RFRAIN
QUICKSTART MANUAL
VERSION 5.18

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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:

1-833-2RFRAIN or 1- (833) 273-7246

sales@rfrain.com

support@rfrain.com

1. Preface

The intent of the document is to provide an operator with the ability to setup a complete system from scratch without the need to be an expert in RFID. To successfully use the RFRain Inventory Management Solution, you first need to know how to install the system. Please refer to Smart Reader Quick Installation Guide for additional information.

The RFRain Zone Manager Front End Application is one of the key proprietary software applications of our solutions and allows an operator to fully configure the system for asset tracking. Below is the brief summary of each section of this document:

Authentication Section: This section allows an operator to login into the Smart Reader to start configuring the system. 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.

Zone Management Section: This section allows an operator to setup the number of Zones in a specific area for asset management purposes. A Zone is always associated with a reader and a location.

Reader Control :Setup Section: This section allows an operator to identify the table that is used to store the data read from the reader.

Reader Section: This section allows an operator to setup a reader. One of the most important settings is the reader mode, which consists of the following:

Check-in-Auto: Allows an operator 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 needs to be detected.

Discover: Allows an operator to monitor assets that are located in the table. If an asset is detected, a PRES is indicated. Otherwise, MISS is indicated.

Please go through Smart Reader Quick Installation Guide To get the quick understanding of Installation Setup.

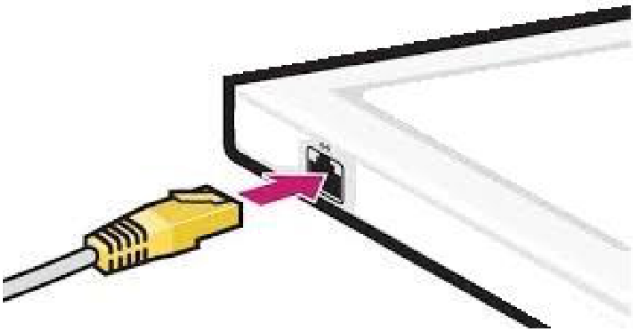
2. Authentication

The Authentication section explains how to login to the Zone Manager software.These steps are important in order to make your system more secure, and prevent unauthorized access.

2.1. User Communication Setup

Before you can utilize the capabilities of the Zone Manager (ZM) software, you must first establish a communications link between your computer and the RFRain Smart Reader. The communication link between the user's computer and the Smart Reader can be established via hardwire connection (using a Cat-5/5e or Cat-6 Ethernet cable) or via wireless connection.

For hardwire connection, connect the computer / network communications port to the USB port on the Smart Reader.



For more detail and/or assistance with establishing a communications link between the user's computer and the Smart Reader, please refer to Smart Reader Quick-Installation Setup Guide.

Once the communication type (hardwire or wireless) has been setup, the proper addressing of the components(Readers, Antennas, PC) in the network need to be verified to ensure communication will occur. Perform the following steps to establish communication:

- Configure your computer with the static IP address 192.168.101xx (xx can be any address except for 12). Set the net mask to :255.255.255.0
- Open your browser. In the address bar, type the RFRain Smart Reader default IP Address: https://192.168.101.12
- You should now see the Zone Manager (ZM) login screen. (See Figure 1 below) If you do not see the ZM login screen, consult your company's IT department to check to be sure that the user's computer's networking configuration options are set to the proper configuration selections. Also, verify that all cables are plugged in and secure in their respective locations.

2.2. Zone Manager Software Logon

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

- Enter the default email ID and Password login information.
  - Default Login: customer@<companyname>.com
  - Default Password: customer@<companyname>.com!
- Click on the **Login** button.

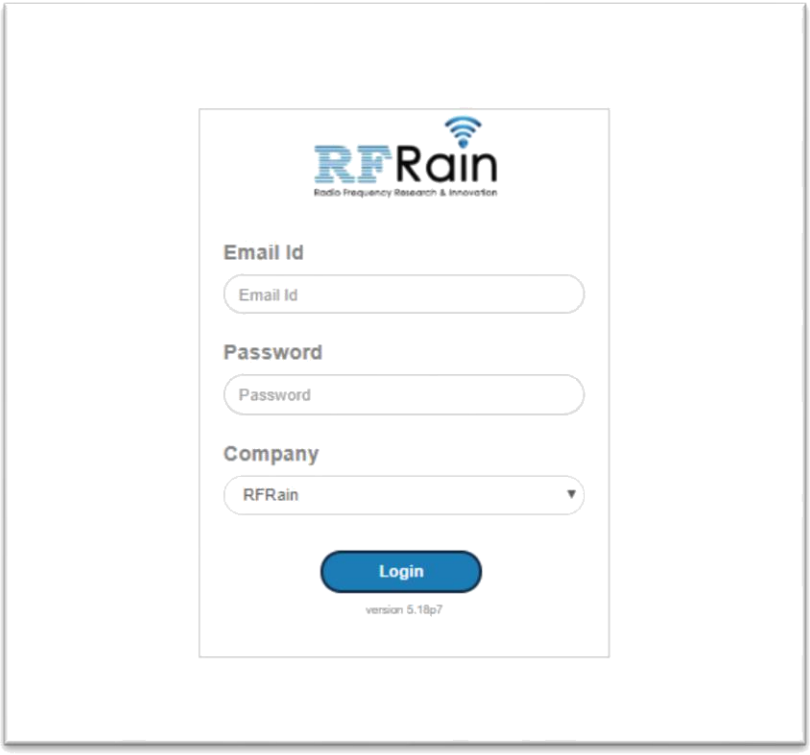


Figure 1-Zone Manager Login Screen

2.3. Dashboard

When you first login to the RFRain Zone Manager software, you will be taken to the **Dashboard** screen. (See Figure 2 below) On the Dashboard screen you will see the following three options:

