

# RFRain Zone Manager User Manual V7.00.14.xx

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## Editor's Note

The purpose of this manual is to provide instruction to the user on how to configure an RFRain RFID system from scratch. To accomplish this task, the user must follow the steps in order, as they are listed.

It is possible that a customer will receive an RFID system from RFRain that has been pre-configured before delivery. If your system fits that scenario, many of the steps listed in the following sections will not be necessary because they have already been done for you. If you are not sure about the level of pre-configuration performed on your system, you will need to consult with your RFRain sales person or an RFRain technical support person to determine how much pre-configuration has been done and how much, if any, user configuration is required.

The entire staff, here at RFRain, is dedicated to you and to the quality of the RFRain product that you have purchased. It is our sole purpose to ensure that you encounter as few "bumps in the road" as possible during your setup process. We have tried very hard to create a product that is easy to configure and install, and just as important, one that will last you many, many years. We are here to offer our assistance at any time that you may require our help.

If you have any questions about the configuration and/or installation of your RFRain RFID system, please contact RFRain at the following contact options:

Phone: **1- (833) 273-7246**

Email: **[sales@rfrain.com](mailto:sales@rfrain.com)**

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# 1. Preface

The intent of the document is to provide a user the ability to setup a reader from scratch without the need to be an expert in RFID or a software developer. In addition, the document is a user guide to the Zone Manager Software.

The RFRain Zone Manager is one of the key proprietary software applications, which allows a user to fully configure the system to track assets in real-time. Below is a summary of the RFRain Zone Manager user manual:

System Section: This section allows a user to configure the Reader's Network Settings to enable Wi-Fi or DHCP connectivity, set Date/Time Zone, and Reboot/Shutdown the Reader.

Reader Section: This section allows a user to configure Reader Settings, name Subzones/Antennas, choose Reader Mode and Start/Stop Reader.

Database Section: This section allows a user to manage tags or assets information. In addition, the database section allows a user to check the tag status, check the time of detection, location of the asset, assign a name for a tag, and many more options.

Features Section: This section allows a user to create alerts, Rest API tester, sync data to the cloud, track longitude and latitude coordinates of assets, perform a system cleaner of various data tables, record live motion of moving tags. The GPIO feature exclusive to the Smart Reader Advanced allows the user to implement door access control or an audible alarm notification.

Administration Section: This section allows a user to Add, Edit or Delete users. There are two modes of authentication, which include admin and user. An admin has full control of the system whereas a user has only limited access. In addition, this section gives an operator the capability to update the system's software through the user interface.

## 2. Getting Started

### 2.1 Power-up and User Communication Setup

First you have to power up the reader by plugging in the power supply provided with your shipment into the PWR barrel on the reader and wait for the ON green LED to become solid Green and the ALARM red LED is off. Next is network setup.

*Note: Advanced Reader with Battery and Handheld Readers have a power button. Double press power button and wait several seconds for the unit to power on. Hold power button 6 seconds to power off.*

*Note: Please use the provided power supply to power up the Smart Reader or a power supply with equivalent output of 5V 6A 30W*

Second, you must establish a communications link between your computer and the RFRain Smart Reader.

#### **Perform the following steps to establish communication if connected via USB port:**

Configure your computer with the static IP address 192.168.101.xx (xx can be any address except for 12). Set the subnet mask to: 255.255.255.0

Open your browser. In the address bar, type the RFRain Gateway default IP  
Address: **https://192.168.101.12**



#### **2.1.1 Perform the following steps to establish communication if connected via LAN port:**

*Note: The IP address of this port may be altered. If unsure about the current LAN IP you should connect via USB Port as shown in section 2.1.1*

- Configure your computer with the static IP address 192.168.100.xx (xx can be any address except for 24). Set the subnet mask to: 255.255.255.0
- Open your browser. In the address bar, type the RFRain Gateway default IP  
Address: **https://192.168.100.24**



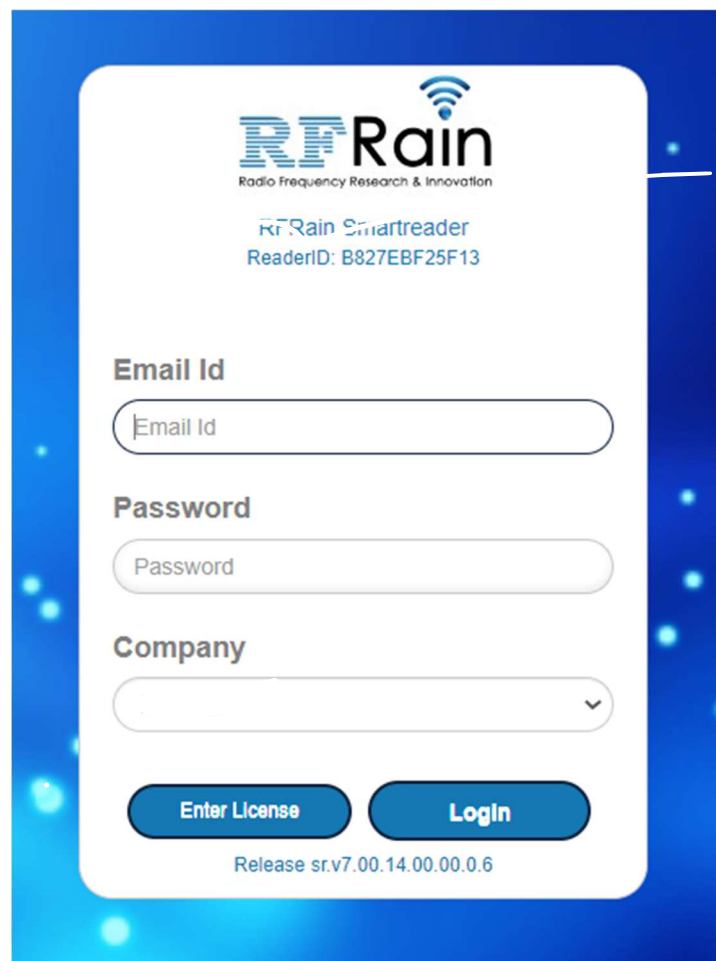
## 2.2 Zone Manager Software Login

Once communication between the user's computer and the Zone Manager has been established, the user will see the Zone Manager login screen. Log into the Zone Manager software using the following credentials:

- Enter the default email ID and Password login information.
  - Email ID
  - Password
  - Company

*Note: Contact RFRain directly via email [sales@rfrain.com](mailto:sales@rfrain.com) to receive your email ID and password.*

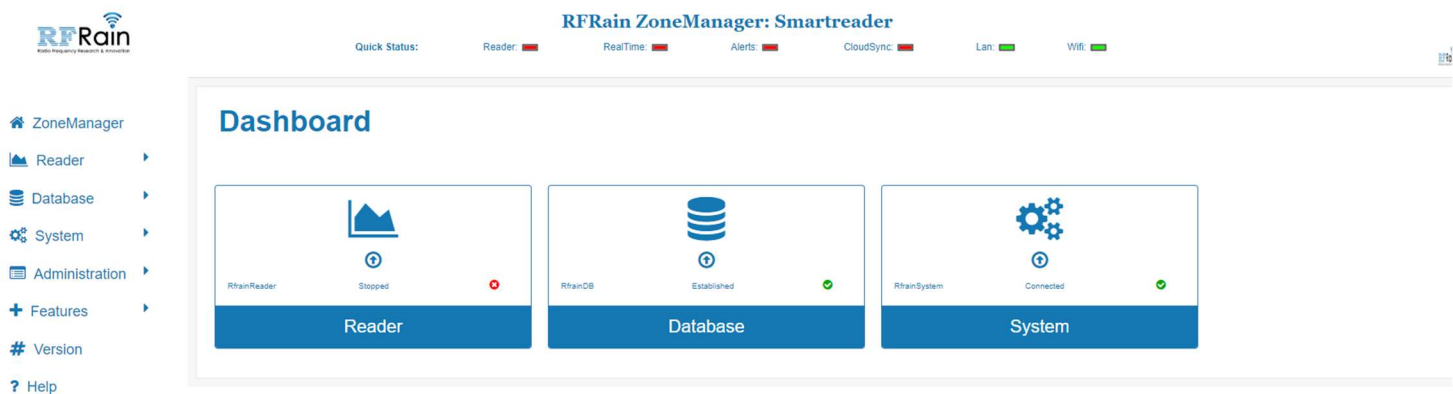
- Click on the Login button.



The image shows a login screen for RFRain Smartreader. The screen has a blue background with a white central panel. At the top of the panel is the RFRain logo, which includes a Wi-Fi symbol above the text 'RFRain' and 'Radio Frequency Research & Innovation' below it. Below the logo, it says 'RFRain Smartreader' and 'ReaderID: B827EBF25F13'. There are three input fields: 'Email Id' with a text input, 'Password' with a text input, and 'Company' with a dropdown menu. At the bottom of the panel are two buttons: 'Enter License' and 'Login'. Below the buttons, it says 'Release sr.v7.00.14.00.00.0.6'.

## 2.3 Dashboard

When you first login to the RFRain Zone Manager software, you will be taken to the Dashboard screen. On the Dashboard screen you will see the following three menu options: Reader, Database, and System.



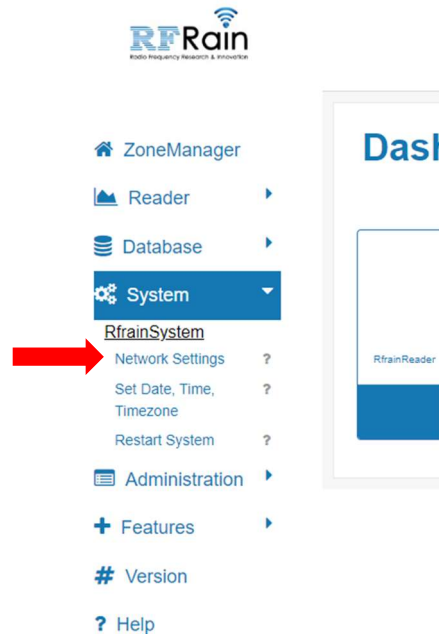
*Note: If, at any time while using the Zone Manager software, you desire to return to the Dashboard screen, all you have to do is to click on the Zone Manager label at the top of the left-hand side panel.*



## 3. System

### 3.1 Settings

From the Dashboard go to System > Network Settings.



#### 3.1.1 Network

There are two ways to establish an internet connection on the Smart Reader:

##### 3.1.1.1 Ethernet Network (eth0):

*Note: We recommend using the USB port at IP address: 192.168.101.12 to setup the reader to connect to the Ethernet network port. Please check section 2.1.1.*



Here you can setup the Smart Reader for DHCP internet connection by connecting the router to the Smart Reader using a Cat-5/5e or Cat-6 Ethernet cable.

- Make sure WiFi Network (wlan0) is Disconnected.

Interface: (currently) <b>wlan0 (Wifi)</b>		Wireless Connect: <input type="button" value="Disconnect"/> <input type="button" value="Scan and Join Wifi"/>	
IPAddress(v4):	<input type="text" value="xxx.xxx.xxx.xxx"/>	Country (for 5GHz):	<input type="text" value="US - USA"/> <input type="button" value="Apply"/>
Mask:	<input type="text" value="xxx.xxx.xxx.xxx"/>		
Gateway:	<input type="text" value="xxx.xxx.xxx.xxx"/>		
DNS:	<input type="text" value="127.0.0.1"/>		
-----			
Connected To:	<input type="text" value="xxx.xxx.xxx.xxx"/>		
Speed:	<input type="text" value="xxx.xxx.xxx.xxx"/>		
Country Code:	<input type="text" value="US"/>		

- Next connect a Cat-5/5e or Cat-6 Ethernet cable, select DHCP and click Apply Changes to: eth0. Wait for the screen to refresh and display your newly assigned IP address and other information.

## System Network Configuration


Interface: (currently) <b>eth0 (Lan)</b>		Manual: <input type="radio"/>		DHCP: <input checked="" type="radio"/> 	
IPAddress(v4):	<input type="text" value="10.1.10.96"/>	IPAddress:	<input type="text" value="xxx.xxx.xxx.xxx"/>	IPAddress:	<input type="text" value="10.1.10.96"/>
Mask:	<input type="text" value="255.255.255.0"/>	Mask:	<input type="text" value="xxx.xxx.xxx.xxx"/>	Mask:	<input type="text" value="255.255.255.0"/>
Gateway:	<input type="text" value="10.1.10.1"/>	<input type="checkbox"/> Gateway:	<input type="text" value="xxx.xxx.xxx.xxx"/>	Gateway:	<input type="text" value="10.1.10.1"/>
DNS:	<input type="text" value="xxx.xxx.xxx.xxx"/>	<input type="checkbox"/> DNS:	<input type="text" value="xxx.xxx.xxx.xxx"/>	DNS:	<input type="text" value="xxx.xxx.xxx.xxx"/>
-----					
Link:	<input type="text" value="Present"/>	<input type="button" value="Reset"/> <input type="button" value="Apply"/>		 <input type="button" value="Apply"/>	
Speed:	<input type="text" value="1000"/>				
Duplex:	<input type="text" value="full"/>				

*Note: In this example you can login to the ZoneManager Software using the newly assigned IP from any computer that is connected to your local area network by visiting the following URL: [https://\(local IP\)](https://(local IP)). For example: <https://10.1.10.96>*

### 3.1.1.2 Wi-Fi Network (wlan0):

*Note: We recommend using the USB port at IP address: 192.168.101.12 to setup the reader to connect to the Wi-Fi. Please check section 2.1.1.*

- Make Sure LAN is not connected to DHCP.
- Click on automatic, then click on Scan for Available Networks



**ZoneManager**

**Reader**

**Database**

**System**

**RfrainSystem**

**Network Settings**

Set Date, Time, Timezone

Restart System

**Administration**

**Features**

**Version**

**Help**

## System Network Configuration

Interface: (currently) <span style="color: green;">eth0 (Lan)</span>		Manual: <input checked="" type="radio"/>	DHCP: <input type="radio"/>
IPAddress(v4):	192.168.100.24	IPAddress:	192.168.100.24
Mask:	255.255.255.0	Mask:	255.255.255.0
Gateway:	xxx.xxx.xxx.xxx	<input type="checkbox"/> Gateway:	xxx.xxx.xxx.xxx
DNS:	xxx.xxx.xxx.xxx	<input type="checkbox"/> DNS:	xxx.xxx.xxx.xxx
Link:	Present	<input type="button" value="Reset"/> <input type="button" value="Apply"/>	
Speed:	1000Mb/s		
Duplex:	full		

Interface: (currently) <span style="color: green;">eth1 (Lan)</span>	
IPAddress(v4):	192.168.101.12
Mask:	255.255.255.0
Gateway:	xxx.xxx.xxx.xxx
DNS:	127.0.0.1
Link:	Present
Speed:	100Mb/s
Duplex:	full

Interface: (currently) <span style="color: green;">wlan0 (Wifi)</span>		Wireless Connect:
IPAddress(v4):	xxx.xxx.xxx.xxx	<input type="button" value="Disconnect"/> <input type="button" value="Scan and Join Wifi"/>
Mask:	xxx.xxx.xxx.xxx	
Gateway:	xxx.xxx.xxx.xxx	Country (for 5GHz): <span style="border: 1px solid black; padding: 2px;">US - USA</span> <input type="button" value="Apply"/>
DNS:	127.0.0.1	
Connected To:	xxx.xxx.xxx.xxx	
Speed:	xxx.xxx.xxx.xxx	
Country Code:	US	

- A new window will open showing a list of all the nearby networks in a descending order by signal strength (Very Strong, Strong and Weak).

