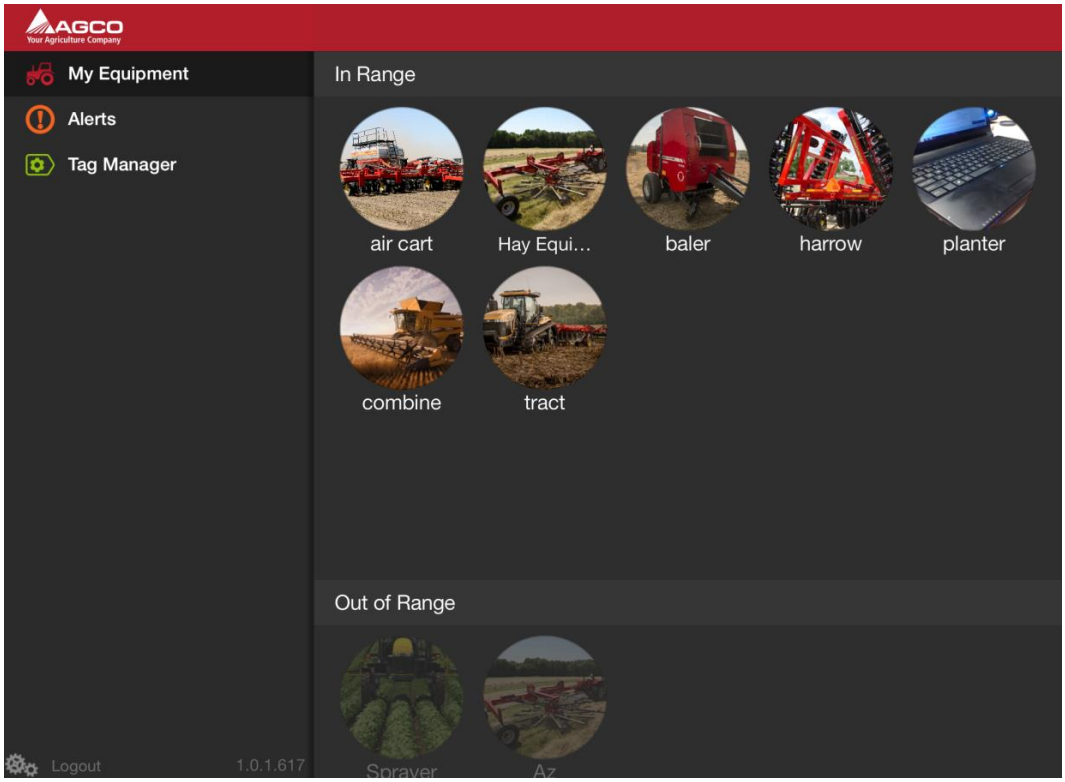
APPAREO

AG TAG DEMO USER'S GUIDE

Revision 1.2



Ag Tag Demo User's Guide

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This device complies with part 15 of the FCC rules and Industry Canada's license exempt RSSs. 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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio of television reception, which can be determined by turning the equipment off and on, the user is encourage to try and correct the interference by one or more of the following measures:

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

Cet appareil est conforme aux norms RSS d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer le fonctionnement du dispositif.

Appareo Systems, LLC, 1810 NDSU Research Circle North, Fargo, N.D. 58102 USA.

Visit us on the Web at *www.appareo.com*.
Questions? E-mail us at support@appareo.com.

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Record of Revision			
Revision Number	Change Description	Revision Date	Inserted By
1.0	Initial Release	3/10/2014	CJW
1.1	Added statements on Page 2 for certification purposes. Replaced drawings of the Ag Tag and Ag Tag Reader.	4/14/2014	CJW
1.2	Revised statements on Page 2 for certification purposes. Updated logo.	8/27/2014	CJW

1 Introduction

1.1 About the Ag Tag Demo system

The Ag Tag Demo is a system developed by Appareo Systems, LLC for AGCO Corporation. The Ag Tag Demo system is comprised of hardware components, a cloud server, and an iPad® software application (app) that demonstrates how these hardware components may be used by customers in the field.

