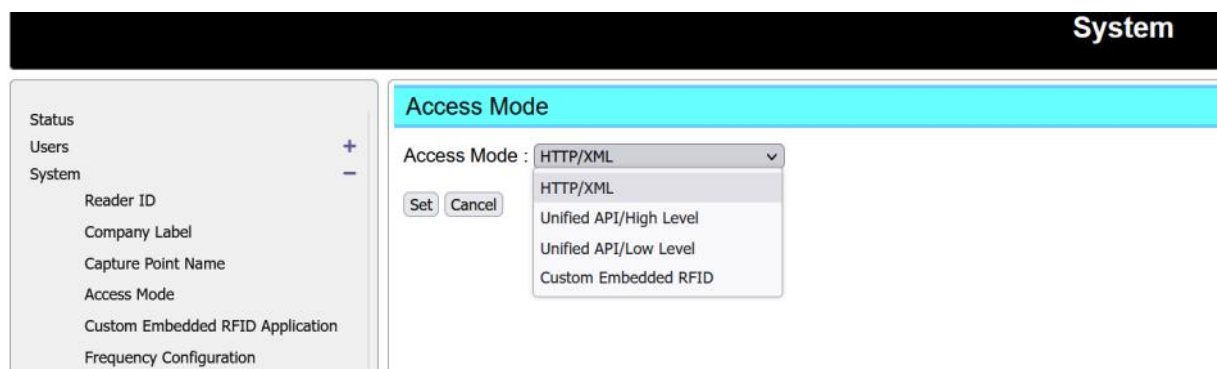
Status
Users
System
Reader ID
Company Label
Capture Point Name
Access Mode
Custom Embedded RFID Application
Frequency Configuration

Reader ID

Capture Point	Name
Antenna Port 3 (External)	Capture Point 3
Antenna Port 4 (Internal)	Capture Point 4

5.4.3. Access Mode

Here is the “Access Mode” submenu:



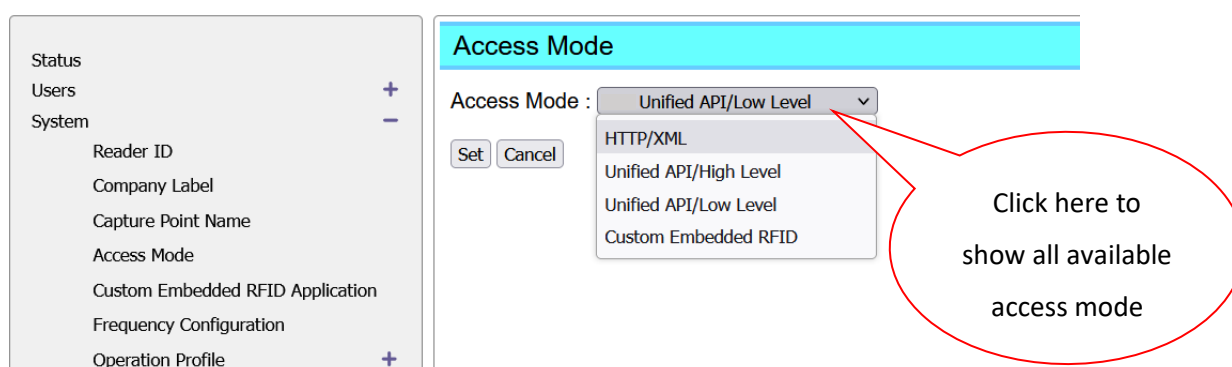
SOLARIA offers 4 access modes:

1. HTTP/XML
2. Unified API/High Level
3. Unified API/Low Level
4. Custom Embedded RFID

5.4.3.1. Set Access Mode

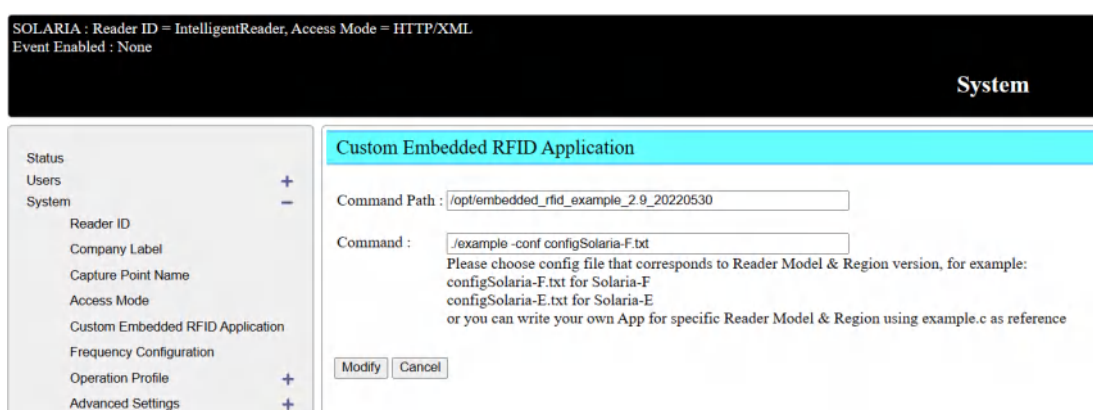
If you configure the reader on the web interface (e.g. Network setting, Time settings, Event Engine, etc.), you must set the Access Mode to “HTTP/XML”.

If you configure the reader using your own embedded control system, please set the Access Mode to “Custom Embedded RFID HTTP” and then configure it accordingly.



5.4.3.2. Custom Embedded RFID application

This page is used to input custom embedded RFID application path and its command. This command will be run on power on – provided **Access Mode has been changed to “Custom Embedded RFID HTTP”**.



If one SSH into the reader, and change directory to /opt, you will indeed see a sub-directory with that name. If you go into that sub-directory, you will then see the program example.c and the related makefile and other resources. This example.c code demonstrates how to run the RFID circuits inside to do inventory. You can modify that code or build your own company’s code based on that.

5.4.4. Frequency Configuration

The “Frequency Configuration” page allows user to configure the frequency to be used by the reader.

Please refer to the regulatory law of your region for the allowed frequency to be used. Here is the “Frequency Configuration” submenu:

SOLARIA: Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled: None
System

Status: +

Users: +

System: -

Reader ID: -

Company Label: +

Capture Point Name: +

Access Mode: +

Custom Embedded RFID Application: +

Frequency Configuration: +

Operation Profile: +

Advanced Settings: +

SSL Certificate: +

Memory Information: +

Power Up Notification: +

Heart Beat: +

Reader Error Notification: +

RF Interrupt Notification: +

Configuration Backup / Restore: +

Log File Configuration: +

Download Log File: +

Scheduled Reboot: +

Reboot System: +

Network: +

Time & Timer: +

Tag & Tag Filter: +

GPIO: +

Events: +

Version: +

Firmware Upgrade: +

Frequency Configuration

Regulatory Region:

Frequency Order:

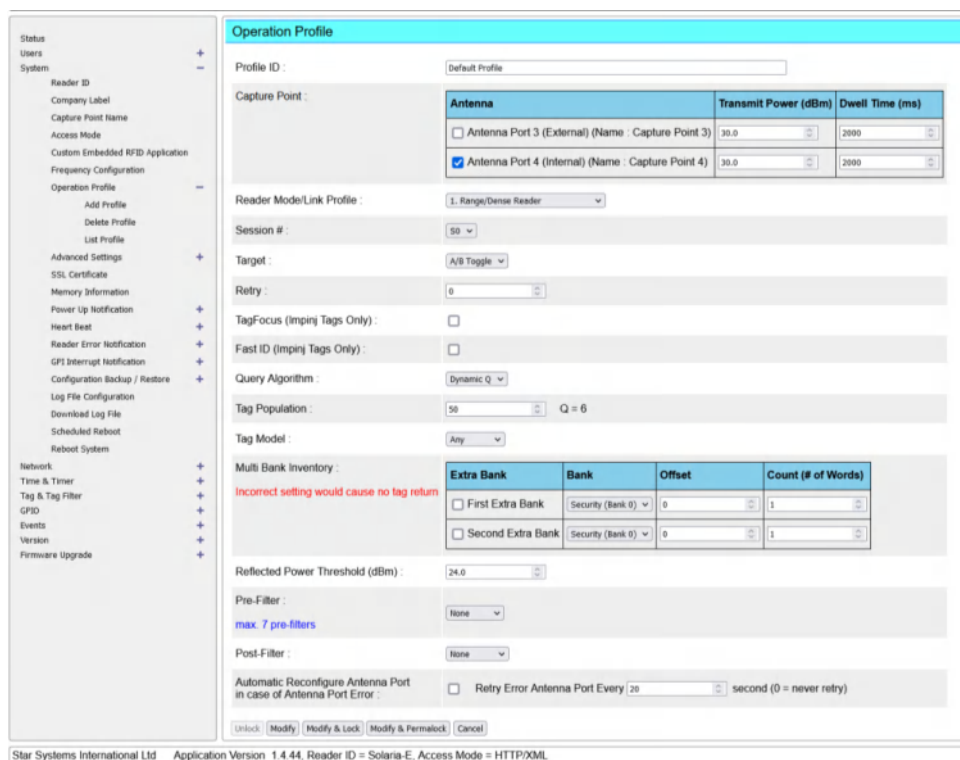
Hopping Channels (MHz):

902.750
903.250
903.750
904.250
904.750
905.250
905.750
906.250
906.750
907.250
907.750
908.250
908.750
909.250
909.750
910.250
910.750
911.250
911.750
912.250
912.750
913.250
913.750
914.250
914.750

Application Version: 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

5.4.5. Operation Profile

The “Operation Profile” page is extremely important as it sets the basic RFID parameters of the reader.



Operation Profile

Profile ID :

Antenna	Transmit Power (dBm)	Dwell Time (ms)
☐ Antenna Port 3 (External) (Name : Capture Point 3)	30.0	2000
☒ Antenna Port 4 (Internal) (Name : Capture Point 4)	30.0	2000

Reader Mode/Link Profile :

Session # :

Target :

Retry :

TagFocus (Impinj Tags Only) : ☐

Fast ID (Impinj Tags Only) : ☐

Query Algorithm :

Tag Population : Q = 6

Tag Model :

Extra Bank	Bank	Offset	Count (# of Words)
☐ First Extra Bank	Security (Bank 0)	0	1
☐ Second Extra Bank	Security (Bank 0)	0	1

Reflected Power Threshold (dBm) :

Pre-Filter :

Post-Filter :

Automatic Reconfigure Antenna Port in case of Antenna Port Error : ☐ Retry Error Antenna Port Every second (0 = never retry)

Star Systems International Ltd Application Version 1.4.44, Reader ID = Solaria-E, Access Mode = HTTP/XML

Parameter	Description
Profile ID	Each profile can be saved and recall for use in Event Engine, or be uploaded and redeployed to other SOLARIA reader in the field.
Capture Point	Which antenna port to enable (turn power on) and the output conducted power of each antenna port, in terms of 10 x Power (dBm) Dwell time of each antenna port – how long the reader will stay in that particular antenna port to do RFID tag inventory in each antenna cycle.

Reader Mode/Link Profile	There are different Reader Modes: 0 – Best Multipath Fading Resistance 1 – Longest Read Range, Dense Reader Mode 2 – Read Range and Throughput, Dense Reader Mode 3 – Maximum Throughput Please see Appendix B for more details
Session #	Session # S0, S1, S2, and S3, as defined by EPC
Target	Flag A, B or A/B Toggle of the tag to be inventoried
Query Algorithm	Fixed Q or Dynamic Q Algorithm
Tag Population	Estimated population of tags to be read at a time. Based on this tag population estimate, the corresponding Q parameter to be broadcasted during a Query will be displayed on the right side of the edit box
Multi Bank Inventory	SOLARIA has a unique multi-bank inventory capability: up to 2 more banks, with each bank's starting address and length of words to be captured configurable
LNA	Control RF front end gain of reader
TagFocus	Enabling TagFocus feature can reduce the time to finish reading high number of tags. Pls note this feature can only work with those tags got this feature
FastID	If this feature was enabled, the tag chip with this feature, will backscatters the EPC and TID together during an inventory. Pls note this feature can only work with those tags got this feature
Tag Model	For special feature tag such as temperature reading, right model must be chosen

5.4.6. Memory Information

The “Memory Information” page shows the RAM and Flash memory used and free (available for use).

It also displays the Clear Cache cycle time. This is the periodic time when the Linux OS cache is cleared.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

System

- Custom Embedded RFID Application
- Frequency Configuration
- Operation Profile
- Advanced Settings
- SSL Certificate
- Memory Information
- Power Up Notification
- Heart Beat
- Reader Error Notification

Memory Information

Local Time : 2023/04/04 Tuesday 17:34:55

Up Time (hour) : 334.88

RAM (MBytes) :	Total	Used	Free	Buffer/Cached
	1000	245	652	104

Flash Memory (MBytes) :	Total	Used	Free
	8132	4937	3195

Clear Cache Cycle Time (Hours) :

5.4.7. Configuration Backup/Restore

The “Configuration Backup/Restore” page allows backup of configurations, restoring of configurations.

5.4.7.1. Configuration Backup

To backup configuration, click “Download” in “Configuration Backup” page. The system would start to backup the configuration to file.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

System

- Status
- Users
- System
- Reader ID
- Company Label
- Capture Point Name
- Access Mode
- Custom Embedded RFID Application
- Frequency Configuration
- Operation Profile
- Advanced Settings
- SSL Certificate
- Memory Information
- Power Up Notification
- Heart Beat
- Reader Error Notification
- GPI Interrupt Notification
- Configuration Backup / Restore
- Backup
- Restore
- Log File Configuration
- Download Log File
- Scheduled Reboot
- Reboot System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
- Version
- Firmware Upgrade

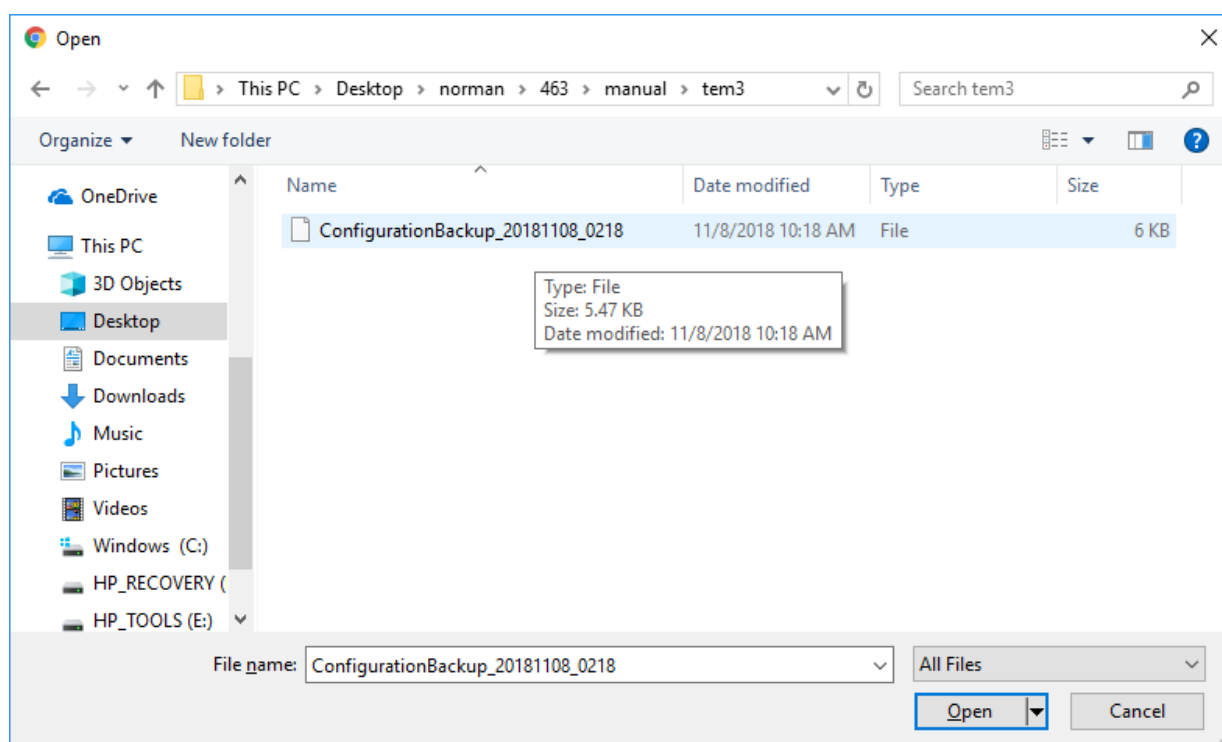
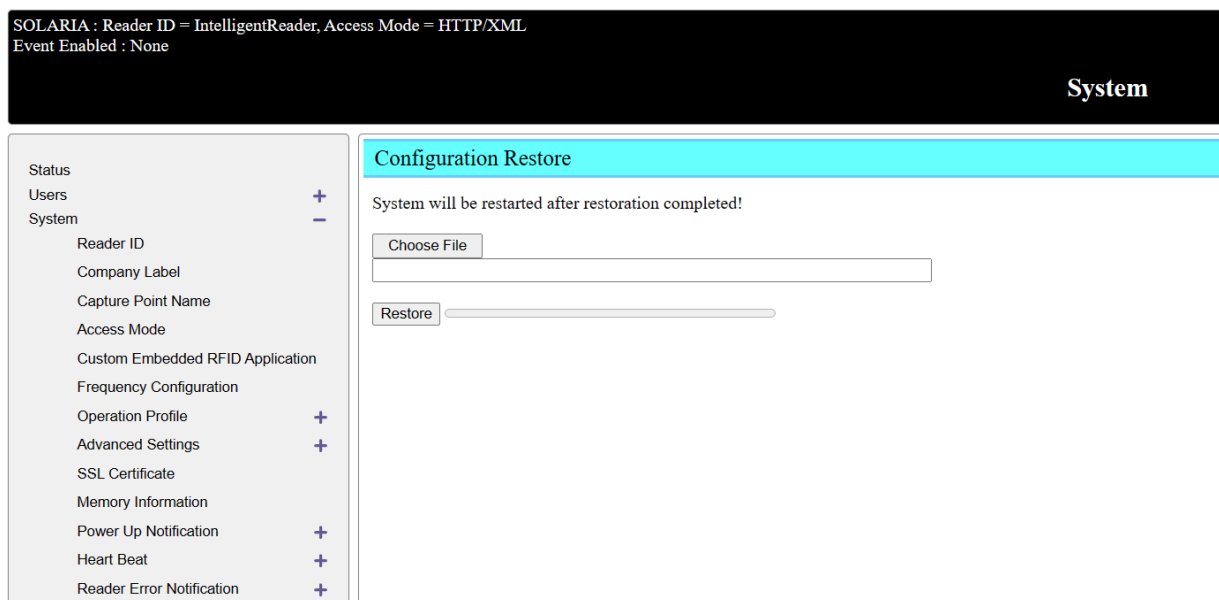
Configuration Backup

Settings to be included in the backup file :

- ☒ Users
- ☒ Operation Profile
- ☒ Power Up Notification
- ☒ Heart Beat
- ☒ Reader Error Notification
- ☒ GPI Interrupt Notification
- ☒ Cloud Server Configuration
- ☒ Cloud Server
- ☒ Data Format
- ☒ TCP Listening Port Configuration
- ☒ Tag Group
- ☒ Tag Filter
- ☒ Trigger
- ☒ Resultant Action
- ☒ Display Format
- ☒ Event Management
- ☒ Ethernet, WiFi, Time Zone, NTP and other settings

5.4.7.2. Configuration Restore

To restore backup configuration, click “Choose File”. Then select the backup configuration file and click “Open”.



5.4.8. Power Up Notification

System can send power up notification to server with a particular format if it is enabled

5.4.8.1. Add Power Up Notification

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

System

Status
 Users +
 System -
 Reader ID
 Company Label
 Capture Point Name
 Access Mode
 Custom Embedded RFID Application
 Frequency Configuration
 Operation Profile +
 Advanced Settings +
 SSL Certificate
 Memory Information
 Power Up Notification -
 Add Power Up Notification
 Delete Power Up Notification
 List Power Up Notification

Add Power Up Notification

 Power Up Notification ID :

 Type : HTTP POST ▾

 Server ID : Example Free Cloud Server ▾

 Data Format ID : Example Power Up Notification Data Format ▾

 Enable : ☐

Add
Cancel

5.4.9. Heartbeat

Heartbeat is used to monitor the system if it is running

5.4.9.1. Add Heat Beat

The Heartbeat sending interval, type and address sending should be set on Add Heart Beat as below.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

System

Status
 Users +
 System -
 Reader ID
 Company Label
 Capture Point Name
 Access Mode
 Custom Embedded RFID Application
 Frequency Configuration
 Operation Profile +
 Advanced Settings +
 SSL Certificate
 Memory Information
 Power Up Notification +
 Heart Beat -
 Add Heart Beat
 Delete Heart Beat
 List Heart Beat
 Reader Error Notification +

Add Heart Beat

 Heart Beat ID :

 Interval (s) :

 Type : ICMP Ping ▾

 Address : ▾

 Reset Network : ☐ Reset Ethernet ▾ port if no reply after consecutive times fail

 Enable : ☐

Add
Cancel

If the HTTP Post type server is selected, corresponding Server and Data Format should be selected as below. Server and Data Format was defined in Cloud Server page.

