**General User Manual Documentation**

**For**

**Wearable RFID Interaction Tracking System**

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**Cycle:** III

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# Startup Procedure

# Initial Hardware Assembly

The steps included below are intended to explain how to ready the system hardware for testing after the parts have been flashed and soldered, as explained in the Administrative Setup Documentation.

**Note: This setup guide assumes that you have the exact hardware depicted below. Other hardware may be incompatible with these setup instructions.**

## Initial Assembly for PC Reader:

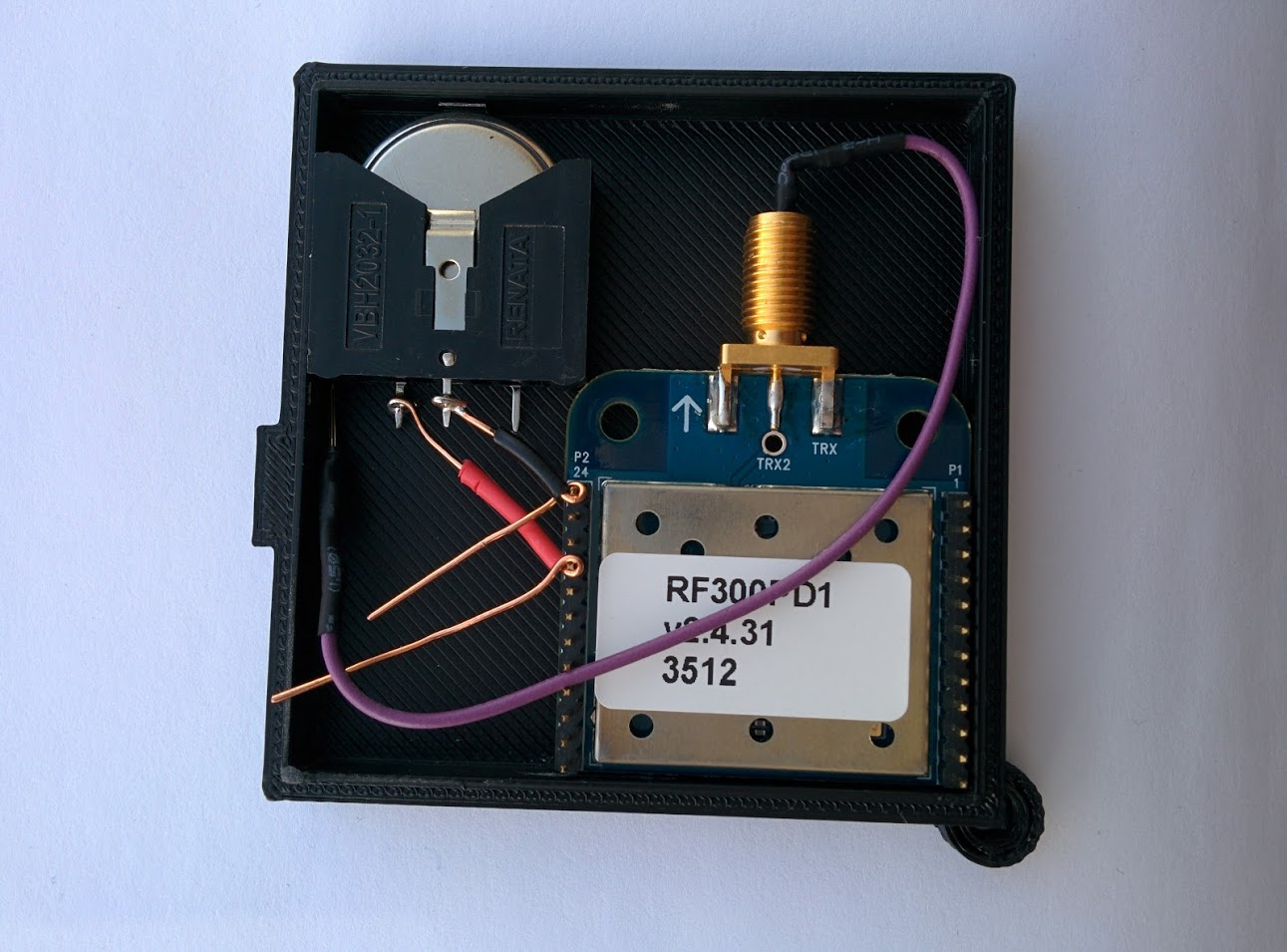
1. Make sure the PC Reader RF300 chip has been prepped and flashed. Once flashed, the first time, it does not need to be flashed again except in the case of troubleshooting purposes or reflashing due to new code. Instructions to prep and flash a new PC Reader can be found in the Administrative Setup Documentation.
2. Assemble and attach the PC Reader to the computer as shown in Figure 38 of the Administrative Setup Documentation in the “Attaching a PC Reader to the Computer and Power” section.