NOTE: The Ag Tag Demo app is for demonstration purposes only and is not production-intent.

1.2 Hardware Components

There are four hardware components of the Ag Tag Demo system: 1) an iPad installed with the Ag Tag Demo app, 2) an Ag Tag reader, 3) at least one Ag Tag, and 4) tire pressure sensors (not supplied by Appareo). Each of these components is described in the following subsections.

1.2.1 Ag Tag Demo iPad app

The iPad app serves as the primary interface for the Ag Tag Demo system.

The iPad must meet the follow requirements for compatibility with the Ag Tag Demo system:

- Model: iPad 2, iPad 4, or iPad Air™
- Communication capability: WiFi, 3G, or 4G
- Volume level: Must be at maximum to allow for communication between the Ag Tag reader and Ag Tags or equipment sensors. The Ag Tag app will automatically increase the volume to maximum when connected to an Ag Tag reader.

1.2.2 Ag Tag reader

The Ag Tag reader is plugged into the audio port of the iPad and reads the signal output by all activated Ag Tags and equipment sensors that are in proximity and line-of-sight with the iPad. The Ag Tag reader requires one AAA battery, which is included with the reader.

Figure 1: Ag Tag reader

1.2.3 Ag Tags

Ag Tags are one-way communication devices assigned to an agricultural machine that sends information about that piece of machinery to the Ag Tag. The Ag Tags contain accelerometers that can detect movement of the machine they are assigned.

Figure 2: Ag Tags

1.2.4 Tire pressure sensors

Tire pressure sensors that are part of the Ag Tag Demo system communicate a tire's pressure readings to the iPad reader. Please note that these Ag Tags have been sourced by AGCO and are not supplied by Appareo.

Figure 3: Tire pressure sensor

2 Getting Started

2.1 Signing into the Ag Tag Demo App

The username and password you use to sign into the Ag Tag Demo App are specific to your company. Information about Ag Tags recorded by your iPad will be shared with all company users, however. To request a username and password, please contact Appareo.

Figure 4: Logging into the Ag Tag Demo App

2.2 Activating Ag Tags

To activate an Ag Tag, place the magnet included with the Ag Tag into the hole located on the back of the Ag Tag.

Once you have added the magnet, you may add the Ag Tag to the Ag Tag Demo app.

1. Tap **Tag Manager** on the Ag Tag Demo app.
2. Tap **Install New Tag**.
3. Select the Ag Tag you are installed from the list of available Ag Tags. Tags are listed by serial number. Serial numbers are labeled on the bottom of the Ag Tags.
4. Enter information about the Ag Tag and the equipment it is installed on in the respective fields of the Install New Tag screen. Information includes the common name of the equipment, the equipment type it is installed on, the equipment model, and the equipment serial number.
5. (Optional): Tap **Take a Picture** to take a picture of the equipment the Ag Tag is installed on with your iPad's camera. If you do not use the Take a Picture feature, a default image of the machine will display.
6. Tap **Done**.