Status
Users
System

Reader ID
Company Label
Capture Point Name
Access Mode
Custom Embedded RFID Application
Frequency Configuration
Operation Profile
Advanced Settings
SSL Certificate
Memory Information
Power Up Notification
Heart Beat
Add Heart Beat
Delete Heart Beat
List Heart Beat
Reader Error Notification

Add Heart Beat

Heart Beat ID :
Interval (s) :
Type :
Server ID :
Data Format ID :
Reset Network : ☐ Reset port if no reply after consecutive times fail
Enable : ☐
Add Cancel

5.4.10. Log File Configuration

There are different types of log files which can be enabled as shown below.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

System

Status
Users
System

Reader ID
Company Label
Capture Point Name
Access Mode
Custom Embedded RFID Application
Frequency Configuration
Operation Profile
Advanced Settings
SSL Certificate
Memory Information
Power Up Notification
Heart Beat
Add Heart Beat
Delete Heart Beat
List Heart Beat
Reader Error Notification
GPI Interrupt Notification
Configuration Backup / Restore
Log File Configuration
Download Log File
Scheduled Reboot
Reboot System
Network
Time & Timer
Tag & Tag Filter
GPIO
Events
Version
Firmware Upgrade

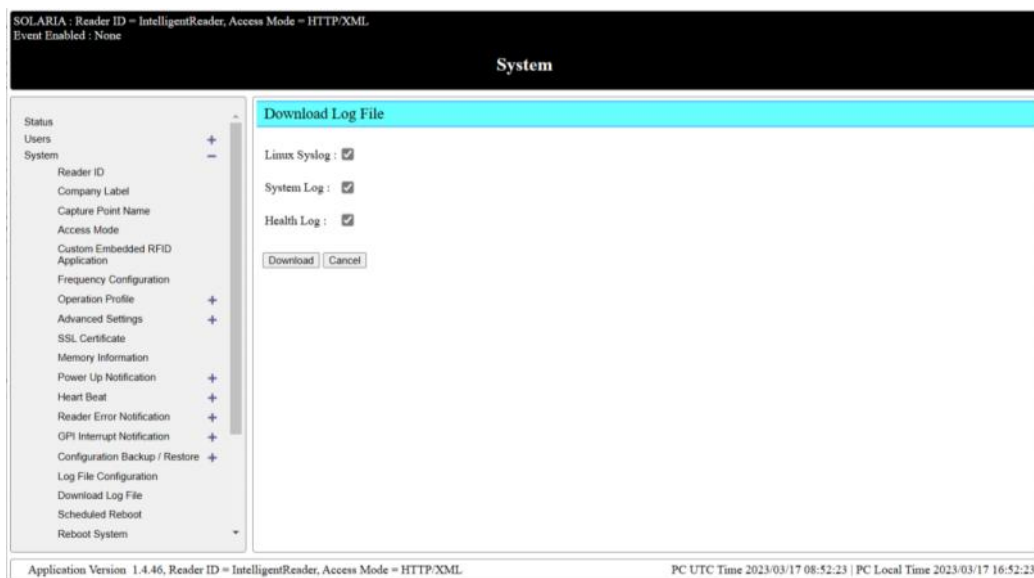
Log File Configuration

Enable Linux Syslog : ☒
Enable System Log : ☒
Enable Health Log : ☒
Enable JNI Server Log : ☒
Modify Cancel

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/14 10:52:16 | PC Local Time 2023/03/14 18:52:16

5.4.11. Download Log file

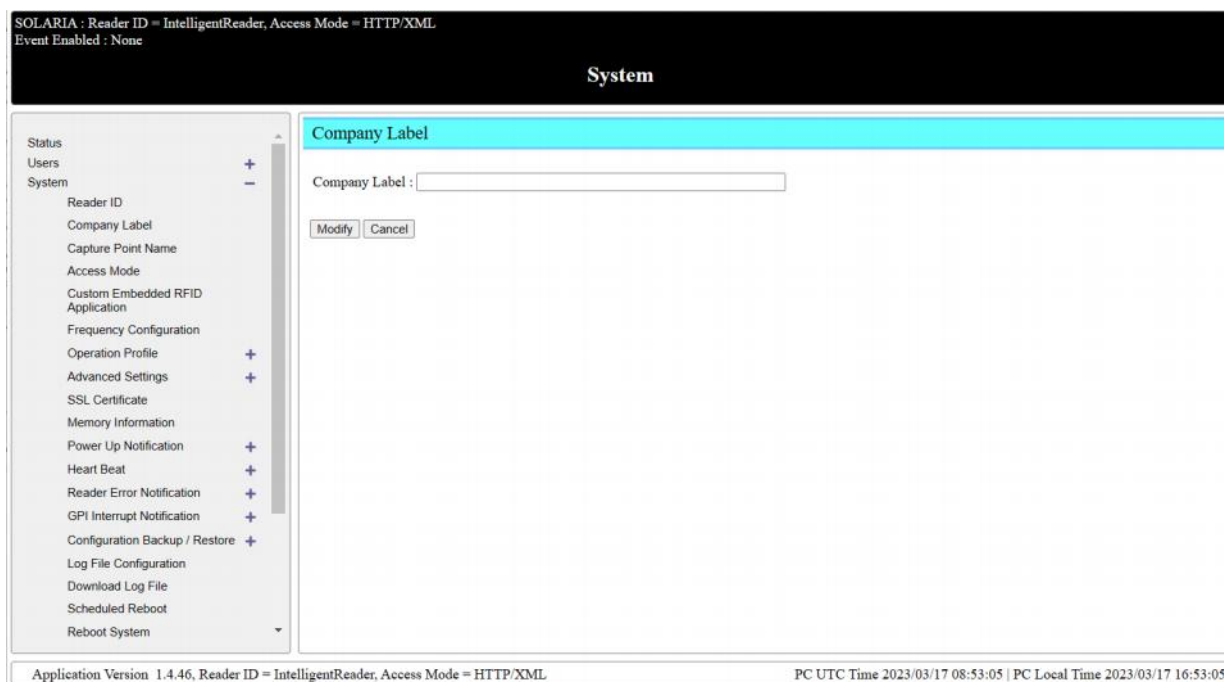
All Log files can be download on this page, select Log files type going to download then click Download to start download.



The screenshot shows the 'System' configuration page with the 'Download Log File' option selected in the left sidebar. The main content area is titled 'Download Log File' and contains three checkboxes: 'Linux Syslog' (checked), 'System Log' (checked), and 'Health Log' (checked). Below these checkboxes are 'Download' and 'Cancel' buttons. The status bar at the bottom indicates 'Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML' and 'PC UTC Time 2023/03/17 08:52:23 | PC Local Time 2023/03/17 16:52:23'.

5.4.12. Company Label

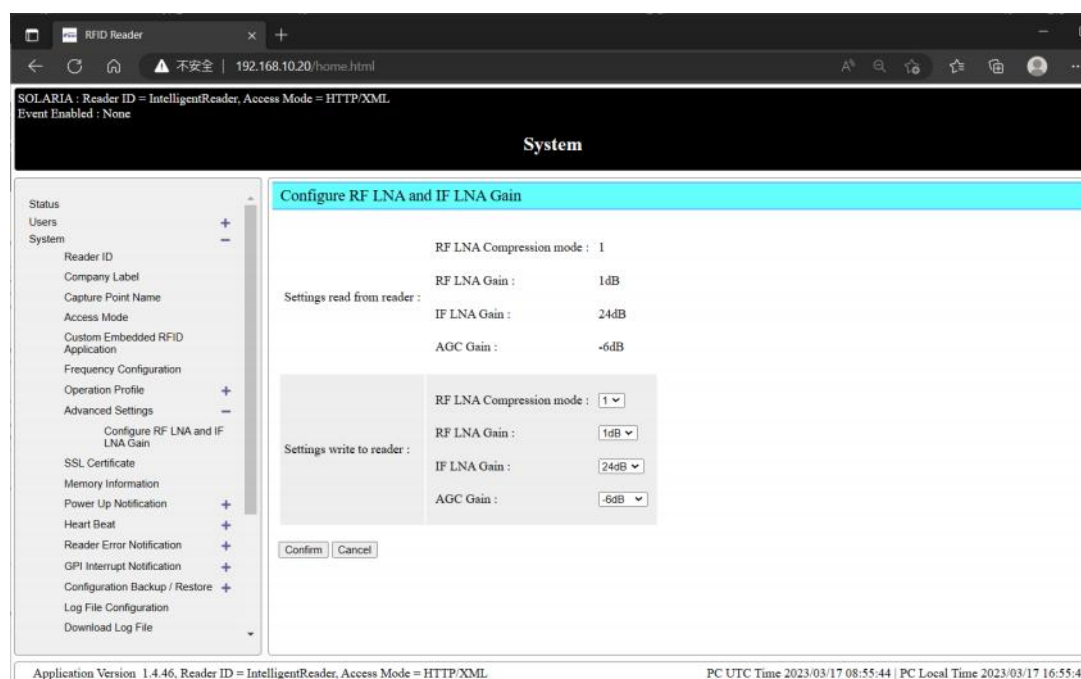
Company label can be shown on web page and was defined on this page



The screenshot shows the 'System' configuration page with the 'Company Label' option selected in the left sidebar. The main content area is titled 'Company Label' and contains a text input field for 'Company Label'. Below the input field are 'Modify' and 'Cancel' buttons. The status bar at the bottom indicates 'Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML' and 'PC UTC Time 2023/03/17 08:53:05 | PC Local Time 2023/03/17 16:53:05'.

5.4.13. Advanced Settings

The reader sensitivity can be set on this page by changing the parameters below.



The screenshot shows the 'Advanced Settings' page of the RFID Reader web interface. The left sidebar contains a tree view with categories like Status, Users, System, and Advanced Settings. The 'Advanced Settings' category is expanded, showing sub-items like 'Configure RF LNA and IF LNA Gain'. The main content area is titled 'Configure RF LNA and IF LNA Gain' and displays the following settings:

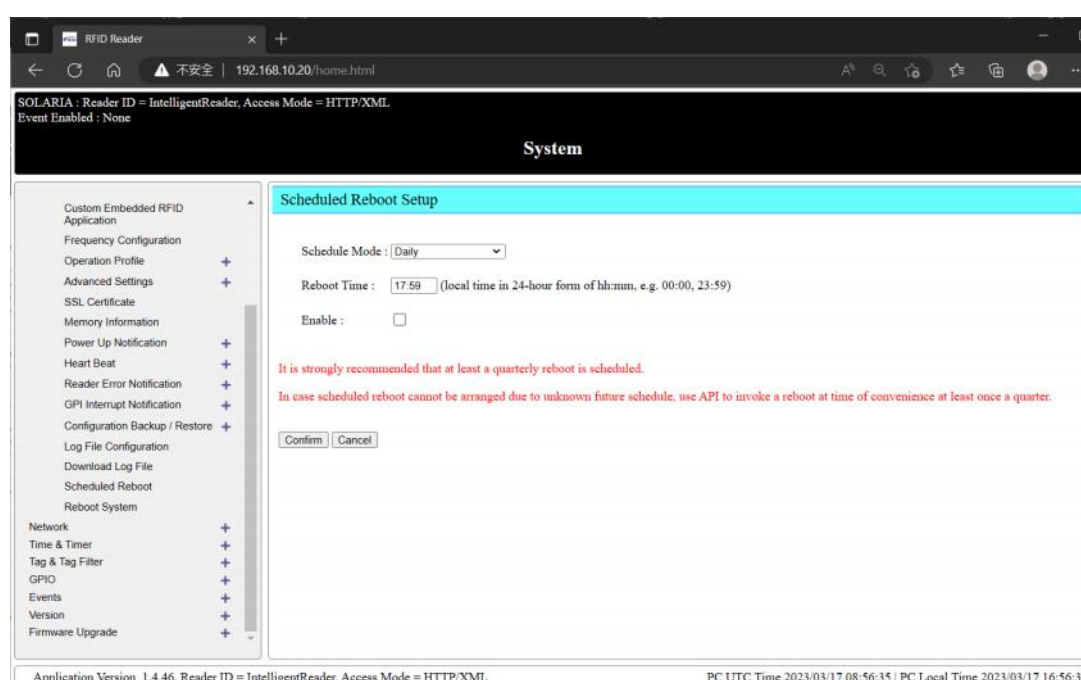
Settings read from reader :	
RF LNA Compression mode :	1
RF LNA Gain :	1dB
IF LNA Gain :	24dB
AGC Gain :	-6dB

Settings write to reader :	
RF LNA Compression mode :	1
RF LNA Gain :	1dB
IF LNA Gain :	24dB
AGC Gain :	-6dB

At the bottom of the settings area are 'Confirm' and 'Cancel' buttons. The footer of the page displays 'Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML' and 'PC UTC Time 2023/03/17 08:55:44 | PC Local Time 2023/03/17 16:55:44'.

5.4.14. Scheduled Restart

System Restart can be scheduled on this page



The screenshot shows the 'Scheduled Reboot Setup' page of the RFID Reader web interface. The left sidebar contains a tree view with categories like Custom Embedded RFID Application, Frequency Configuration, Operation Profile, Advanced Settings, and Scheduled Reboot. The 'Scheduled Reboot' category is expanded, showing sub-items like 'Scheduled Reboot' and 'Reboot System'. The main content area is titled 'Scheduled Reboot Setup' and displays the following settings:

Schedule Mode :

Reboot Time : (local time in 24-hour form of hh:mm, e.g. 00:00, 23:59)

Enable : ☐

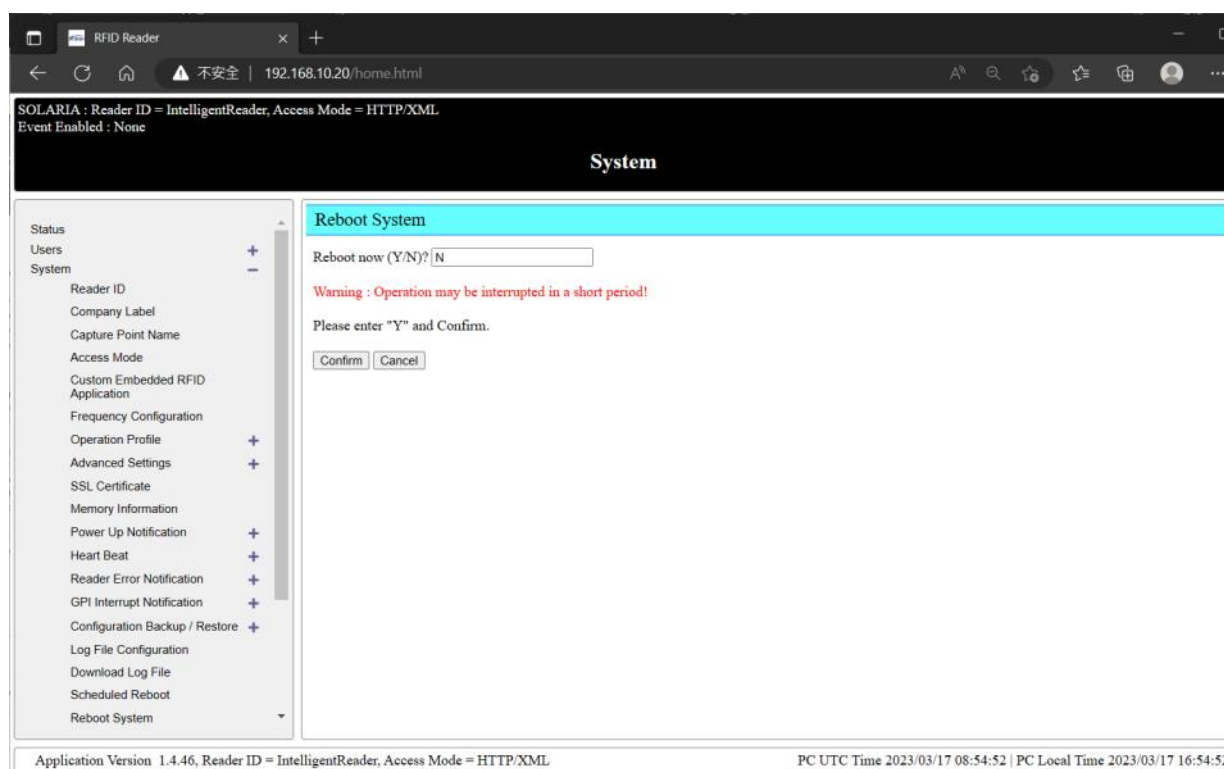
Below the settings, there is a red warning message: "It is strongly recommended that at least a quarterly reboot is scheduled. In case scheduled reboot cannot be arranged due to unknown future schedule, use API to invoke a reboot at time of convenience at least once a quarter."

At the bottom of the settings area are 'Confirm' and 'Cancel' buttons. The footer of the page displays 'Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML' and 'PC UTC Time 2023/03/17 08:56:35 | PC Local Time 2023/03/17 16:56:35'.

5.5. Restart System

To restart the system, input “Y” and click “Confirm”

Y must be capital letter



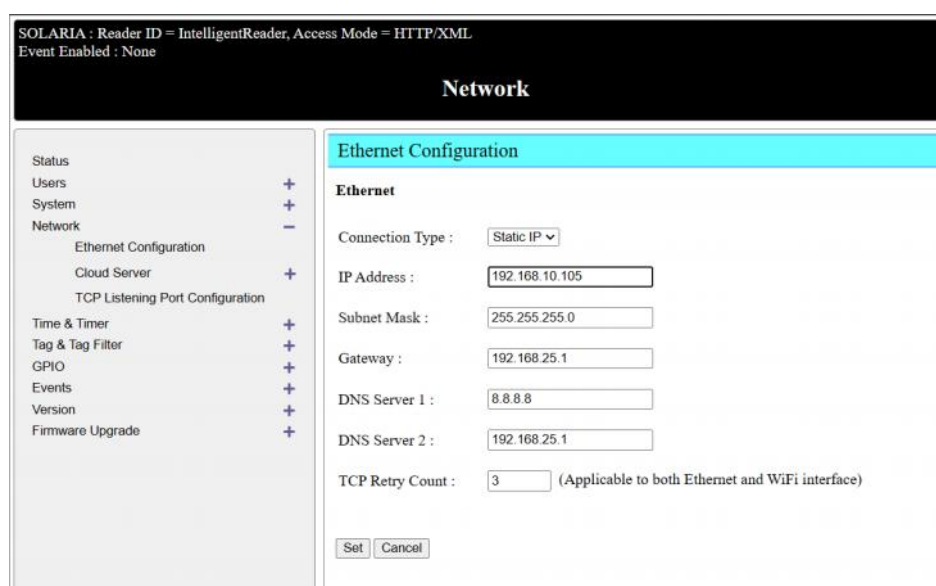
The screenshot shows a web browser window with the title "RFID Reader" and the address bar displaying "192.168.10.20/home.html". The page content includes a status bar at the top indicating "SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML" and "Event Enabled : None". Below this is a "System" section with a sidebar menu on the left containing items like Status, Users, System, Reader ID, Company Label, Capture Point Name, Access Mode, Custom Embedded RFID Application, Frequency Configuration, Operation Profile, Advanced Settings, SSL Certificate, Memory Information, Power Up Notification, Heart Beat, Reader Error Notification, GPI Interrupt Notification, Configuration Backup / Restore, Log File Configuration, Download Log File, Scheduled Reboot, and Reboot System. The main content area displays a "Reboot System" dialog with a text input field for "Reboot now (Y/N)?" containing the letter "N". A red warning message states "Warning : Operation may be interrupted in a short period!". Below the input field, it says "Please enter 'Y' and Confirm." and provides "Confirm" and "Cancel" buttons. At the bottom of the page, a footer bar shows "Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML" and "PC UTC Time 2023/03/17 08:54:52 | PC Local Time 2023/03/17 16:54:52".

5.6. Network Management

“Network Management” page allows the user to set the network parameters. Here is the network management sub-menu:

The connection can be static IP or DHCP

Connection Type can be set to static IP as below



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Network

- Status
- Users +
- System +
- Network -
 - Ethernet Configuration
 - Cloud Server +
 - TCP Listening Port Configuration
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Ethernet Configuration

Ethernet

Connection Type :

IP Address :

Subnet Mask :

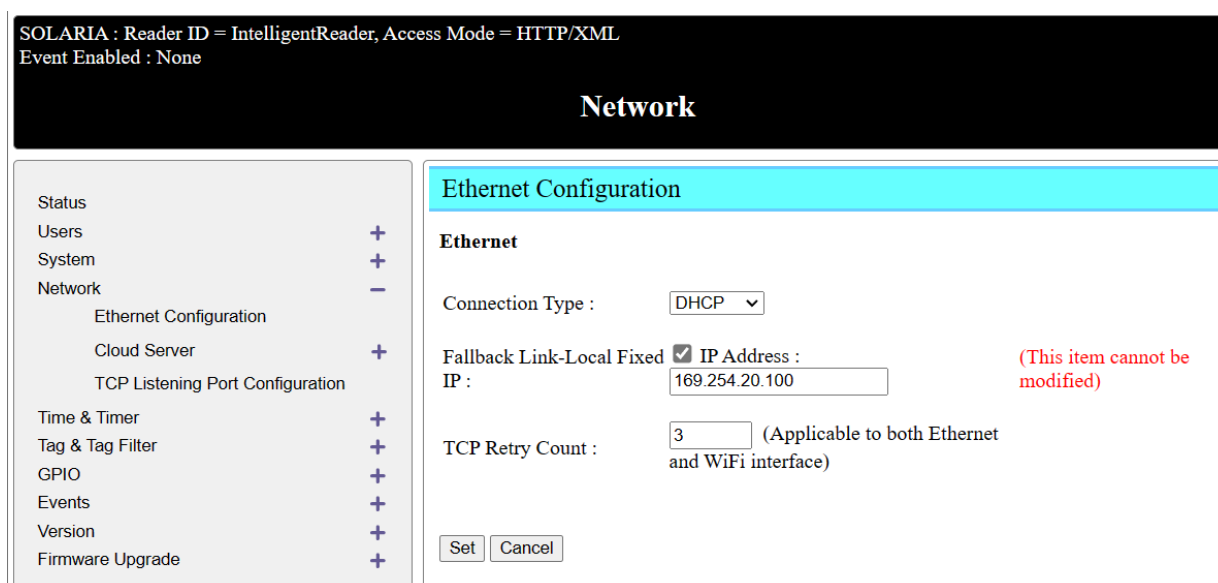
Gateway :

DNS Server 1 :

DNS Server 2 :

TCP Retry Count : (Applicable to both Ethernet and WiFi interface)

Connection Type can be set to DHCP as below.