***Note: If the signal is weak, please place the Smart Reader closer to the router or use a Wi-Fi extender to boost the signal. The Zone Manager will not connect to a network with a weak signal.***

- Click on your preferred network name, enter your WiFi password, click Join and wait until you are successfully connected.

### WiFi Scan Results

(Select a Network to Join)

SSID	Mode	Channel	Rate	Signal	Security	Freq	Encr	Auth	Strength
RFRRAIN	Infra	48	54 Mb/s	100	WPA2-Personal	5.24 GHz	CCMP	PSK	Strong
DIRECT-53-HP	Infra	1	54 Mb/s	100	WPA2-Personal	2.412 GHz	CCMP	PSK	Strong
HP-Print-83-LaserJet	Infra	1	54 Mb/s	98	open	2.412 GHz			Strong
RFRRAIN	Infra	1	48 Mb/s	97	WPA2-Personal	2.412 GHz	CCMP	PSK	Strong
PPE	Infra	1	48 Mb/s	97	WPA2-Personal	2.412 GHz	CCMP	PSK	Strong
Mini	Infra	1	48 Mb/s	90	WPA1 WPA2-Personal	2.412 GHz	CCMP,TKIP	PSK	Strong
Mini	Infra	36	54 Mb/s	85	WPA1 WPA2-Personal	5.18 GHz	CCMP,TKIP	PSK	Strong
DSI	Infra	11	54 Mb/s	78	WPA1 WPA2-Personal	2.462 GHz	TKIP	PSK	Good
DSI-Guest	Infra	11	54 Mb/s	72	WPA1 WPA2-Personal	2.462 GHz	TKIP	PSK	Good
FiOS-IFOMF	Infra	11	48 Mb/s	64	WPA2-Personal	2.462 GHz	CCMP	PSK	Good
xirus	Infra	1	48 Mb/s	62	WPA2-Personal	2.412 GHz	CCMP	PSK	Good
xirus	Infra	157	54 Mb/s	61	WPA2-Personal	5.785 GHz	CCMP	PSK	Good
DSI-Guest	Infra	157	54 Mb/s	61	WPA1 WPA2-Personal	5.785 GHz	TKIP	PSK	Good
DSI	Infra	157	54 Mb/s	61	WPA1 WPA2-Personal	5.785 GHz	TKIP	PSK	Good
xirus	Infra	36	54 Mb/s	60	WPA2-Personal	5.18 GHz	CCMP	PSK	Good
xirus	Infra	60	54 Mb/s	55	WPA2-Personal	5.3 GHz	CCMP	PSK	Good
xirus	Infra	108	54 Mb/s	54	WPA2-Personal	5.54 GHz	CCMP	PSK	Weak
DIRECT-66-HP	Infra	6	54 Mb/s	52	WPA2-Personal	2.437 GHz	CCMP	PSK	Weak
xirus	Infra	132	54 Mb/s	51	WPA2-Personal	5.66 GHz	CCMP	PSK	Weak
B0FC64	Infra	157	54 Mb/s	51	WPA1 WPA2-Personal	5.785 GHz	CCMP,TKIP	PSK	Weak
Audio	Infra	6	48 Mb/s	51	WPA2-Personal	2.437 GHz	CCMP	PSK	Weak
xirus	Infra	6	48 Mb/s	48	WPA2-Personal	2.437 GHz	CCMP	PSK	Weak
FiOS-IFOMF	Infra	36	54 Mb/s	48	WPA2-Personal	5.18 GHz	CCMP	PSK	Weak

Wifi Password:

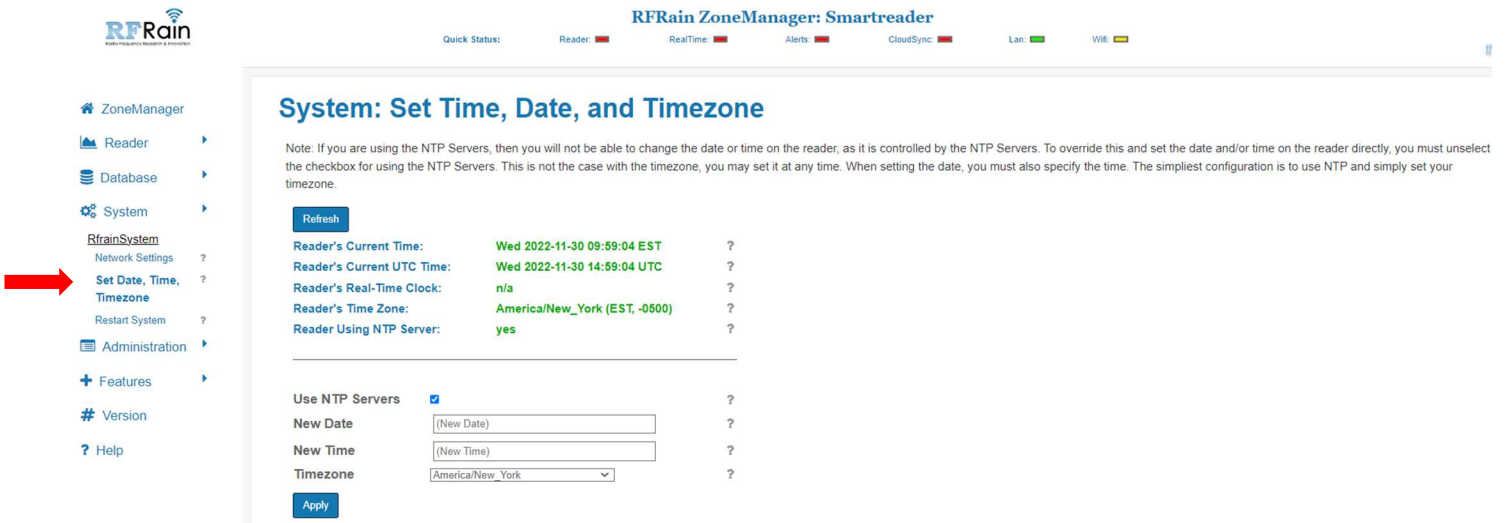
Join

### 3.1.2 Set Time/Date/Time zone

From the Dashboard go to System > Under Action, click play button > Setup (located left side drop down menu) > Settings > Set Time/Date/Timezone.

#### 3.1.2.1 Set Time zone

- Please select your Time zone and click Apply.



**RFRain ZoneManager: Smartreader**

Quick Status: Reader: ■ RealTime: ■ Alerts: ■ CloudSync: ■ Lan: ■ Wifi: ■

### System: Set Time, Date, and Timezone

Note: If you are using the NTP Servers, then you will not be able to change the date or time on the reader, as it is controlled by the NTP Servers. To override this and set the date and/or time on the reader directly, you must unselect the checkbox for using the NTP Servers. This is not the case with the timezone, you may set it at any time. When setting the date, you must also specify the time. The simplest configuration is to use NTP and simply set your timezone.

**Refresh**

Reader's Current Time:	Wed 2022-11-30 09:59:04 EST	?
Reader's Current UTC Time:	Wed 2022-11-30 14:59:04 UTC	?
Reader's Real-Time Clock:	n/a	?
Reader's Time Zone:	America/New_York (EST, -0500)	?
Reader Using NTP Server:	yes	?

---

Use NTP Servers ☒ ?

New Date  ?

New Time  ?

Timezone  ?

**Apply**

#### 3.1.2.2 Set Time & Date

*Note: If you are using the NTP Servers, then you will not be able to change the date or time on the reader as it is controlled by the NTP Servers.*

- To set the date and/or time manually unselect the checkbox for using the NTP Servers.
- Set the new date in the format YYYY-MM-DD. Example 2020-08-12.
- Set the new time in the format HH:MM:SS. Example 23:49:11.

Use NTP Servers	<input type="checkbox"/>	?
New Date	<input type="text" value="2020-08-12"/>	?
New Time	<input type="text" value="23:49:11 3)"/>	?
Timezone	<input type="text" value="America/New_York"/>	?
<b>Apply</b>		

### 3.1.3 Restart Reader

From the Dashboard go to System > Under Action, click play button > Setup (located left side drop down menu) > Settings > Restart Reader.

*Note: We recommend stopping the reader first before performing this step. See section 4.1 Start/Stop.*

- Select Reboot or Shutdown in the dropdown menu.
- Click Apply.

The screenshot displays the RFRain ZoneManager: Smartreader web interface. On the left is a sidebar menu with items: ZoneManager, Reader, Database, System, RfrainSystem (with sub-items Network Settings, Set Date, Time, Timezone, and Restart System), Administration, Features, Version, and Help. A red arrow points to 'Restart System'. The main content area shows a 'Shutdown Zone Manager' dialog box. Inside the dialog, under 'System: Zone: Restart', there is an 'Action' dropdown menu currently showing 'Reboot', with a red arrow pointing to it. Below the dropdown are 'Cancel' and 'Apply' buttons, with a red arrow pointing to the 'Apply' button. At the top of the interface, there is a status bar with 'Quick Status:' and indicators for Reader, RealTime, Alerts, CloudSync, Lan, and Wifi.

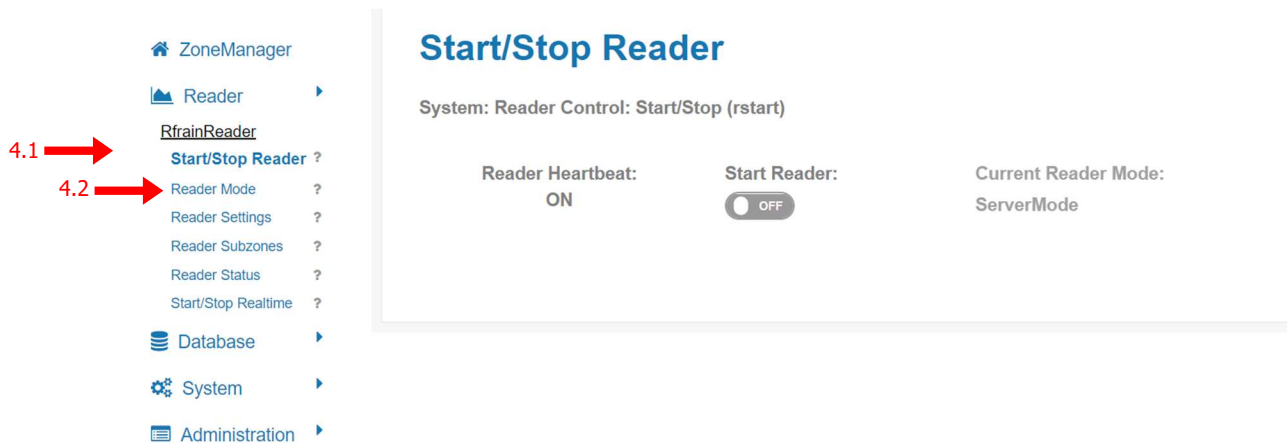
## 4. Reader

### 4.1 Start/Stop

From the Dashboard go to Reader > Start/Stop

*Note: Always stop the reader before making any changes to Reader Mode, Reader Settings, or Subzones.*

- Toggle ON to start RF power and toggle OFF to stop the RF power.

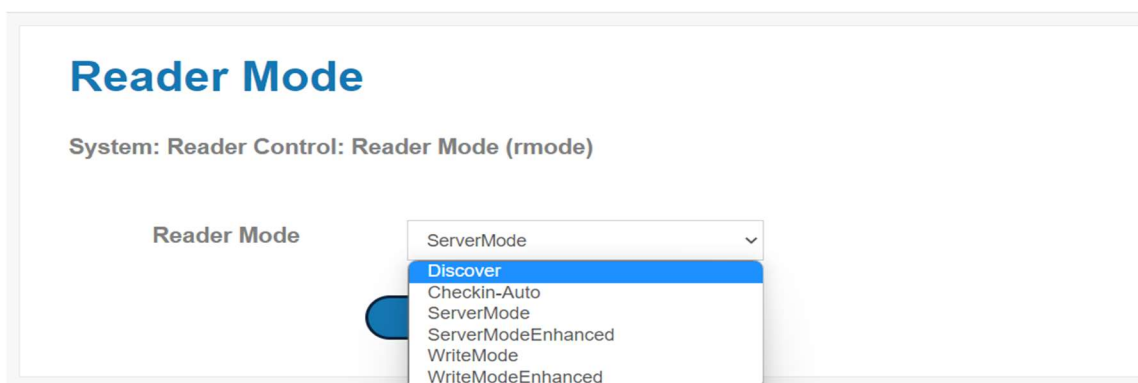


### 4.2 Reader Mode

#### 4.2.1 Under Reader select Reader Mode.

*Note: Always stop the reader before switching between any of the Reader Modes. See section 4.1 Start/Stop.*

There are six modes to choose from: Select Discover, Checkin-Auto, ServerMode, ServerModeEnhanced, WriteMode and WriteModeEnhanced.  
Select a mode and Click apply.



**4.2.2 Discover:** Allows a user to monitor tags or assets that are manually uploaded into the “User Data” table. If a tag is detected, a PRES is indicated in the detectstat column. Otherwise, a MISS is indicated.

**4.2.3 Checkin-Auto:** Allows a user to discover new tags that are not located in the database. This mode is important when an operator is not aware of the tags that need to be detected and each tag will be stored once in the detectstat column with an entry IN.

**4.2.4 ServerMode:** Allows a user to monitor all tags that are within the antennas reach. If an asset is detected, a PRES is indicated in the detectstat column. Otherwise, a MISS is indicated.

**4.2.5 ServerModeEnhanced:** Just like with ServerMode, the reader will display any tag it reads and adds the entry to the database, however with ServerModeEnhanced an additional data field is added to the database.

**4.2.6 WriteMode** Write the EPC number to a tag.

**4.2.7 WriteModeEnhanced** Write user data info to a tag.

## 4.3 Status

From the Dashboard go to Reader > Reader Status. This section provides the reader RF power is on or off.

- **Reader Comm Status:**

on: If the RF power is on.

off: If the RF power is off.

- **Reader Status:**

start: The RF module is running.

stop: The RF module is not running.

- **Mode:** Indicates the reader mode. Please refer to section 4.2.

ZoneManager

Reader

RfrainReader

Start/Stop Reader ?

Reader Mode ?

Reader Settings ?

Reader Subzones ?

**Reader Status** ?

Start/Stop Realtime ?

Database

System

## Reader Summary

System: Reader Control: Status (rstatus)

### Status

Reader Comm Status off

Reader Status stop

Zone Status off

### Reader Mode

Mode ServerMode





## RFRain ZoneManager: Smartreader

Quick Status:

Reader: ■RealTime: ■Alerts: ■CloudSync: ■Lan: ■Wifi: ■

Status is also shown on the status bar at the top of the page.