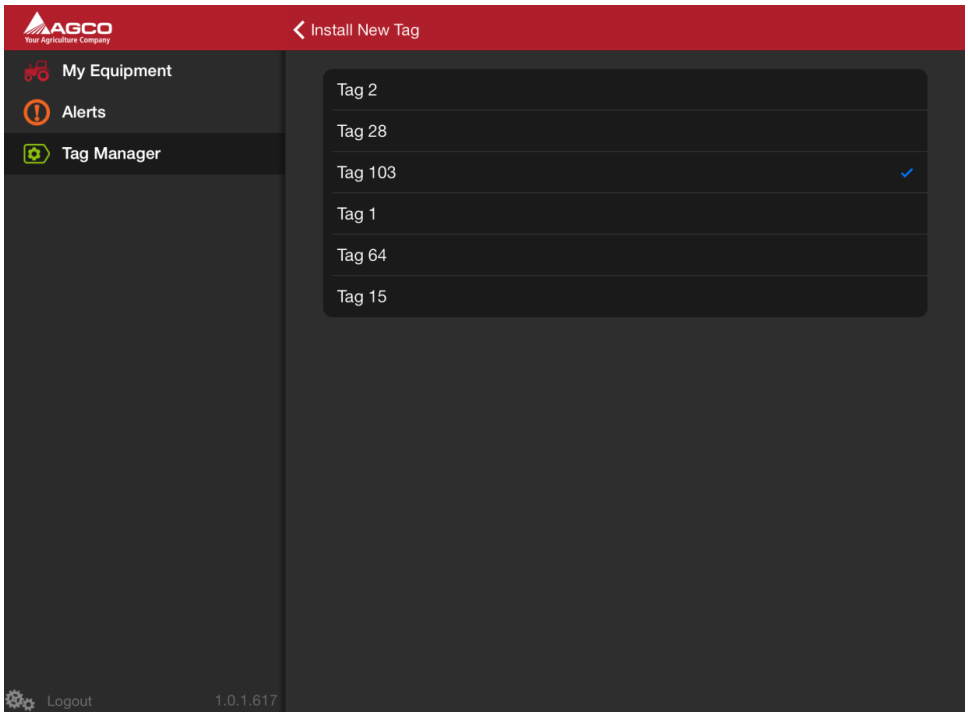

Figure 5: Installing a new Ag Tag

2.3 Editing Ag Tag information

Once an Ag Tag has been added to the Ag Tag Demo app, you can edit its information at any time.

To edit Ag Tag information:

1. Tap the tag on the My Equipment screen.
2. Edit any of the desired fields, including the common name, equipment type, equipment model, serial number, or to change the picture representing the Ag Tag.
3. Tap **Done**.

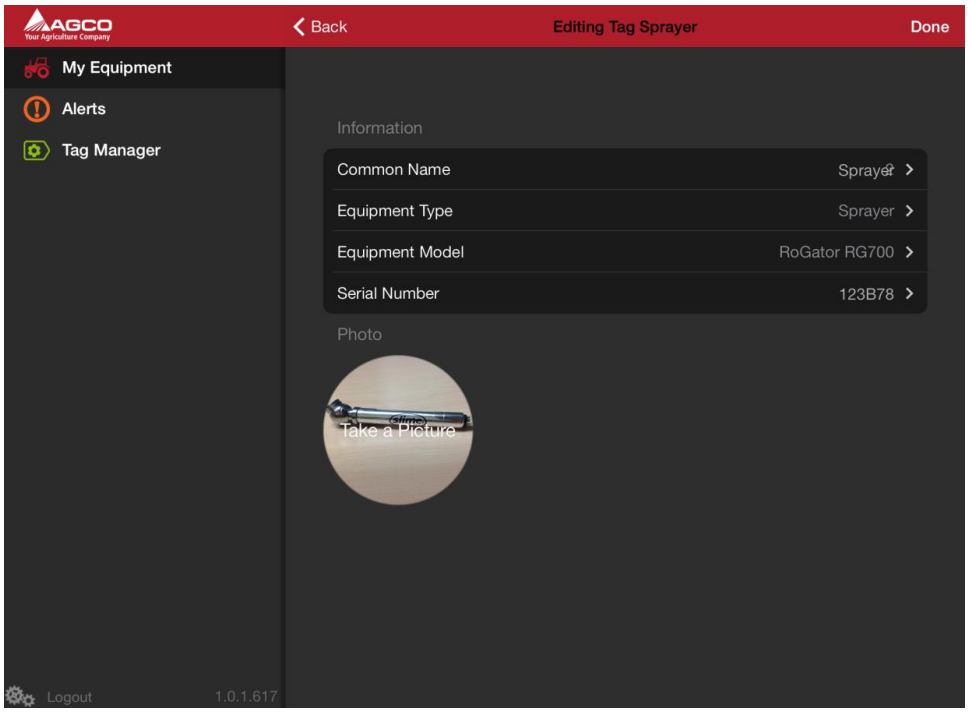

Figure 6: Editing Ag Tag information

2.4 Replacing Ag Tags

NOTE: This feature is not functional in the Ag Tag Demo app.