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Network

- Status
- Users +
- System +
- Network -
 - Ethernet Configuration
 - Cloud Server +
 - TCP Listening Port Configuration
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Ethernet Configuration

Ethernet

Connection Type :

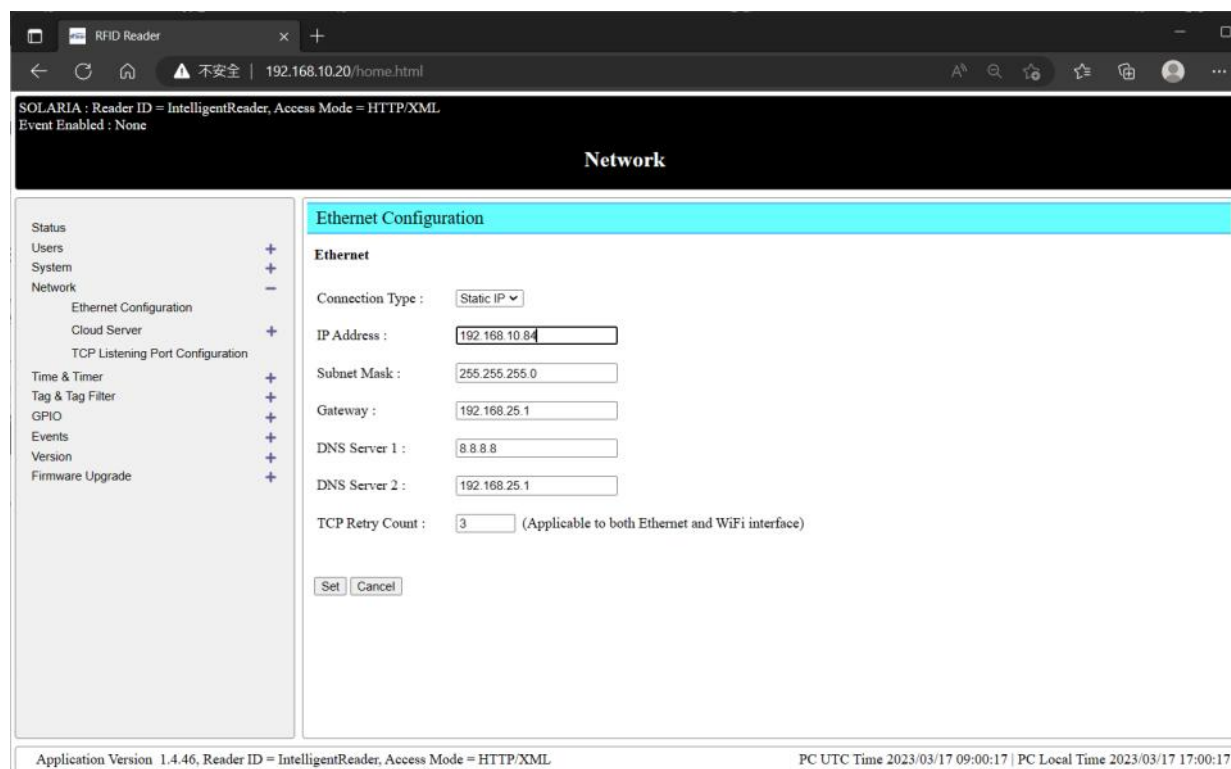
Fallback Link-Local Fixed ☒ IP Address : (This item cannot be modified)

IP :

TCP Retry Count : (Applicable to both Ethernet and WiFi interface)

5.6.1. Ethernet Configuration

In “Network Configuration” page, one can configure the network parameters such as the reader IP address, Subnet mask, Gateway and DNS server.



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Network

Ethernet Configuration

Ethernet

Connection Type :

IP Address :

Subnet Mask :

Gateway :

DNS Server 1 :

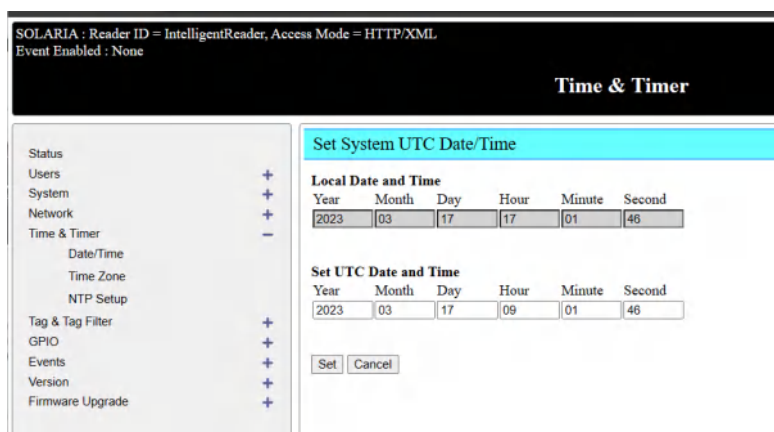
DNS Server 2 :

TCP Retry Count : (Applicable to both Ethernet and WiFi interface)

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:00:17 | PC Local Time 2023/03/17 17:00:17

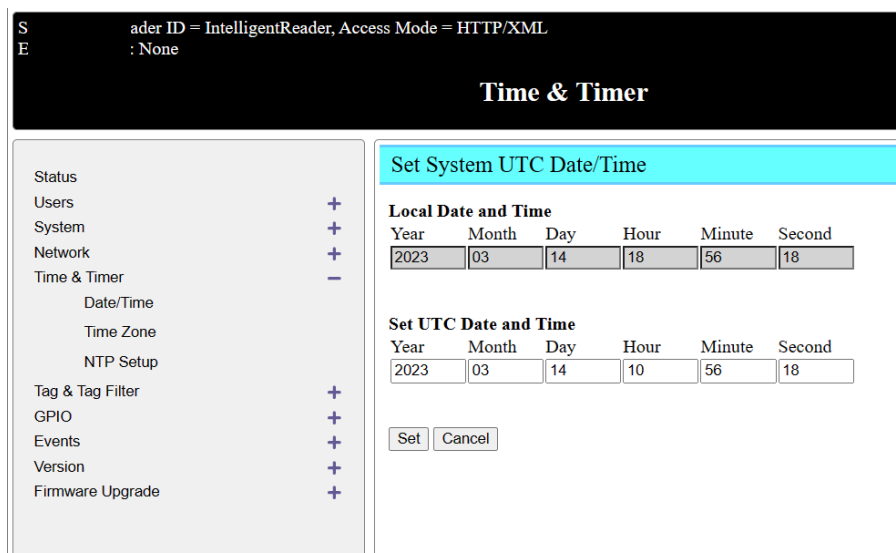
5.7. Time and Timer Setting

Here is the “Time and Timer Setting” submenu:



5.7.1. Date/Time

The “Date/Time” page allows the user to set the real time clock inside the reader. Please configure the UTC (GMT) time on the reader. The local time will then be calculated based on the time zone that is being set. Note that for some countries, Daylight Savings Time is applied.



Warning: After changing the date and time, the reader may pause reading 30-60 seconds for re-initiation. It is recommended not to open the “Capture Tags Testing” page in “Tag & Tag Filter” for viewing tags during this period.

5.7.2. Time Zone

The time zone can be set on this page

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Time & Timer

- Status
- Users +
- System +
- Network +
- Time & Timer -
 - Date/Time
 - Time Zone
 - NTP Setup
- Tag & Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Set System Time Zone

Time Zone : (UTC+08:00) Beijing, Chongqing, Hong Kong SAR, Urumqi ▼

5.7.3. NTP Setup

This page allows one to setup the NTP server. The SOLARIA reader will update its time by connecting to the NTP server at a preset time and preset mode. Be sure to enter the gateway and DNS server in the network configuration page in order for the NTP server be reachable by the reader.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Time & Timer

- Status
- Users +
- System +
- Network +
- Time & Timer -
 - Date/Time
 - Time Zone
 - NTP Setup
- Tag & Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

NTP Setup

☒ Automatically update time

NTP Server 1 :

NTP Server 2 :

Update Mode : Everyday ▼

Update Time : :

5.8. Tag & Tag Filter

The “Tag & Tag Filter” page allows you to create the Tag group or Tag database which will be used in Trigger page and define filter to be enabled on operation profile. In actual deployment, RFID reader is used to do security screening of incoming or outgoing objects. A list of predefined tag IDs can be downloaded to each RFID reader so that the RFID reader will distinguish whether that tag belongs to that list (tag group or tag database). Only when a tag belongs to that group would the RFID reader carry out further action as stipulated by the event – for example open the gate.

5.8.1. Tag Group

Tag groups can be created and download from the SOLARIA reader as follow

- Add tag group

Go to Tag group in *Tag & Tag Filter* and click Add Tag Group

Input the new tag group name as below

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
 - Select Tag
 - Read/Write Tag
 - ASCII Read/Write Tag
 - FM13DT160
 - UCODE DNA
 - Magnus
 - Tag Group -
 - Add Tag Group
 - Delete Tag Group
 - List Tag Group
- Tag Database +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Add Tag Group

Tag Group ID :

Add
Cancel

Click Add to confirm the new group

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group -
- Add Tag Group
- Delete Tag Group
- List Tag Group
- Tag Database +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Tag Group

Tag Group ID :

Tag IDs :

Add
 Delete
 Delete All
 Import

Add Tag ID to the group

Click Add to add new tags to the group and below menu will pop up

Click confirm the to confirm the addition of new tag to the tag group

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group -
- Add Tag Group
- Delete Tag Group

Tag Group

Tag Group ID :

Tag I

Add Tag ID :

Click Save to save the new tag group

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group -
- Add Tag Group
- Delete Tag Group
- List Tag Group
- Tag Database +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Tag Group

Tag Group ID :

Tag IDs :

123456789012345678901234

Add

Delete

Delete All

Import

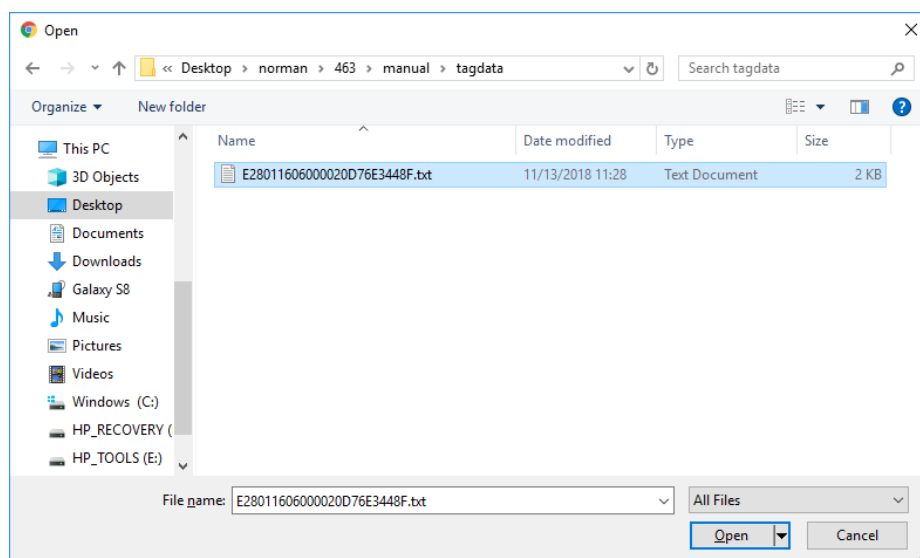
Save

Save & Download

Cancel

Import New tag ID

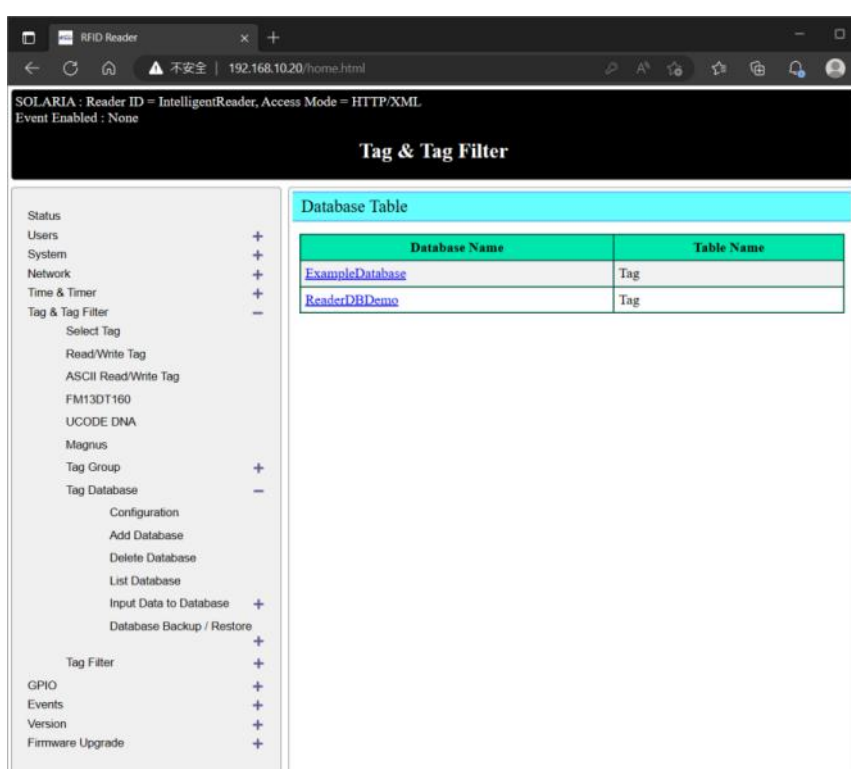
Click Import then select the tags record file



5.8.2. Tag Database

Database can be created in reader for user to link tag with database record include basic information such as Vehicle name, plate number and corresponding photo, then show the record on web page after proper event defined.

The defined database can be shown on page List Database



Database Name	Table Name
ExampleDatabase	Tag
ReaderDBDemo	Tag

The location of Database in reader can be set on Database Configuration submenu.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group +
- Tag Database -
- Configuration
- Add Database
- Delete Database
- List Database
- Input Data to Database +
- Database Backup / Restore +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Database Configuration

Database Path :

Database can be added on Add Database submenu as below

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group +
- Tag Database -
- Configuration
- Add Database
- Delete Database
- List Database
- Input Data to Database +
- Database Backup / Restore +
- Tag Filter +
- GPIO

Add Database

Database Name :

Table Name :

Fields :

Name	Data Type
EPC Key Field	STRING

Particular Database can be deleted on Delete Database

Event Enabled : None

Tag & Tag Filter

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- Select Tag
- Read/Write Tag
- Magnus
- UCODE DNA
- Tag Group
- Tag Database
- Configuration
- Add Database
- Delete Database
- List Database
- Input Data to Database
- Database Backup / Restore

Delete Database

Database Name : sol.ReaderDBDemo

All defined database can be shown on List Database Submenu as below

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group
- Tag Database
- Configuration
- Add Database
- Delete Database
- List Database
- Input Data to Database
- Database Backup / Restore
- Tag Filter
- GPIO

Database Table

Database Name	Table Name
ExampleDatabase	Tag
ReaderDBD	Tag

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
 PC UTC Time 2023/03/17 09:20:27 | PC Local Time 2023/03/17 17:20:27

Tag Record in a particular database can be added after choosing right database

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

ASCII Read/Write Tag

FM13DT160

UCODE DNA

Magnus

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup /

Add Tag Record

Select Database : ExampleDatabase

Confirm

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:22:49 | PC Local Time 2023/03/17 17:22:49

The Tag Record content can be added to database on this page

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

ASCII Read/Write Tag

FM13DT160

UCODE DNA

Magnus

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup /

Restore

Tag Filter

GPIO

Events

Add Tag Record

Database Name : ExampleDatabase

EPC :

UIDofEquipment :

Choose Image

Do not use image larger than 1MByte

StaffID :

Choose Image

Do not use image larger than 1MByte

Add
Cancel

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:26:40 | PC Local Time 2023/03/17 17:26:40

Tag Record in a particular database can be deleted after choosing right database

Event Enabled : None

Tag & Tag Filter

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

Magnus

UCODE DNA

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup / Restore

Tag Filter

I/O

Events

Version

Firmware Upgrade

Delete Tag Record

Select Database : CSLReaderDBDemo

Confirm

Click Delete to delete a particular record on selected Database as shown on below

Event Enabled : None

Tag & Tag Filter

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

Magnus

UCODE DNA

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup / Restore

Tag Filter

I/O

Events

Version

Firmware Upgrade

Delete Tag Record

Database Name : CSLReaderDBDemo

EPC : 123456789012345678901234

Delete

Cancel

63

Tag Record in a particular database can be modified on List Tag Record submenu after choosing right database as below

Event Enabled : None

Tag & Tag Filter

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

Magnus

UCODE DNA

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup / Restore

Tag Filter

I/O

Events

Version

Firmware Upgrade

List Tag Record

Select Database : CSLReaderDBDemo

Confirm

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML

Event Enabled : None

Tag & Tag Filter

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

Select Tag

Read/Write Tag

ASCII Read/Write Tag

FM13DT160

UCODE DNA

Magnus

Tag Group

Tag Database

Configuration

Add Database

Delete Database

List Database

Input Data to Database

Add Record

Delete Record

List Record

Database Backup / Restore

Tag Filter

GPIO

Events

Version

Firmware Upgrade

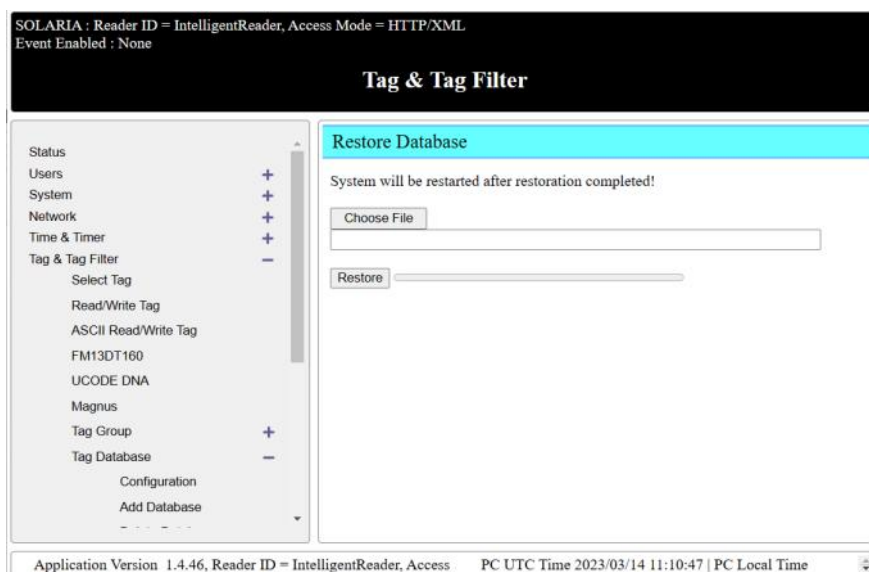
Tag Record Table

Database Name : ExampleDatabase

EPC	UIDoffEquipment	StaffID
<u>123456789012345678901234</u>	888888888866666666661234	709394888870939466661234

Click here to start the modification

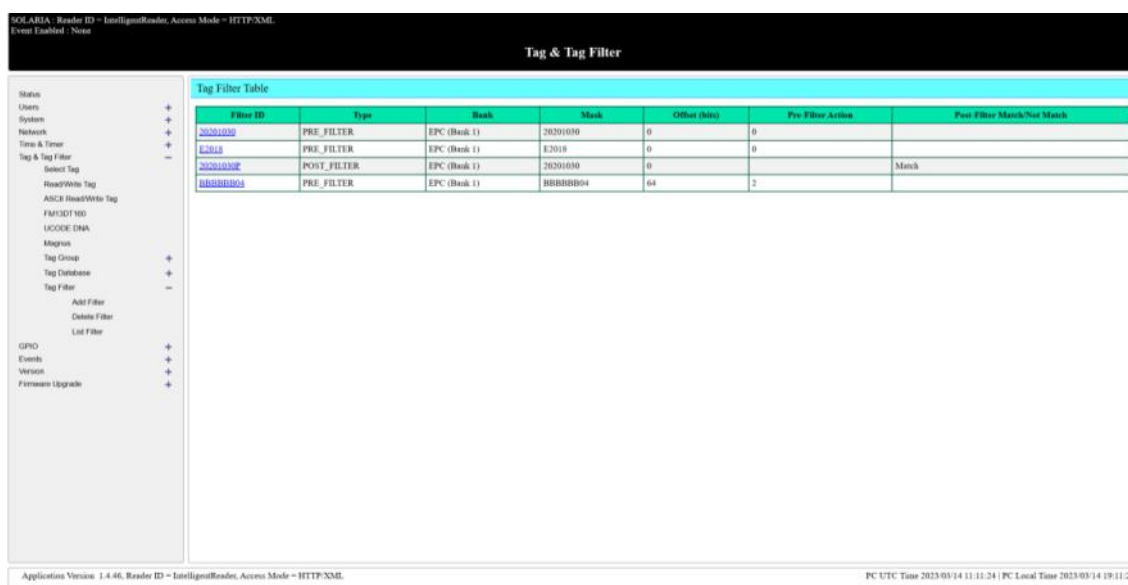
Databases can be restored to system from pervious backup file as below



5.8.3. Tag Filter

The tag filter was used to identify particular tags from a large population. There are two types of filter can be used including pre filter and post filter. If the pre filter is used, tags not matching filter will not respond while post filter, the reader will filter out all non matching tags after received all tags response.