Zones **Databases** **System**

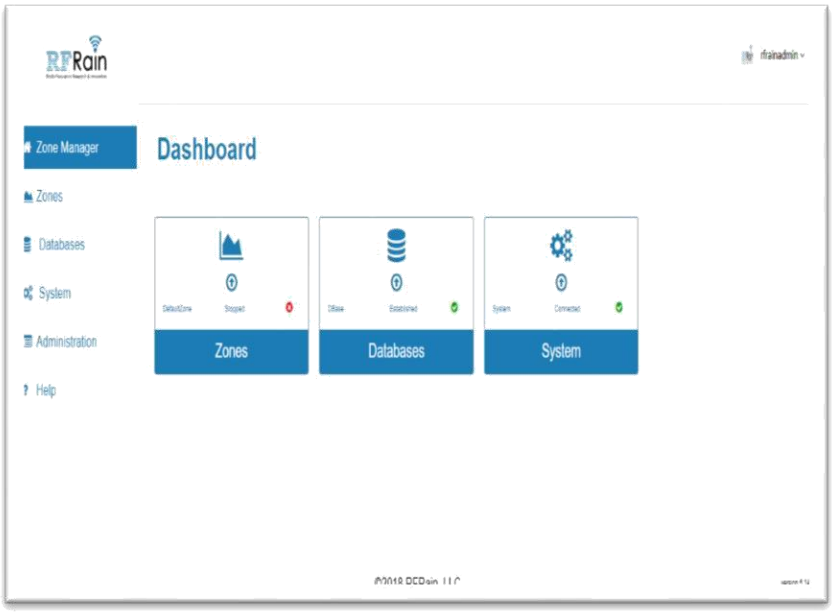


Figure 2 Dashboard Screen

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 left-hand corner of the screen. For instance, if you set up your system with multiple zones, it is likely that you will want to view the activity and/or status(es) of each of the zones you have set up. The way Zone Manager is designed, the user is able to accomplish this desire but is limited to access only one zone at a time. After the user is finished with the chosen activity(s) in one zone, he/she can go to the next zone by clicking on the Zone Manager label, clicking on the Zones button (or the Zones label), and selecting the "Go-to-Zone" icon associated with the desired zone. (The "Go-to-Zone" icon will be discussed in Chapter 3 of this document.)

3. Reader

This section explains how to setup the reader's mode, configuration, and connection information.

3.1. Reader Setting

Check the settings of the reader.

rstatus

To view the current settings of the reader, perform the following steps:

- Go to **Zones->Reader Control->Reader Settings or** Enter the keyword "**rsetting**" in the **Search** box and click on the **Search** button. Your screen should look like the screenshot shown in **Figure 23 below**. Make sure your Max time Loc Tag is set to value 500 and Ant Group Setup to "Four Antenna". If not change it to the respective values and hit apply button.

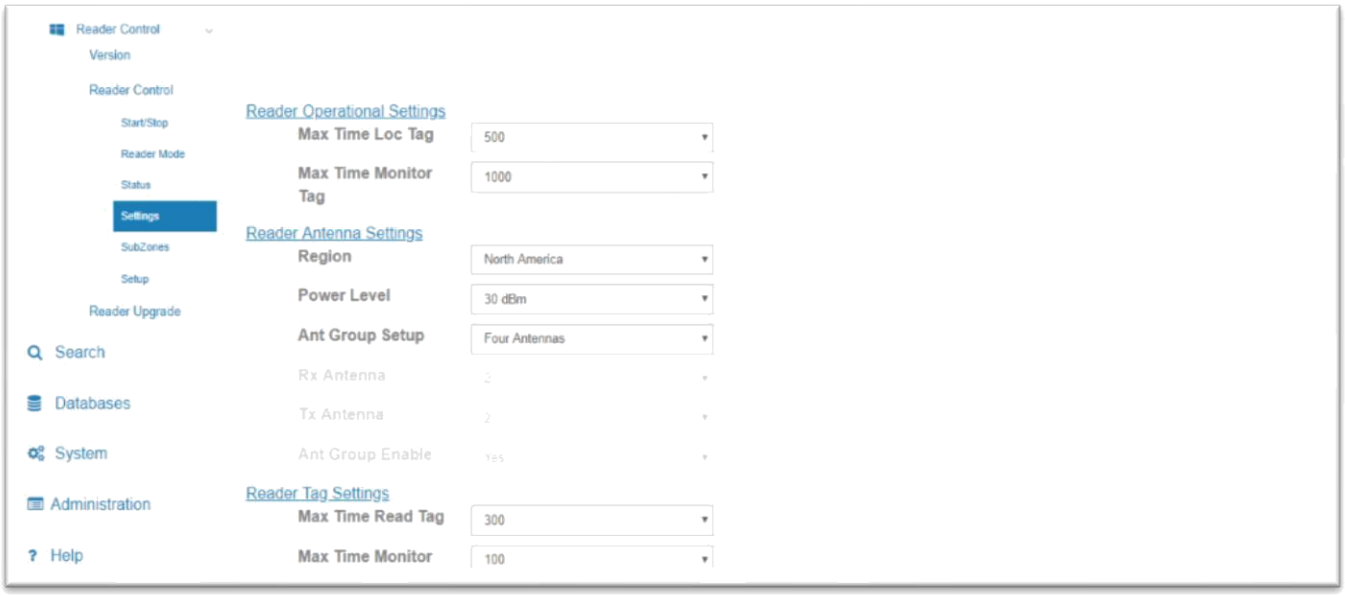


Figure 3 Reader Settings Screen

Now you need to setup Reader's Mode to Check-in Auto Mode operation,

3.2. Check-in Auto Mode

Set-up the Check-in Auto Reader's Mode.

Check-in Auto Mode: The Check-in Mode will read all the tags that the Reader's Read irrespective of what whether they are in Zone Manager Database or Note. It will add all the tags which the reader reads into the database.

To set up the reader for **Check-in Auto Mode** operation, perform the following steps:

- Go to **Reader Control->Reader Mode or** Enter the keyword "**rmode**" in the **Search** box and click on the **Search** button. Your screen should look like the screenshot shown in **Figure 25 below**.
- **Check-in Auto Mode**: Select "Check-in Auto" from the drop-down menu.
  - The "Check-in Auto" mode enables the reader to detect all the tags that the reader can read irrespective of ,they are in database or not.
- Click the **Apply** button.

Figure 4 Reader Mode Auto Check-in Screen

After setting up Reader's Mode to Check-in Auto Mode.