## Initial Assembly for Reader Nodes:

1. Make sure all reader nodes have been prepped and flashed, once they are flashed the first time, they do not need to be flashed again except in the case of troubleshooting purposes or reflashing due to new code. Instructions to prep and flash reader nodes can be found in the Administrative Setup Documentation.
2. Assemble all reader nodes as shown in the Administrative Setup Documentation in the Node Assembly section (see Figure 31) and attach antennas to all reader nodes as shown in the Attaching an Antenna to the RF300 Chip section (see Figure 39) in the Administrative Setup Documentation.
3. Once all reader nodes are flashed, assembled, placed in the appropriate positions, and connected to power, they are ready to transmit.

## Initial Assembly for Location Tags:

1. Make sure all location tags have been prepped and flashed, once they are flashed the first time, they do not need to be flashed again except in the case of troubleshooting or reflashing due to new code. Instructions to prep and flash location tags can be found in the Administrative Setup Documentation.
2. Assemble all location tags as shown in the Administrative Setup Documentation in the Node Assembly section (see Figure 37) and attach antennas to all location as shown in the Attaching an Antenna to the RF300 Chip section (see Figure 39) in the Administrative Setup Documentation.
3. Once all location tags are flashed, assembled, place the tag in the carrying case, shown below.



**Figure 1. Location Tag in Carrying Case**

# Software Initialization

## Initial Software Startup Steps

1. Boot up personal computer (PC)
   1. Provide proper user credentials for designated PC in order to log into the machine
2. After logging in, run the *XAMPP Control Panel* application
   1. Click the “Start” action for the “Apache” module
   2. Click the “Start” action for the “MySQL” module
3. Open your selected web browser (preferably Mozilla Firefox or Google Chrome)
   1. The system has not been tested on Internet Explorer
4. Enter the following into your browser’s web address bar (without quotations): “http://localhost/interface/initial\_v3.php”
5. Confirm that the Wearable RFID Interaction Tracking System is displayed
6. Run the Location Tracking client from the Start Menu
   1. Only go to step 7 once the PC Reader has been assembled and connected
7. Choose the available COM Port in the first drop down and confirm that the Server field shows the following without the quotation marks: “<http://localhost/locationtrack/?p=clientapi&password=track111>”
8. Hit Connect
9. The system is now ready to receive and view data

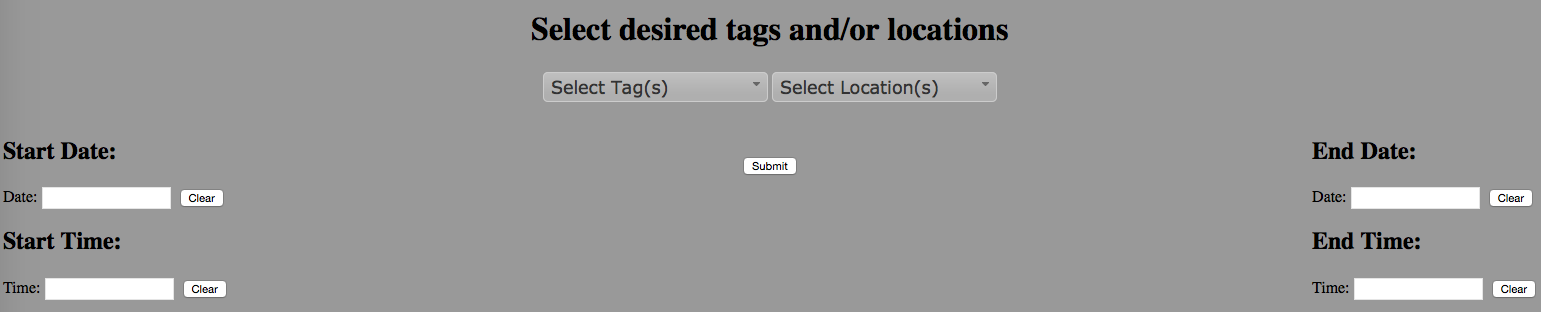
# Using the Wearable RFID Interaction Tracking System