2.5 Deactivating Ag Tags

To deactivate an Ag Tag, simply remove the magnet from the Ag Tag.

To remove an Ag Tag from the Ag Tag app:

1. Tap **Tag Manager**.
2. Tap **Remove Tag**.
3. Select the Ag Tags you want to remove from the app.
4. Tap **Done**.

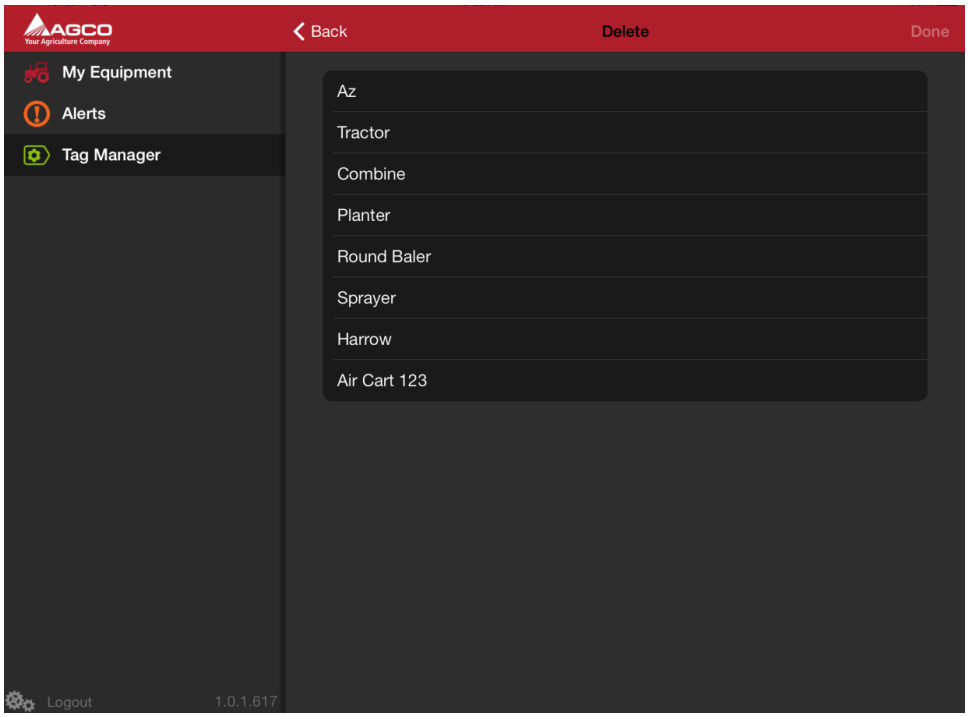

Figure 7: Deleting an Ag Tag

2.6 Installing tire pressure sensors

Ag Tags can communicate the pounds per square inch (PSI) readings of tires for the Ag Tags they are attached to. Please note that the Ag Tag must be installed on the machine and added to the Ag Tag app before you can add a tire pressure sensor to it.

Once the sensor is installed, the tire pressure reading will display on the Ag Tag information screen as shown in Figure 8 below.