Turn 'ON' the Reader. To turn 'ON' the reader ,Refer Section 3.3 below.

3.3. Reader Start/Stop

Start/Stop the reader.

KEYWORD **rstart**

To start the reader for "live" operation, perform the following steps:

- **Go to (Reader Control->Start/Stop) or Enter the keyword "rstart" in the Search box and click on the Search button.**
- **Now Start the Reader. Once you start the reader your screen looks like figure below.**

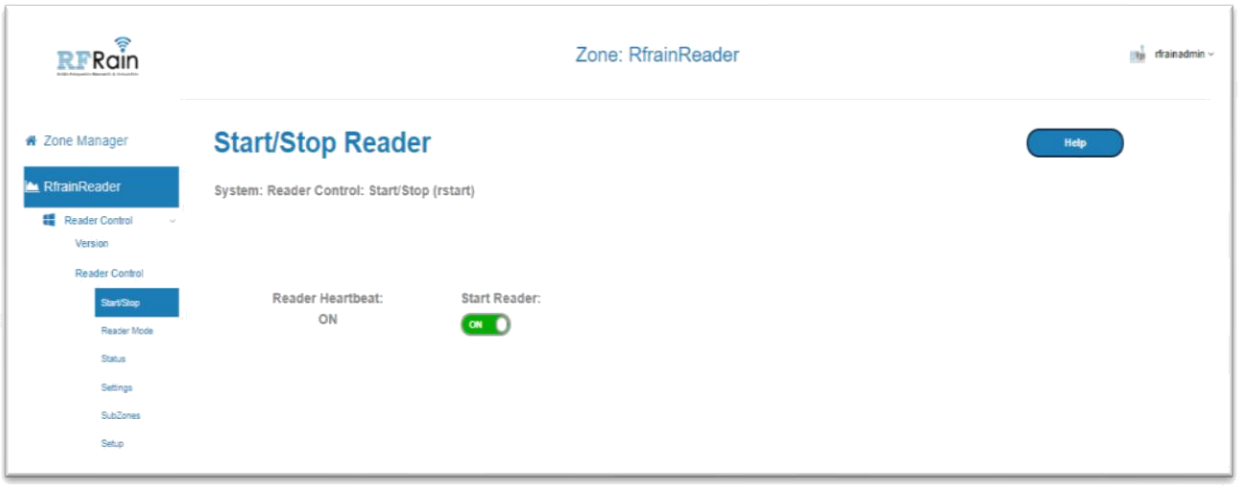


Figure 54 Reader Start/Stop Reader

3.4. Database Table Access

Access the default table entries information.

KEYWORD **tbaccess**

To view (or "access") the contents of the table "**default**", perform the following steps:

- Navigate to the **Dashboard** screen and click on **Databases** if you are not already there.

In the **Databases** table, click on the "Go-to-Zone" icon in the **Actions** field in front of '**RfrainDB**'.

- Go to **Database->Access->Table Access** or Enter the keyword "**tbaccess**" in the **Search** box and click on the **Search** button. Verify that the table on your screen contains the header information that was created in the previous sections. Your screen should look like the screenshot shown in Figure 26 below.

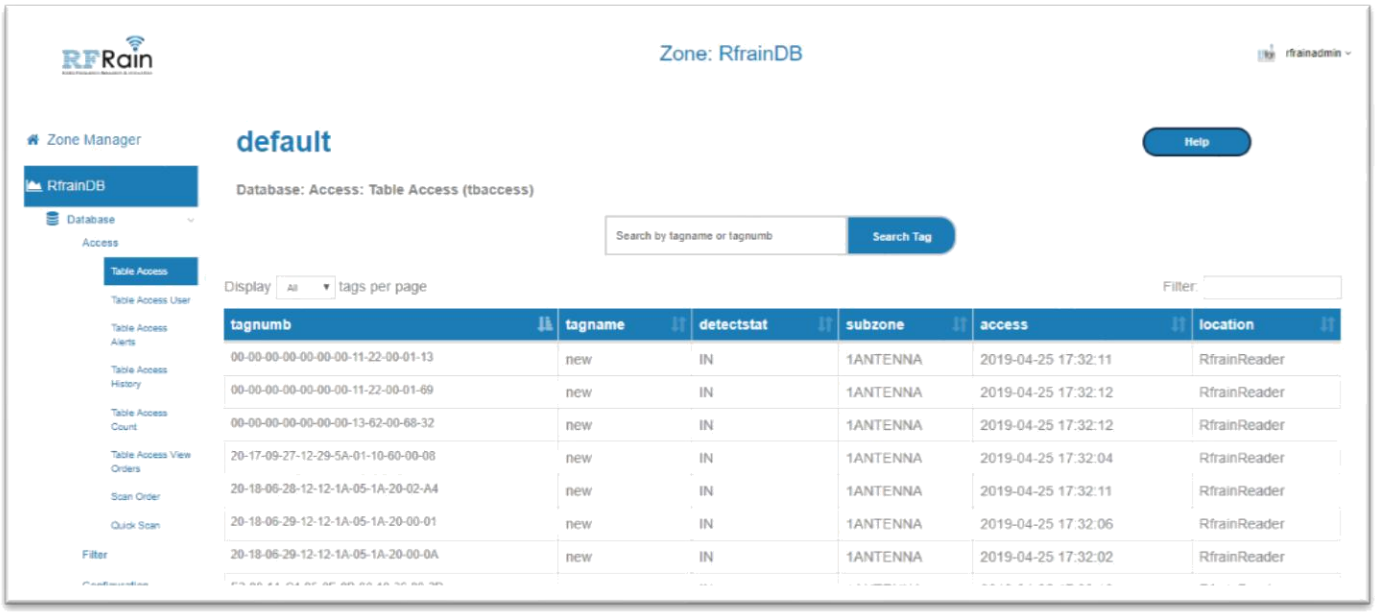


Figure 5- Table Access Screen

- **Table Entries**
  - **tagnumb**: Tag number
  - **tagname**: new
  - **detectstat**: IN
    - This field indicates the status of the tag. At this time, "IN" is the correct entry.
  - **access**:Indicates the time of last detection.
  - **location**: Indicates the location of tags.
  - **Subzone**: Indicates the antenna which reads the tag.