All defined filters can be found in page *List Filter* under *Tag & Tag Filter* page as below



Filters can be added in Add Filter as shown below

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

Status
Users
System
Network
Time & Timer
Tag & Tag Filter
 Select Tag
 Read/Write Tag
 ASCII Read/Write Tag
 FM13DT160
 UCODE DNA
 Magnus
 Tag Group
 Tag Database
 Tag Filter
 Add Filter
 Delete Filter
 List Filter
GPIO
Events
Version
Firmware Upgrade

Add Tag Filter

Filter ID :
Type : PRE_FILTER
Bank : EPC (Bank 1)
Mask : BBBBBB04
Offset (bits) : 0
Action : 0

Action	Tag Matching	Tag Not Matching
0	assert SL or inventoried -> A	SL or inventoried -> B
1	assert SL or inventoried -> A	
2	do nothing	deassert SL or inventoried -> B
3	negate SL or (A -> B, B -> A)	
4	deassert SL or inventoried -> A	
5	deassert SL or inventoried -> A	
6	do nothing	
7	do nothing	

Add Cancel

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML PC UTC Time 2023/03/14 11:12:21 | PC Local Time 2023/03/14

Only tag with same character
on memory bank beginning
with will apply the action

Once filters are defined, they can be enabled in operation profile then take effect as shown below

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

System

Status
Users
System
 Reader ID
 Company Label
 Capture Point Name
 Access Mode
 Custom Embedded RFID Application
 Frequency Configuration
 Operation Profile
 Add Profile
 Delete Profile
 List Profile
 Advanced Settings
 SSL Certificate
 Memory Information
 Power Up Notification
 Heart Beat
 Reader Error Notification
 GPI Interrupt Notification
 Configuration Backup / Restore
 Log File Configuration
 Download Log File
 Scheduled Reboot
 Reboot System
Network
Time & Timer
Tag & Tag Filter
GPIO

Operation Profile

Tag locus (Impinj)
Tags Only : ☐
Fast ID (Impinj Tags Only) : ☐
Query Algorithm : Dynamic Q
Tag Population : 50 Q = 6
Tag Model : Any
Multi Bank Inventory :

Extra Bank	Bank	Offset	Count (# of Words)
☐ First Extra Bank	Security (Bank 0)	0	1
☐ Second Extra Bank	Security (Bank 0)	0	1

Incorrect setting would cause no tag return
Reflected Power Threshold (dBm) : 24.0
Pre-Filter : None
max. 7 pre-filters
Post-Filter : None
Automatic Reconfigure Antenna Port in case of Antenna Port Error : ☐ Retry Error Antenna Port Every 20 retry)
Unlock Modify Modify & Lock Modify & Permalock Cancel

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML PC UTC Time 2023/03/14 11:13:14 | PC Local Time 2023/03/14

Choose the filter to
apply from here

Any filters can be deleted from this page

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

Status +
Users +
System +
Network +
Time & Timer +
Tag & Tag Filter -
 Select Tag
 Read/Write Tag
 ASCII Read/Write Tag
 FM13DT160
 UCODE DNA
 Magnus
 Tag Group +
 Tag Database +
 Tag Filter -
 Add Filter
 Delete Filter
 List Filter
GPIO +
Events +
Version +
Firmware Upgrade +

Delete Tag Filter
Tag Filter ID : 20201030
Delete Cancel

5.9. I/O Management

The “I/O Port Testing” page allows users to test functionality of I/O port

5.9.1. I/O Port Testing

Below is the “I/O Port Testing” page, it allows one to look at sensor input (you MUST press the “Refresh” button to update the input state), and control the outputs for system testing.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

I/O

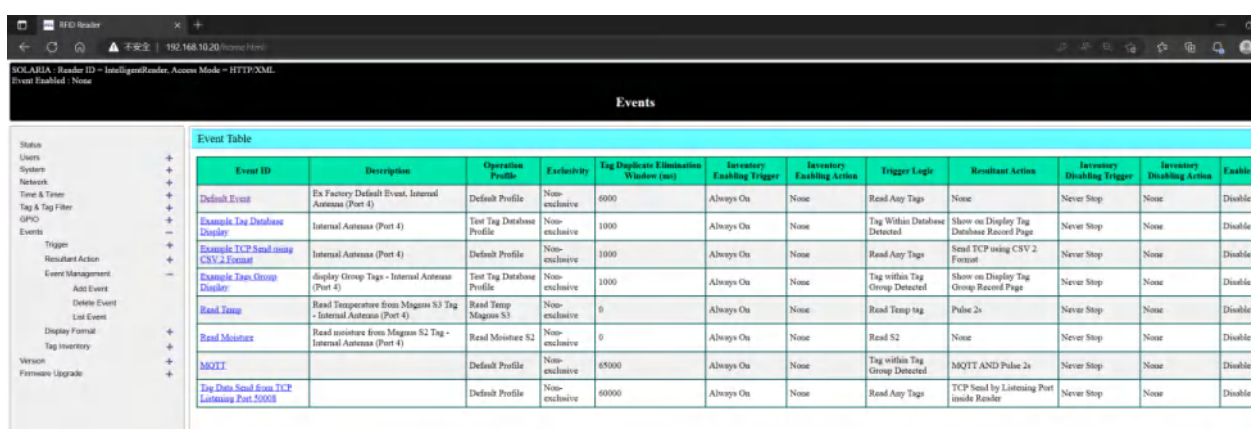
- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO -
 - GPIO Port Testing
- Events +
- Version +
- Firmware Upgrade +

GPIO Port Testing

GPIO Port	State	Output Control	GPI Interrupt Notification
General Purpose Input Port 1	Low	N/A	None
General Purpose Input Port 2	Low	N/A	None
General Purpose Input Port 3	Low	N/A	None
General Purpose Input Port 4	Low	N/A	None
General Purpose Output Port 1	Opened	Close Open	N/A
General Purpose Output Port 2	Opened	Close Open	N/A
General Purpose Output Port 3	Opened	Close Open	N/A
General Purpose Output Port 4	Opened	Close Open	N/A

5.10. Event Management

Event management is the most important part of the reader configuration. By setting it properly, you can handle business applications more efficient and autonomous. To create and enable an event, one needs to set up triggers, resultant actions, and then use that to assemble events. Once an event is created, the reader would run it accordingly. In other words, the reader is running autonomously.



Event ID	Description	Operation Profile	Exclusivity	Tag Duplicate Elimination Window (sec)	Inventory Enabling Trigger	Inventory Enabling Action	Trigger Logic	Resultant Action	Inventory Disabling Trigger	Inventory Disabling Action	Enable
Default Event	Ex Factory Default Event, Internal Antenna (Port 4)	Default Profile	Non-exclusive	6000	Always On	None	Read Any Tags	None	Never Stop	None	Disable
Example Tag Database Display	Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag Within Database Detected	Show on Display Tag Database Record Page	Never Stop	None	Disable
Example TCP Send using CSV 2 Format	Internal Antenna (Port 4)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send TCP using CSV 2 Format	Never Stop	None	Disable
Example Tag Group Reader	Display Group Tags - Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page	Never Stop	None	Disable
Read Temp	Read Temperature from Magnum S3 Tag - Internal Antenna (Port 4)	Read Temp Magnum S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Read Moisture	Read moisture from Magnum S2 Tag - Internal Antenna (Port 4)	Read Moisture S2	Non-exclusive	0	Always On	None	Read S2	None	Never Stop	None	Disable
MQTT		Default Profile	Non-exclusive	45000	Always On	None	Tag within Tag Group Detected	MQTT AND Pulse 2s	Never Stop	None	Disable
Tag Data Send from TCP Listening Port 50008		Default Profile	Non-exclusive	60000	Always On	None	Read Any Tags	TCP Send by Listening Port inside Reader	Never Stop	None	Disable

5.10.1. Event Management

Here is the “Event management” submenu:

Note that there is ex-factory a “Default Event” running the “Default Profile”. It comes disabled (in the Enable column, it is False). Once you enable it, it will start reading RFID tags from Port 1 (assuming an antenna is connected to Port 1 for model SOLARIA and there are RFID tags in front of the antenna)

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML

Event Enabled : None

Events

Event Table

	Event ID	Description	Operation Profile	Exclusivity	Tag Duplicate Elimination Window (ms)	Inventory Enabling Trigger	Inventory Enabling Action	Trigger Logic	Resultant Action	Inventory Disabling Trigger	Inventory Disabling Action	Enable
Status	Default Event	Ex-factory Default Event, Internal Antenna (Port 1)	Default Profile	Non-exclusive	6000	Always On	None	Read Any Tags	None	Never Stop	None	Disable
Users	Example Tag Detection	Internal Antenna (Port 1)	Tag Tag Database Profile	Non-exclusive	1000	Always On	None	Tag Within Database Detected	Show on Display Tag Database Record Page	Never Stop	None	Disable
Spikes	Example TCP Send using CSV 2 Format	Internal Antenna (Port 1)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send TCP using CSV 2 Format	Never Stop	None	Disable
Network	Example Tags Group Display	display Group Tags - Internal Antenna (Port 1)	Tag Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page	Never Stop	None	Disable
Time & Time	Read Temp	Read Temperature from Magnet S3 Tag - Internal Antenna (Port 1)	Read Temp Magnet S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Tag & Tag Filter	Read Moisture	Read moisture from Magnet S2 Tag - Internal Antenna (Port 1)	Read Moisture S2	Non-exclusive	0	Always On	None	Read S2	None	Never Stop	None	Disable
GPO	MQTT		Default Profile	Non-exclusive	65000	Always On	None	Tag within Tag Group Detected	MQTT AND Pulse 2s	Never Stop	None	Disable
Events	Tag Data Send from TCP Listening Port 50000		Default Profile	Non-exclusive	60000	Always On	None	Read Any Tags	TCP Send by Listening Port inside Reader	Never Stop	None	Disable
Trigger												
Reader Action												
Event Management												
Add Event												
Delete Event												
List Event												
Display Format												
Tag Inventory												
Version												
Firmware Upgrade												

5.10.1.1. Add Event

Below is the “Add Event” page:

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

Add Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : AND

Trigger Logic :

Resultant Action : AND

Inventory Disabling Trigger :

Inventory Disabling Action : AND

Enable Event : ☐

Input *Event ID* field for each event.

One should select the operation profile for the event. This operation profile is defined in the “System” page “Operation Profile” submenu.

The *Inventory Enabling Trigger* is the initial trigger that turns on the RF power of the reader to start doing inventory. This trigger can be set to be “Always On” and then the reader will do inventory the moment the reader is powered on. Note that this trigger has to be defined in the Trigger page. Note that if one wants the reader to be always on, simply choose “Always On” in the *Inventory Enabling Trigger* field.

The *Inventory Enabling Action* is the action that accompanies an inventory enabling trigger. For example, one may want to turn on a signal light when the inventory starts.

Once the inventory enabling cycle is entered, then the event engine would look for actual event triggers, and these triggers can be Boolean operated together as defined in the entry “*Trigger Logic*”. The Trigger Logic is a Boolean combination of triggers that are defined in the “Trigger” page which will be described later.

When the Trigger Logic is satisfied, the event is established, and the resultant actions are defined in “*Resultant Action*” section. Again, it can be a combination, sequential (THEN) or (AND), of actions.

The overall inventory enabling cycle is ended based on the triggers defined in “*Inventory Disabling Trigger*” section. Sometimes this can be other sensor at the exit of the reader read zone, or it can be defined as a period of time of no tag reads. If the user wants the reader to be always reading tags, then the selection “Never Stop” should be chosen here.

The *Inventory Disabling Action* is the action that accompanies the inventory disabling trigger. For example, one may want to turn off a signal light (that was turned on due to an inventory enabling action as described before) when the inventory is stopped.

5.10.1.2. Modify Event

To modify event, go to “List Event” page and select the “Event ID”, modify the event and click “Modify”.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
- Trigger +
- Resultant Action +
- Event Management -
- Add Event
- Delete Event
- List Event
- Display Format +
- Tag Inventory +
- Version +
- Firmware Upgrade +

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : THEN

Trigger Logic :

Resultant Action : THEN

Inventory Disabling Trigger :

Inventory Disabling Action : THEN

Event Enabled : ☐

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
 PC UTC Time 2023/03/14 11:26:44 | PC Local Time 2023/03/14 19:26:44

5.10.1.3. Enable/Disable Event

To enable/disable event, select/de-select the checkbox “Enable Event” and click “Modify”.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
- Trigger +
- Resultant Action +
- Event Management -
- Add Event
- Delete Event
- List Event
- Display Format +
- Tag Inventory +
- Version +
- Firmware Upgrade +

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : THEN

Trigger Logic :

Resultant Action : THEN

Inventory Disabling Trigger :

Inventory Disabling Action : THEN

Event Enabled : ☐ ←

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

PC UTC Time 2023/03/14 11:26:44 | PC Local Time 2023/03/14 19:26:44

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5.10.1.4. Delete Event

To delete event, select the “Event ID” and click “Delete”.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

Status
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action +
 Event Management -
 Add Event
 Delete Event
 List Event
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Delete Event

Event ID : Default Event

Delete
Cancel

5.10.1.5. List Event

Below is the “List Event” page:

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

Status
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action +
 Event Management -
 Add Event
 Delete Event
 List Event
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Event Table

Event ID	Description	Operation Profile	Exclusivity	Tag Duplicate Elimination Window (sec)	Inventory Enabling Trigger	Inventory Enabling Action	Trigger Logic	Resultant Action	Inventory Disabling Trigger	Inventory Disabling Action	Enable
Default Event	In Factory Default Event, Internal Antenna (Port 4)	Default Profile	Non-exclusive	6000	Always On	None	Read Any Tags	None	Never Stop	None	Disable
Example Tag Database Display	Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag Within Database Detected	Show on Display Tag Database Record Page	Never Stop	None	Disable
Example TCP Send using CSV 2 Format	Internal Antenna (Port 4)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send TCP using CSV 2 Format	Never Stop	None	Disable
Example Tags Group Display	Display Group Tags - Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page	Never Stop	None	Disable
Read Temp	Read Temperature from Magna S3 Tag - Internal Antenna (Port 4)	Read Temp Magna S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Read Moisture	Read moisture from Magna S2 Tag - Internal Antenna (Port 4)	Read Moisture S2	Non-exclusive	0	Always On	None	Read S2	None	Never Stop	None	Disable
MQTT		Default Profile	Non-exclusive	65000	Always On	None	Tag within Tag Group Detected	MQTT AND Pulse 2s	Never Stop	None	Disable
Tag Data Read from TCP Listening Port 55558		Default Profile	Non-exclusive	60000	Always On	None	Read Any Tags	TCP Read by Listening Port inside Reader	Never Stop	None	Disable

Application Version: 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
 PC UTC Time 2023/03/14 11:28:01 | PC Local Time 2023/03/14 19:28:05

5.10.2. Trigger

A trigger is a stimulus that causes the reader to recognize it and do something about it.

The trigger is used in Inventory Enabling, Inventory Disabling, and of course inside the actual Event Triggering Logic section. Below is the “Trigger” submenu:

Events			
Trigger Table			
Trigger ID	Description	Trigger Mode	
Read Any Tags		Read Any Tags (any ID, 1 trigger per tag)	
Port 1 Level High Trigger		Input Sensor State	
Read Time Every 10 Seconds	Time Elapsed Type Trigger	Specified Time Spun elapsed	
Inducted Sensor GPI Port 1 High		Input Sensor State	
Inducted Sensor GPI Port 2 High		Input Sensor State	
Tag within Tag Group Detected		Trigger in Tag Group	
Read Any Tags bigger than 40 dBm		Trigger if RSSI larger than or equal to	
Tag Within Database Detected		Trigger in Tag Database	
Tag in Default DB		Trigger in Tag Database	
Read Temp tag	Read Temp tag	Trigger if Temperature is larger than or equal to	
Read S2	Moisture Measure	Trigger if Moisture is larger than or equal to	
alarm		Trigger if Temperature is larger than or equal to	
Tag from Antenna Port 4		Trigger in Tag Group	
Tag from Antenna Port 4 within Registered Tag Group		Trigger in Tag Group	

5.10.2.1. Add Trigger

Below is the “Add Trigger” page:

Status Users System Network Time & Timer Tag & Tag Filter GPIO Events Trigger Add Trigger Delete Trigger List Trigger Resultant Action Event Management Display Format Tag Inventory Version Firmware Upgrade	Add Trigger Trigger ID : Description : Trigger Mode : Read Any Tags (any ID, 1 trigger per tag) Capture Point : ☒ Antenna Port 3 (External) (Name : Capture Point 3) ☒ Antenna Port 4 (Internal) (Name : Capture Point 4) Add Add & Lock Add & Permalock Cancel
--	---

There are many different types of triggers shown below:

Add Trigger

Trigger ID :

Description :

Trigger Mode :

Read Any Tags (any ID, 1 trigger per tag) ▼

Capture Point :

Read Any Tags (any ID, 1 trigger per tag)

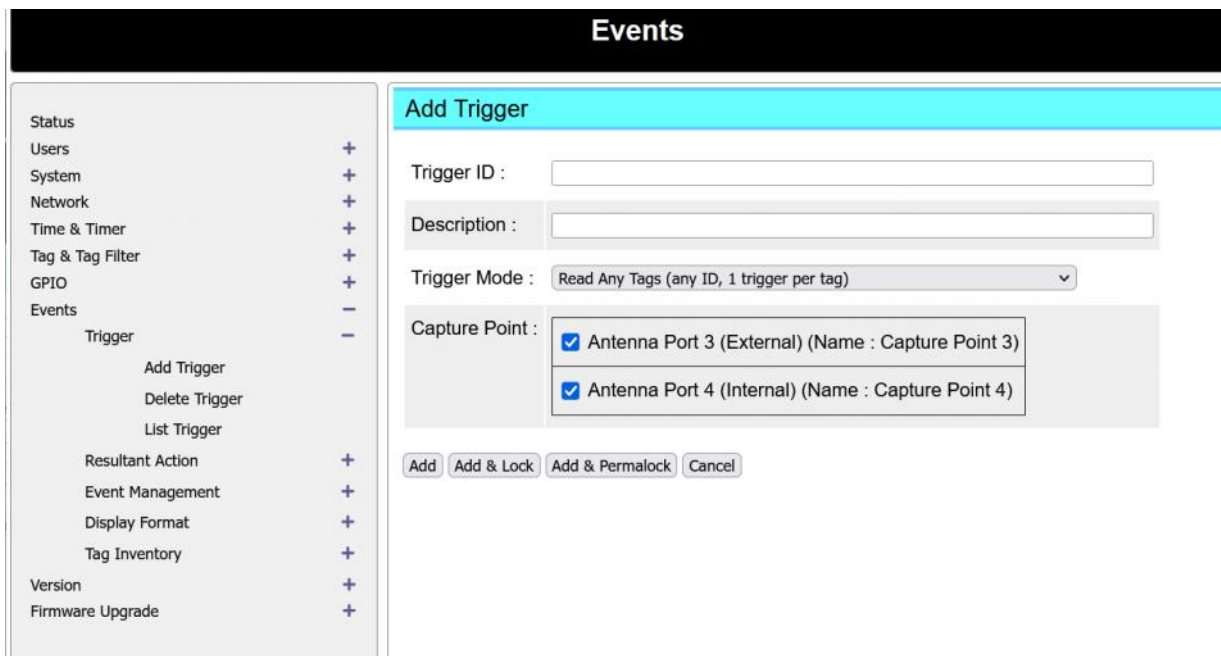
☐ Input Sensor State
☐ No Tag Read in Specified Time Span from Start of Inventory
☐ No Tag Read in Specified Time Span from last Tag Read and Triggered
☐ Trigger in Tag Group
☐ Trigger in Tag Database
☐ Trigger if RSSI larger than or equal to
☐ Trigger if Moisture is larger than or equal to
☐ Trigger if Moisture is less than or equal to
☐ Trigger if Temperature is larger than or equal to
☐ Trigger if Temperature is less than or equal to
☐ Specified Time Span elapsed

Add

Add & Lock

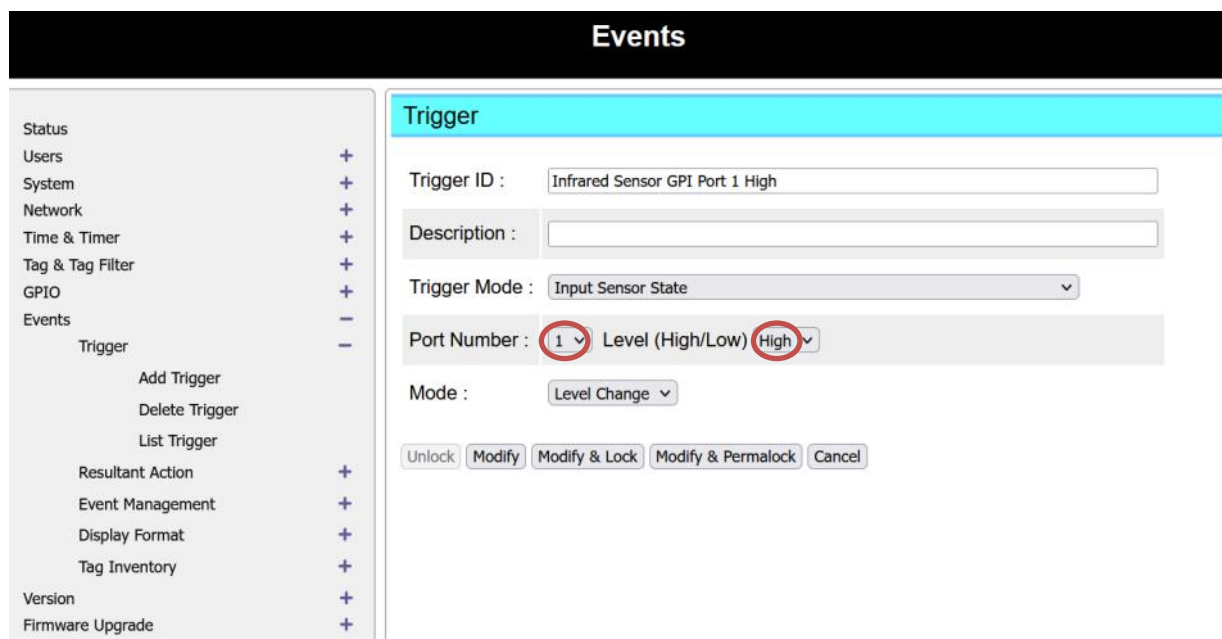
1. “Read Any Tags (any ID, 1 trigger per tag)” would look at tags coming into the antenna ports (or capture points), the ones being ticked here would be selected, and will generate 1 trigger per tag (different ID) notification. By selecting which antenna port one can then select tags read by specific antennas to trigger an event. Note that in Time Windowed Mode there is a duplicate elimination action within each time window, and for the same ID within that window, it will only be recorded once into the buffer – unless the box called “Antenna Differentiation” in the Event Management page is ticked, in that case the same tag read by different antennas will generate different triggers. Hence for each different ID within that duplicate elimination time it will generate an event.
2. “Input Sensor State” would look at the state (high or low) of one of the general-purpose IO input.
3. “No Tag Read in Specified Time Span” would check if for a specified time read, no tag passes through the reader read zone.
4. “Trigger in Tag Group” would check if any tag is within a pre-defined tag group.
5. “Trigger if RSSI larger than or equal to” would check if read tag rssi is larger or equal to defined value
6. Specified Time Span elapsed”.