★ Green = On ★ Red = Off ★ Yellow = On not connected

## 4.4 Settings

*Note: Always stop the reader before making changes to the reader settings. See section 4.1 Start/Stop.*

Settings are already configured by the RFRain team for your specific application. However, you can reconfigure the following parameters:

**4.4.1 Reader Name:** Reader name to help you identify the reader name and location.

**4.4.2 Reader GroupName:** Name to group readers together.

**4.4.3 Max Time Loc Tag:** Unused at this point.

**4.4.4 Max Time Monitor Tag:** The time it takes for a missing tag to be set as MISS. Value between 1-3000 seconds. By default it set to 10 seconds.

**4.4.5 Reader WatchDog:** Always set to yes.

**4.4.6 Region:** Pre-configured to your region. Do not modify.

**4.4.7 Power Level:** You can select a power level between 10dBm and 30dBm that fits your use-case.

**4.4.8 Max Time Read Tag:** Amount of time in milliseconds the reader spends reading a tag. Default value of 300 is recommended.

**4.4.9 Max Time Monitor Read:** Amount of time to spend after a tag read. Default value of 100 is recommended.

**4.4.10** Min EPC Count

**4.4.11** Min EPC Length

**4.4.12** QSelect

**4.4.13** QStatic Init

**4.4.14** QMiller Encoding

**4.4.15** Link Frequency

**4.4.16** Tari

**4.4.17 Target:**

Target-A: Search on channel A. (Recommended to read large number of tags) Target-B: Search on channel B.

Target-AB: Search on channel A then channel B. (Recommended to determine movement of tags)

Target-BA: Search on channel B then channel A.

**4.4.18 Read Mode:**

S0: Keep state of tags indefinitely when powered. Non otherwise.

S1: Keep state of tags between 5 milliseconds and 5 seconds when powered or not powered. (Recommended)

S2: Keep state of tags indefinitely when powered. Greater than 2 seconds otherwise. S3: Keep state of tags indefinitely when powered. Greater than 2 seconds otherwise.

**4.4.19 Tag Read Mode:** Always set to S1.

#### 4.4.20 Tag Data to Read: Additional tag information to read

Used in ServerModeEnhanced only.

(Discussed in section 4.2 Reader Mode)Tag

## Tag Embedded TID Memory:

### Tag Embedded EPC and TID Memory:

Tag Embedded USER, EPC and TID Memory:

*Note TID Memory is always preceded with 0x200.*

#### 4.4.21 RTP Alert Reporting

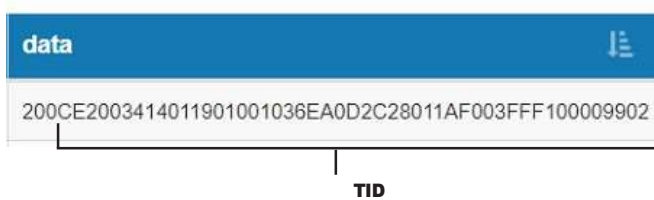
## Subzone Alerts (rtsubz)

## Monitor Alerts (rtmon)

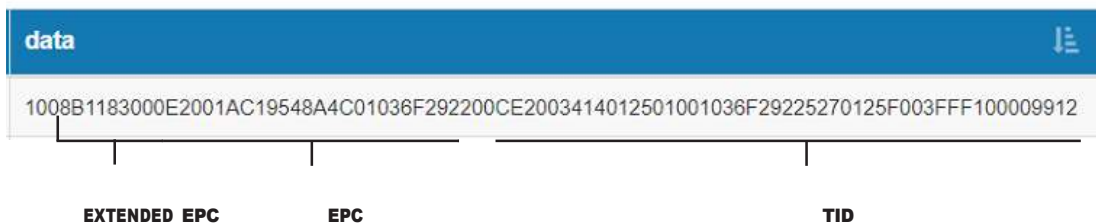
## Real Time Embedded Alerts (rtlive)

None (none)

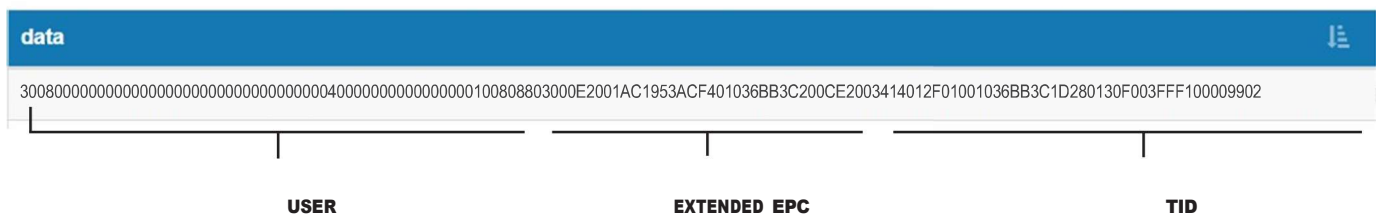
#### 4.4.22 Parsing On Parsing Off



Tag Embedded EPC and TID Memory: Read Extended EPC and TID Memory. Note Extended EPC Memory is preceded by 0x100 and TID Memory is preceded by 0x200.



Tag Embedded USER, EPC, and TID Memory: Read User, EPC and TID Memory. Note User Memory starts with 0x3, EPC 0x100, and TID 0x200.



## Reader Setting

System: Reader Control: Setting (rsetting)

### Reader Management Settings

Reader Name	<input type="text" value="Large_Cabinet"/>
	(optional)
Reader GroupName	<input type="text" value="Reader"/>
	(optional)

### Reader Operational Settings

Max Time Loc Tag	<input type="text" value="250"/>
Max Time Monitor Tag	<input type="text" value="300"/>
	(a number between 1 and 3000)
Reader WatchDog	<input type="text" value="Yes"/>

### Reader Antenna Settings

Region	<input type="text" value="North America, (902 - 928 Mhz) (Region Lock Set: 1)"/>	Region Lock: <input type="checkbox"/>
Power Level	<input type="text" value="30 dBm"/>	

### Reader Tag Settings

Max Time Read Tag	<input type="text" value="100"/>
Max Time Monitor Read	<input type="text" value="100"/>
Min EPC Count	<input type="text" value="0"/>
Min EPC Length	<input type="text" value="0"/>
QSelect	<input type="text" value="dynamic"/>
QStatic Init	<input type="text" value="2"/>
QMiller Encoding	<input type="text" value="MILLER_4"/>
Link Frequency	<input type="text" value="LINK_250_KHZ"/>
Tari	<input type="text" value="TARI_25_US"/>
Target	<input type="text" value="Target-A"/>
Read Mode	<input type="text" value="S1"/>
Tag Data to Read	<input type="text" value="Tag Embedded TID Memory"/>

### Reader Real Time Protocol

RTP Alert Reporting	<input type="text" value="Subzone Alerts (rtsbz)"/>
---------------------	---

### Convert

Parsing	<input type="text" value="OFF (off)"/>
---------	--

Apply

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## 4.5 Subzones

From the Dashboard go to Reader > Under Action, click play button > Reader Control (located left side drop down menu) > Reader Control > Subzones.

*Note: Always stop the reader before making changes to the subzones section. See section 4.1 Start/Stop.*







- You must activate at least one antenna by giving it a name before you can start the reader.

***Note: Only name the antennas that are connected to the reader and leave the rest as empty. Otherwise you may damage the internal circuitry and/or slow the read capabilities of the reader.***

- Click Apply.

### Reader Setting

System: Reader Control: SubZone (Antenna) Names

					
Antenna 1	Antenna 2	Antenna 3	Antenna 4	Antenna 5	Antenna 6
RX / TX	RX / TX	RX / TX	RX / TX	off	off
SubZone Name	SubZone Name	SubZone Name	SubZone Name	SubZone Name	SubZone Name
<input type="text" value="Storage"/>	<input type="text" value="empty"/>	<input type="text" value="empty"/>	<input type="text" value="empty"/>	<input type="text" value="empty"/>	<input type="text" value="empty"/>
<input type="button" value="Clear Name"/>	<input type="button" value="Clear Name"/>	<input type="button" value="Clear Name"/>	<input type="button" value="Clear Name"/>	<input type="button" value="Clear Name"/>	<input type="button" value="Clear Name"/>

You must activate at least one antenna by giving it a name before you can start the reader.

*Note: When Changing Antenna names, adding or removing antennas, you will need to restart the reader (Refer to section 4.1 Start/Stop)*

## 4.6 Setup

**4.6.1** From the Dashboard go to Reader > Under Action, click play button > Reader Control (located left side drop down menu) > Reader Control > Setup.

*Note: The menu should say Connected to: (Database.Table): reader\_control.default. Leave these entries as default.*

### Reader Setup

System: Reader Control: Setup (rsetup)

Connected to: (Database.Table): reader\_control.default

Table Setup

Local	Yes
Database	reader_control
Table	default

Connected to the reader on: 192.168.100.250

Reader

IP Address	192.168.100.250
Port	5002

CancelApply

## 5. Database

### 5.1 From the Dashboard go to Database > Data Access

The screenshot displays the RFRain ZoneManager: Smartreader web interface. At the top, the RFRain logo is on the left, and the title "RFRain ZoneManager: Smartreader" is centered. Below the title, a "Quick Status:" bar shows indicators for Reader (red), RealTime (red), Alerts (red), CloudSync (red), Lan (green), and Wifi (green). On the left side, a navigation menu lists various options: ZoneManager, Reader, Database, RfrainDB, Data Access (highlighted with a red arrow), Live Data, User Data, Jitter Subzone, Jitter Detectstat, History Subzone, History Detectstat, Data Mgmt, Table Mgmt, Report Mgmt, System, Administration, and Features. The main content area is titled "Dashboard" and contains three status cards: "Reader" (RfrainReader, Stopped, red X icon), "Database" (RfrainDB, Established, green checkmark icon, with a red arrow pointing to it), and "System" (RfrainSystem, Connected, green checkmark icon). At the bottom right, the copyright notice "©2022 RFRain, LLC" is visible.

## 5.1 Access

### 5.1.1 Live Data

From the Dashboard go to Database > Data Access > Live Data.

This table displays all live tags that are detected by the antenna in real time as they become present "PRES" or missing "MISS".

### Live Data

Select Columns to Display

<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName	<input checked="" type="checkbox"/> DetectStat	<input checked="" type="checkbox"/> SS	<input type="checkbox"/> ReadCount
<input checked="" type="checkbox"/> SubZone	<input type="checkbox"/> ImageAssoc	<input type="checkbox"/> GPS	<input checked="" type="checkbox"/> Access	<input type="checkbox"/> AccessUTC		

**Search Options:** Apply Search Clear Search

<b>tagnumb</b> <input type="text" value="(tagnumb)"/>	<b>tagname</b> <input type="text" value="(tagname)"/>	<b>detectstat</b> <input type="text" value="(detectstat)"/>	<b>SS</b> <input type="text" value="(SS)"/>	<b>readcount</b> <input type="text" value="(readc)"/>	<b>subzone</b> <input type="text" value="(subzone)"/>
<b>access</b> <input type="text" value="(access)"/>	<b>accessutc</b> <input type="text" value="(accessutc)"/>	<b>data</b> <input type="text" value="(data)"/>			

Display: 10 Entries at a time

tagnumb	tagname	detectstat	SS	subzone	access	accessutc
E2-00-1A-C1-95-3E-78-C0-10-36-C9-E2	belkin	MISS			2021-01-15 12:47:33.188820	1610732853.188820
E2-80-11-60-60-00-02-06-12-63-88-CE	belkin	PRES	176	Core-2	2021-01-15 12:47:33.125918	1610732853.125918

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname: All tag names are set to "new" unless they are defined in User Data table. Discussed further in section 5.1.2 User Data.
- detectstat: This field indicates the status of a tag as "PRES" for present, "MISS" for missing or "IN" for Checkin-Auto see section 4.2 Reader Mode.
- SS: This is the tag's signal strength that was read by the antenna. The signal ranges 170 - 230 depending on the received strength. 170 being the lowest.
- subzone: Indicates the antenna which reads the tag. See section 4.5 Subzones.
- access: Indicates the date and time of last detection displayed using the timezone selected in section 3.1.2 Set Time/Date/Timezone.



### 5.1.2 User Data

From the Dashboard go to Database > Data Access > User Data.

This table lists all the custom user data information.

## Default User Custom Entries

user defined fields - five per tag available

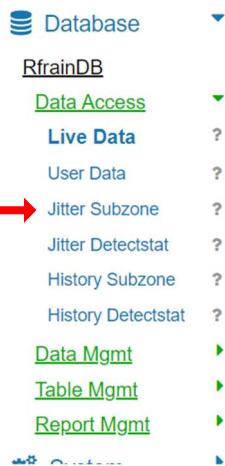
Display:  Entries at a time

tagnumb	tagname	custom1	custom2	custom3	custom4	custom5
E2-00-48-0A-E5-22-C8-89-92-7B-60-E7	desk	composite_wood	part_number_1234ERT3	espresso_color	Dimensions_4x6x3_ft	price_49.99

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname, custom1, custom2, custom3, custom4, custom5: can be any information that pertain to the asset you wish to track as shown in the example figure above.





### 5.1.3 Jitter Subzone

From the Dashboard go to Database > Data Access > Jitter Subzone.

This table displays each time a tag changes subzones and is stable for 30 seconds or more.

## Jitter Subzone

Display: 10 ▾ Entries at a time

tagnumb	tagname	detectstat	SS	subzone	access	accessutc	data
E2-00-48-0A-E5-2A-7D-89-92-7B-7F-BB	new	PRES	186	Core-2	2021-01-15 12:34:33.420636	1610732073.420636	300800000000000000000000000000C

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname: All tag names are set to "new" unless they are defined in User Data table.  
Discussed further in section 5.1.2 User Data.
- detectstat: This field indicates the status of a tag as "PRES" for present, "MISS" for missing or "IN" for Checkin-Auto see section 4.2 Reader Mode.
- SS: This is the tag's signal strength that was read by the antenna. The signal ranges 170 - 230 depending on the received strength. 170 being the lowest.
- subzone: Indicates the antenna which reads the tag. See section 4.5 Subzones.
- access: Indicates the date and time of last detection displayed using the timezone selected in section 3.1.2 Set Time/Date/Timezone.
- accessutc: Indicates the date and time of last detection displayed in UTC time.
- data: This is the embedded data stored in the tag. See "Tag Data to Read" in section 4.4 Settings.

## Database ▼

## RfrainDB

## Data Access ▼

## Live Data ?

## User Data ?

## Jitter Subzone ?

## Jitter Detectstat ?

## History Subzone ?

## History Detectstat ?

## Data Mgmt ▶

## Table Mgmt ▶

## Report Mgmt ▶

### 5.1.4 Jitter Detectstat

From the Dashboard go to Database > Data Access > Jitter Detectstat.

This table displays each time a tag is stable for 30 seconds or more in either a present or miss state.