1. Initial Page
2. Tag Entry/Assignment Page
3. Node Entry Assignment Page
4. Report Page

## Using the RFID Tracking Interface

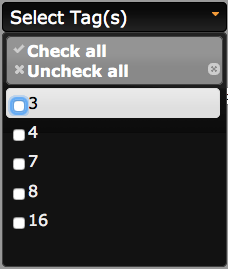
### The Initial View:

1. To get to the Initial View after the system has been setup, navigate to http://localhost/interface/initial\_v3.php in your web browser(Make sure XAMPP is running and MYSQL and APACHE have been started)
2. This will bring you to the main screen where you can specify criteria to search the database for. See screenshot



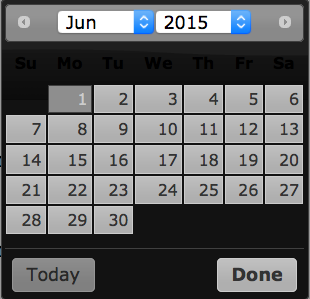
**Figure 2. Initial View**

1. At this screen a user can specify as much or as little criteria as they like. The more criteria provided the more refined the search will be. All entries from the database matching the entered criteria will be returned. Each section is labeled and clicking on the text box or selection menu will activate a widget.
2. The tag and location selection menus allow for multiple tags and locations to be selected at once. Selections are made by checking the box next to the entry. All entries can be selected at once by clicking the Check all button. Unchecking the box de-selects the entry. Alternatively uncheck all option can be clicked to uncheck all options previously checked.



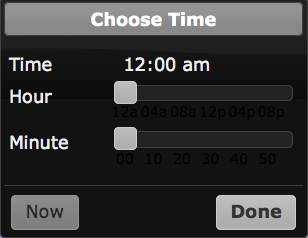
**Figure 3. Select Tag Dropdown**

1. Clicking on a date textbox opens a Datepicker Widget which allows the user to select a date from an interactive calendar. A date is chosen by clicking on a day within the displayed month. Users can utilize either the dropdown menus or the arrows next to the dropdown menus to navigate between months and years. Once a date is chosen, the widget closes.



**Figure 4. Datepicker Widget**

1. Clicking today enters the current day’s date into the textbox
2. Clicking on a time text box will open a Timepicker Widget. To select a time slide the slider to the left or right for both the hours and minutes to get the desired time
   1. Alternatively the “Now" button can be clicked within the widget to enter the current time

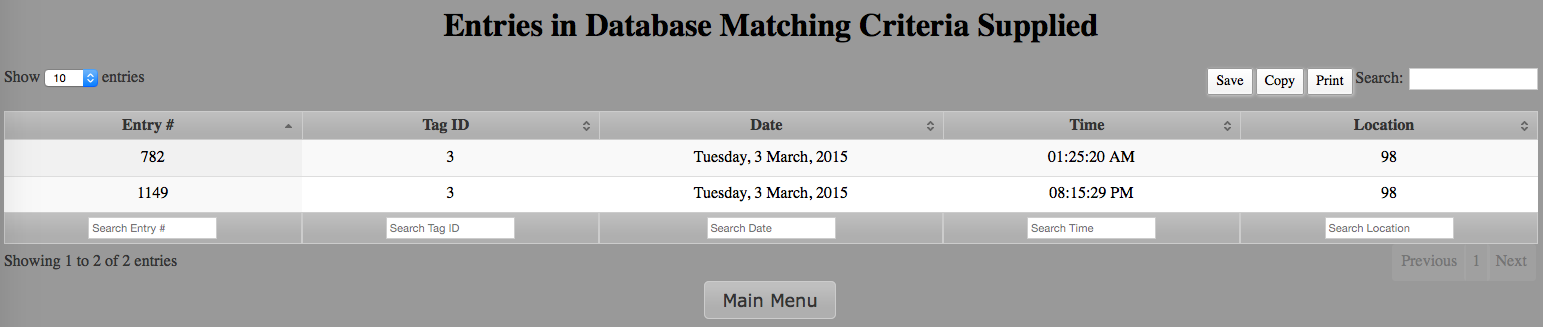


**Figure 5. Timepicker Widget**

1. Clicking anywhere outside of any widget closes the widget
2. To clear any of the textbox’s click the “Clear” button next to the textbox
3. Once all of the desired criteria has been chosen, click the “Submit” button to view all results which match the selected criteria