For “read any tags” trigger, the user also has to specify which antenna port or capture point it is collecting the tags from. To choose it, just tick the box on the left of each entry.



For “Input Sensor State” trigger, the Port Number 1 shown on below, is mapped to physical GPI1 port which using pin 2 /pin12 of GPI1 terminal (GPI1 ports details see section 5.8).

Level “High” was selected on below case so the trigger will be set if there is high voltage applied on pin2 (GPI1(+)) and pin 12 (GPI1(-)) is properly connected



5.10.2.2. Modify Trigger

To modify trigger, go to *List Trigger* and select the “Trigger ID”, modify the Trigger and click “Modify”.

Events

Status

Users

System

Network

Time & Timer

Tag & Tag Filter

GPIO

Events

Trigger

Add Trigger

Delete Trigger

List Trigger

Resultant Action

Event Management

Display Format

Tag Inventory

Version

Firmware Upgrade

Trigger

Trigger ID : Read Any Tags

Description :

Trigger Mode : Read Any Tags (any ID, 1 trigger per tag)

Capture Point :

☒ Antenna Port 3 (External) Name : Capture Point 3

☒ Antenna Port 4 (Internal) Name : Capture Point 4

Unlock

Modify

Modify & Lock

Modify & Permalock

Cancel

5.10.2.3. Delete Trigger

To delete trigger, select the “Delete Trigger” and click “Delete”.

Events

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
 - Trigger -
 - Add Trigger
 - Delete Trigger
 - List Trigger
- Resultant Action +
- Event Management +
- Display Format +
- Tag Inventory +
- Version +
- Firmware Upgrade +

Delete Trigger

Trigger ID : Infrared Sensor GPI Port 1 High ▼

Delete

Cancel

- Infrared Sensor GPI Port 1 High
- Infrared Sensor GPI Port 2 High
- Port 1 Level High Trigger
- Read Any Tags
- Read Any Tags bigger than -60 dBm
- Read S2
- Read Tags Every 10 Seconds
- Read Temp tag
- Tag Within Database Detected
- Tag from Antenna Port 4
- Tag from Antenna Port 4 within Registered Tag Group
- Tag in Default DB
- Tag within Tag Group Detected
- ctesius

5.10.2.4. List Trigger

Below is the “List Trigger” page.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

Status +
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger -
 Add Trigger +
 Delete Trigger +
 List Trigger +
 Resultant Action +
 Event Management +
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Trigger Table		
Trigger ID	Description	Trigger Mode
Read Any Tags		Read Any Tags (any ID, 1 trigger per tag)
Port 1 Level High Trigger		Input Sensor State
Read Tags Every 10 Seconds	Time Elapsed Type Trigger	Specified Time Span elapsed
Infrared Sensor GPI Port 1 High		Input Sensor State
Infrared Sensor GPI Port 2 High		Input Sensor State
Tag within Tag Group Detected		Trigger in Tag Group
Read Any Tags bigger than -60 dBm		Trigger if RSSI larger than or equal to
Tag Within Database Detected		Trigger in Tag Database
Tag in Default DB		Trigger in Tag Database
Read Temp tag	Read Temp tag	Trigger if Temperature is larger than or equal to
Read S2	Moisture Measure	Trigger if Moisture is larger than or equal to
stetius		Trigger if Temperature is larger than or equal to
Tag from Antenna Port 4		Trigger in Tag Group
Tag from Antenna Port 4 within Registered Tag Group		Trigger in Tag Group

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:51:44 | PC Local Time 2023/03/17 17:51:44

5.10.3. Resultant Action

The “Resultant Action” pages define the resultant action that will be enforced when an event logic is established. Below is the “Resultant Action” submenu:

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

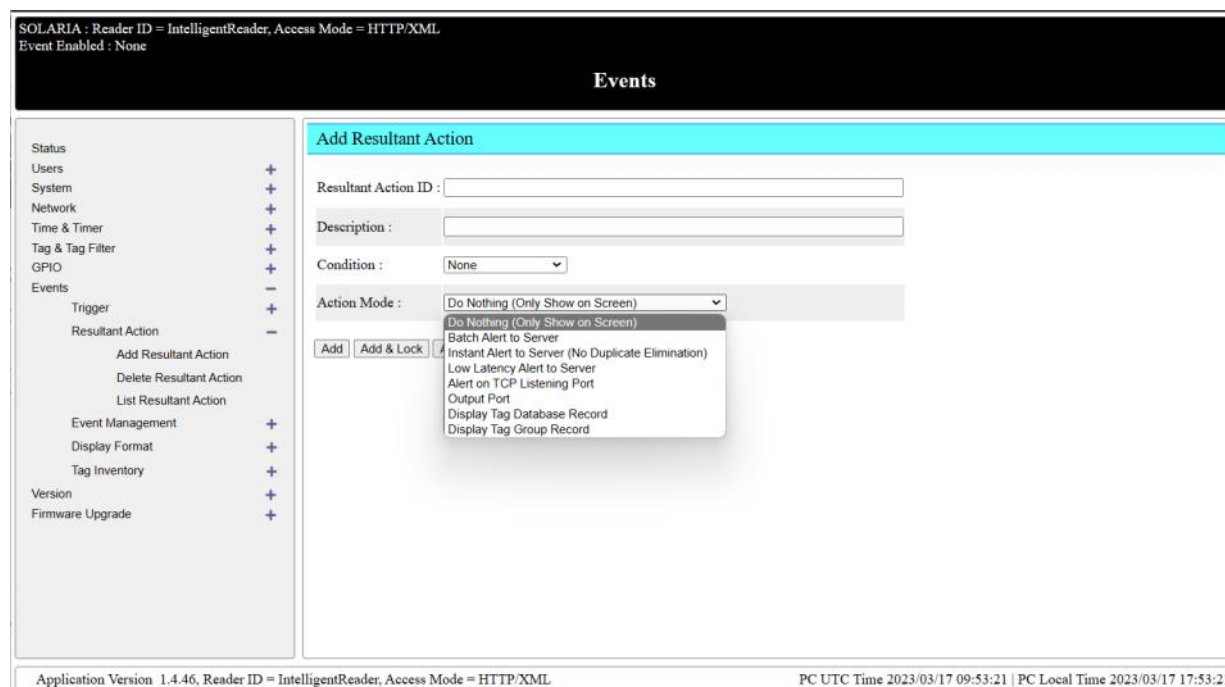
Status +
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action -
 Add Resultant Action +
 Delete Resultant Action +
 List Resultant Action +
 Event Management +
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Resultant Action Table		
Resultant Action ID	Description	Action Mode
Turn ON LED on GPO Port 1		Output Port
Turn OFF LED on GPO Port 1		Output Port
Turn ON LED on GPO Port 2		Output Port
Turn OFF LED on GPO Port 2		Output Port
Open Boom Barrier on GPO Port 3		Output Port
Close Boom Barrier on GPO Port 3		Output Port
Save to External USB Memory	Save to USB using CSV format	Save to External USB Memory
Show on Display Tag Database Record Page		Display Tag Database Record
Send TCP using CSV 2 Format		Low Latency Alert to Server
Show on Display Tag Group Record Page		Display Tag Group Record
test5	null	Instant Alert to Server (No Duplicate Elimination)
Pulse 2s		Output Port
MQTT		Low Latency Alert to Server
TCP Send by Listening Port inside Reader		Alert on TCP Listening Port

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:52:38 | PC Local Time 2023/03/17 17:52:38

5.10.3.1. Add Resultant Action

There are 8 types of action:



1. Do Nothing (Only Show on Screen) – Nothing is affected, except the tags collected can be shown on browser screen. Note that there are APIs that can collect the tag IDs or information on demand from the remote server. So, this is actually a polling mode in terms of collecting tag information.
2. Batch Alert to Server – here the collected tag information is sent to Server at the end of each duplicate elimination cycle (Time Window)
3. Instant Alert to Server – here the collected tag information is sent to Server immediately as it is read.
4. Low Latency Alert to Server
5. Output Port – here the General-Purpose IO output port would be controlled to have certain level change or pulse or even pulse train.
6. Save to External USB Memory – here the tag information was sent to external USB flash memory.
7. Display Tag Database Record
8. Display Tag Group Record

If one selects “Batch Alert to Server”, “Low Latency Alert to Server” or the “Instant Alert to Server”, then one has to select the Server ID, which is defined in the Trusted Server page of the Network page. The user has to select the Server ID and Data format ID that are going to use.

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Add Resultant Action
 - Delete Resultant Action
 - List Resultant Action
- Event Management
- Display Format
- Tag Inventory
- Version
- Firmware Upgrade

Add Resultant Action

Resultant Action ID :

Description :

Condition :

Action Mode :

Batch Alert Time Cycle (s) :

Transport Type :

Server ID :

Data Format ID :

Data Format ID is defined in Cloud Server page

Network

- Status
- Users
- System
- Network
 - Ethernet Configuration
 - Cloud Server
 - Configuration
 - Add Cloud Server
 - Delete Cloud Server
 - List Cloud Server
 - Add Data Format
 - Delete Data Format
 - List Data Format
 - TCP Listening Port Configuration
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
- Version
- Firmware Upgrade

Data Format Table

Data Format ID	Description	Format
Example Power Up Notification Data Format		JSON
Example Tag Upload to Cloud Server Data Format		JSON
Example Heart Beat Data Format		JSON
Save to CSV File Format		CSV
Save to CSV 2		CSV
antenna port issue 1	reflected power too high	JSON
TCP Data Format 2		CSV

Different field can be added to reporting format as below

Network

- Status
- Users +
- System +
- Network -
 - Ethernet Configuration
 - Cloud Server -
 - Configuration
 - Add Cloud Server
 - Delete Cloud Server
 - List Cloud Server
 - Add Data Format
 - Delete Data Format
 - List Data Format
 - TCP Listening Port Configuration
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Data Format

Data Format ID :

Description :

Format : JSON ▾

Parameters :

- SequenceNumber
- NumberOfTags
- EthernetMACAddressWithColon
- WiFiMACAddressWithColon
- HeartBeatFlag
- TimeOfHeartBeat
- TimeStampOfHeartBeat
- PowerUpFlag
- TimeOfPowerUp
- TimeStampOfPowerUp
- ReaderErrorFlag
- ReaderErrorCode
- ReaderErrorDescription
- ReaderErrorAntennaPort
- ReaderErrorReflectedPower
- ReaderErrorReflectedPowerThreshold
- TimeOfReaderError
- TimeStampOfReaderError
- GPIOPort
- InterruptType
- TimeOfInterrupt
- TimeStampOfInterrupt

Field	Label
RFIDReaderName	rfidReaderName ✖
RFIDReaderSerialNumber	rfidReaderSerialNumber ✖
RFIDReaderInternalSerialNumber	rfidReaderInternalSerialNumber ✖
EthernetMACAddress	pcEthernetMACAddress ✖
WiFiMACAddress	pcWiFiMACAddress ✖
TimeZone	timeZone ✖
TagDataList	tags ✖

If one selects “Output Port” then one has to input few more fields. The user has to select the Port Number, 1 to 4. The Output Logic has to be selected, which can be either Open, Close or Pulse.

Events

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
 - Trigger +
 - Resultant Action -
 - Add Resultant Action
 - Delete Resultant Action
 - List Resultant Action
 - Event Management +
 - Display Format +
 - Tag Inventory +
- Version +
- Firmware Upgrade +

Add Resultant Action

Resultant Action ID :

Description :

Condition : None ▾

Action Mode : Output Port ▾

Pre-action Wait (ms) :

Post-action Delay (ms) :

Output Port Number : 1 ▾ Switch (Open/Close/Pulse) : Open ▾

Add Add & Lock Add & Permalock Cancel

Open

Close

Pulse

For Pulse, there are more parameters to be configured. The Pulse Logic, which can Open-Close-Open, or Close-Open-Close, and Pulse Mode, which can be One Shot Pulse or Pulse Train, the Pulse Width in msec., and for Pulse Train, the duty cycle and Pulse Duration. These are all self-explanatory.

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Add Resultant Action
 - Delete Resultant Action
 - List Resultant Action
 - Event Management
 - Display Format
 - Tag Inventory
- Version
- Firmware Upgrade

Add Resultant Action

Resultant Action ID :
Description :
Condition :
Action Mode :
Pre-action Wait (ms) :
Post-action Delay (ms) :
Output Port Number : Switch (Open/Close/Pulse) :
Pulse Logic : Positive: "Open-Close-Open , Negative: "Close-Open-Close
Pulse Mode :
Pulse Width (ms) :

5.10.3.2. Modify Resultant Action

To modify resultant action, select the “Resultant Action ID” from list table, modify it and then click “Modify”.

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Add Resultant Action
 - Delete Resultant Action
 - List Resultant Action
 - Event Management
 - Display Format
 - Tag Inventory
- Version
- Firmware Upgrade

Resultant Action

Resultant Action ID :
Description :
Condition :
Action Mode :
Pre-action Wait (ms) :
Post-action Delay (ms) :
Output Port Number : Switch (Open/Close/Pulse) :
Pulse Logic : Positive: "Open-Close-Open , Negative: "Close-Open-Close
Pulse Mode :
Pulse Width (ms) :

5.10.3.3. Delete Resultant Action

To delete resultant action, select the “Resultant Action ID” and click “Delete”.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

Status +
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action -
 Add Resultant Action
 Delete Resultant Action
 List Resultant Action
 Event Management +
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Delete Resultant Action

Resultant Action ID : Close Boom Barrier on GPO Port 3

Delete
Cancel

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
 PC UTC Time 2023/03/14 11:42:09 | PC Local Time 2023/03/14 19:42:09

5.10.3.4. List Resultant Action

Below is the “List Resultant Action” action page.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

Status
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action -
 Add Resultant Action
 Delete Resultant Action
 List Resultant Action
 Event Management +
 Display Format +
 Tag Inventory +
 Version +
 Firmware Upgrade +

Resultant Action Table		
Resultant Action ID	Description	Action Mode
Turn ON LED on GPO Port 1		Output Port
Turn OFF LED on GPO Port 1		Output Port
Turn ON LED on GPO Port 2		Output Port
Turn OFF LED on GPO Port 2		Output Port
Open Boom Barrier on GPO Port 3		Output Port
Close Boom Barrier on GPO Port 3		Output Port
Save to External USB Memory	Save to USB using CSV format	Save to External USB Memory
Show on Display Tag Database Record Page		Display Tag Database Record
Send TCP using CSV 2 Format		Low Latency Alert to Server
Show on Display Tag Group Record Page		Display Tag Group Record
test5	null	Instant Alert to Server (No Duplicate Elimination)
Pulse 2s		Output Port
MQTT		Low Latency Alert to Server
TCP Send by Listening Port inside Reader		Alert on TCP Listening Port

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/17 09:58:09 | PC Local Time 2023/03/17 17:58:09

5.10.4. Tag Inventory

Capture Tags Raw

If there is any Event was enabled to read tags, all raw tags data can be found on this page

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

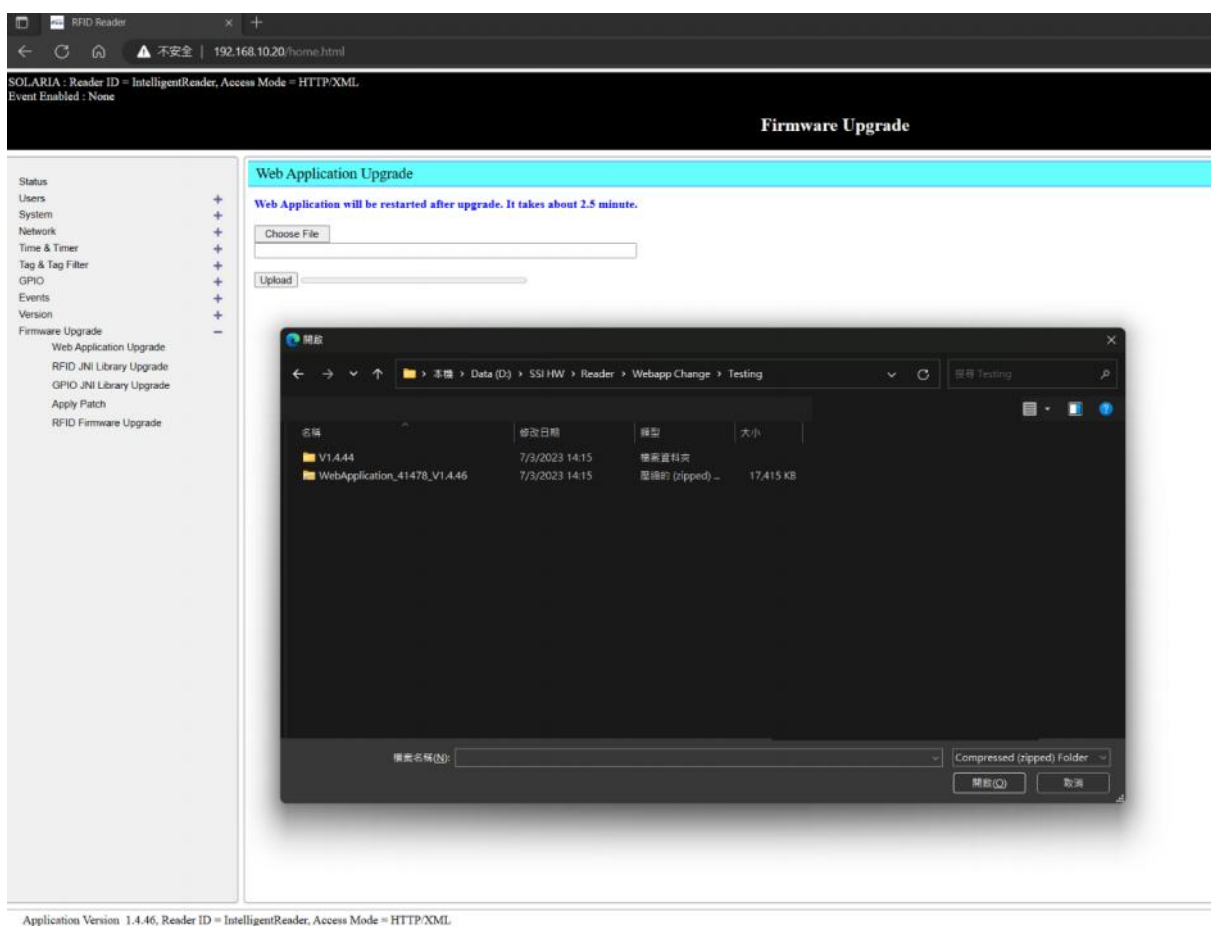
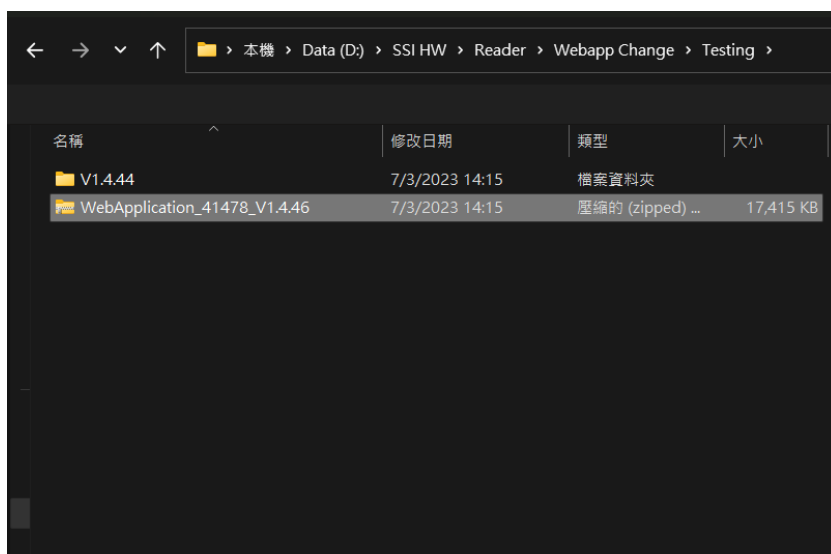
Events

Status
 Users +
 System +
 Network +
 Time & Timer +
 Tag & Tag Filter +
 GPIO +
 Events -
 Trigger +
 Resultant Action +
 Event Management +
 Display Format +
 Tag Inventory -
 Capture Tags Raw
 Display Tag Group/Database Record
 Display Magnus Tag Data
 Version +
 Firmware Upgrade +

Capture Tags Raw (Refresh Time = 1 second)								
Rate = 141 Tags/s			Total Unique IDs = 29		Elapsed Time = 7 seconds			
#	PC	EPC	Count	Ant #	Time	Freq(MHz)	RSSI(dBm)	Phase(Degree)
1	3000	E2002075690301340480E617	45	4	2023/03/14 19:43:24	925.75	-55	101.25
2	3000	01320949E4C6600100000012	41	4	2023/03/14 19:43:24	925.75	-61	73.12
3	3000	E2002075690301100430EBC6	21	4	2023/03/14 19:43:24	918.25	-64	70.31
4	3000	982379ADDFC9903022928B6	48	4	2023/03/14 19:43:24	925.75	-57	140.62
5	1800	003015001BF0	131	4	2023/03/14 19:43:23	918.25	-70	98.44
6	3000	300833B2DD9014000000000	65	4	2023/03/14 19:43:24	925.75	-67	73.12
7	1000	E2000606	47	4	2023/03/14 19:43:24	925.75	-54	129.38
8	2400	01320949E48FCF00	24	4	2023/03/14 19:43:24	926.25	-67	73.12
9	3000	E2002075690200671170A370	16	4	2023/03/14 19:43:23	902.75	-65	87.19
10	3400	59A8CF88A21CF888A210000	27	4	2023/03/14 19:43:23	918.25	-70	59.06
11	3000	E2002075690301400390EF0E	23	4	2023/03/14 19:43:23	914.25	-65	123.75
12	3000	3416214B8860030004878362	32	4	2023/03/14 19:43:24	925.75	-64	95.62

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/14 11:43:25 | PC Local Time 2023/03/14 19:43:25

the upgrading can be done directly using the zipped file



Then click Upload after choosing the Web application file and upgrading will start

Firmware Upgrade

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
- Version
- Firmware Upgrade
 - Web Application Upgrade
 - RFID JNI Library Upgrade
 - GPIO JNI Library Upgrade
 - Unified API Library Upgrade
 - Apply Patch
 - RFID Firmware Upgrade

Web Application Upgrade

Web Application will be restarted after upgrade. It takes about 2.5 minute.