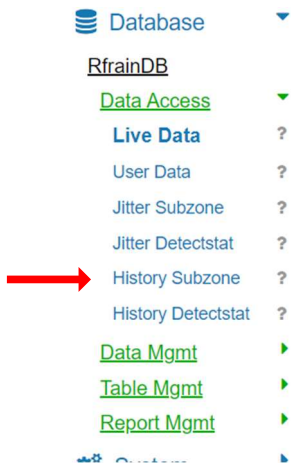
## Jitter Detectstat

Display:  Entries at a time

tagnumb	tagname	detectstat	SS	subzone	access	accessutc	data
E2-80-11-70-00-00-02-09-82-ED-C0-B1	belkin	PRES	185	Core-2	2021-01-15 12:50:38.554985	1610733038.554985	300200000000000007000000000000

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname: All tag names are set to "new" unless they are defined in User Data table. Discussed further in section 5.1.2 User Data.
- detectstat: This field indicates the status of a tag as "PRES" for present, "MISS" for missing or "IN" for Checkin-Auto see section 4.2 Reader Mode.
- SS: This is the tag's signal strength that was read by the antenna. The signal ranges 170 - 230 depending on the received strength. 170 being the lowest.
- subzone: Indicates the antenna which reads the tag. See section 4.5 Subzones.
- access: Indicates the date and time of last detection displayed using the timezone selected in section 3.1.2 Set Time/Date/Timezone.
- accessutc: Indicates the date and time of last detection displayed in UTC time.
- data: This is the embedded data stored in the tag. See "Tag Data to Read" in section 4.4 Settings.



### 5.1.5 History Subzone

From the Dashboard go to Database > Data Access > History Subzone.

This table displays each and every time a tag changes subzones. It will display as PRES for each new antenna/subzone that detected the tag.

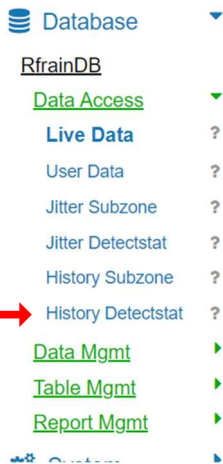
## History Subzone

Display: 10 ▾ Entries at a time

[illegible]

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname: All tag names are set to "new" unless they are defined in User Data table.  
Discussed further in section 5.1.2 User Data.
- detectstat: This field indicates the status of a tag as "PRES" for present, "MISS" for missing or "IN" for Checkin-Auto see section 4.2 Reader Mode.
- SS: This is the tag's signal strength that was read by the antenna. The signal ranges 170 - 230 depending on the received strength. 170 being the lowest.
- subzone: Indicates the antenna which reads the tag. See section 4.5 Subzones.
- access: Indicates the date and time of last detection displayed using the timezone selected in section 3.1.2 Set Time/Date/Timezone.
- accessutc: Indicates the date and time of last detection displayed in UTC time.
- data: This is the embedded data stored in the tag. See "Tag Data to Read" in section 4.4 Settings.



### 5.1.6 History Detectstat

From the Dashboard go to Database > Data Access > History Subzone.

This table displays each and every time a tag was detected as PRES or MISS.

## History Detectstat

Display:  Entries at a time

tagnumb	tagname	detectstat	SS	subzone	access	accessutc	data
E2-00-1A-C1-95-46-83-80-10-36-EA-0D	new	PRES	180	Core-2	2021-01-15 12:54:56.980985	1610733296.980985	
E2-00-1A-C1-95-46-83-80-10-36-EA-0D	new	MISS	0		2021-01-15 12:54:55.474928	1610733295.474928	

Here is a breakdown of each column to better understand the database table structure:

- tagnumb: A 12/16/24-byte EPC number separated by dashes.  
For example: E2-00-48-0A-E5-22-C8-89-92-7B-60-E7
- tagname: All tag names are set to "new" unless they are defined in User Data table. Discussed further in section 5.1.2 User Data.
- detectstat: This field indicates the status of a tag as "PRES" for present, "MISS" for missing or "IN" for Checkin-Auto see section 4.2 Reader Mode.
- SS: This is the tag's signal strength that was read by the antenna. The signal ranges 170 - 230 depending on the received strength. 170 being the lowest.
- subzone: Indicates the antenna which reads the tag. See section 4.5 Subzones.
- access: Indicates the date and time of last detection displayed using the timezone selected in section 3.1.2 Set Time/Date/Timezone.
- accessutc: Indicates the date and time of last detection displayed in UTC time.
- data: This is the embedded data stored in the tag. See "Tag Data to Read" in section 4.4 Settings.

## 5.2 Table Entries Setup

### 5.2.1 Start/Stop Live Tags

From the Dashboard go to Database > Data Mgmt > Start/Stop Live Tags.

This page allows you to start or stop reading tags.

**Add Tag: Add New Tag Static Entry**

New Tag Number:

New Tag Name:

**Add Tag**

**Static Tags:**

Select Columns to Display	
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName
<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName
<input checked="" type="checkbox"/> Custom1	<input checked="" type="checkbox"/> Custom2
<input checked="" type="checkbox"/> Custom3	<input checked="" type="checkbox"/> Custom4
<input checked="" type="checkbox"/> Custom5	<input type="checkbox"/> Access
<input type="checkbox"/> AccessUTC	

Search Options: **Apply Search** **Clear Search**

tagname	custom1	custom2	custom3	custom4
<input type="text" value="(tagname)"/>	<input type="text" value="(custom1)"/>	<input type="text" value="(custom2)"/>	<input type="text" value="(custom3)"/>	<input type="text" value="(custom4)"/>
<input type="text" value="(tagname)"/>				
<input type="text" value="(tagname)"/>				

- Tag Name: Select ALL for all tags or enter tag number.
- Select Value:
  - Start: to start reading tags.
  - Stop: to stop reading tags.
- Click Apply.

### 5.2.2 Add Static Tag

From the Dashboard go to Database > Data Mgmt > Add Static Tag.

This section allows you to manually upload one tag at a time and associate a name to it. These tags are stored in the User Data table. Refer to section 5.1.2 User Data.

**Database**

**RfrainDB**

- [Data Access](#)
- [Data Mgmt](#)
  - Start/Stop Live Tags ?
  - Add Static Tags** ?
  - Remove Static Tags ?
  - Edit Static Tag ?
  - Custom Fields
  - Convert Live Tags to Static Tags ?
  - Add Write Tags ?
- [Table Mgmt](#)
- [Report Mgmt](#)
- [System](#)

### Add Tag: Add New Tag Static Entry

New Tag Number:

New Tag Name:

**Add Tag**

**Static Tags:**

Select Columns to Display						
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName	<input checked="" type="checkbox"/> Custom1	<input checked="" type="checkbox"/> Custom2	<input checked="" type="checkbox"/> Custom3
<input checked="" type="checkbox"/> Custom4	<input checked="" type="checkbox"/> Custom5	<input type="checkbox"/> Access	<input type="checkbox"/> AccessUTC			

Search Options: **Apply Search** **Clear Search**

tagnumb	tagname	custom1	custom2	custom3	custom4
<input type="text" value="(tagnumb)"/>	<input type="text" value="(tagname)"/>	<input type="text" value="(custom1)"/>	<input type="text" value="(custom2)"/>	<input type="text" value="(custom3)"/>	<input type="text" value="(custom4)"/>
<input type="text" value="(custom5)"/>					

- New Tag Number: Enter a tag number.
- New Tag Name: Enter a name.
- Click Add Tag.

### 5.2.3 Remove Static Tag

From the Dashboard go to Database > Data Mgmt > Remove Static Tag.

This section allows you to remove one tag at a time using the tag number only.

#### Delete Tag: Delete Tag Static Entry

Remove Tag Number:

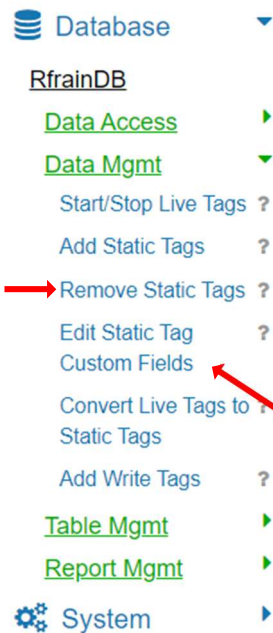
Remove Tag

Static Tags:

Select Columns to Display					
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName	<input checked="" type="checkbox"/> Custom1	<input checked="" type="checkbox"/> Custom2
<input checked="" type="checkbox"/> Custom4	<input checked="" type="checkbox"/> Custom5	<input type="checkbox"/> Access	<input type="checkbox"/> AccessUTC	<input checked="" type="checkbox"/> Custom3	

Search Options:

tagnumb	tagname	custom1	custom2	custom3	custom4
(tagnumb)	(tagname)	(custom1)	(custom2)	(custom3)	(custom4)
custom5	(custom5)				



- Remove Tag Number: Enter tag number.
- Click Remove Tag.

### 5.2.4 Edit Static Tag Custom Fields

From the Dashboard go to Database > Data Mgmt > Edit Static Tag Custom Fields.

This section allows you to modify a tags custom fields. There are 6 custom fields all together where you can enter specific information to help you identify each asset.

## Modify Tag: Modify Static Tag Entry

Tag Number:

Tag Name New Value:

Custom1 New Value:

Custom2 New Value:

Custom3 New Value:

Custom4 New Value:

Custom5 New Value:

### Static Tags:

Select Columns to Display					
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName	<input checked="" type="checkbox"/> Custom1	<input checked="" type="checkbox"/> Custom2
<input checked="" type="checkbox"/> Custom4	<input checked="" type="checkbox"/> Custom5	<input type="checkbox"/> Access	<input type="checkbox"/> AccessUTC		

Search Options:

tagnumb	tagname	custom1	custom2	custom3	custom4
(tagnumb)	(tagname)	(custom1)	(custom2)	(custom3)	(custom4)
custom5					
(custom5)					

- Tag Number: Enter a tag number.
- Tag Name New Value: Enter a tag name.
- Custom1 New Value: Enter asset association.
- Custom2 New Value: Enter asset association.
- Custom3 New Value: Enter asset association.
- Custom4 New Value: Enter asset association.
- Custom5 New Value: Enter asset association.
- Click Update Tag.



### 5.2.5 Convert Live Tags to Static Tags

From the Dashboard go to Database > Data Mgmt > Convert Live Tags to Static Tags.

Database

RfrainDB

Data Access

Data Mgmt

Start/Stop Live Tags ?

Add Static Tags ?

Remove Static Tags ?

Edit Static Tag ?

Custom Fields

→ Convert Live Tags to Static Tags

Add Write Tags ?

Table Mgmt

Report Mgmt

System

This will copy any tags found in the real-time live data table and save them into the static tag table. This option is typically only used when the intention is to use "DISCOVER" mode, but you must read the tag first using a different mode instead of manually entering or upload the tag data. This will copy the current live tag data into the static tag data table.

Copy Tags

Static Tags:

Select Columns to Display						
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> TagName	<input checked="" type="checkbox"/> Custom1	<input checked="" type="checkbox"/> Custom2	<input checked="" type="checkbox"/> Custom3
<input checked="" type="checkbox"/> Custom4	<input checked="" type="checkbox"/> Custom5	<input type="checkbox"/> Access	<input type="checkbox"/> AccessUTC			

Search Options:

tagnumb	tagname	custom1	custom2	custom3	custom4
(tagnumb)	(tagname)	(custom1)	(custom2)	(custom3)	(custom4)
custom5					
(custom5)					

### 5.2.6 Add Write Tags

From the Dashboard go to Database > Data Mgmt > Add Write Tags.

#### Write Tag: Write User or Epc Tag information

New Tag Number:

Data Type:

New Address:

New Data:

Write Tags:

Select Columns to Display						
<input type="checkbox"/> ReaderName	<input type="checkbox"/> GroupName	<input checked="" type="checkbox"/> TagNumb	<input checked="" type="checkbox"/> NewData	<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> DataType	<input checked="" type="checkbox"/> TableEntry
<input checked="" type="checkbox"/> TableEntryRes	<input checked="" type="checkbox"/> Status	<input type="checkbox"/> Access				

Search Options:

tagnumb	newdata	address	datatype	tableentry	tableentryres
(tagnumb)	(newdata)	(address)	(datatype)	(tableentry)	(tableentryres)
status					
(status)					

## 5.3 Table Setup

### 5.3.1 Upload Static Tag CSV File

From the Dashboard go to Database > Table Setup > Upload Static Tag CSV File.

This section allows you to import a CSV file of static tag information.

- Select File: Click on Choose File to upload a CSV file.
- Store the uploaded CSV file as shown in the next section 5.3.2.
- Click Upload.

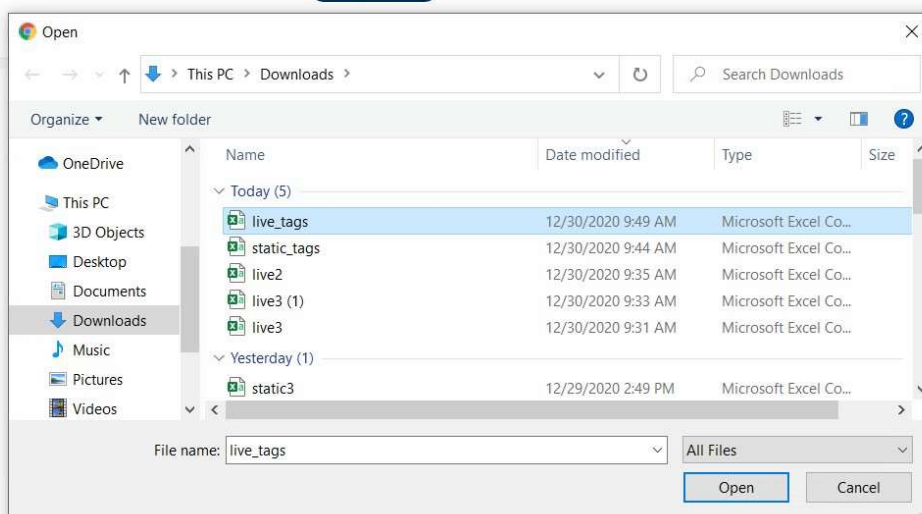
### Upload CSV File

Database: Table Setup: Upload CSV File (tbupload)

Select File

Choose File No file chosen

Upload



Below is a sample table layout CSV file in excel:

	A	B	C	D	E	F	G
1	tagnumb	tagname	custom1	custom2	custom3	custom4	custom5
2	00-00-00-00-00-00-00-00-00-0D-44	new					
3	00-00-00-00-00-00-00-24-12-24-F9-78	new					
4	00-00-00-00-00-00-00-24-12-24-F9-79	new					
5	00-00-00-00-00-00-00-24-12-24-F9-88	new					
6	00-00-00-00-00-00-00-24-12-24-F9-89	new					
7	00-00-00-00-00-00-00-24-12-24-F9-8A	new					
8	00-00-00-00-00-00-00-24-12-24-F9-8B	new					
9	30-36-00-CC-41-6B-02-AD-9D-94-89-D6	new					
10	31-D2-BC-6C-89-26-C1-21-00-AA-33-11	new					
11	35-E0-17-00-4F-AA-FD-CC-00-00-C1-8B	new					
12	E2-00-00-16-19-11-02-66-13-50-8E-48	new					
13	E2-00-1A-C1-95-3A-CF-40-10-36-BB-3C	new					
14	E2-00-1A-C1-95-3A-CF-80-10-36-BB-3D	new					
15	E2-00-1A-C1-95-3E-78-C0-10-36-C9-E2	new					
16	E2-00-1A-C1-95-3F-AA-80-10-36-CE-A9	new					
17	E2-00-1A-C1-95-42-03-C0-10-36-D8-0E	new					
18	E2-00-1A-C1-95-42-04-00-10-36-D8-0F	new					
19	E2-00-1A-C1-95-42-04-40-10-36-D8-10	new					
20	E2-00-1A-C1-95-43-2A-40-10-36-DC-A8	new					
21	E2-00-1A-C1-95-45-6B-C0-10-36-E5-AE	new					
22	E2-00-1A-C1-95-45-6C-00-10-36-E5-AF	new					
23	E2-00-1A-C1-95-46-83-00-10-36-EA-0B	new					
24	E2-00-1A-C1-95-46-83-80-10-36-EA-0D	new					
25	E2-00-1A-C1-95-49-AC-40-10-36-F6-B0	new					
26	E2-00-1A-C1-95-4C-9F-C0-10-37-02-7E	new					
27	E2-00-1A-C1-95-4C-A0-00-10-37-02-7F	new					
28	E2-00-21-00-20-00-71-8D-BB-8E-08-DF	new					
29	E2-00-21-00-20-00-79-0B-BB-8D-08-DF	new					
30	E2-00-21-00-20-00-7A-53-BC-12-08-DF	new					
31	E2-00-34-12-01-3B-FB-00-08-32-34-E9	new					
32	E2-00-90-33-11-06-00-70-13-00-8E-5E	new					
33	E2-00-90-33-11-06-00-70-13-80-85-A6	new					

### 5.3.2 Store Uploaded Tags into Table

From the Dashboard go to Database > Table Setup > Store Uploaded Tags into Table.