3.5. Download Table Content

You can Download table content into a CSV File here.

KEYWORD

tbdown

- Go to **Database-> Table Setup->Download Table Content** or Enter the in Keyword 'tbdown' the Search box and click on the Search button. Your screen should look like the screenshot shown in Figure 27 below.
- Enter desired file name,
- Hit 'Download' to download the contents of the current table to the file.

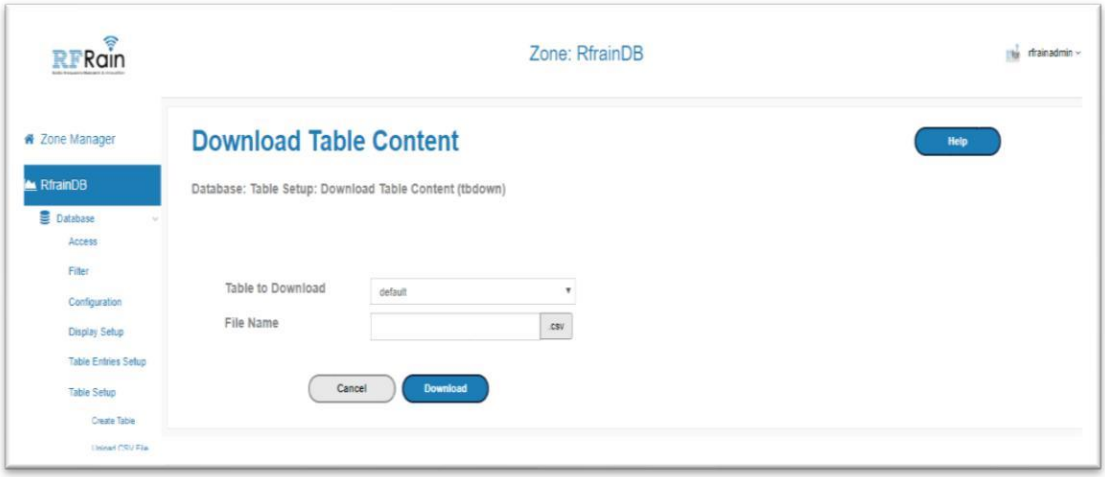
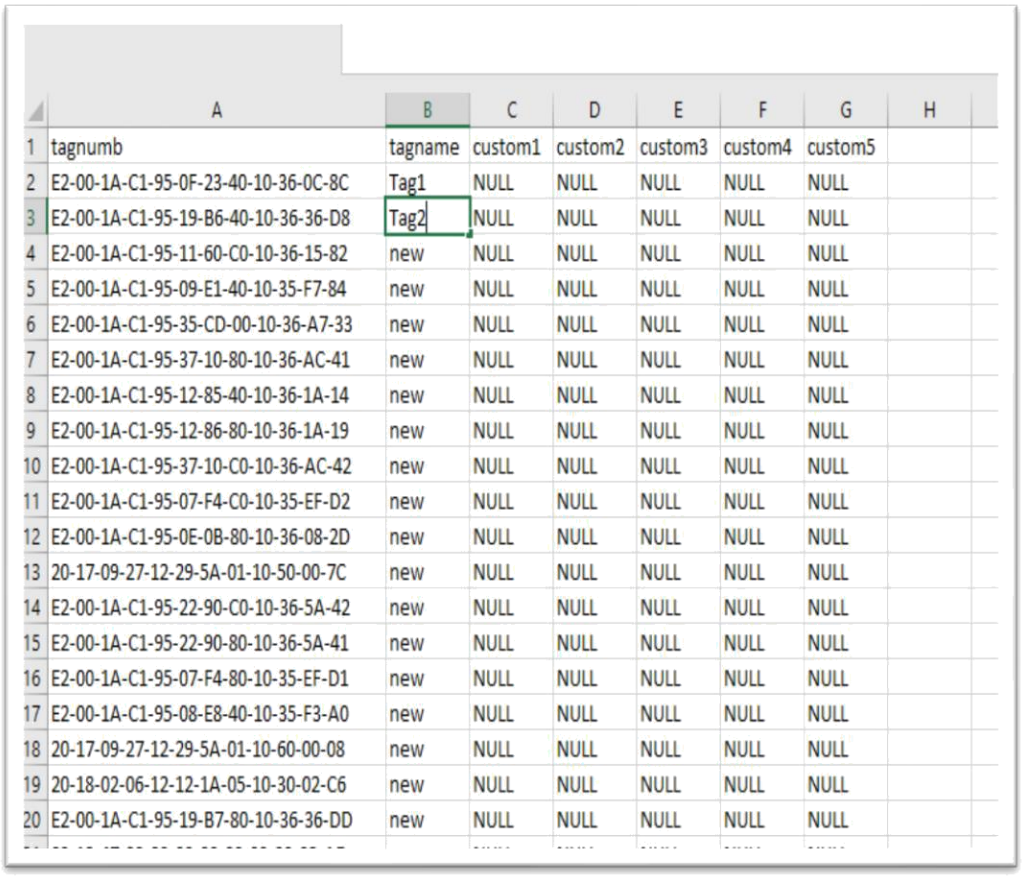


Figure 6 Download Table Content

Once you downloaded the Table, According to your convenience, you can change the tagname entries in the downloaded CSV extension file. Please see Fig.28 .Here I have changed the Tag names according to my convenience. You can give any other name as well.