WebApplication_41478_V1.4.46.zip

100% uploaded... please wait

5.12.2. Upgrading JNI Library

Choose the JNI Library zipped file (no need to unzip)

Firmware Upgrade

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
- Version
- Firmware Upgrade
 - Web Application Upgrade
 - RFID JNI Library Upgrade
 - GPIO JNI Library Upgrade
 - Unified API Library Upgrade
 - Apply Patch
 - RFID Firmware Upgrade

RFID JNI Library Upgrade

Reader will be restarted after upgrade. It takes about 2.5 minute.

libca4jps_41478_V1.1.17.zip

Upload Completed

Start upgrade...

Application Version: 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

PC UTC Time 2023/03/17 10:27:55 | PC Local Time 2023/03/17 18:27:55

Then click Upload

Upgrading Unified API library

Choose the zipped Daemon file.

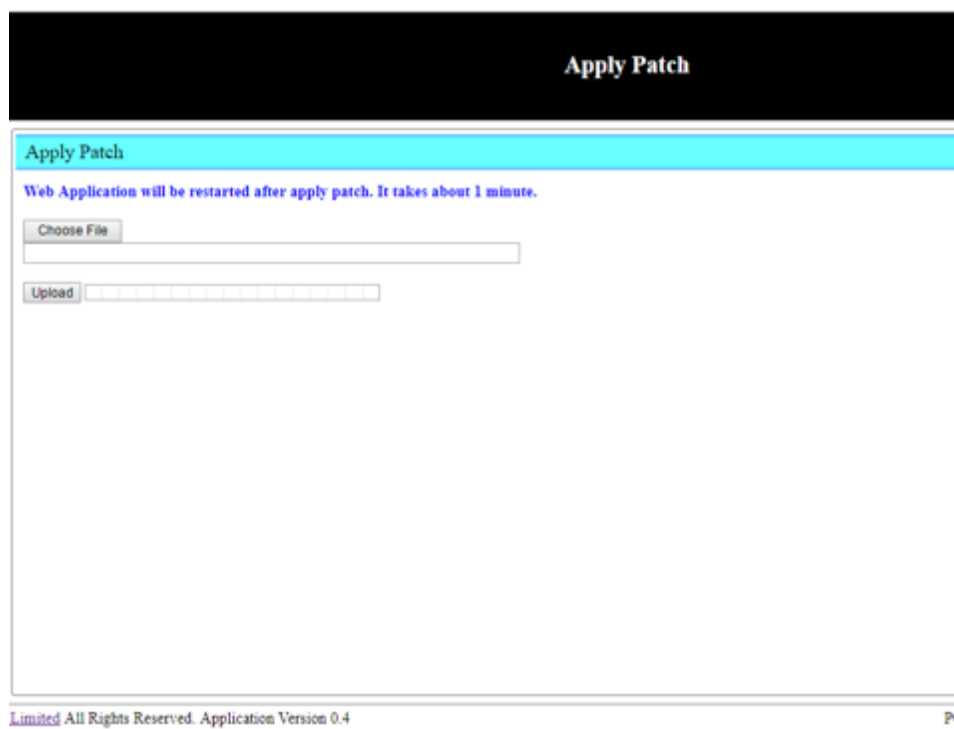


The screenshot shows a web interface titled "Firmware Upgrade". On the left is a sidebar menu with options: Status, Users, System, Network, Time & Timer, Tag & Tag Filter, I/O, Events, Version, and Firmware Upgrade (which is expanded to show sub-options like Web Application Upgrade, JMI Library Upgrade, CSL Unified API Library Upgrade, CS461 Low Level API (MACHT) Library Upgrade, LLRP Library Upgrade, and Apply Patch). The main content area is titled "Unified API Library Upgrade" and contains a "Choose File" button, a text input field with the filename "Linux3035UnifiedDaemon_V1.0.1.zip", and an "Upload" button.

Then click upload.

Applying Patch to System

If there is any patch for system, it can be done on this page. Linux OS versions: 3.0.35 or 4.x.x can use same Patch file



The screenshot shows a web interface titled "Apply Patch". Below the title bar, there is a cyan header "Apply Patch" and a blue message: "Web Application will be restarted after apply patch. It takes about 1 minute." Below this, there is a "Choose File" button, a text input field, and an "Upload" button. At the bottom of the page, there is a footer that reads "Limited All Rights Reserved. Application Version 0.4" on the left and "PC" on the right.

Choose the zipped patch file then click upload

Apply Patch

Apply Patch

Web Application will be restarted after apply patch. It takes about 1 minute.

CS463Patch2 1.zip

6. Read Tag using Web

Interface and Event Engine

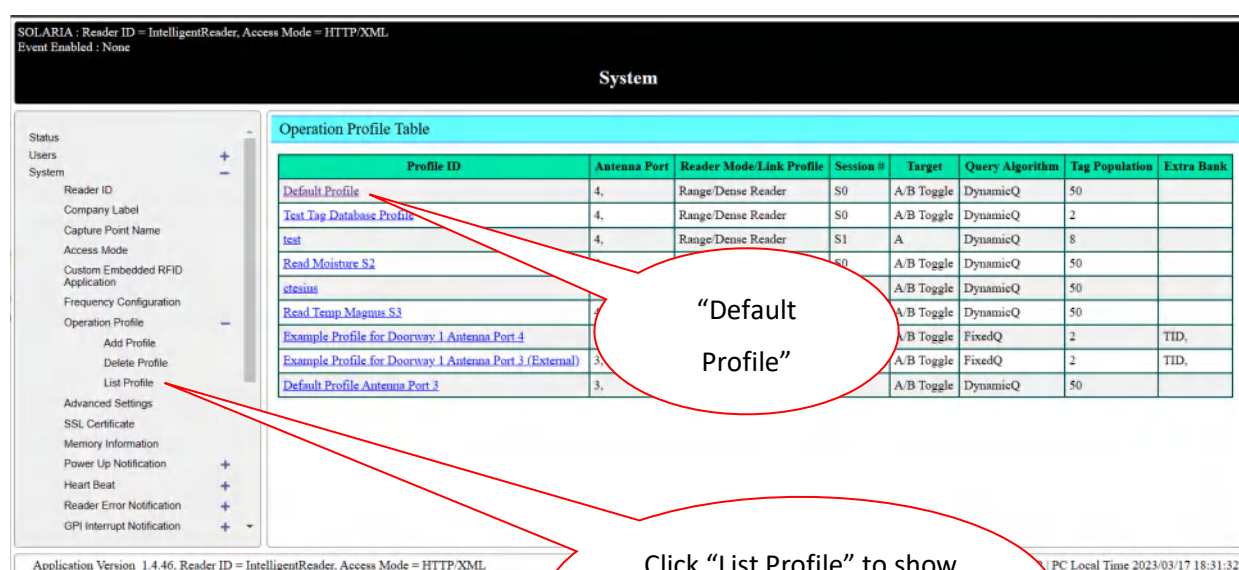
One can use a browser to quickly configure the SOLARIA reader to autonomously read tags based on certain logic sequence defined in the event engine and operation profile.

6.1. Read Tag using Default Profile and Default Event

The SOLARIA reader comes with a Default Profile and a Default Event. The Default Event is not enabled yet. Once the user enables that event, then the user can use that to immediately read RFID tags from antenna Port.

After login to the reader and ensuring the reader is in HTTP/XML access mode as explained in section 4.3.

Go to the Operation Profile in System page and select List Profile to ensure there is Default Profile can be found as below:



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

System

Operation Profile Table

Profile ID	Antenna Port	Reader Mode/Link Profile	Session #	Target	Query Algorithm	Tag Population	Extra Bank
Default Profile	4,	Range/Dense Reader	S0	A/B Toggle	DynamicQ	50	
Test Tag Database Profile	4,	Range/Dense Reader	S0	A/B Toggle	DynamicQ	2	
test	4,	Range/Dense Reader	S1	A	DynamicQ	8	
Read Moisture S2			S0	A/B Toggle	DynamicQ	50	
stestint				A/B Toggle	DynamicQ	50	
Read Temp Magnus S3				A/B Toggle	DynamicQ	50	
Example Profile for Doorway 1 Antenna Port 4				A/B Toggle	FixedQ	2	TID,
Example Profile for Doorway 1 Antenna Port 3 (External)	3,			A/B Toggle	FixedQ	2	TID,
Default Profile Antenna Port 3	3,			A/B Toggle	DynamicQ	50	

Click "List Profile" to show all Profile

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

PC Local Time 2023/03/17 18:31:32

Go to the List Event of Event Management in Event page and click List Event to show the Default Event

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Event Management
 - Add Event
 - Delete Event
 - List Event
 - Display Format
 - Tag Inventory
- Version
- Firmware Upgrade

Events											
Event Table											
Event ID	Description	Operation Profile	Exclusivity	Tag Duplicate Elimination Window (ms)	Inventory Enabling Trigger	Inventory Enabling Action	Trigger Logic	Resultant Action	Inventory	Tag	Enable
Default Event	Ex Factory Default Event	Default	Non-	6000	Always On	None	Read Any Tags	None			
Example Tag Database Display	Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Detected	None			
Example TCP Send using CSX 2 Event	Internal Antenna (Port 4)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send CSX 2			
Example Tags Group Display	display Group Tags - Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page			
Read Temp	Read Temperature from Magnus S3 Tag - Internal Antenna (Port 4)	Read Temp Magnus S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Read Moisture	Read moisture from Magnus S2 Tag - Internal Antenna (Port 4)	Read Moisture Magnus S2	Non-exclusive	0	Always On	None	Read Moisture tag	Pulse 2s	Never Stop	None	Disable
MQTT		Default Profile	Non-exclusive							None	Disable
Tag Data Send from TCP Listening Port 50008		Default Profile	Non-exclusive	60000	Always On					None	Disable

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

PC Local Time 2023/03/17 18:32:09

Click "Default Event" to continue

Click "List Event" to show default Event

In Default Event, the reading tag from antenna port 4 can be started after the default event was enable and click Modify to confirm the change

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Event Management
 - Add Event
 - Delete Event
 - List Event
 - Display Format
 - Tag Inventory
- Version
- Firmware Upgrade

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : THEN

Trigger Logic :

Resultant Action :

Inventory Disabling Trigger :

Inventory Disabling Action :

Event Enabled : ☒

Click "Enable Event" to enable the tag reading

Click "Modify" to confirm the changing

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML C Local Time 2023/03/17 18:33:08

Reading tag from antenna port 1 can be stopped once the default event was disabled by unchecking Enable Event and click Modify to confirm the change

6.2. Example 1: Read Tag using Custom Profile and Custom Event

To define your own profile and event, the following steps are needed:

Add Profile:

Go to the Operation Profile in System page, then click Add Profile as below

Click ports connected with antenna.

1 port have been activated with maximum output power equal to 30dBm and other 3 ports are not activated.

Star Systems International Ltd Application Version 1.4.44, Reader ID = Solaris-E, Access Mode = HTTP/XML PC UTC Time 2023/03/17 10:34:17 | PC Local Time 2023/03/17 18:34:17

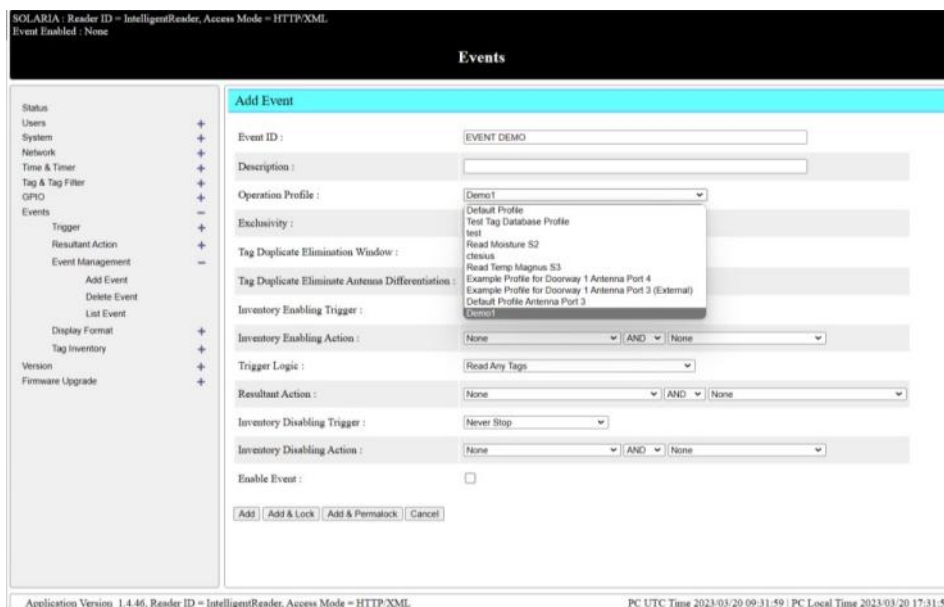
System

Change the session, Target, Algorithm and Tag population to optimize reader performance.

Star Systems International Ltd Application Version 1.4.44, Reader ID = Solaris-E, Access Mode = HTTP/XML PC UTC Time 2023/03/17 18:34:17

Please click “Add” to confirm the change.

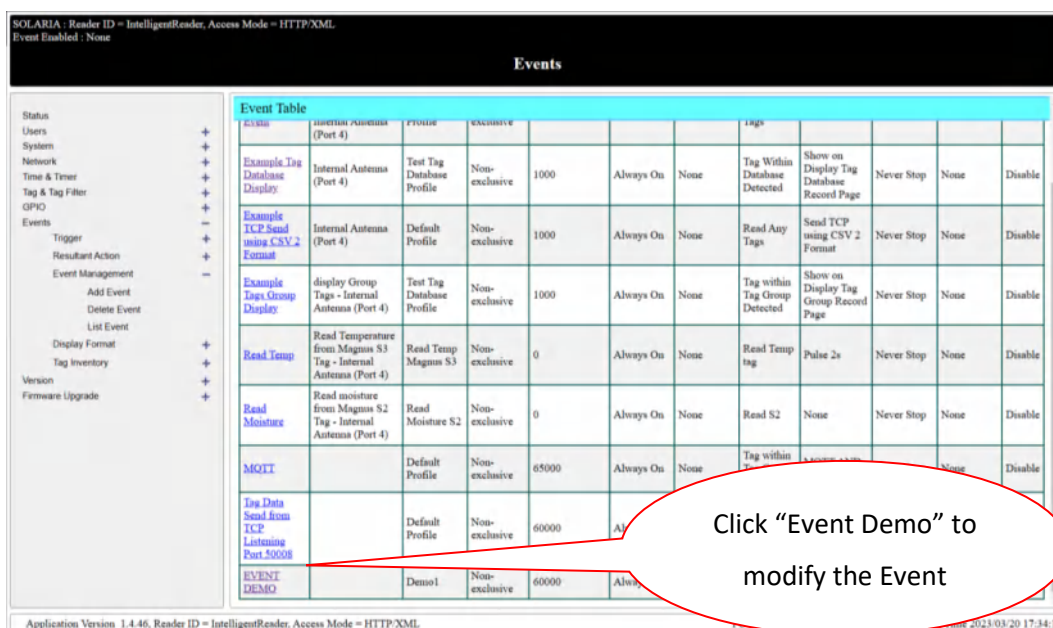
Add Event and change to use Demo1 which created before



Click Add to create new event.

Start inventory reading using Event Demo:

Go to List Event in Event Management and click “Event Demo” to modify the Event.



Name	Location/Antenna (Port 4)	Profile	Exclusivity	Count	Always On	None	Tag	Show on Display Tag Database Record Page	Never Stop	None	Disable
Example Tag Database Display	Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag Within Database Detected	Never Stop	None	Disable	
Example TCP Send using CSV 2 Format	Internal Antenna (Port 4)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send TCP using CSV 2 Format	Never Stop	None	Disable
Example Tags Group Display	display Group Tags - Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page	Never Stop	None	Disable
Read Temp	Read Temperature from Magnus S3 Tag - Internal Antenna (Port 4)	Read Temp Magnus S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Read Moisture	Read moisture from Magnus S2 Tag - Internal Antenna (Port 4)	Read Moisture S2	Non-exclusive	0	Always On	None	Read S2	None	Never Stop	None	Disable
MQTT		Default Profile	Non-exclusive	65000	Always On	None	Tag within	Never Stop	None	Disable	
Tag Data Send from TCP Listening Port 50008		Default Profile	Non-exclusive	60000	Always On	None					
EVENT DEMO		Demo1	Non-exclusive	60000	Always On	None					

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

Status
Users
System
Network
Time & Timer
Tag & Tag Filter
GPIO
Events
Trigger
Resultant Action
Event Management
Add Event
Delete Event
List Event
Display Format
Tag Inventory
Version
Firmware Upgrade

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : AND

Trigger Logic :

Resultant Action : AND

Inventory Disabling Trigger :

Inventory Disabling Action : AND

Event Enabled : ☒

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

56 | PC Local Time 2023/03/20 18:10:56

Please click "Modify" to confirm the change and inventory will start.

Go to Tag inventory to check inventory result.