This section allows you to store an uploaded CSV file of tags into the table, thus activating them.

- **Select File:** Click on the drop-down menu and choose the file which you have previously uploaded in section 5.3.1 Upload Static Tag CSV file.
- **Click Upload File.**

*Note: Any tags stored here are displayed in the User Data table as well. See section 5.1.2 User Data.*

### Store Tags: Store Static Tag Entries

Select File:

Upload File

MyTags\_R2.csv

MyTags\_R2.csv

live2.csv

live3.csv

live\_tags.csv

static\_tags.csv

Current Static Registered Tags:

Display: 10 Entries at a time

tagnumb	tagname	custom1	custom2	custom3	custom4	custom5
00-00-00-00-00-00-00-00-0D-44	tablets	android	Part# 12ED7H8	Price 49.99	east coast	12/30/2030
00-00-00-00-00-00-00-24-12-24-E8-54	tablets	android	Part# 12ED7H9	Price 49.100	east coast	12/31/2030
00-00-00-00-00-00-00-24-12-24-E8-57	tablets	android	Part# 12ED7H10	Price 49.101	east coast	1/1/2031
00-00-00-00-00-00-00-24-12-24-E8-66	tablets	android	Part# 12ED7H11	Price 49.102	east coast	1/2/2031
00-00-00-00-00-00-00-24-12-24-F9-79	tablets	android	Part# 12ED7H12	Price 49.103	east coast	1/3/2031
00-00-00-00-00-00-00-24-12-24-F9-88	tablets	android	Part# 12ED7H13	Price 49.104	east coast	1/4/2031
00-00-00-00-00-00-00-24-12-24-F9-89	tablets	android	Part# 12ED7H14	Price 49.105	east coast	1/5/2031
00-00-00-00-00-00-00-24-12-24-F9-8A	tablets	android	Part# 12ED7H15	Price 49.106	east coast	1/6/2031
00-00-00-00-00-00-00-24-12-24-F9-8B	tablets	android	Part# 12ED7H16	Price 49.107	east coast	1/7/2031
20-17-10-20-12-29-5A-01-10-60-00-E4	tablets	android	Part# 12ED7H17	Price 49.108	east coast	1/8/2031

### 5.3.3 Download Static Tag CVS Files

From the Dashboard go to Database > Table Mgmt > Download Static Tag CVS File

This section allows you to export data from the various reader tables into CSV files.

- Select the table you wish to download from the drop down menu.
- Enter a File Name.
- Click download.

*Note: By default, the Static Tag Table is empty. You must first ensure there are Static Tags saved in the User Data table before attempting to download its content.*

## Download Table Content

Database: Table Setup: Download Table Content (tbdown)

**Live Tag Table:** This will download all live data found in section 5.1.1 Live Data.

**Static Table:** This will download all static data found in section 5.1.2 User Data.

**Jitter Table:** This will download all Jitter data found in section 5.1.3 Jitter Subzone and section 5.1.4 Jitter Detectstat.

**History Table:** This will download all data found in section 5.1.5 History Subzone and section 5.1.6 History Detectstat.

**GPS Tag Association Table:** Do not download.

**Image Tag Association Table:** Do not download.

**Raw GPS Data:** Do not download.

**Raw Images Table:** Do not download.

**Alert History Table:** Do not download.

# 6. Features









This section covers all the add-on features that RFRain offers as a plug and play solution.

Please consult with the RFRain sales team about software quotes. The features vary between the Smart Reader and Smart Reader Advanced.









The Advanced Reader has GPIO support feature unlike the Smart Reader.

From the side panel go to Features where you will find the table of all features.

## Smart Reader

 ZoneManager	
 Reader	▶
 Database	▶
 System	▶
 Administration	▶
 Features	▼
<u>Features</u>	
Alert Support	?
API Tester	?
Cloud Support	?
System Cleaner	?
System Tester	?
 Version	
 Help	

## Smart Reader Advanced with Battery

 ZoneManager	
 Reader	▶
 Database	▶
 System	▶
 Administration	▶
 Features	▼
<u>Features</u>	
Alert Support	?
API Tester	?
Battery Support	?
Cloud Support	?
GPIO Support	?
System Cleaner	?
System Tester	?
 Version	
 Help	

## 6.1 Alert Support

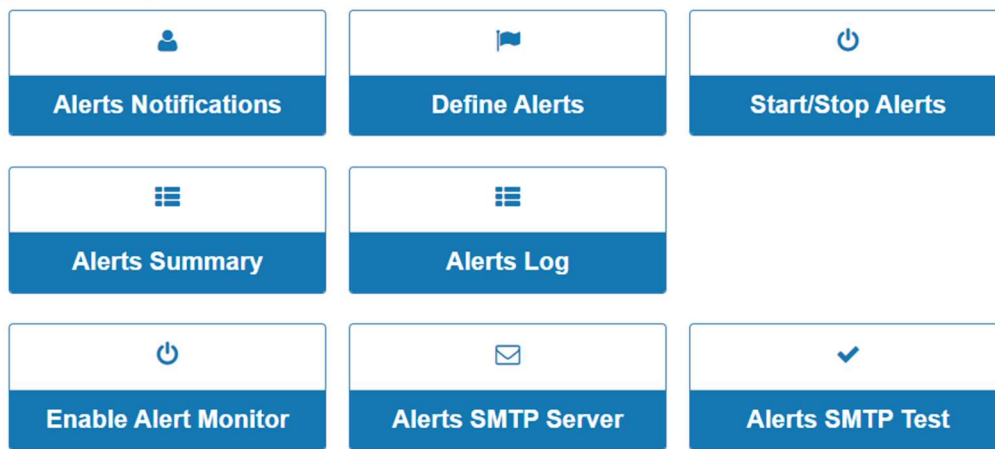
From the side panel go to Features > Alert Support.  
This will open the Main Panel Feature: Alert Functions

This section allows a user to create alerts and be alerted via text message, e-mail or Rest API (JSON Encrypted base64) when an event occurs.

### Feature: Alert Functions

Alert Support, Valid Through (2099-01-01)

[Back to Features](#)



### 6.1.1 Alerts Summary

From the side panel go to Features > Alert Support.  
From the main panel select > Alerts Summary.

This section shows you a summary of the alerts that have been created and the Alert Monitor Status.

**Alert SubSystem: Alert Summary**  
Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

Alert Monitor Status: Running

[Refresh](#)

ID	Active	Alert Name	TagNumb or TagName	Alert Mode	Checking Against	Checking Column	Comparison	CheckFor	NotifyGroup	LastTriggered
3	Active	GPIO Alert	*	gpio	History Table	Detectstat	( = ) Equal	String: PRES AND (tagname equal employee)	Employee_group	Never

- ID: This is the ID number of the defined alert created in section 6.1.3 Define Alerts.
- Active: This shows if the Alert is Active or Not Active. Refer to section 6.1.2 Start/ Stop Alerts
- Alert Name: This is the alert name defined in section 6.1.3 Define Alerts.
- TagNumb or TagName: This shows the tag number or name. It can also be "\*" for all tags.
- Alert Mode: This can be either Subzone, Event or GPIO.
- Checking Against: This can be checking against History table or Jitter table.
- Checking Column:  
Column will be Subzone if Alert Mode is set to Subzone.  
Column will be Detectstat if the Alert Mode is set to Event or GPIO.
- Comparison: This can be equal or not equal to.
- CheckFor: This checks for Pres, Miss or IN.
- NotifyGroup: This is the where the notifications are sent. This group is created in section 6.1.4 Alert Notifications.
- LastTriggered: This shows the time/date of the most recent triggered alert.



### 6.1.2 Start/Stop Alerts

From the side panel go to Features > Alert Support

From the main panel select > Start/Stop Alerts.

This section allows you to Start or Stop each defined alert individually.

- Click on the red hexagon button to activate each alert.

### Alert SubSystem: Enable/Disable Alerts

Alert Support, Valid Through (2099-01-01)

Back to Feature: Alerts

Start/Stop	ID	Active	Alert Name	TagNumb or TagName	Alert Mode	Checking Against	Checking Column	Comparison	CheckFor	NotifyGroup	LastTriggered
	3	Not Active	GPIO Alert	*	gpio	History Table	Detectstat	( = ) Equal	String: PRES AND (tagname equal employee)	Employee_group	Never

### Alert SubSystem: Enable/Disable Alerts

Alert Support, Valid Through (2099-01-01)

Back to Feature: Alerts

Start/Stop	ID	Active	Alert Name	TagNumb or TagName	Alert Mode	Checking Against	Checking Column	Comparison	CheckFor	NotifyGroup	LastTriggered
	3	Active	GPIO Alert	*	gpio	History Table	Detectstat	( = ) Equal	String: PRES AND (tagname equal employee)	Employee_group	Never

### 6.1.3 Define Alerts

From the side panel go to Features > Alert Support

From the main panel select > Define Alerts.

This section allows you to define alerts.

#### ■ Alert Name:

All alerts must have a unique name.

#### ■ Alert type:

Jitter alerts: typically used for inventory management and tracking where multiple antennas can detect the asset simultaneously.

History alerts: typically use for doorway monitoring and click presents alerts where a single antenna is used or two antennas are less likely to detect an asset simultaneously.

### ■ Alert on tag:

By TagNumber: You may select an existing tag from the pulldown menu. Ensure the tag in question is read by the reader prior to this step.

Option	Value
Alert Name:	(Alert Name) ?
Alert Type:	<input type="radio"/> Jitter Alert, or <input checked="" type="radio"/> History Alert ?
Alert On Tag:	<div>By TagNumber By Partial TagNumber ?</div> <div>Currently Selected: By TagNumber</div> <div>(none) ?</div>
Alert Mode:	On Event ?
Primary Alert Comparison:	<div>Compare What (none) Compare To (none) ?</div>
Secondary Alert Comparison: (Optional)	<div>Compare What (none) Compare To Value ?</div>
Notify Group:	(none) ?

Create Alert

(none)

0 (new)

00-00-00-00-00-00-00-00-00-00-0D-44 (new)

00-00-00-00-00-00-00-00-24-12-24-F9-78 (new)

00-00-00-00-00-00-00-00-24-12-24-F9-79 (new)

00-00-00-00-00-00-00-00-24-12-24-F9-88 (new)

00-00-00-00-00-00-00-00-24-12-24-F9-89 (belkin)

00-00-00-00-00-00-00-00-24-12-24-F9-8A (new)

00-00-00-00-00-00-00-00-24-12-24-F9-8B (belkin)

30-36-00-CC-41-6B-02-AD-9D-94-89-D6 (new)

31-D2-BC-6C-89-26-C1-21-00-AA-33-11 (new)

35-E0-17-00-4F-AA-FD-CC-00-00-C1-BB (belkin)

43-DC-86-13-AB-92-43-03 (new)

**E2-00-00-16-19-11-02-66-13-50-8E-48 (new)**

E2-00-1A-C1-95-3A-CF-40-10-36-BB-3C (new)

E2-00-1A-C1-95-3A-CF-80-10-36-BB-3D (new)

E2-00-1A-C1-95-3E-78-C0-10-36-C9-E2 (belkin)

E2-00-1A-C1-95-3F-AA-80-10-36-CE-A9 (belkin)

E2-00-1A-C1-95-42-03-C0-10-36-D8-0E (new)

E2-00-1A-C1-95-42-04-00-10-36-D8-0F (new)

OR

By Partial TagNumber: if using a partial tag number the unknown portion of the tag number may be specified with an asterisk (\*)

Option	Value
Alert Name:	(Alert Name) ?
Alert Type:	<input type="radio"/> Jitter Alert, or <input checked="" type="radio"/> History Alert ?
Alert On Tag:	<div>By TagNumber By Partial TagNumber ?</div> <div>Currently Selected: By Partial TagNumber</div> <div>AB-BA-FE-*</div>
Alert Mode:	(none) ?
Primary Alert Comparison:	<div>Compare What (none) Conditional (none) Compare To (none) ?</div>
Secondary Alert Comparison: (Optional)	<div>Compare What (none) Conditional (none) Compare To Value (none) ?</div>
Notify Group:	(none) ?

Create Alert

Examples:

AB-BA-FE-\* this will match all tags that start with AB-BA-FE-

\*-AB-BA-FE this will match all tags that end with -AB-BA-FE

\*-AB-BA-\* This will match all the tags that have the sequence of within the tag numbers

(\*) this will match any tag

#### ■ **Alert mode:**

Subzone change: whenever an asset is detected by a different antenna from where it was previously.

#### **OR**

On event: Whenever an asset is present in a given location or is not present when it should be.

#### **OR**

On Reader GPIO event: Particular asset has opened a doorway or triggered an external event on a reader. See section 6.5 GPIO Support.

#### ■ **Primary alert comparison:**

Event alerts: you may define what to look for before firing an alert. You may check the tag status of PRES, MISS, or IN.

#### **OR**

GPIO alerts: You may check for a specific defined GPIO event. This GPIO event is defined in section 6.5 GPIO Support.

#### **OR**

Subzone alerts: There are no additional checking primary options for subzone alerts.

#### ■ **Secondary alert comparison (optional):**

This is an optional secondary alert comparison that triggers an alert based on custom field values which are entered in User Data table. Refer to section 5.1.2 User Data.

Once the primary condition is matched you can optionally add a secondary comparison that also must match for an alert to be triggered. If defined, the comparison is done with the primary as an 'AND' conditional (primary AND secondary must match for the alert to fire). If you do not wish to use this option, simply leave it blank.

#### ■ **Notify group:**

This defines the action to take once the alert conditions have been matched. Select a group from the drop-down menu. These groups are created in section 6.1.4 Alert Notifications.

### 6.1.4 Alert Notifications

From the side panel go to Features > Alert Support  
On the main panel select > Alerts Notifications.

This page allows you to define how you want to receive notifications. There are three ways to receive alert notifications: email, text and API notifications.

#### 6.1.4.1 Email Notifications:

- Click on add new group.