	A	B	C	D	E	F	G	H
1	tagnumb	tagname	custom1	custom2	custom3	custom4	custom5	
2	E2-00-1A-C1-95-0F-23-40-10-36-0C-8C	Tag1	NULL	NULL	NULL	NULL	NULL	
3	E2-00-1A-C1-95-19-B6-40-10-36-36-D8	Tag2	NULL	NULL	NULL	NULL	NULL	
4	E2-00-1A-C1-95-11-60-C0-10-36-15-82	new	NULL	NULL	NULL	NULL	NULL	
5	E2-00-1A-C1-95-09-E1-40-10-35-F7-84	new	NULL	NULL	NULL	NULL	NULL	
6	E2-00-1A-C1-95-35-CD-00-10-36-A7-33	new	NULL	NULL	NULL	NULL	NULL	
7	E2-00-1A-C1-95-37-10-80-10-36-AC-41	new	NULL	NULL	NULL	NULL	NULL	
8	E2-00-1A-C1-95-12-85-40-10-36-1A-14	new	NULL	NULL	NULL	NULL	NULL	
9	E2-00-1A-C1-95-12-86-80-10-36-1A-19	new	NULL	NULL	NULL	NULL	NULL	
10	E2-00-1A-C1-95-37-10-C0-10-36-AC-42	new	NULL	NULL	NULL	NULL	NULL	
11	E2-00-1A-C1-95-07-F4-C0-10-35-EF-D2	new	NULL	NULL	NULL	NULL	NULL	
12	E2-00-1A-C1-95-0E-0B-80-10-36-08-2D	new	NULL	NULL	NULL	NULL	NULL	
13	20-17-09-27-12-29-5A-01-10-50-00-7C	new	NULL	NULL	NULL	NULL	NULL	
14	E2-00-1A-C1-95-22-90-C0-10-36-5A-42	new	NULL	NULL	NULL	NULL	NULL	
15	E2-00-1A-C1-95-22-90-80-10-36-5A-41	new	NULL	NULL	NULL	NULL	NULL	
16	E2-00-1A-C1-95-07-F4-80-10-35-EF-D1	new	NULL	NULL	NULL	NULL	NULL	
17	E2-00-1A-C1-95-08-E8-40-10-35-F3-A0	new	NULL	NULL	NULL	NULL	NULL	
18	20-17-09-27-12-29-5A-01-10-60-00-08	new	NULL	NULL	NULL	NULL	NULL	
19	20-18-02-06-12-12-1A-05-10-30-02-C6	new	NULL	NULL	NULL	NULL	NULL	
20	E2-00-1A-C1-95-19-B7-80-10-36-36-DD	new	NULL	NULL	NULL	NULL	NULL	

Figure 7 Changing Tag name in Downloaded Excel screen

3.6. Upload CSV File

Upload the CSV file to the Database table.

tbupload

You will now transfer this information to the table "default" that you created previously in this tutorial by uploading the CSV File.

- **Go to Database->Table Setup-> Upload CSV File or** Enter the keyword "**tbupload**" in the **Search** box and click on the **Search** button.

For the steps listed below, refer to Figure 29 below.

- On the Upload File screen, go to the **Select File** line, located near the bottom of the screen.
- In the **Select File** field, you will see a **Choose File** box. Click on this box.
- Click on the **Upload File** button.

Assuming all goes well, the user will see a message box pop up on the screen that notifies the user that the "File Uploaded successfully". This message box will stay on the screen for a few seconds and disappear.

Upon successful completion of the CSV file upload, the user will be directed to the **Store Entries in reader_deafult** *screen. The steps required for this portion of the software are described in the next section.*

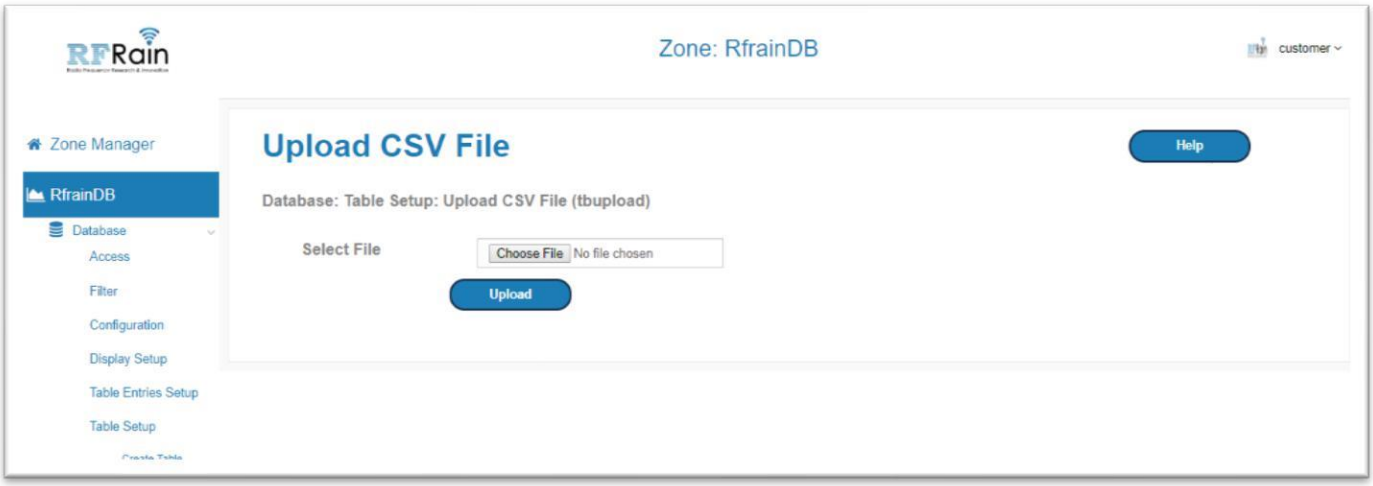


Figure 8 Upload File Screen

3.7. Store Entries in Table

Store the content of the CSV file in the datable table

tbstore

To transfer the contents of the CSV file to the database table, perform the following steps:

- **Go to Database->Table Setup-> Store Entries in Table** or enter the keyword "**tbstore**" in the **Search** box and click on the **Search** button. Your screen should look like the screenshot shown in **Figure 30 below**. Verify that the entries in the fields are consistent with the table information entered in the previous sections.

- Go to the **Select File** line. In the pull-down menu, select the appropriate CSV file that pertains to the table you are populating.

- Click on the **Store Entries** button.

You should receive a message saying that the "Data has been loaded into the database successfully". After a few seconds, you will be re-directed to the **Configure Zone** screen.

Congratulations!!! You have just created and populated the table **"default"** in the database reader control with the csv file rfrain_default.csv.