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

Status
Users
System
Network
Time & Timer
Tag & Tag Filter
GPIO
Events
Trigger
Resultant Action
Event Management
Display Format
Tag Inventory
Capture Tags Raw
Display Tag Group/Database
Record
Display Magnus Tag Data
Version
Firmware Upgrade

Capture Tags Raw (Refresh Time = 1 second)

Rate = 112 Tags/s Total Unique IDs = 35 Elapsed Time = 17 seconds

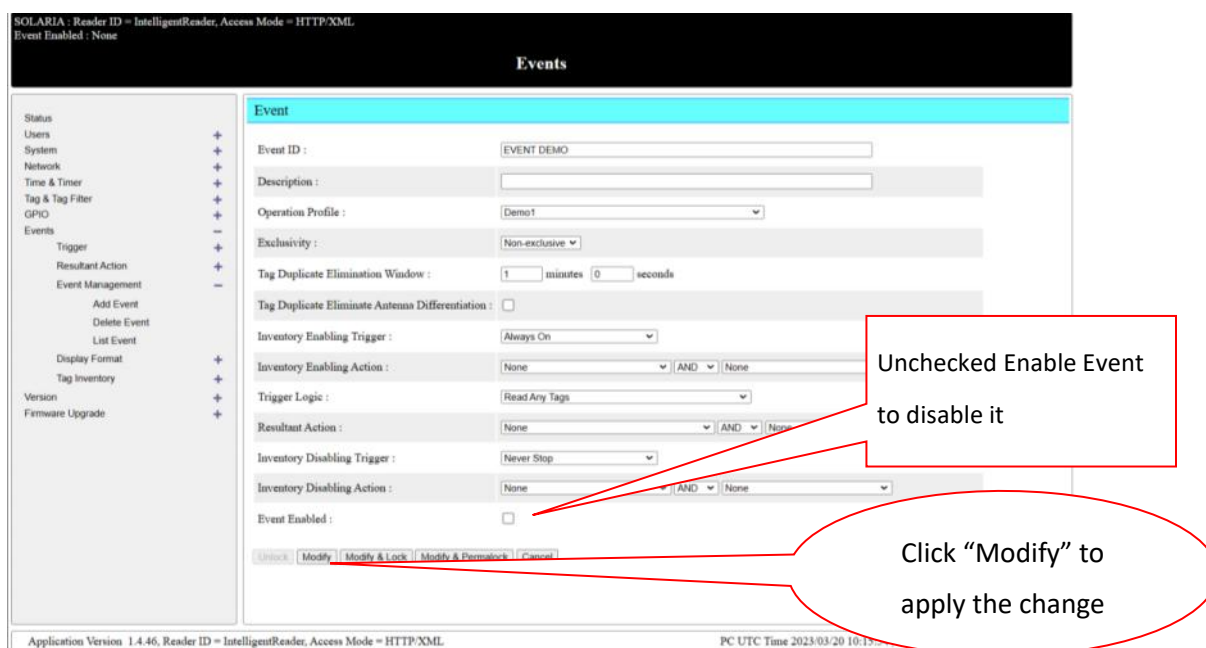
#	PC	EPC	Count	Ant #	Time	Freq(MHz)	RSSI(dBm)	Phase(Degree)
1	3000	3416214B8860030004878362	47	4	2023/03/20 18:13:18	905.75	-70	106.88
2	1800	003015001BF0	358	4	2023/03/20 18:13:19	924.25	-66	149.06
3	3000	E2002075690301100430EBC6	63	4	2023/03/20 18:13:18	905.75	-65	92.81
4	1000	E20000606	92	4	2023/03/20 18:13:18	905.75	-61	30.94
5	35B0	3E0000000030C2052F31B0000	42	4	2023/03/20 18:13:19	924.25	-69	140.62
6	3000	0000000000000000000000001471	113	4	2023/03/20 18:13:19	924.25	-65	165.94
7	3400	E20030286802005723802152	6	4	2023/03/20 18:13:13	911.75	-70	81.56
8	3000	01320949E403FE0100043F55	33	4	2023/03/20 18:13:17	919.75	-71	75.94
9	3000	01320949E403FE0100043F55	103	4	2023/03/20 18:13:19	924.25	-67	90
10	3000	01320949E403FE0100043F55	105	4	2023/03/20 18:13:19	924.25	-65	95.62
11	3000	E23442093750601307	106	4	2023/03/20 18:13:19	924.25	-61	92.81
12	1000	E2000707	4	4	2023/03/20 18:13:19	924.25	-65	78.75
13	2400	01320949E48FCF00					-63	143.44

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

56 | PC Local Time 2023/03/20 18:13:18

Click "Tag Inventory"
to check Inventory
result

The Inventory can be stopped by disabling the Event 1 on Event Management as below



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

Event ID : EVENT DEMO

Description :

Operation Profile : Demo1

Exclusivity : Non-exclusive

Tag Duplicate Elimination Window : 1 minutes 0 seconds

Tag Duplicate Eliminate Antenna Differentiation :

Inventory Enabling Trigger : Always On

Inventory Enabling Action : None AND None

Trigger Logic : Read Any Tags

Resultant Action : None AND None

Inventory Disabling Trigger : Never Stop

Inventory Disabling Action : None AND None

Event Enabled : ☐

Buttons: Unlink, Modify, Modify & Lock, Modify & Permissions, Cancel

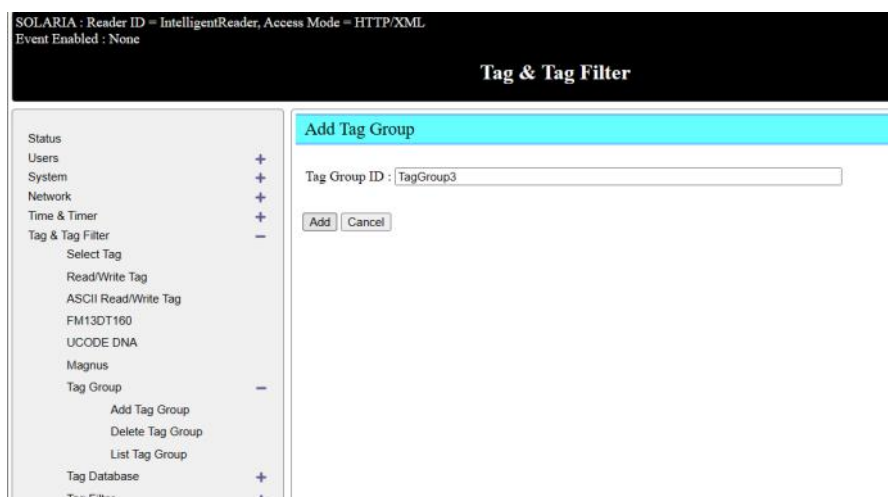
Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML
PC UTC Time 2023/03/20 10:13

Below procedure to enable particular group of tag to be detected and used this group as trigger

Add tag group:

Go to Tag group in Tag & Tag Filter and click Add Tag Group

Input the new tags group name as below



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Tag & Tag Filter

Add Tag Group

Tag Group ID : TagGroup3

Buttons: Add, Cancel

Left Menu: Status, Users, System, Network, Time & Timer, Tag & Tag Filter, Select Tag, Read/Write Tag, ASCII Read/Write Tag, FM13DT160, UCODE DNA, Magnus, Tag Group, Add Tag Group, Delete Tag Group, List Tag Group, Tag Database, Tag Filter

Click Add to confirm the new group

Add Tags to the group

Click Add to add new tags to the group and below menu will pop up.

Click confirm to confirm the addition of new tag to the tag group

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group -
- Add Tag Group
- Delete Tag Group
- List Tag Group
- Tag Database +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Tag Group

Tag Group ID :

Tag IDs :

Add Tag ID :

Confirm
Cancel

Save
Save & Download
Cancel

Click Save to save the new tag group

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
 Event Enabled : None

Tag & Tag Filter

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
- Select Tag
- Read/Write Tag
- ASCII Read/Write Tag
- FM13DT160
- UCODE DNA
- Magnus
- Tag Group -
- Add Tag Group
- Delete Tag Group
- List Tag Group
- Tag Database +
- Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Tag Group

Tag Group ID :

Tag IDs :

3416214B886600300004878362

E2002075690301100430EBC6

Add

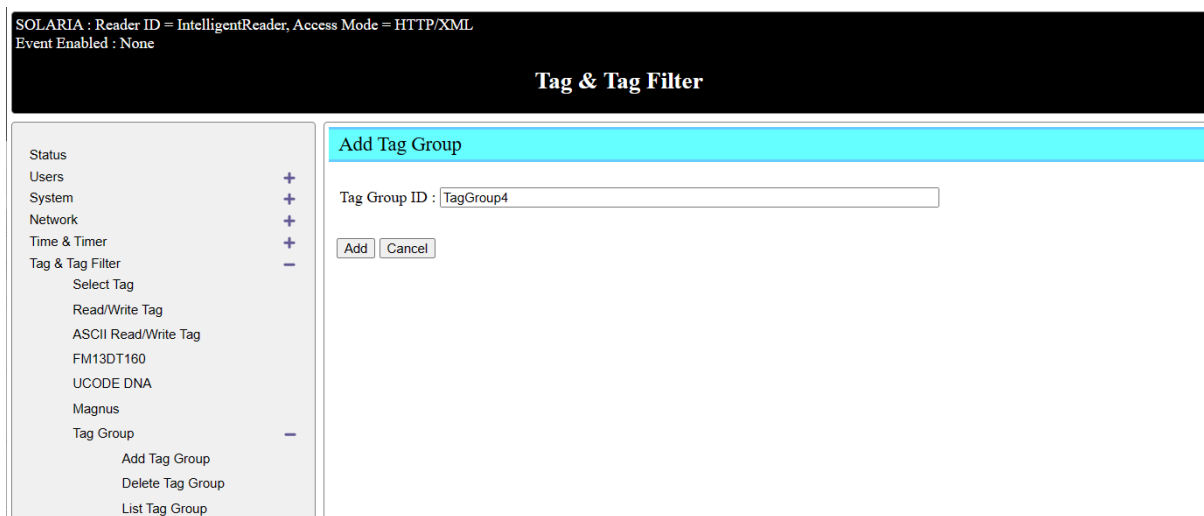
Delete

Delete All

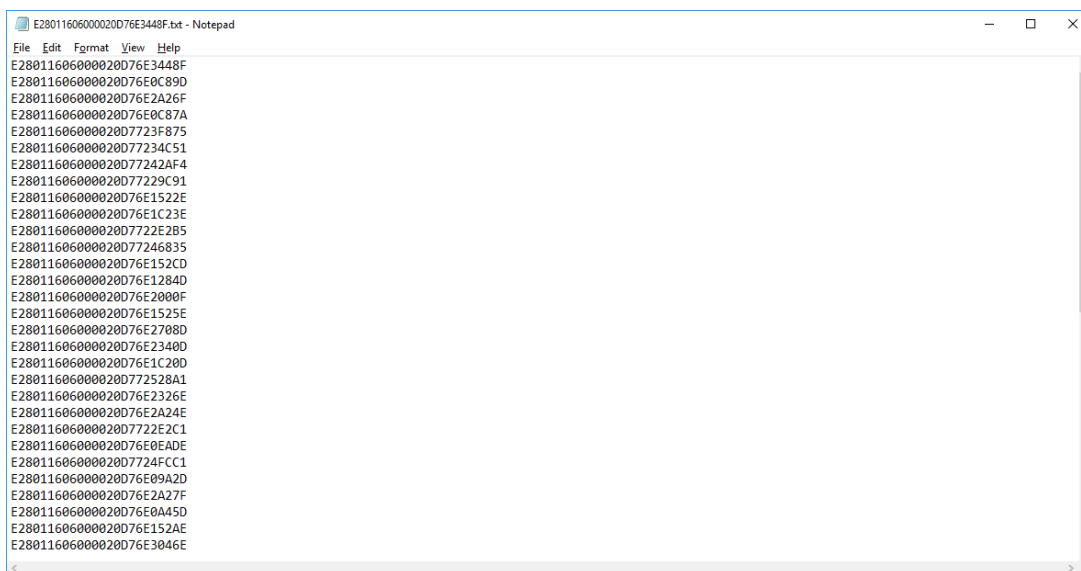
Import

Save
Save & Download
Cancel

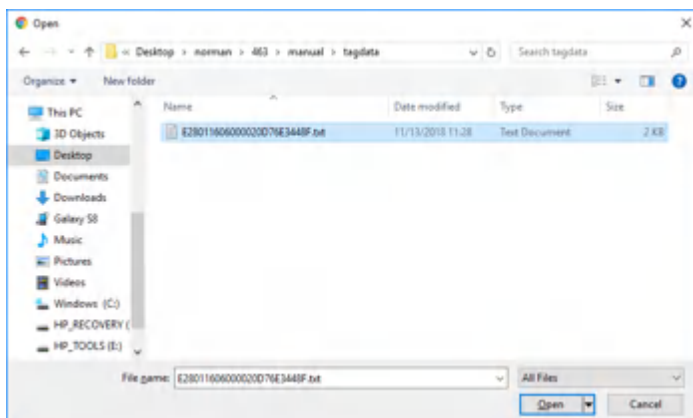
Import New tags:



Prepare tag record file, below is the example file and view by notepad



Click Import then select the tags record file



SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : None

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Event Management
 - Add Event
 - Delete Event
 - List Event
 - Display Format
 - Tag Inventory
- Version
- Firmware Upgrade

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☐

Inventory Enabling Trigger :

Inventory Enabling Action : AND

Trigger Logic :

Resultant Action :

Inventory Disabling Trigger :

Inventory Disabling Action :

Event Enabled :

Unlock
Modify
Modify & Lock
Modify & Permalock
Cancel

SOLARIA : Reader ID = IntelligentReader, Access Mode = HTTP/XML
Event Enabled : EVENT DEMO

Events

- Status
- Users
- System
- Network
- Time & Timer
- Tag & Tag Filter
- GPIO
- Events
 - Trigger
 - Resultant Action
 - Event Management
 - Display Format
 - Tag Inventory
 - Capture Tags Raw
 - Display Tag Group/Database Record
 - Display Magnus Tag Data
- Version
- Firmware Upgrade

Capture Tags Raw (Refresh Time = 1 second)

Rate = 145 Tags/s Total Unique IDs = 33 Elapsed Time = 6 seconds [Clear Error Message & Restart Event](#)

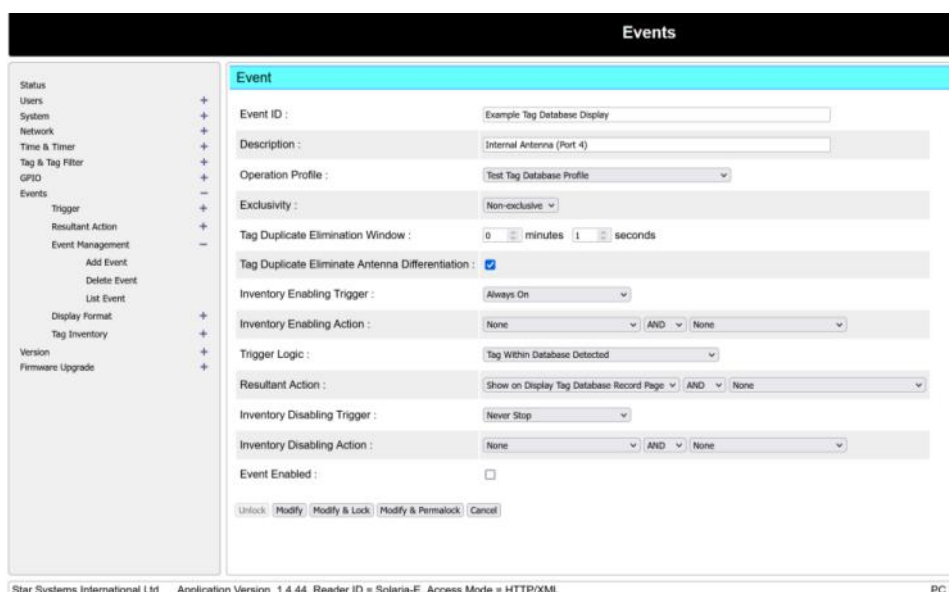
#	PC	EPC	Count	Ant #	Time	Freq(MHz)	RSSI(dBm)	Phase(Degree)
1	3000	E2000303000000000000000002	20	4	2023/03/20 18:31:46	918.75	-67	53.44
2	3000	982379ADDFC9903022928B6	45	4	2023/03/20 18:31:46	918.75	-59	106.88
3	3000	3416214B8860030004878362	20	4	2023/03/20 18:31:46	918.75	-68	90
4	3000	E2002075690300291040AFA3	46	4	2023/03/20 18:31:46	918.75	-57	132.19
5	3000	E2002075690301340480E617	45	4	2023/03/20 18:31:46	918.75	-63	8.44
6	1000	E2000505	45	4	2023/03/20 18:31:46	918.75	-61	50.62
7	3000	E200421E6690601301AEA0CD	4	4	2023/03/20 18:31:44	904.25	-68	146.25
8	2400	01320949E48FCF00	50	4	2023/03/20 18:31:46	918.75	-63	39.38
9	3000	E200421D206064110145EE3E	41	4	2023/03/20 18:31:46	918.75	-69	151.88
10	1800	003015001BF0	145	4	2023/03/20 18:31:46	918.75	-65	33.75
11	3000	00000000000000000000001471	43	4	2023/03/20 18:31:46	918.75	-63	112.5
12	3000	01320949E4C6600100000012	41	4	2023/03/20 18:31:46	918.75	-63	143.44
13	3400	59A8CF88A21CF88A210000	26	4	2023/03/20 18:31:46	918.75	-70	22.5
14	3000	E2002075690301100430EBC6	27	4	2023/03/20 18:31:46	918.75	-66	14.06

Application Version 1.4.46, Reader ID = IntelligentReader, Access Mode = HTTP/XML

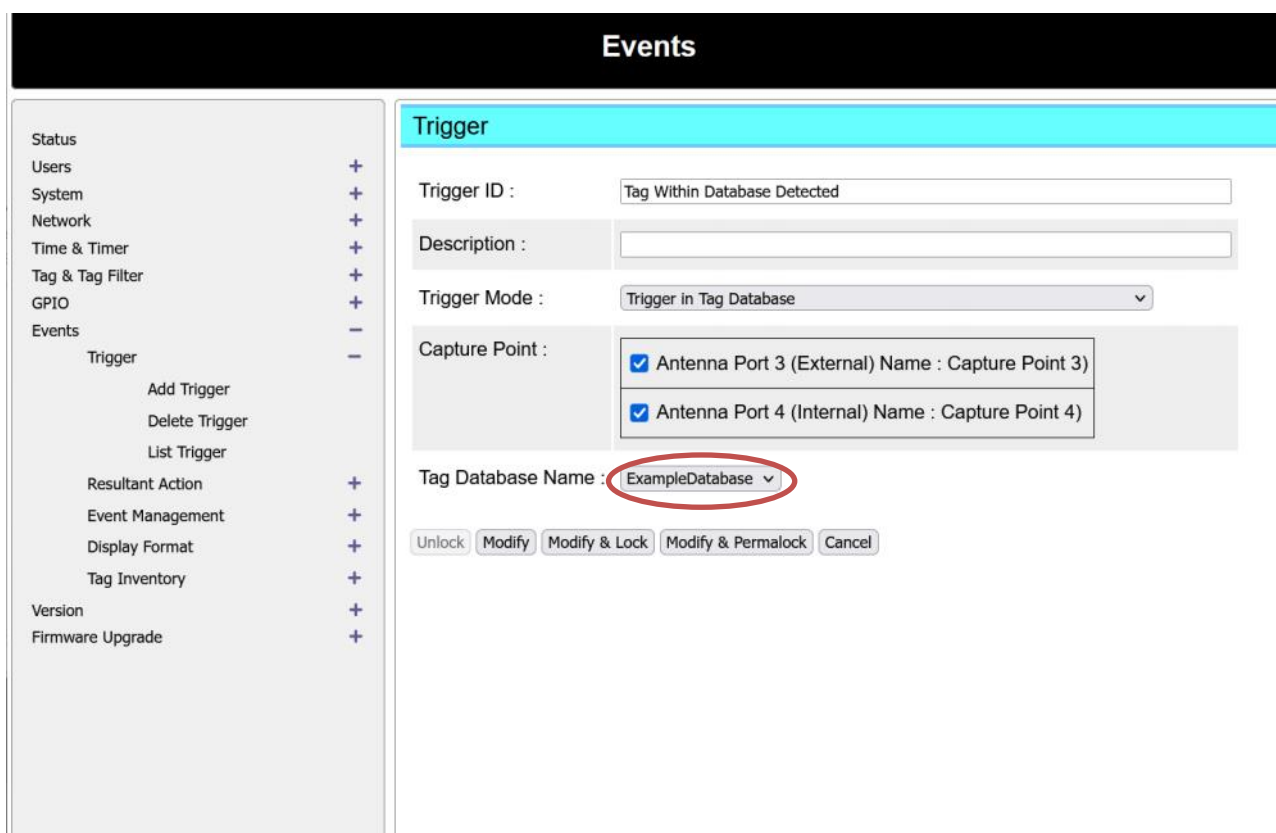
PC UTC Time 2023/03/20 10:31:46 | PC Local Time 2023/03/20 18:31:46

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Below show the database event details.



The database is going to use in this event, was choose in Trigger page as shown below



The way showing database content was defined in Display Format, so, you need choose right display format in Resultant Action page as shown below on Display Tag Database Record Action Mode

Events

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
 - Trigger +
 - Resultant Action -
 - Add Resultant Action
 - Delete Resultant Action
 - List Resultant Action
 - Event Management +
 - Display Format +
 - Tag Inventory +
- Version +
- Firmware Upgrade +

Resultant Action

Resultant Action ID :

Description :

Condition : None ▼

Action Mode : Display Tag Database Record ▼

Display Format ID : display format 2 ▼

Display Time Factor Type : Additive ▼

Display Time Additive Factor (ms) : 0 = forever until next data comes in

Display Format can be modified/added in Display format page as shown below

Events

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
 - Trigger +
 - Resultant Action +
 - Event Management +
 - Display Format -
 - Add Display Format
 - Delete Display Format
 - List Display Format
 - Tag Inventory +
- Version +
- Firmware Upgrade +

Display Format

Database Name :

Display Format ID :

Field Name	Enable	Display Label	Top Position	Left Position	Font Size	Font Color	Image Height (0 = auto)	Image Width (0 = auto)
DatabaseName	☒	DatabaseName	20.0	10.0	16.0	 		
Time	☒	Time	40.0	10.0	16.0	 		
EPC	☒	EPC	60.0	10.0	16.0	 		
UIDofEquipment	☒	UIDofEquipment	80.0	10.0	16.0	 		
PhotoofEquipment	☒	PhotoofEquipment	100.0	10.0			0.0	0.0
StaffID	☒	StaffID	120.0	10.0	16.0	 		
StaffPhoto	☒	StaffPhoto	140.0	10.0			0.0	0.0

Type of record on database can be listed in List Database as shown below.