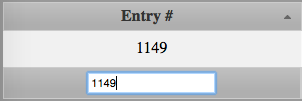
### The results view:

1. Results are displayed in a sortable table. Each column is labeled and clicking on the label sorts the table by that column in descending order. Clicking on the label again sorts the table in ascending order.



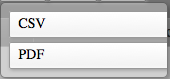
**Figure 6. Results View**

1. By default the table displays results in pages of 10. Users can navigate the pages by using the navigation menu in the bottom right corner directly under the table.
   1. Alternatively the number of results per page can be changed in the upper left corner of the table by selecting a number from the show number of entries selection menu.
2. The table provides a search box in the upper right of the table for further refinement of results. The search box searches the entire table and filters out entries that do not match the terms entered in the search box. The table will automatically filter out results that do not match the search criteria.
   1. Alternatively each column can be searched individually by entering criteria in the appropriate search box at the bottom of the column. The table will begin to filter as soon as terms are entered into the box. Multiple columns can be searched at once to filter the results on multiple columns.



**Figure 7. Tag Search**

1. Buttons for exporting the results listed are provided directly left of the search box in the upper right of the table. Clicking save opens a menu which allows the user to choose between a csv file and a pdf file. Selecting one of these options will open a system dialogue to specify what the file should be named and where it should be saved. Clicking “Copy” copies the results to the clipboard which allows the user to paste the results into another medium such as text or excel file. Clicking the print button removes everything from the page (buttons, page selection, search box, title, exporting buttons, and page numbers) except the table for printing.

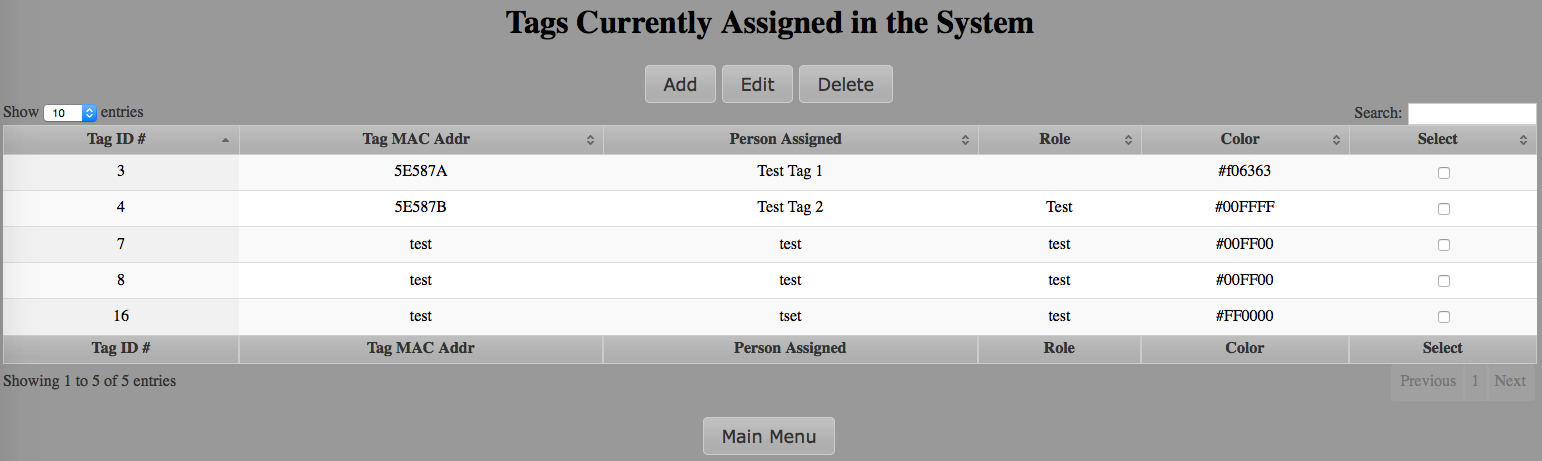


**Figure 8. CSV or PDF Options**

1. Clicking on “Main Menu” returns the user back to the initial view where new criteria can be specified for a new search.