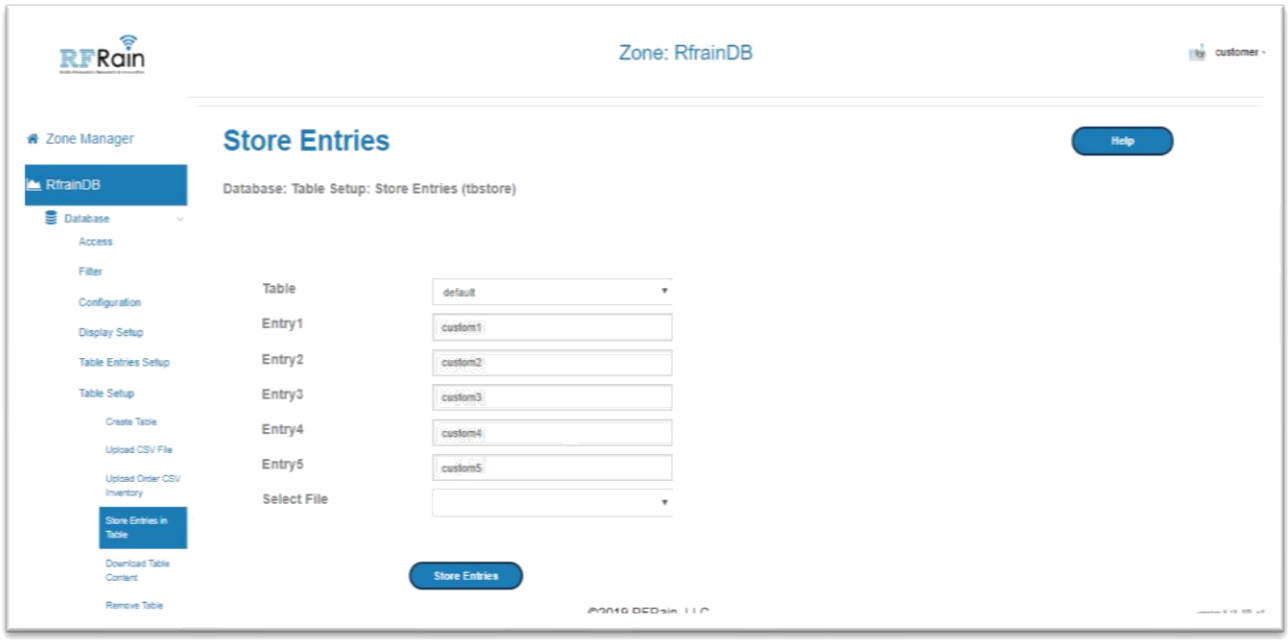


Figure 9 Store Entries in Table Screen

Once you have Store entries in the table ,Go to Database->Table Access to see the changed tag names made by you.

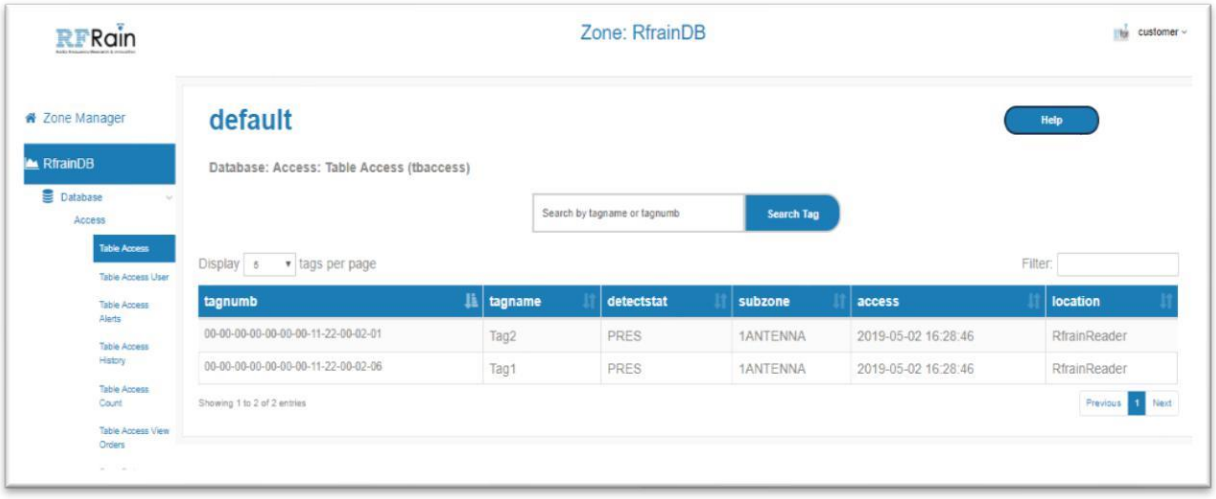


Figure 10 Database table after changing Tag names

3.8 Start/Stop Tags

Start all the tags

Now you need to start all the tags by going in Table Entries Setup -> Start/Stop Tags