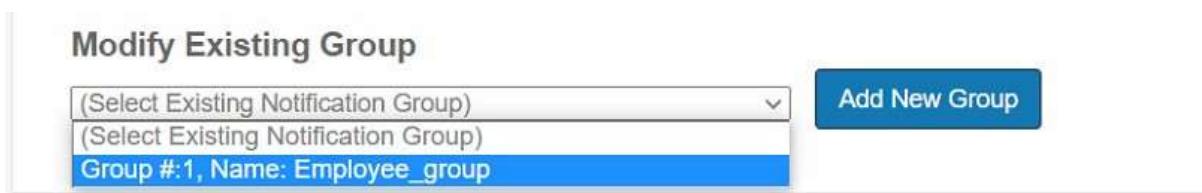
The screenshot shows a form titled "Modify Existing Group". It contains a dropdown menu with the placeholder text "(Select Existing Notification Group)". To the right of the dropdown is a blue button labeled "Add New Group".

- Name the group and click Submit New Group.



The screenshot shows the "Modify Existing Group" form. The dropdown menu is still present. Below it, there is a red label "New Group:" followed by a text input field containing "Employee\_group". To the right of the input field are two blue buttons: "Submit New Group" and "Cancel".

- Under Modify Existing Group, select the group from the dropdown menu.



The screenshot shows the "Modify Existing Group" form. The dropdown menu is open, displaying a list of options. The first option is "(Select Existing Notification Group)". The second option is "Group #1, Name: Employee\_group", which is highlighted in blue. To the right of the dropdown is a blue button labeled "Add New Group".

- Click the green plus sign located in the Email column.
- Email/Phone: Enter the email address where you want your notifications to be sent.

*Note: A good rule of thumb is to first perform an Alert SMTP Test on the email you choose as discussed in section 6.1.7 Alerts SMTP Test.*

**Alert SubSystem: Notifications**  
Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

**Modify Existing Group**  
Group #:2, Name: Employee\_group [Add New Group](#)

**Email/Phone:** xyz.LLC\_employees@gmail.com [+](#) (+ for SMS/Text Providers) ☒ HTML Email ☐ Plain Text Email [Add New Entry](#)

Delete	GroupID	Name	Email	API
	2	Employee_group		

st.

- Click Add New Entry.
- Go to Section 6.1.4 Define Alerts to complete the email alert setup.

#### 6.1.4.2 Text Notifications:

- Click the green plus sign located in the Email column.

**Alert SubSystem: Notifications**  
Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

**Modify Existing Group**  
Group #:1, Name: Employee\_group [Add New Group](#)

**Email/Phone:** (Email or Phone #) @ (Server) [+](#) (+ for SMS/Text Providers) ☒ HTML Email ☐ Plain Text Email [Add New Entry](#)

Delete	GroupID	Name	Email	API
	1	Employee_group		

- Email/Phone: Enter your phone number.
- Click on the green plus sign next to the (server) box.

**Alert SubSystem: Notifications**  
Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

Modify Existing Group  
Group #1, Name: Employee\_group [Add New Group](#)

Email/Phone: 3059871234 @ (Server) [+](#) (+ for SMS/Text Providers) ☒ HTML Email ☐ Plain Text Email [Add New Entry](#)

Delete	GroupID	Name	Email	API
	1	Employee_group		

- Choose your phone provider from the drop down menu.
- Click Add New Entry.

**Alert SubSystem: Notifications**  
Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

Modify Existing Group  
Group #2, Name: Employee\_group [Add New Group](#)

Email/Phone: 3059871234 @ (Server) [+](#) (+ for SMS/Text Providers) ☒ HTML Email ☐ Plain Text Email [Add New Entry](#)

Delete	GroupID	Name	Email	API
	2	AFinity Mobile Text AFinity Mobile Media-Text AT&T Text Alltel Text Boost Mobile Text Boost Mobile Media-Text C-Spire Cellular Text Consumer Cellular Text Cricket Wireless Text		

- Go to Section 6.1.4 Define Alerts to complete the text alert setup.

*Note: If your provider is not in this list, please reach out to your provider to obtain their email text extension.*

### 6.1.4.3 API Notifications:

- Click on the green plus sign next to API.
- Optional: check the box for API JSON encryption.
- Enter the URL for your API end point.
- Click Add New Entry.
- Go to Section 6.1.4 Define Alerts to complete the alert setup.

Modify Existing Group

Group #2, Name: Employee\_group Add New Group

New API:  ☐ API JSON Encrypted (Base64) Add New Entry

Delete	GroupID	Name	Email	+	API	+
	2	Employee_group				

Here is an example of the data you will receive in a JSON format for each notification:

```
NotifyMe: Payload Encrypted: : FALSE
NotifyMe: Content-Type: : application/json
NotifyMe: Content-Length: : 14329
NotifyMe: =====
NotifyMe: Received: alertname: API_Alert
NotifyMe: Received: alertid: 1
NotifyMe: Received: notifygroup: api_endpoint
NotifyMe: Received: found: Tag: E2-00-48-0A-E5-22-C8-49-92-7B-60-E6 Subzone isNow: (Ant1) and
Secondary: (tagname equal employee)
NotifyMe: Received: gpio_name:
NotifyMe: Received: gpio_port:
NotifyMe: Received: alert_against: History
NotifyMe: Received: atype: subzone
NotifyMe: Received: sign: notequal
NotifyMe: Received: alert_on:
NotifyMe: Received: sec_col: tagname
NotifyMe: Received: sec_cond: equal
NotifyMe: Received: sec_val: employee
NotifyMe: Received: tagnumb: E2-00-48-0A-E5-22-C8-49-92-7B-60-E6
NotifyMe: Received: tagname: employee
NotifyMe: Received: subzone: Ant1
NotifyMe: Received: SS: 177
NotifyMe: Received: readername: SR_V7.67
NotifyMe: Received: groupname: RFRAIN544
NotifyMe: Received: readerid: B827EB3D7995
NotifyMe: Received: data:
NotifyMe: Received: zone: RfrainReader
NotifyMe: Received: location: RfrainReader
NotifyMe: Received: custom1:
NotifyMe: Received: custom2:
NotifyMe: Received: custom3:
NotifyMe: Received: custom4:
NotifyMe: Received: custom5:
NotifyMe: Received: current_status: PRES
NotifyMe: Received: current_access: 2020-12-29 12:53:14.533455
NotifyMe: Received: current_access_utc: 1609275194.533455
NotifyMe: --End of Notification-----
```

### 6.1.5 Enable Alert Monitor

From the side panel go to Features > Alert Support  
On the main panel select > Enable Alert Monitor.

Alert Monitor must be enabled for alerts to process.

## Alert SubSystem: Start/Stop Alert Processor

Alert Support, Valid Through (2099-01-01)

[Back to Feature: Alerts](#)

Monitor Status: **Stopped**

Monitor Enable: ☐ OFF

Clear Old Alerts: ☒

Clear Older Than:  
(if 'clear old' box is checked)

now (default), or (disgnated time - see help)



[Apply](#)

- Clear Old Alerts: If checked, previous alerts will not cause an alert to occur.  
If unchecked, previous alerts will cause an alert to occur.

OR

- Clear Older Than: If date and time specified, clear all alerts before the date.  
Date & Time format:

Date & Time:

yyyy-mm-dd HH:MM

Where yyyy-mm-dd HH:MM specifies the date and time from which all alerts older will be cleared have the option to "Clear Older Than".

OR

UTC Format:

xxxxxxxxxx utc

Where xxxxxxxxxxxx (or xxxxxxxxxxxx.xxxxxx) is the UTC timestamp from which alerts older will be cleared.

- Click Apply.



### 6.1.6 Alert SMTP Server

From the side panel go to Features > Alert Support  
On the main panel select > AlertS SMTP Server.

- Host Address: smtp.gmail.com
- Port Number: 587
- Auth Protocol: tls
- Username: enter your own gmail account.
- Password: enter your gmail password.

*Note: Gmail will flag your first login attempt as it does not recognize the application. Login to your gmail and verify this activity.*

## Mail Configuration

Back to Alert Features

Alert: Setup: Mail Configuration (gmail)

Host Address	<input type="text" value="smtp.gmail.com"/>
Port Number	<input type="text" value="587"/>
Auth Protocol	<input type="text" value="tls"/>
Username	<input type="text" value="yourgmail@gmail.com"/>
Password	<input type="password" value="....."/>

Cancel

Apply

### 6.1.7 Alert SMTP Test

From the sidepanel go to Features > Alert Support  
On the main panel select > Alerts SMTP Test.

This page allows you to test email communication.

- Enter the email you wish to test.
- Under Display, select On.
- Click Start Test.
- Verify it worked by checking your inbox.

**E-Mail Test**

[Back to Alert Features](#)

Alert: Setup: Test Communication (atest)

Send To:

Display: Off ▼

Off

On

[Cancel](#) [Start Test](#)

## 6.2 API Tester

From the sidepanel go to Features > API Tester

Each API call has a Test button next to it and a Help document that explains each call. Refer to RFRain API 7.00.13.39 User Guide and Reference Guide for more information.

- To get started, click on Test next to get\_sessionkey

[Back to Features](#)

RFRain API Name	Test API	Availability	Help
<b>Session Key APIs (4 APIs)</b>		<b>(available for this platform: 4 APIs)</b>	
<a href="#">get_sessionkey</a>	<a href="#">Test</a>	Smartreader, Cloud, Enterprise, Gateway	<a href="#">?</a>

- Enter your login credentials.
- Click submit.

"get\_sessionkey" Additional Input: [?](#)

System Login:

Your Company Name:

Password:

- Copy the sessionkey generated in the window on the right of the screen.

(Platform: **Smartreader**)

API Overview: [?](#)

Sent:

```
Called:
https://192.168.1.250/ZoneManager/rfrainapi.php/get_sessionkey
with:
{
  "email": "Y3VzdG9tZXJAcnZpZGpvdXJuYmhuY29t",
  "cname": "rfdjournal",
  "password": "Y3VzdG9tZXJAcnZpZGpvdXJuYmhuY29tIQ=="
}
```

Received:

```
JSON Response:
{
  "request": "get_api_sessionkey",
  "success": true,
  "results": {
    "sessionkey": "5f4451AAAAAACAx2L0QqATB0F7/LXTt4j0w6j3X_4sEJzFd09aznDzE2cE6",
    "userlevel": "admin"
  },
  "message": "RFRain API - Sessionkey Created Successfully"
}
```

"get\_sessionkey" Additional Input: [?](#)

System Login:

Your Company Name:

Password:

- This sessionkey will expire in 30 minutes. You have the option to extend\_sessionkey\_lifetetime.

RFRain API Tester, sr\_v7.0.14. xx

(Platform: Smartreader)

API Overview: ?

[Back to Features](#)

RFRain API Name	Test API	Availability	Help
<b>Session Key APIs (4 APIs)</b>			
get_sessionkey	Test	Smartreader, Cloud, Enterprise, Gateway	?
extend_sessionkey_lifetime	Test	Smartreader, Cloud, Enterprise, Gateway	?
destroy_sessionkey	Test	Smartreader, Cloud, Enterprise, Gateway	?

### 6.3 Battery Support

From the sidepanel go to Features > Battery Support

This section displays the battery charge level and System Power.

- **Battery Charge Level:** Displays battery charge percentage.
- **System Power:** Connected means it is connected to a power source and charging.

## Feature: Battery

Battery Present

[Back to Features](#)

Battery Charge Level

84

System Power

Connected

## 6.4 Cloud Support

From the sidepanel go to Features > Cloud Support

This page allows you to sync the reader's data to the ZoneManager Enterprise software in the cloud and monitor the Last DBSync Heartbeat update as well as the Last DBSync Update Sent.

- Toggle ON to sync the reader's data to the ZoneManager Enterprise software in the cloud

*Note: Do not modify the entries in the table unless specifically instructed by RFRain team member.*

### Cloud Sync Control

Remote Database Support, Valid Through (2099-01-01)

[Back to Feature](#)

Cloud Sync Enabled ☒

Last DBSync Heartbeat  
Last DBSync UpDate Sent

2020-12-29 16:49:07.401278
2020-12-29 16:49:09.403133

Option	Value
Hostname	cd2.rfrain.com
Port	rfrainhosting
UserName	rfrainhosting
Passwd	*****
DB Instance	rfrainhosting
DB Type	rfrainhosting

[Apply](#)

## 6.5 GPIO Support

From the sidepanel go to Features > GPIO Support

This feature allows you to set up Door Access, and Alarms.

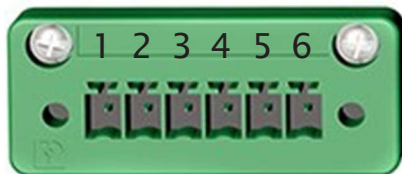
*Note: This feature is only available on the Smart Reader Advanced.*



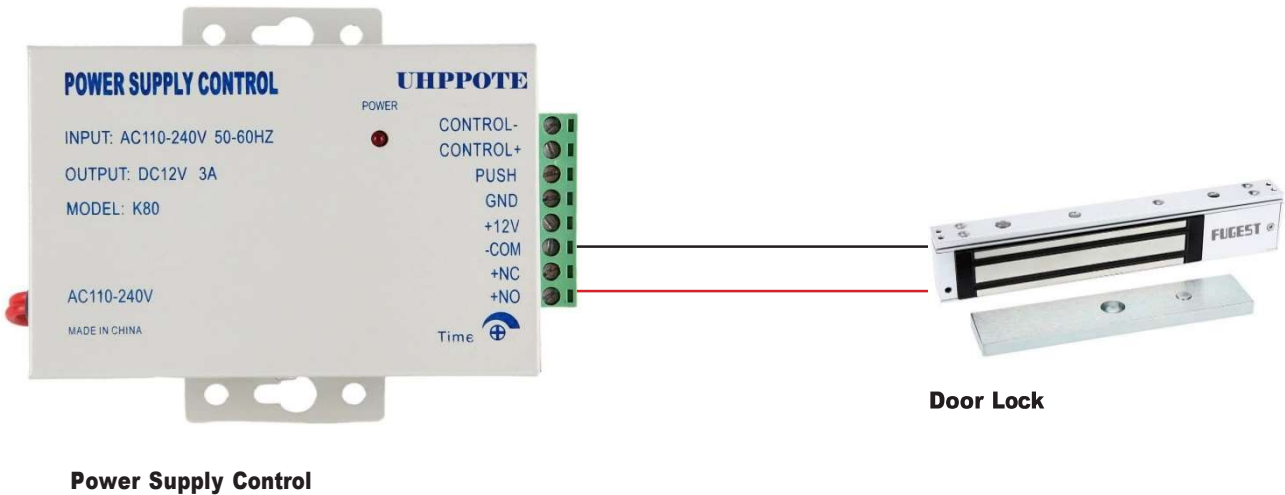
### 6.5.1 Hardware Setup

#### 6.5.1.1 Doorway setup

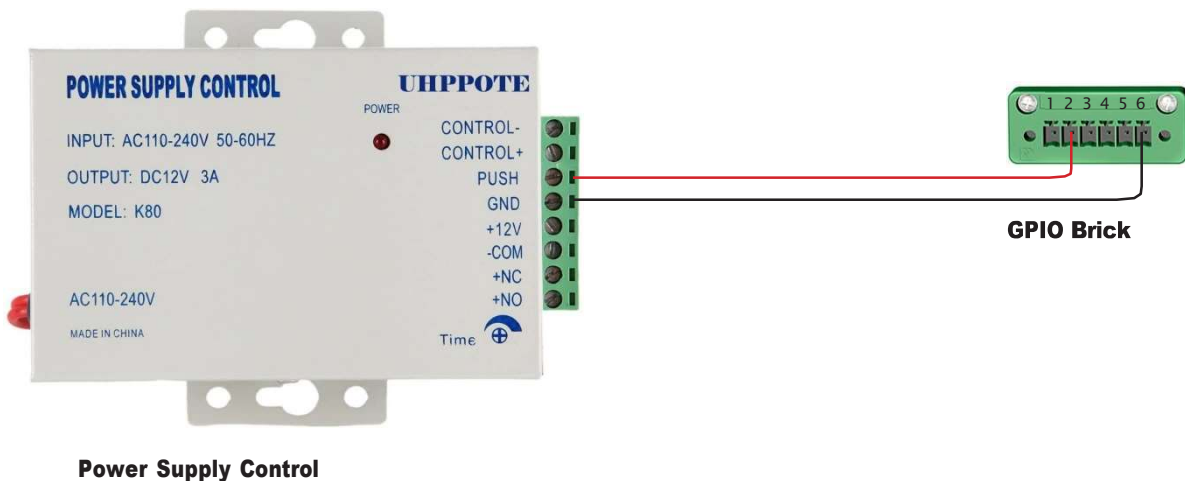
The GPIO brick has 6 ports numbered 1 through 6 from left to right. Port 1 is 5V, Port 6 is ground and Ports 2, 3, 4 and 5 are available for use.