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
 - Select Tag
 - Read/Write Tag
 - ASCII Read/Write Tag
 - FM13DT160
 - UCODE DNA
 - Magnus
 - Tag Group +
 - Tag Database -
 - Configuration
 - Add Database
 - Delete Database
 - List Database
 - Input Data to Database +
 - Database Backup / Restore +
 - Tag Filter +
- GPIO +
- Events +
- Version +
- Emulation Upgrade +

Database

Database Name :

Table Name :

Fields :

Name	Data Type	
EPC	Key Field	STRING ▾
UIDofEquipment		STRING ▾ ✖
PhotoofEquipment		IMAGE ▾ ✖
StaffID		STRING ▾ ✖
StaffPhoto		IMAGE ▾ ✖

The content of each record on each database can be changed from List Tag Record as shown below

Tag & Tag Filter

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
 - Select Tag
 - Read/Write Tag
 - ASCII Read/Write Tag
 - FM13DT160
 - UCODE DNA
 - Magnus
 - Tag Group +
 - Tag Database -
 - Configuration
 - Add Database
 - Delete Database
 - List Database
 - Input Data to Database -
 - Add Record
 - Delete Record
 - List Record**
 - Database Backup / Restore +

List Tag Record

Select Database : ExampleDatabase

Confirm

click here to
continue

Tag & Tag Filter

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
 - Select Tag
 - Read/Write Tag
 - ASCII Read/Write Tag
 - FM13DT160
 - UCODE DNA
 - Magnus
 - Tag Group +
 - Tag Database -
 - Configuration
 - Add Database
 - Delete Database
 - List Database
 - Input Data to Database -
 - Add Record
 - Delete Record
 - List Record
 - Database Backup / Restore +

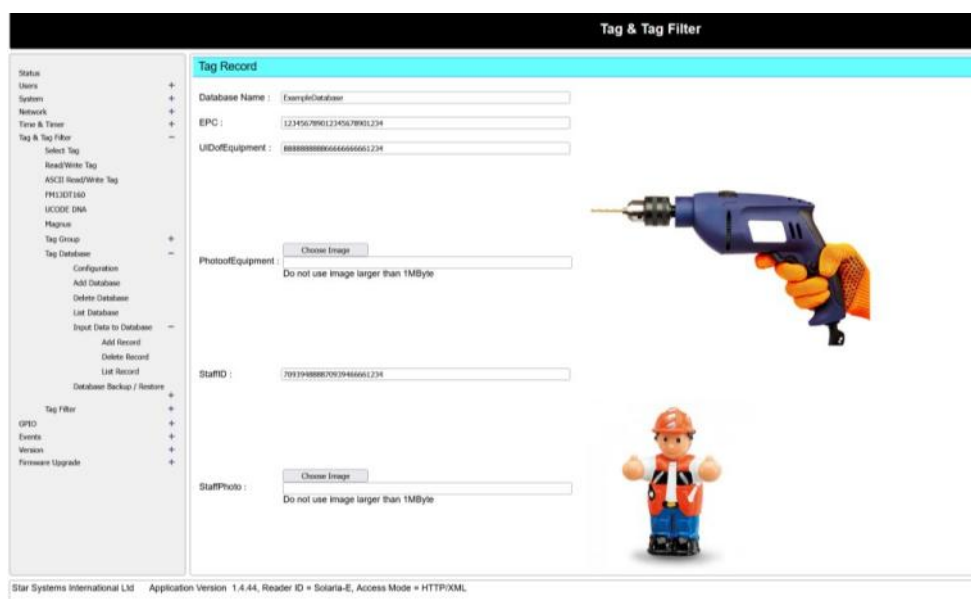
Tag Record Table

Database Name : ExampleDatabase

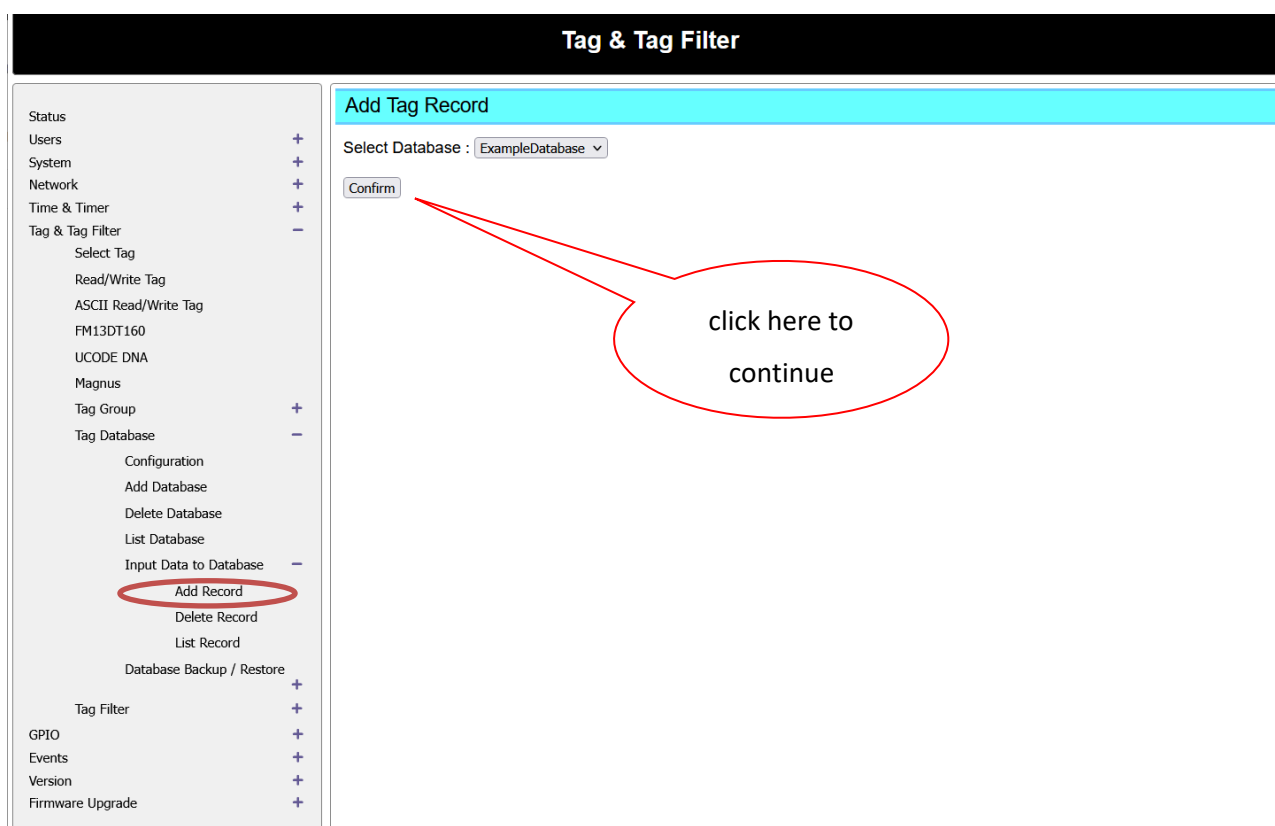
EPC	UIDofEquipment	StaffID
123456789012345678901234	88888888888666666666666666661234	709394888870939466661234

click here to choose which
record to be modified

The content of record can be modified on this page



The new record can be added to particular database in Add Record as shown below



The content of each record on particular database can be added on this page as shown below

Tag & Tag Filter

- Status
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter -
 - Select Tag
 - Read/Write Tag
 - ASCII Read/Write Tag
 - FM13DT160
 - UCODE DNA
 - Magnus
 - Tag Group +
 - Tag Database -
 - Configuration
 - Add Database
 - Delete Database
 - List Database
 - Input Data to Database -
 - Add Record
 - Delete Record
 - List Record
 - Database Backup / Restore +
 - Tag Filter +
- GPIO +
- Events +
- Version +
- Firmware Upgrade +

Add Tag Record

Database Name :

EPC :

UIDofEquipment :

Choose Image

PhotoofEquipment :

Do not use image larger than 1MByte

StaffID :

Choose Image

StaffPhoto :

Do not use image larger than 1MByte

Add

Cancel

After all necessary modification was done, the event can be run again by clicking Even Enabled as shown below

Events

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
- Trigger +
- Resultant Action +
- Event Management -
- Add Event +
- Delete Event +
- List Event +
- Display Format +
- Tag Inventory +
- Version +
- Firmware Upgrade +

Event

Event ID :

Description :

Operation Profile :

Exclusivity :

Tag Duplicate Elimination Window : minutes seconds

Tag Duplicate Eliminate Antenna Differentiation : ☒

Inventory Enabling Trigger :

Inventory Enabling Action : AND

Trigger Logic :

Resultant Action : AND

Inventory Disabling Trigger :

Inventory Disabling Action : AND

Event Enabled : ☒

You should see the event status changed to Enabled

Events

- Status +
- Users +
- System +
- Network +
- Time & Timer +
- Tag & Tag Filter +
- GPIO +
- Events -
- Trigger +
- Resultant Action +
- Event Management -
- Add Event +
- Delete Event +
- List Event +
- Display Format +
- Tag Inventory +
- Version +
- Firmware Upgrade +

Event Table

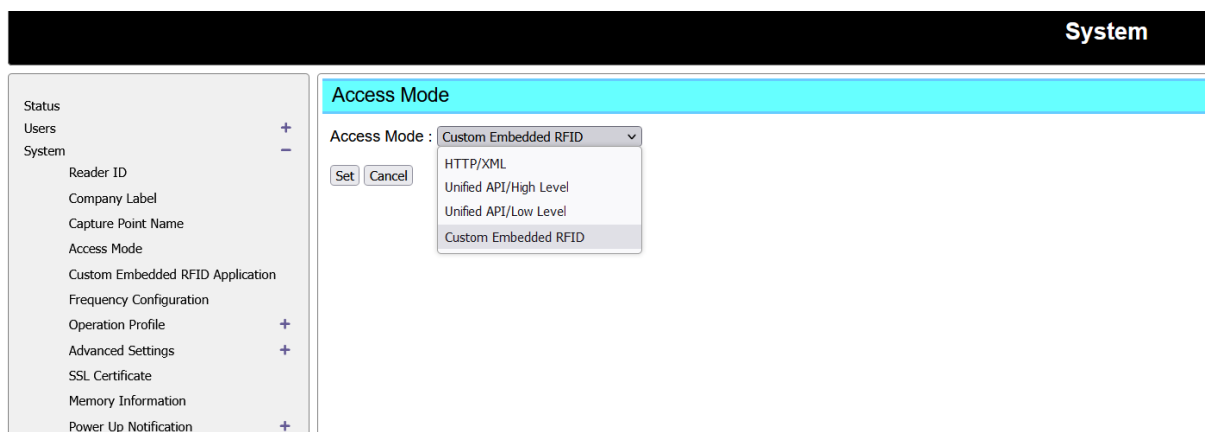
Event ID	Description	Operation Profile	Exclusivity	Tag Duplicate Elimination Window (ms)	Inventory Enabling Trigger	Inventory Enabling Action	Trigger Logic	Resultant Action	Inventory Disabling Trigger	Inventory Disabling Action	Enable
Default Event	Ex Factory Default Event, Internal Antenna (Port 4)	Default Profile	Non-exclusive	6000	Always On	None	Read Any Tags	None	Never Stop	None	Disable
Example Tag Database Display	Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag Within Database Detected	Show on Display Tag Database Record Page	Never Stop	None	Enable
Example TCP Send using CSV 2 Format	Internal Antenna (Port 4)	Default Profile	Non-exclusive	1000	Always On	None	Read Any Tags	Send TCP using CSV 2 Format	Never Stop	None	Disable
Example Tag Group Display	display Group Tags - Internal Antenna (Port 4)	Test Tag Database Profile	Non-exclusive	1000	Always On	None	Tag within Tag Group Detected	Show on Display Tag Group Record Page	Never Stop	None	Disable
Read Temp	Read Temperature from Magnus S3 Tag - Internal Antenna (Port 4)	Read Temp Magnus S3	Non-exclusive	0	Always On	None	Read Temp tag	Pulse 2s	Never Stop	None	Disable
Read Moisture	Read moisture from Magnus S2 Tag - Internal Antenna (Port 4)	Read Moisture S2	Non-exclusive	0	Always On	None	Read S2	None	Never Stop	None	Disable
MQTT		Default Profile	Non-exclusive	60000	Always On	None	Tag within Tag Group Detected	MQTT AND Pulse 2s	Never Stop	None	Disable
Tag Data (Send from TCP Listening Port 55558)		Default Profile	Non-exclusive	60000	Always On	None	Read Any Tags	TCP Send by Listening Port Inside Reader	Never Stop	None	Disable

If you go to Display Tag Group/Database Record, you can see the database record content linking to the detected tag (The tag with EPC 123456789012345678901234 was used in this event Example Tag Database Display shipped with reader).



6.4. Read Tag using Custom Embedded RFID

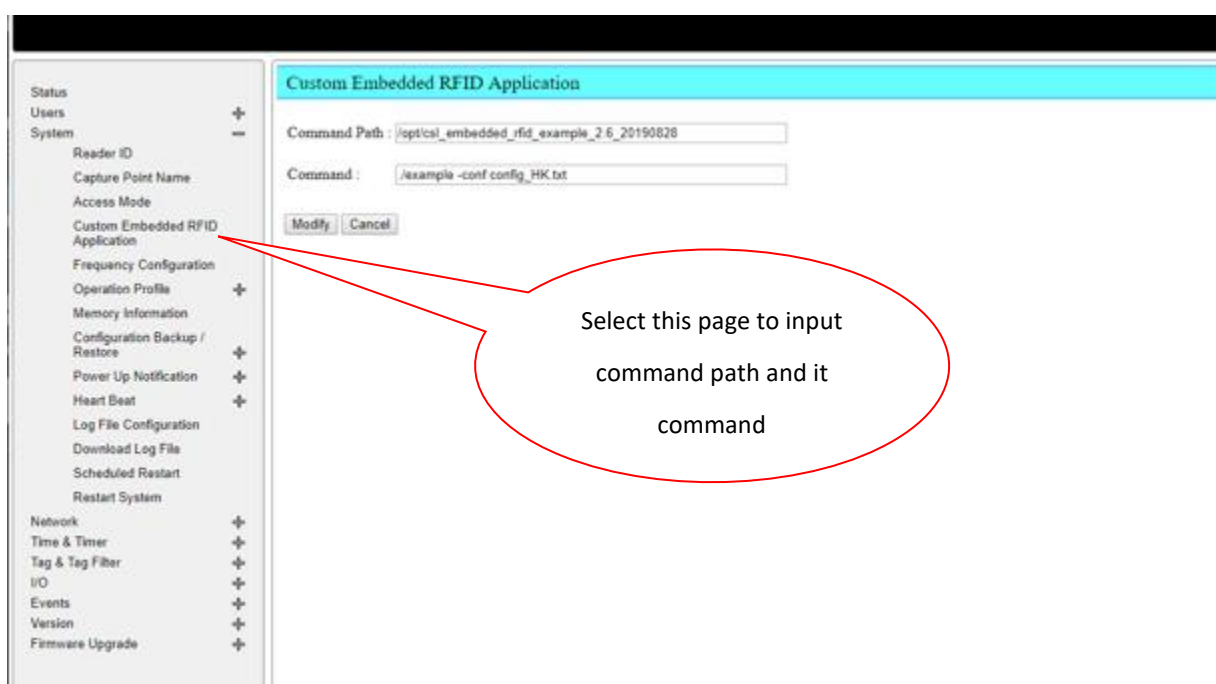
Change the access mode to Custom Embedded RFID



The screenshot shows the 'System' configuration page. On the left is a sidebar menu with options: Status, Users, System, Reader ID, Company Label, Capture Point Name, Access Mode, Custom Embedded RFID Application, Frequency Configuration, Operation Profile, Advanced Settings, SSL Certificate, Memory Information, and Power Up Notification. The 'Access Mode' option is selected, and a dropdown menu is open, showing the following options: HTTP/XML, Unified API/High Level, Unified API/Low Level, and Custom Embedded RFID. The 'Custom Embedded RFID' option is highlighted. Below the dropdown are 'Set' and 'Cancel' buttons.

Click Set to confirm the change

Input the Embedded RFID application path and its command on this page as shown below, the application will run once the access mode changed to “Custom Embedded RFID”

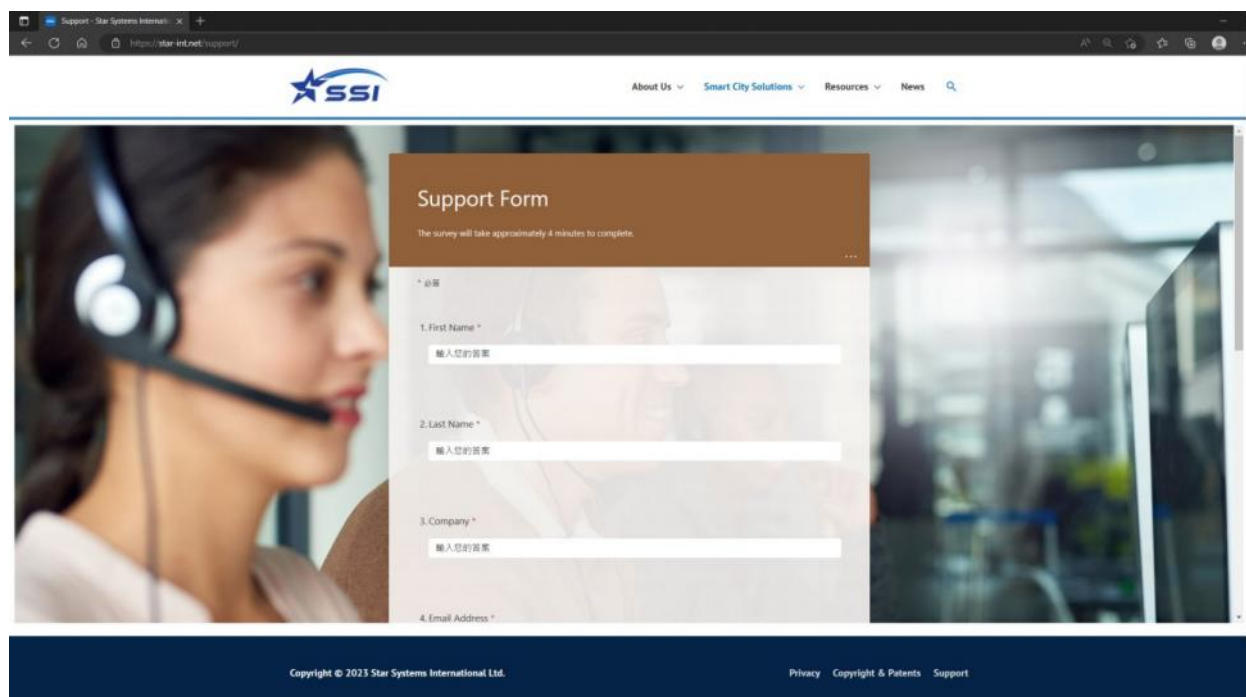


The screenshot shows the 'Custom Embedded RFID Application' configuration page. The sidebar menu on the left is expanded to show the 'Custom Embedded RFID Application' option. The main content area has two input fields: 'Command Path' with the value '/optical_embedded_rfid_example_2_6_20150828' and 'Command' with the value './example -conf config_HK.txt'. Below these fields are 'Modify' and 'Cancel' buttons. A red callout bubble points to the 'Custom Embedded RFID Application' option in the sidebar menu, containing the text: 'Select this page to input command path and it command'.

Demo Source Codes for Download

The source codes are available on request. The support page could be found in the below link

<https://star-int.net/support/>



The screenshot shows a web browser window displaying the SSI Support Form. The browser's address bar shows the URL <https://star-int.net/support/>. The page features the SSI logo in the top left corner and a navigation menu with links for "About Us", "Smart City Solutions", "Resources", and "News". The main content area is titled "Support Form" and includes a sub-header stating "The survey will take approximately 4 minutes to complete." Below this, there are four required input fields, each with a red asterisk and a placeholder text "輸入您的答案" (Enter your answer):

1. First Name *
2. Last Name *
3. Company *
4. Email Address *

The background of the form is a blurred image of a woman wearing a headset, suggesting a customer support or call center environment. The footer of the page contains the copyright notice "Copyright © 2023 Star Systems International Ltd." and links for "Privacy", "Copyright & Patents", and "Support".

Historical Firmware Versions

The following are lists of historical firmware versions of each firmware:

Web Application:

Version Number	Date	Description

JNI Library:

Version Number	Date	Description

Patch:

Version Number	Date	Description

Unified API Library (Daemon):

Version Number	Date	Description



About Us

Founded in 2013, STAR Systems International (SSI) is a world leader in Automatic Vehicle Identification Technologies. SSI focuses on providing best-in-class transponders, readers and professional consulting services for Smart City Initiatives, including Electronic Tolling (ETC), Electronic Vehicle Registration (EVR), Fleet Management, Parking and Secure Access Control applications.

SSI is guided by three principles: Outstanding People, Innovative Products and Service Excellence. These principles reflect the Company's long-term expansive strategy to advance Smart City Technologies. SSI strives to ensure customer success by leveraging the Company's technical expertise and implementation experience. "Your Success Is Our Vision".

For more information on SSI, visit www.star-int.net.

Technical Support

Visit the SSI's Support at www.star-int.net and click **Smart Cities Solutions > Technical Support**, or go to <https://star-int.net/support/> to apply support request for your RFID product.



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INDUSTEY CANADA STATEMENT(French):

Cet appareil est conforme aux normes RSS exemptes de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférences nuisibles et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil. De plus, cet appareil est conforme à la norme ICES-003 des règles d'Industrie Canada (IC).

Tout changement ou modification non expressément approuvé par la partie responsable de la conformité pourrait annuler l'autorité de l'utilisateur à faire fonctionner l'équipement.

Remarque : cet équipement a été testé et déclaré conforme aux limites d'un appareil numérique de classe B, conformément aux normes RSS exemptes de licence d'Industrie Canada. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle. Cet équipement génère des utilisations et peut émettre de l'énergie de radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions, peut causer des interférences nuisibles aux communications radio. Cependant, il n'y a aucune garantie que des interférences ne se produiront pas dans une installation particulière. Si cet équipement cause des interférences nuisibles à la réception radio ou télévision, ce qui peut être déterminé en éteignant et en rallumant l'équipement, l'utilisateur est encouragé à essayer de corriger l'interférence par une ou plusieurs des mesures suivantes :

- Réorientez ou déplacez l'antenne de réception.

- Augmenter la distance entre l'équipement et le récepteur.

- Connectez l'équipement à une prise sur un circuit différent de celui auquel le récepteur est connecté.

- Consultez le revendeur ou un technicien radio/TV expérimenté pour obtenir de l'aide.

Cet équipement est conforme aux limites d'exposition aux rayonnements RSS-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

Declaration of EIRP compliance

We, Star Systems International Limited, hereby to declare that product name: RFID Reader, model name: SOLARIA (HDR29000), will have professional installation or authorized service personnel to configure radio parameters of the transmitter using the software for adjusting total EIRP (36 dBm) power at local installation to ensure compliance with FCC rules, based on KDB594280. e.g. If the antenna cable at the site of installation has 12 dB loss, with a 15 dBi gain antenna, the professional installer could adjust the conducted power from the reader to 30 dBm to comply with the EIRP limit (36 dBm) stated in FCC part 15.