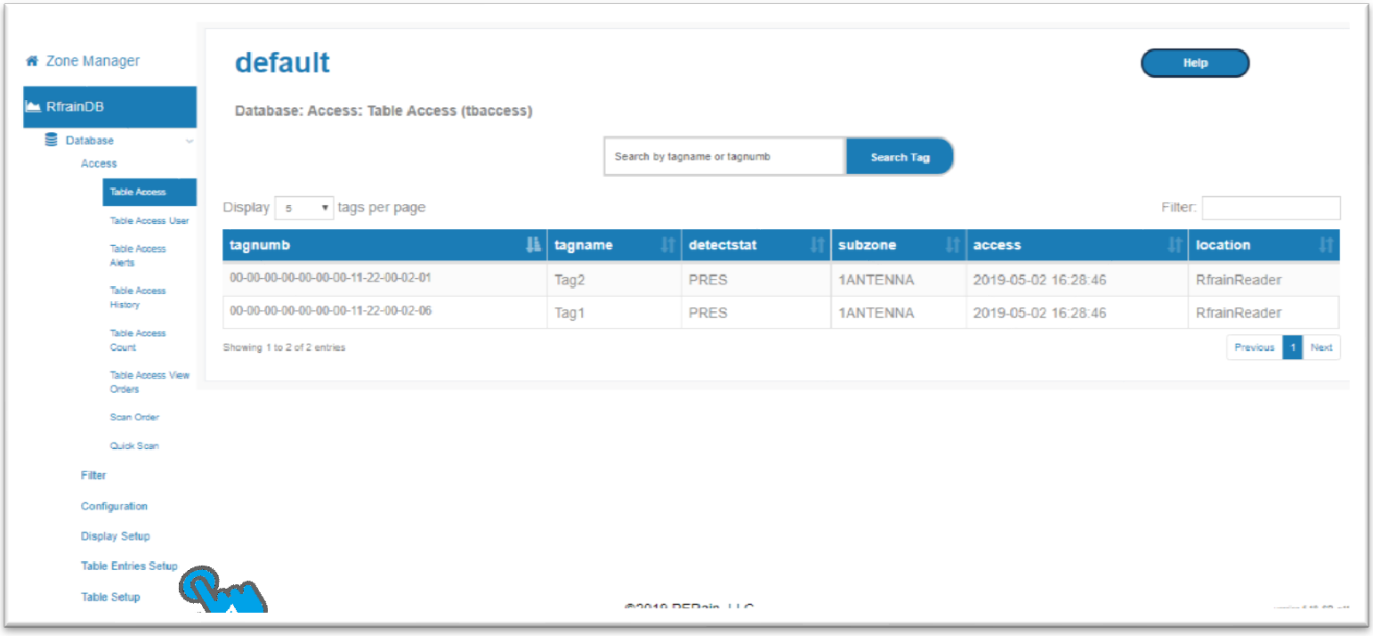


Figure 11 Go to Start/Stop Tags

Click on Table Entries Setup and Then click on Start/Stop Tags. Your screen should look like this Figure(). Change Select Value to Start and hit Apply. Once you did that you will see all the tags in the database with " Detectstat" column entry as " MISS".

Now you have to enable the Discover Reader Mode.

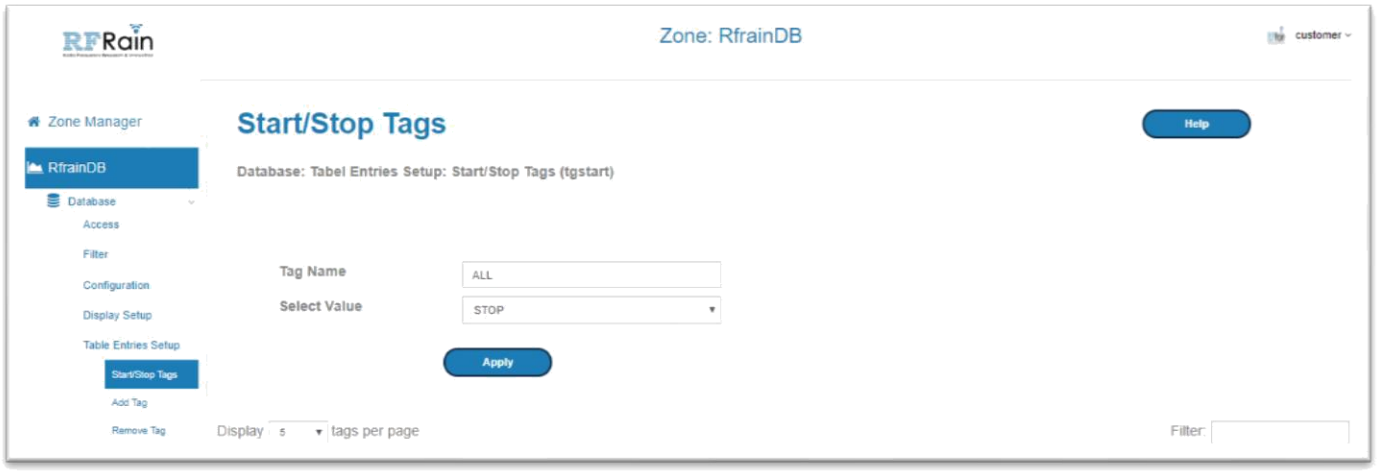


Figure 12 Start/Stop Tags

3.9 Discover Mode

Set-up the reader's mode to Discover mode.

Now you need to setup Reader's Mode to Discover Mode operation

Discover mode is typically the normal "live" operating mode of the system and is the mode that the system will most likely be in for most of the time. The purpose of Discover mode is to monitor the presence (or absence) of tags and to send an alert to an assigned individual when a tag's condition is in (or changes to) a particular state.

To set up the reader for **Discover mode** operation, perform the following steps:

- Navigate to the **Dashboard** screen and Click on **Zones** if you are not already there.

In the **Zones** table, click on the "Go-to-Zone" icon in the **Actions** field in front of 'RfrainReader' Go to **Reader Control->Reader Mode or** Enter the keyword "**rmode**" in the **Search** box and click on the **Search** button. Your screen should look like the screenshot shown in **Figure 32 below**.

- **Discover Mode:** Select "Discover" from the drop-down menu.
  - The "Discover" mode enables the reader to detect the status of current tags present in the database.

- Click the **Apply** button.

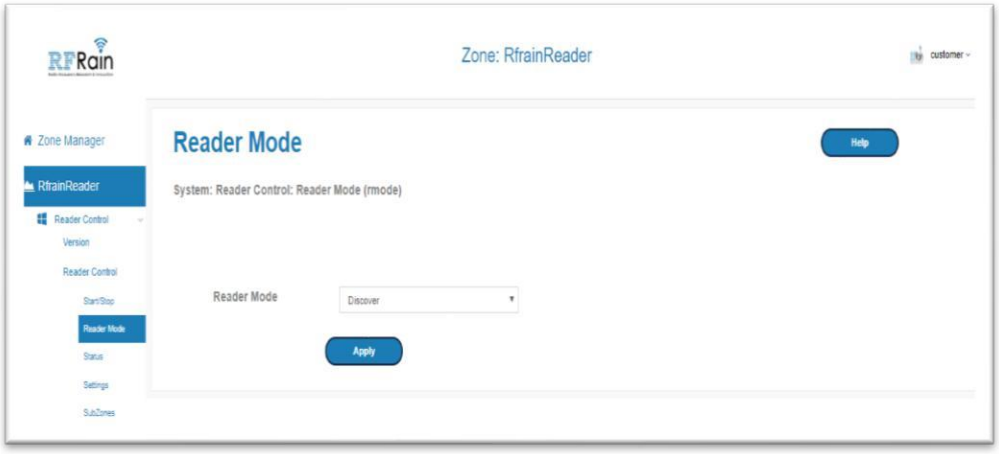


Figure 13 Reader Mode- Discover Screen

Now You have start the reader again.