- **WARNING: First shutdown the reader. See section 3.1.3 Restart Reader.**
- **Once powered off, unplug the power supply.**
- Connect Door Lock to Power Supply Control:  
The Door Lock Black wire goes to -COM on the Power Supply Control.  
The Door Lock Red wire goes to +NO on the Power Supply Control.



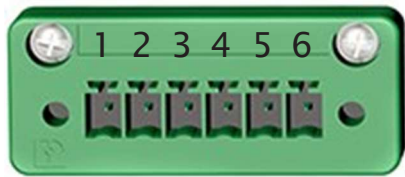
- Connect GPIO brick to Power Supply Control:  
Take a piece (Red And Black) from a wire roll.  
Red wire: One end to PUSH Power Supply Control and other end: GPIO brick.  
Choose any Port 2-5. In this example we use port 2.  
Black wire: One end to GND Power Supply Control and other end: GPIO brick port 6.



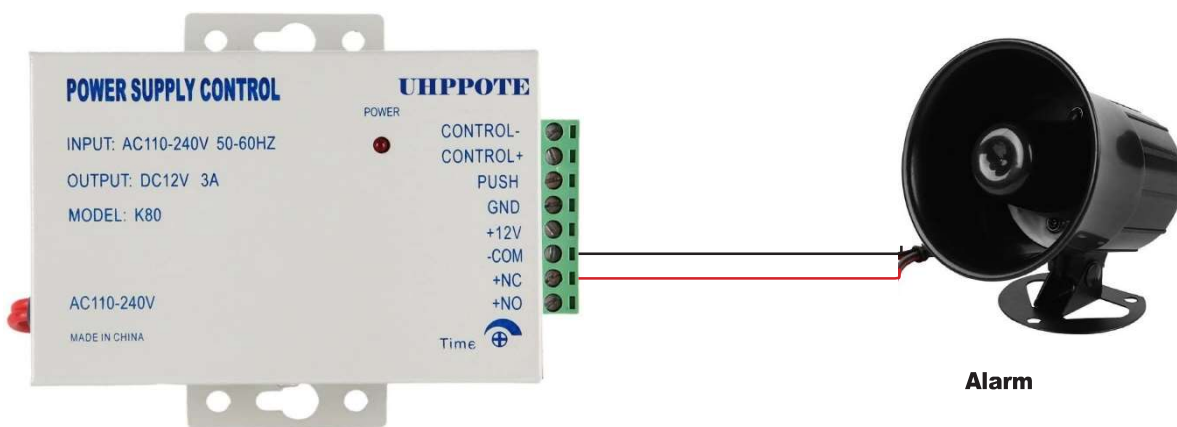
- Plug back the power supply and wait for the Reader to power ON.
- Login to the Zone Manager and go to Features > GPIO Support.
- Go to section 6.5.2 GPIO Alert Setup to activate the doorway Alert.

### 6.5.1.2 Alarm setup

The GPIO brick has 6 ports numbered 1 through 6 from left to right. Port 1 is 5V, Port 6 is ground and Ports 2, 3, 4 and 5 are available for use.



- **WARNING: First shutdown the reader. See section 3.1.3 Restart Reader.**
- **Once powered off, unplug the power supply.**
- **Connect Alarm to Power Supply Control:**  
The Alarm Black wire goes to -COM on the Power Supply Control.  
The Alarm Red wire goes to +NC on the Power Supply Control.



**Power Supply Control**

**Alarm**

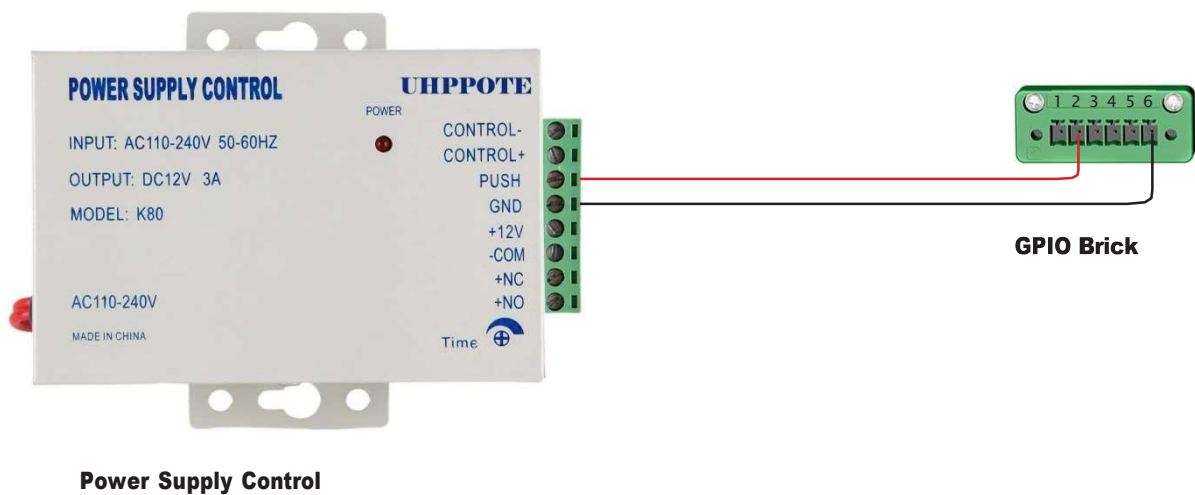


- **Connect GPIO to Power Supply Control:**

Take a piece (Red And Black) from a wire roll.

Red wire: One end to PUSH Power Supply Control and other end: GPIO brick.  
Choose any Port 2-5. In this example we use port 2.

Black wire: One end to GND Power Supply Control and other end: GPIO brick port 6.



- Plug back the power supply and wait for the Reader to power ON.
- Login to the Zone Manager and go to Features > GPIO Support > Under Action, click on play button.
- Go to section 6.5.2 GPIO Alert Setup to activate the alarm Alert.

## 6.5.2 GPIO Alert Setup

From the side panel go to Features > GPIO Support.

This page allows you to activate GPIO ports 2 through 5 to trigger an alert upon activation.

- GPIO Port: Provides the GPIO port name.
- Active: Toggle ON the port you have physically wired in the previous section 6.5.1.
- Name: Name the GPIO port.
- Usage: Select Trigger Event only.
- Default State: Select Voltage Low only.
- Activation Duration/Delay: Enter Activation period in seconds that best meets your use case.

### Feature: SmartReader Advanced GPIO

Smart Reader Activation, Valid Through (2099-01-01)

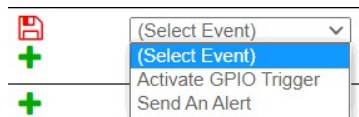
[Back to Features](#)

GPIO Monitor Enabled



GPIO Port	Active	Name	Usage	Default State (Activation is Opposite)	Activation Duration/Delay (in Seconds)	Upon Activation
GPIO Port 1	5 Volt Power					
GPIO Port 2	ON	GPIO-2	LED Control	Voltage Low	Slow Blink	ALERT : SendAlert (Perform: SendAlert) Add New Action
GPIO Port 3	OFF	GPIO-3	LED Control	Voltage Low	Solid	Add New Action
GPIO Port 4	OFF	GPIO-4	LED Control	Voltage Low	Fast Blink	Add New Action
GPIO Port 5	OFF	GPIO-5	LED Control	Voltage Low	Medium Blink	Add New Action
GPIO Port 6	Ground					

- Upon Activation: Click on green plus sign and select Send an Alert only.



Click red disc button to save.

- Toggle on the GPIO Monitor Enable. Wait for the screen to refresh.
- See section 6.1.4 Alert Notifications to setup.
- Define alerts for GPIO. See section 6.1.3.

Option	Value	
Alert Name:	<input type="text" value="GPIO_alert"/>	?
Alert Type:	<input type="radio"/> Jitter Alert, or <input checked="" type="radio"/> History Alert	?
Alert On Tag:	<div> <input type="button" value="By TagNumber"/> <input type="button" value="By Partial TagNumber"/> </div> <p>Currently Selected: By Partial TagNumber</p> <input type="text" value="*"/>	?
Alert Mode:	<input type="text" value="On Reader GPIO Event"/>	?
Primary Alert Comparison:	<div>Compare What</div> <div> <input type="text" value="(none)"/> </div>	?
Secondary Alert Comparison: (Optional)	<div> <div>Compare What</div> <div> <input type="text" value="(none)"/> </div> </div> <div> <div>Compare To Value</div> <div> <input type="text" value="(none)"/> </div> </div>	?
Notify Group:	<input type="text" value="(none)"/>	?

- See section 6.1.2 Start/Stop Alerts to setup.
- See section 6.1.5 Enable Alert Monitor to setup and complete.

## 6.6 GPS Support

From the sidepanel go to Features > GPS Support.

- **WARNING: First shutdown the reader. See section 3.1.3 Restart Reader.**
- **Once powered off, unplug the power supply.**
- Plug the GPS into the USB port of the Reader.
- Plug back the power supply and wait for the Reader to power ON.
- Login to the Zone Manager
- Go to Features > GPS Support



This table shows Tag Association Table and Raw GPS Table.

**Tag Association Table**

Display  tags per page Filter:

Tagnumb	Detectstat	Subzone	Alarmtype	Access	Latitude	Longitude	Altitude	Speed
E2-00-1A-C1-95-4C-9F-C0-10-37-02-7E	PRES	67-1	subz	2020-12-29 16:45:28.734891	36.824014667	-76.058562	-26.7	0.007
E2-80-11-60-60-00-02-06-12-63-88-B3	PRES	67-1	subz	2020-12-29 16:45:16.384017	36.824025167	-76.0585675	-26.9	0.018
E2-00-90-33-11-06-00-70-14-60-7C-E6	PRES	67-1	subz	2020-12-29 16:45:08.395154	36.8240325	-76.058568	-26.3	0.007
E2-00-48-0A-E5-22-C9-09-92-7B-60-E9	PRES	67-1	subz	2020-12-29 16:45:05.479151	36.824032167	-76.058562833	-26.6	0.014
E2-80-11-60-60-00-02-06-12-63-88-B3	PRES	67-1	subz	2020-12-29 16:44:59.594436	36.824028	-76.05855333	-27.9	0.016

Showing 1 of 5 of 100 entries Previous **1** 2 3 4 5 ... 20 Next

The GPS Data in the table below show the latest 200 GPS records being captured by the GPS device (with the most current first). If the table does not show current entries, then the GPS device has either not seen any satellites, or has not seen enough satellites to obtain a proper location fix. Typically, at least 2 or more satellites are needed to obtain a proper location fix. The more satellites seen by the GPS device, the more accurate the location fix will be.

**Raw GPS Table (direct from GPS Device)**

Display  tags per page Filter:

GPSID	Latitude	Longitude	Altitude	Speed	NumOfSat	NumOfSatFix	SatTime
523767	36.8240115	-76.058561667	-25.8	0.019	3	3	2020-12-29 16:45:35.671801
523766	36.824012333	-76.058563	-26.2	0.024	3	3	2020-12-29 16:45:34.626434
523765	36.824013167	-76.058563833	-26.6	0.022	3	3	2020-12-29 16:45:33.621247
523764	36.8240135	-76.058563167	-26.7	0.008	3	3	2020-12-29 16:45:32.551729
523763	36.824014667	-76.058562	-26.7	0.007	3	3	2020-12-29 16:45:30.560797

Showing 1 of 5 of 200 entries Previous **1** 2 3 4 5 ... 40 Next

## 7. Administration

Click on Administration in the left-hand side panel, a sub menu will open that contains User Admin, Reset System Settings and System Updater.



### 7.1 User Admin

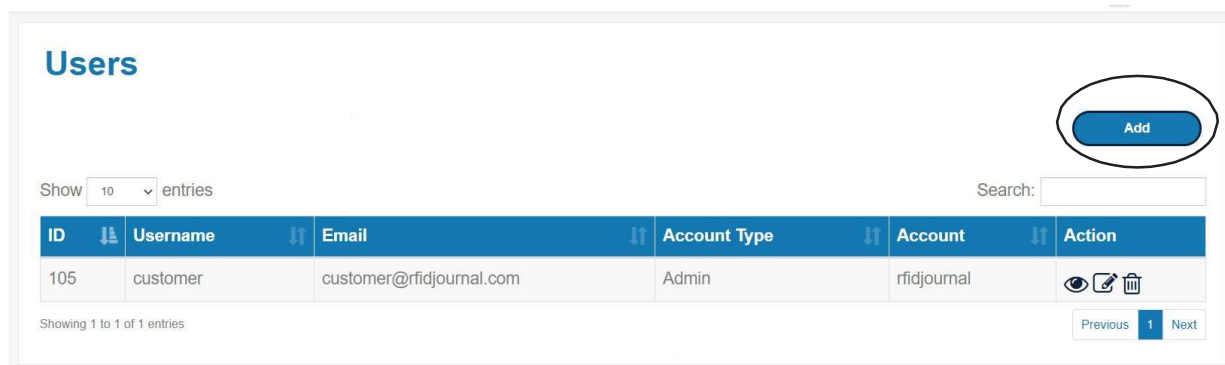
There are two modes of authentication, which include admin and user. An “Admin” has full control of the system whereas a “User” has only limited access.

The difference between the Admin account and the User account is as follows ; The “Admin” has full “Read” and “Write” privileges for all users listed in the Users table and access to all “action” commands available in the Zone Manager software.

The “User” has “Read” privileges only. This means that the “User” can only view the status or configurations in the Zone Manager software but cannot add, delete, nor change any of the parameters.