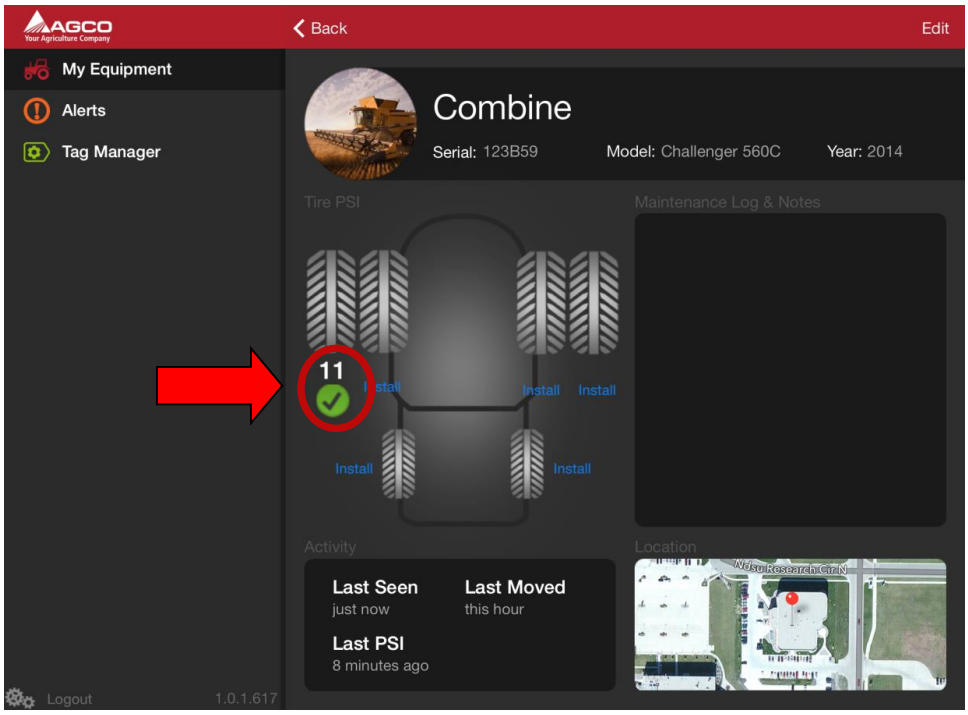

Figure 8: Viewing tire pressure information for a combine

1. In the Ag Tag Demo app, select the Ag Tag installed on the implement from the My Equipment screen.
2. From the machine diagram on the app, tap **Install** next to the tire you will be installing the tire pressure sensor.
3. Once the Connect a Tire Pressure Sensor screen appears, remove the valve stem cap of the tire.
4. Twist the tire pressure sensor into the valve stem. Wait a few minutes until the app states the tire pressure sensor has been successfully installed.
   NOTE: The Ag Tag Demo app cannot detect tire pressure sensors installed on tires with less than 8 PSI.