- Go to (**Reader Control->Start/Stop**) **or** Enter the keyword "**rstart**" in the **Search** box and click on the **Search** button.

- Now **Start** the Reader. Once you start the reader your screen looks like figure below.

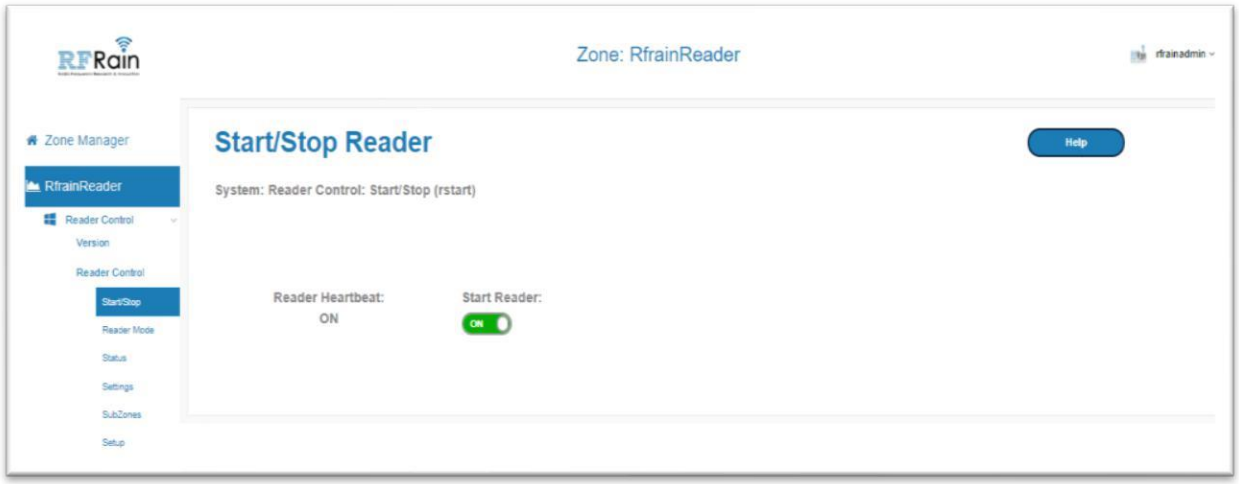


Figure 14 Start the Reader after discover mode

To monitor the presence or absence of the tags.

- Navigate to the **Dashboard** screen, Click on **Databases** if you are not already there.

In the **Database** table, click on the "Go-to-Zone" icon in the **Actions** field in front of '*RfrainDB*'.

Now Go to **Database->Access->Table Access** or Enter the keyword "**tbaccess**" in the **Search** box and click on the **Search** button.

Now you will see the Live- Monitoring of Tags.

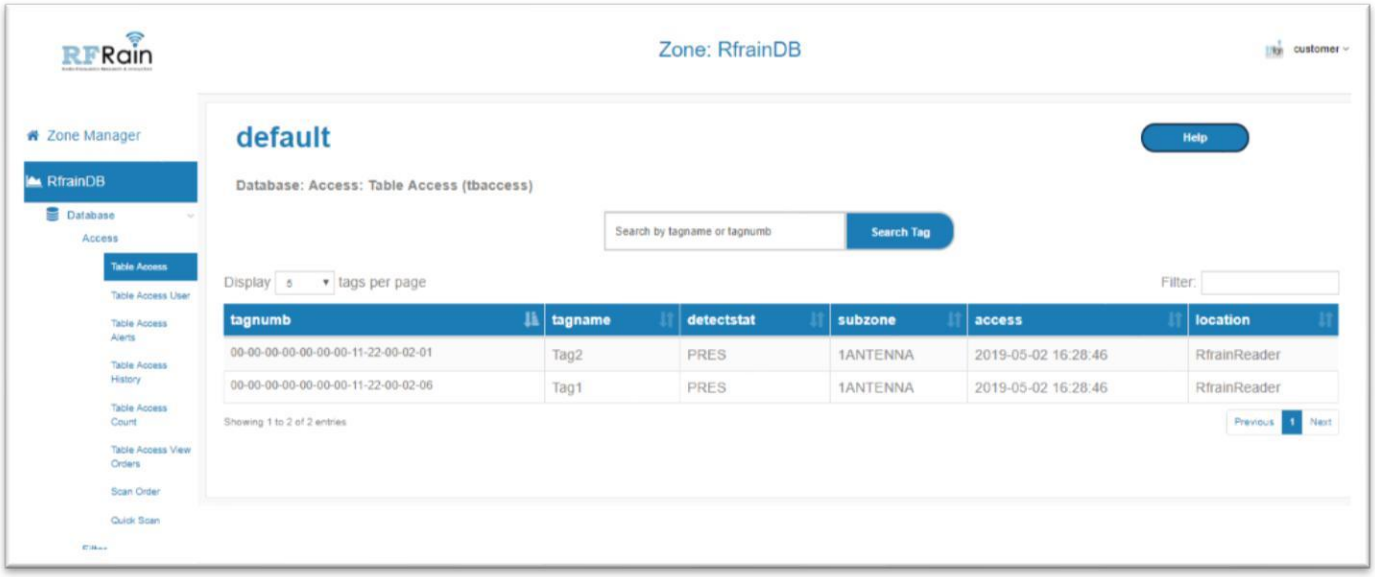


Figure 15 Table Access after Discover Mode

NOTE: The antenna(s) used for this device must be installed to provide a separation distance of at least 35cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

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

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

RFRain LLC is an innovator in asset and inventory management. RFRain developed the first to market, end-to-end system of hardware and software that collects data received from RFID tags or sensors and manages the analytics within the cloud. The technology is delivered via an online dashboard that offers real-time data delivered 24/7 for inventory management. RFRain Zone Manager is a product under RFRain LLC. © 2018 All rights reserved.