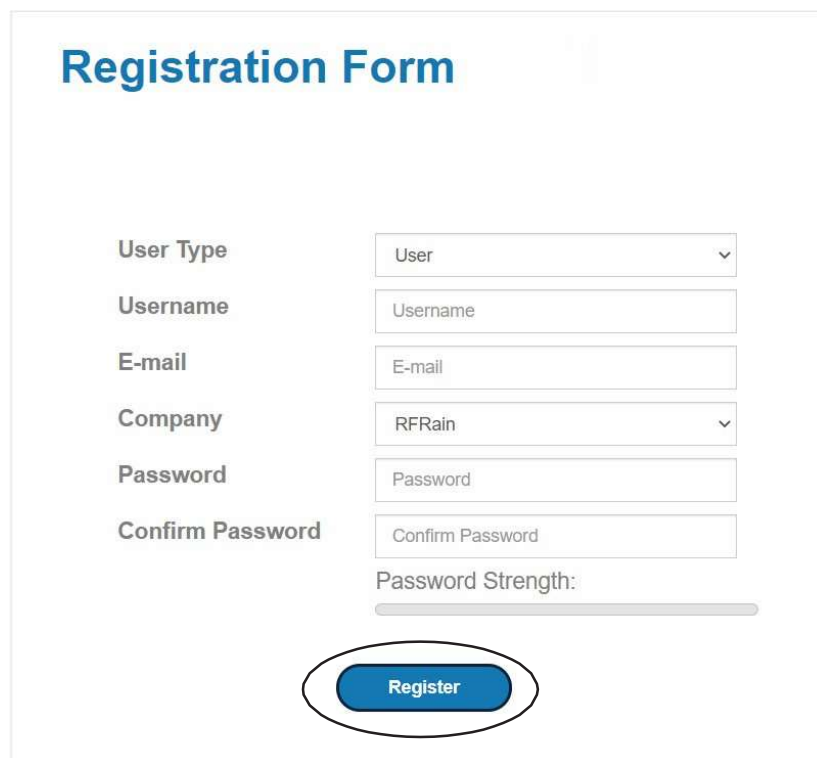
#### 7.1.1 Add New User

- From the sidepanel go to Administration > User Admin.
- Click on the Add button.



In the registration form, add the following information:

- User Type: Select "Admin" or "User" from the drop-down menu.
- Username: Enter a username. (no spaces)
  - Username must contain only letters, numbers, and underscores.
- Company: Select your company's name from drop down menu.
- E-mail: Enter an e-mail address
- Password: Choose a password that contains the following:
  - Minimum of 8 characters
  - At least one Capital Letter
  - One special character such as ! or #
- Confirm Password: Retype the same password to ensure accuracy.
- Click on the Register button.



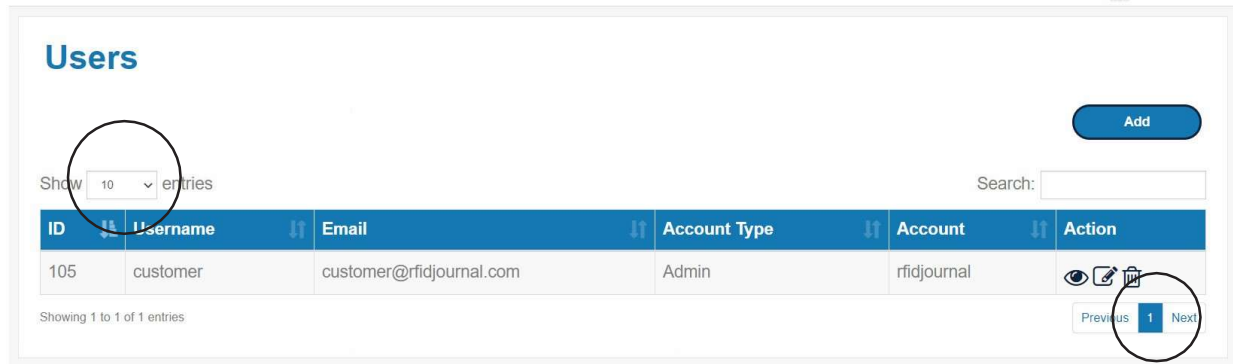
The screenshot shows a web form titled "Registration Form" in blue text. The form contains several input fields and a button. The fields are labeled on the left: "User Type", "Username", "E-mail", "Company", "Password", and "Confirm Password". The "User Type" and "Company" fields are dropdown menus, with "User" and "RFRain" selected respectively. The "Username", "E-mail", "Password", and "Confirm Password" fields are text boxes. Below the "Confirm Password" field is a "Password Strength:" indicator with a horizontal bar. At the bottom of the form is a blue "Register" button, which is circled with a black oval.

User Type	User
Username	Username
E-mail	E-mail
Company	RFRain
Password	Password
Confirm Password	Confirm Password

Password Strength:

**Register**

After you click on the Register button, you will be brought back the Users screen.



- Verify that the information you just added in the Registration form has been added to the Users table.

*Note: If you do not see the “new” Admin user that you just created, it is possible that the maximum number of visible entries has been reached and the “new” Admin user is in the table but not visible on the screen. If this is the case, you can do either of the following:*

- Choose a larger number in the pull-down tab of the “Show # entries”, located at the upper, left-hand side of the Users table, or
- Click on the “Next” option, located at the lower, right-hand corner of the Users table. This will display the next screen of users listed in the table.

### 7.1.2 View/Modify/Remove User

- The view button allows you to view user profile. (account type/email/name)
- The modify button allows you to edit user information such as account type, email and password.
- Select the trash can button under action to remove a user from the table.

## 7.2 Reset System Settings

- From the sidepanel go to Administration > Reset System Settings.  
View section 6.7 System Cleaner.

## 7.3 System Cleaner

From the side panel go to Features > System Cleaner.

This page allows you to clean various data tables with a simple click.

### RFRain - System Reset Information

[Back to Features](#)

Are you **SURE** you wish to do this? **!! These Actions Can Not Be Undone !!**

These actions will clean the internal database tables and configurations. There may be times when you wish to clean up space on the device, or take a unit from a testing environment to a production environment and do not wish testing tag information, settings, or configurations to end up in production, or you simply may want to start over with testing. These options will allow you to selectively reset the database tables, features, and reader settings to their factory defaults.



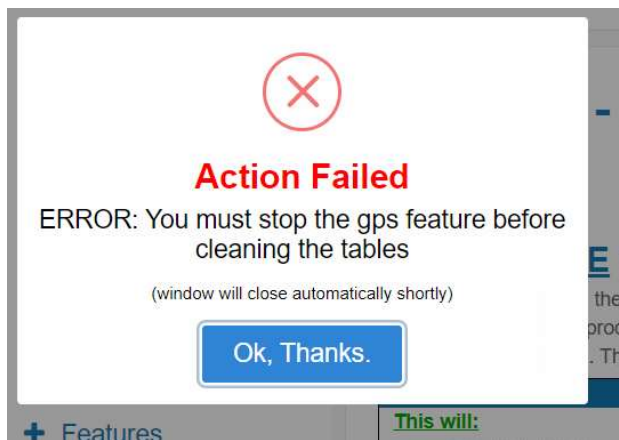
Live Tag Information	All Tag Information	Alerts	Camera	GPS	GPIO/Lock	Cloud Sync	Reader Settings	Network Settings	Reports
<b>This will:</b> <ul style="list-style-type: none"> <li>Remove read tag information from the Live Data table</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove all entered tag numbers</li> <li>Remove all entered tag names and custom fields</li> <li>Remove all read tag information (access times, subzones, etc.)</li> <li>Remove all tag history information</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove all programmed alerts</li> <li>Remove all alert notification settings</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove all captured camera images</li> <li>Remove all camera image associations</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove all historical gps data</li> <li>Remove all gps tag associations</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove all historical gpio/lock data</li> <li>Remove all gpio/lock associations</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Remove any spooled files and images</li> <li>Reset the Sync options and settings to factory defaults</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Reset All Reader Settings to Factory Defaults</li> <li>Reset All Subzone Names to Empty</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Reset the Network Interfaces to Factory Defaults</li> </ul>	<b>This will:</b> <ul style="list-style-type: none"> <li>Delete all the old reports</li> </ul>
<a href="#">Clean Live Tag Data</a>	<a href="#">Clean All Tag Data</a>	<a href="#">Clean Alert Data</a>	<a href="#">Clean Camera Data</a>	<a href="#">Clean GPS Data</a>	<a href="#">Clean GPIO/Lock Data</a>	<a href="#">Reset Cloud Sync</a>	<a href="#">Reset Reader</a>	<a href="#">Reset Ethernet</a> <a href="#">Reset Wireless</a> <a href="#">Reset Wireless AP</a>	<a href="#">Delete Old Reports</a>
<a href="#">Reset entire Reader to Factory Defaults, then Restart!</a>									

[No, I changed my mind](#)

- **Clean Live Tag Data:** First you will have to stop the reader see section 4.1 Start/Stop Reader before clicking Cleaning Live Tag Data for instance.
- **Clean All Tag Data:** First you will have to stop the reader see section 4.1 Start/Stop Reader and stop Cloudsync see section 6.4 Cloud Support before clicking Cleaning All Tag Data.
- **Clean Alert Data:** First you will have to turn off Monitor Enable in section 6.1.5 Enable Alert Monitor before clicking on Clean Alert Data.
- **Clean GPS Data:** First you will have to Stop GPS Subsystem in section 6.6 GPS Support before clicking on Clean GPS Data.
- **Clean GPIO/Lock Data:** First you will have to turn off GPIO Monitor and turn off GPIO Engine in section 6.5.2 GPIO Alert Setup.
- **Reset Cloud Sync:** Please do not click.
- **Reset Network Settings:** Reset the Network Interfaces to Factory Defaults
- **Reset Reader:** Please do not click. Consult with your RFRain team first.
- **Clean and Reset Everything:** Please do not click. Consult with your RFRain team first.

*Note: You must shut down the processor that is feeding data to each table prior to cleaning that table. Failing to do so, will generate a pop-up message that instructs you to stop the feature before cleaning the tables:*





- Proceed by clicking the blue clean/reset button under the desired table you want to reset.

## 7.4 System Updater

From the sidepanel go to Administration > System Updater.

This section allows a user to perform a system update.

- Click on the latest "Release Version".

*Note: Please consult with your RFRain support team prior to updating the Zone Manager Software.*

### System Updater

System Model: [RFRain SmartReader \(SR\)](#)  
 Current Software Version: [SR v7.00.13.56.00](#)

Available From Distribution Server:

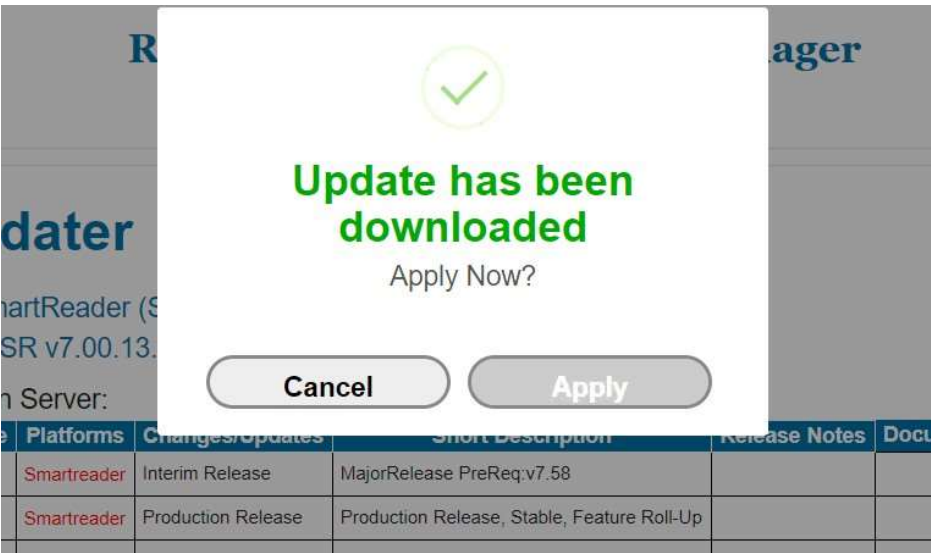
Release Version	Release Date	Platforms	Changes/Updates	Short Description	Release Notes	Documentation
<a href="#">SR v07.00.13.67.00</a>	2020-12-21	Smartreader	Interim Release	MajorRelease PreReq:v7.58		
<a href="#">SR v07.00.13.58.06</a>	2020-12-21	Smartreader	Production Release	Production Release, Stable, Feature Roll-Up		
SR v07.00.13.56.00	2020-11-06	Smartreader	Production Release	Production Release, Stable, Feature Roll-Up		
SR v07.00.13.48.00	2020-10-22	Smartreader	Production Release	Production Release, Stable, Feature Roll-Up		
SR v07.00.13.47.00	2020-09-29	Smartreader	Production Release	Feature Specific Update		
SR v07.00.13.47.00	2020-09-29	Smartreader	Production Release	Feature Specific Update		

RFRain Image Download

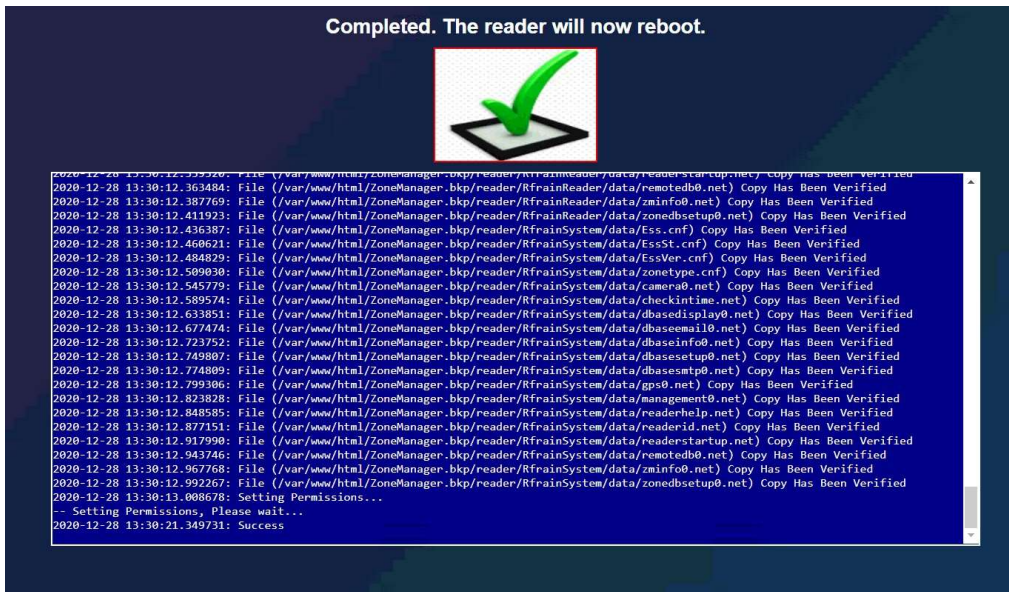
Downloading: [distro\\_zm\\_db\\_v7.00.13.58.06\\_sr.bin](#). Please wait...

47%

- Once the download is finished a window box will pop up. Click Apply.



- Wait until a “Success” message is displayed. Please allow enough time for the reader to finish rebooting.





**For more support** email us at [sales@rfrain.com](mailto:sales@rfrain.com)  
or call 1.833.273.7246

Email: [sales@rfrain.com](mailto:sales@rfrain.com)  
Phone: 1-833-273-7246  
Availability: 24/7  
[www.rfrain.com](http://www.rfrain.com)