### Tag Editor Page:

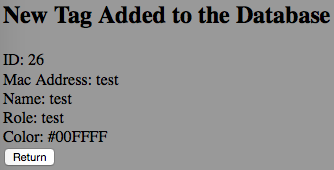
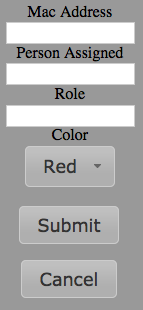
1. From the Initial View page, click on the tag editor button in the bottom left corner navigate to the Tag Editor page.
2. This page lists all tags in the system and their associate information (The tag id, tag mac address, person assigned to the tag, the role of the person, and the color the tag is set to for future graphical capabilities, as well as a column of selection boxes)



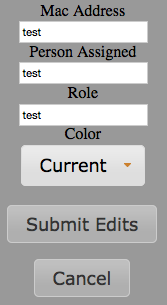
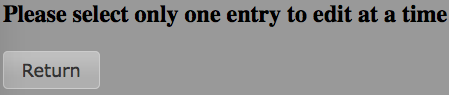
**Figure 9. Tag Editor Page**

1. Similar to the Results View, the Tag Editor Page displays all information in a table that allows for column sorting, table searching, pagination, and a “Main Menu” button that returns the user to the initial view page.
2. The tag editor page has three buttons that allow for adding tags, editing tags, and deleting tags. To delete a tag, check the checkbox in the select column for that entry and click the “Delete” button. A confirmation page will confirm that the entry has been deleted and display a “Return” button that returns the user to the tag editor page when clicked. Multiple entries can be selected and deleted at once. The system will also detect if nothing is selected and indicate that there were no selections made for deletion. 

**Figure 10. No Selections for Deletion and Successful Deletion**

1. To add a tag, click the “Add” button which will display a textbox for entering a MAC address, the person assigned to the tag, and their role. For entered tags to be recognized by the system, the exact six-character MAC address from the tag must be entered. For finding the MAC address of a tag please refer to “Finding RF300 MAC Address” section of the Administrative Setup Documentation.
   1. Additionally a selection menu will allow the user to assign a color to the tag for future graphical capabilities if implemented. Once all data is entered into the form click “Submit” to add the tag to the database. The cancel button will return the user to the tag editor page without adding any data. Clicking “Submit” without adding any data will create a blank entry in the database which can be edited at a later time with the “Edit” button. After clicking submit, the interface will display a confirmation page that displays all the information just entered. Clicking “Return” will return the user to the Tag Editor page.  

**Figure 11. Adding New Tags**

1. To edit a tag, check a checkbox in the select column of the entry and click the “Edit” button. Tags can only be edited one at a time. The system will detect if more than one selection is made the system will indicate that only one tag can be edited at a time. Once a single selection is made and the “Edit” button is clicked the tag information will be pulled into an editable form that is identical to the Add Tag form. Tag data in the form can be edited and then resubmitted back to the database. The color of the tag will be displayed as “Current” in the color selection menu which also displays all of the options currently available. Clicking “Cancel” will cancel the edits and not make any changes to the tag information. Clicking “Submit” submits the edits to the Tag Entry to the database. A confirmation page will display briefly indicating the edits have been submitted successfully before auto redirecting the user back to the Tag Editor page.  

**Figure 12. Tag Edit and Multiple Tag Edit Message**

### Reader Editor Page:

1. From the Initial View page, click on the “Tag Editor” button in the bottom left corner navigate to the Reader Editor page.
2. The Reader Editor page functions identically to the Tag Editor page. For instructions on how to use the features of the Reader Editor page please refer to the Tag Editor Page section.

## Shutting Down the Wearable RFID Interaction Tracking System

To shut down the system, execute the following steps:

1. Open the *XAMPP Control Panel* application
   1. Click the “Stop” action for the “Apache” module
   2. Click the “Stop” action for the “MySQL” module
   3. Close the application
2. Open the Location Tracking client.
   1. Hit the “Disconnect” button
   2. Close the application
3. Disconnect all RF300 chips from their power sources and store accordingly