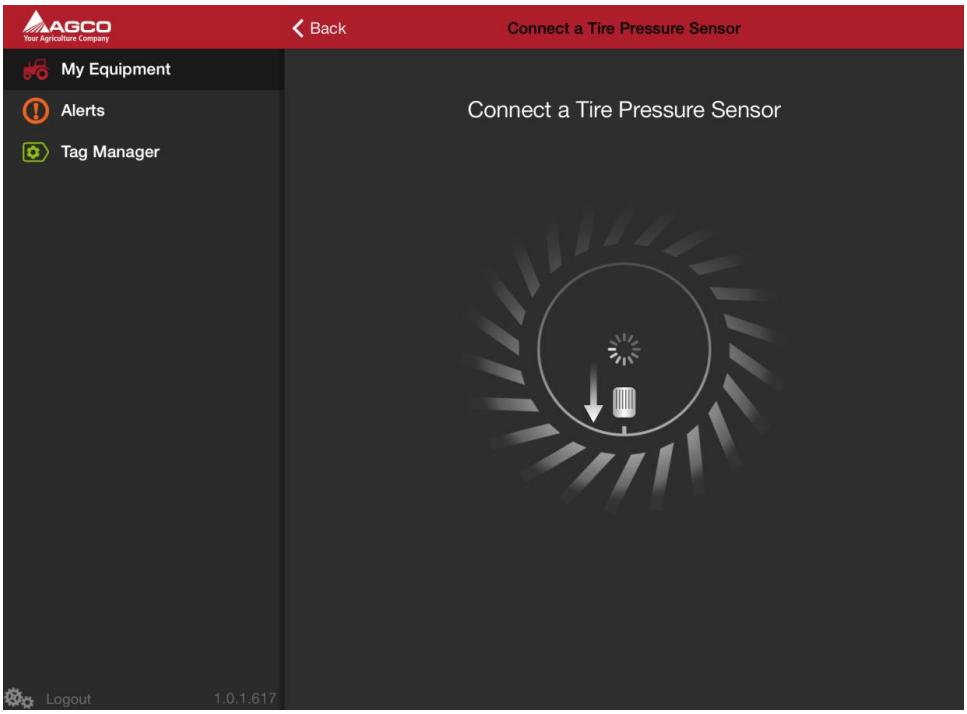

Figure 9: Installing a tire pressure sensor

3 Using the Ag Tag Demo system

3.1 Viewing location information for Ag Tags

The Ag Tag Demo app will display all Ag Tags that have been read by your company's Ag Tag readers. Ag Tags that display as "In Range" on the My Equipment screen are within approximately 50 yards proximity of the Ag Tag reader attached to your iPad. The locations given are not of the Ag Tags themselves, but the location of the iPad that last read the Ag Tag's signal.

Location information can be gathered from the iPad's WiFi location, the iPad's internal GPS signal (usually available when outdoors only), and 3G information (for iPads with 3G capabilities only). The Ag Tag Demo app will use the most accurate location method available at that time.

To view the location of an individual Ag Tag, tap the Ag Tag from the My Equipment screen. The Ag Tag does not need to be in range in order for you to see its last location. The information screen for that Ag Tag will display. The last read location of the Ag Tag will appear as a pinpoint on a Location map on the bottom of the Ag Tag information screen.

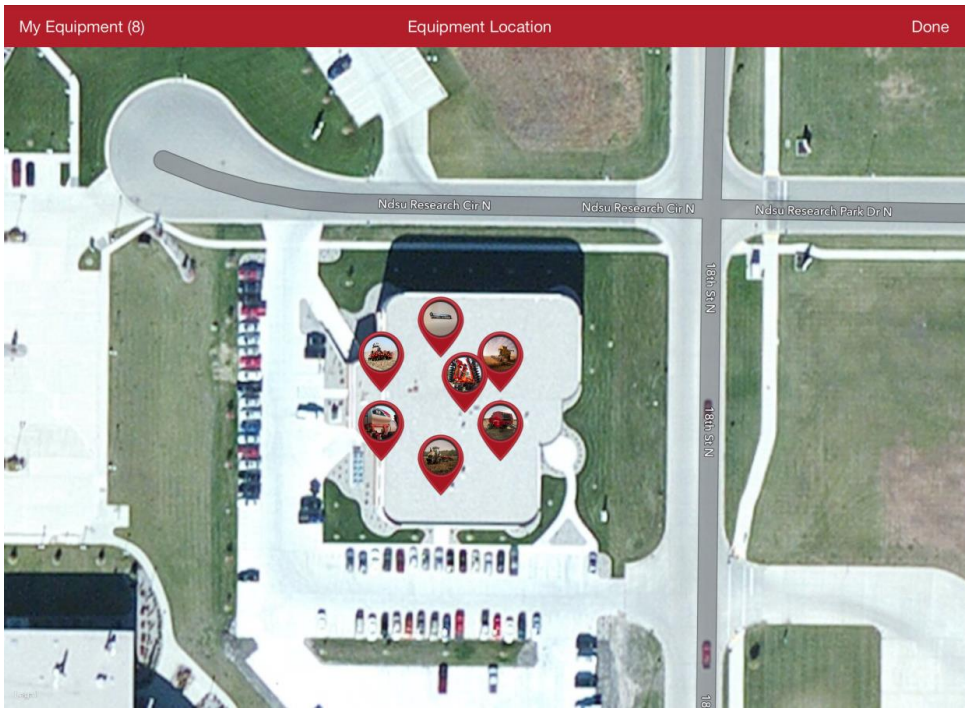

Figure 10: Viewing Ag Tag locations on the Equipment Location map

To view the locations of all Ag Tags in your company:

1. Tap any Ag Tag on the My Equipment screen.
2. Tap the Location map on the Ag Tag information screen. The locations of all Ag Tags that have been scanned by readers in your company will display.

To view the location of specific Ag Tags:

1. Tap any Ag Tag on the My Equipment screen.
2. Tap the Location map on the Ag Tag information screen.
3. Tap **My Equipment** on the top left corner of the screen.
4. Select the Ag Tags you want to see and unselect the Ag Tags you do not want to see. Only the last read locations of the Ag Tags you have selected will be displayed on the Equipment Location map.

NOTE: Only the location of the last read of the Ag Tag is reported by the Ag Tag Demo app. The current, real-time location of the Ag Tag is not shown in the app.

3.2 Viewing movement information

Ag Tags contain accelerometers that allow them to measure movement of the machinery they are attached to. Movement of the machinery is reported on the Ag Tag information screen, as highlighted in Figure 11: Viewing movement information. To navigate to the Ag Tag information, tap the Ag Tag you want to view from the My Equipment screen.

Movements that last for less than 10 seconds will not be registered by the Ag Tag system. Movement is reported within the range of less than one hour to more than 30 days.

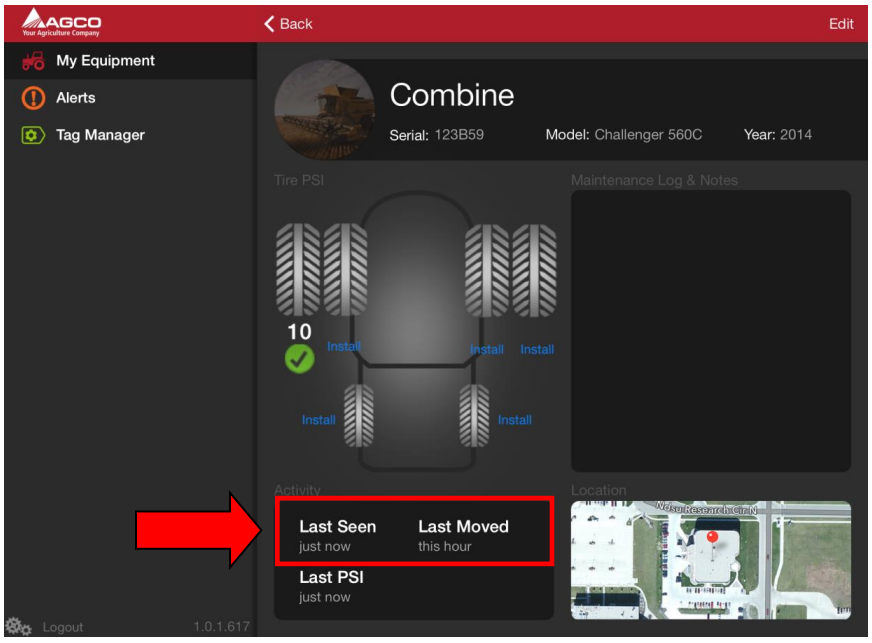

Figure 11: Viewing movement information.

3.3 Viewing tire pressure sensor information

If tire pressure sensors are installed, their PSI readings and the last time a reading occurred will be displayed on the Ag Tag information screen. Where PSI information is displayed on the Ag Tag information screen is highlighted in Figure 12. To navigate to the Ag Tag information screen, tap the Ag Tag you want to view from the My Equipment screen.

NOTE: See Section 2.6 for instructions on how to install tire pressure sensors.

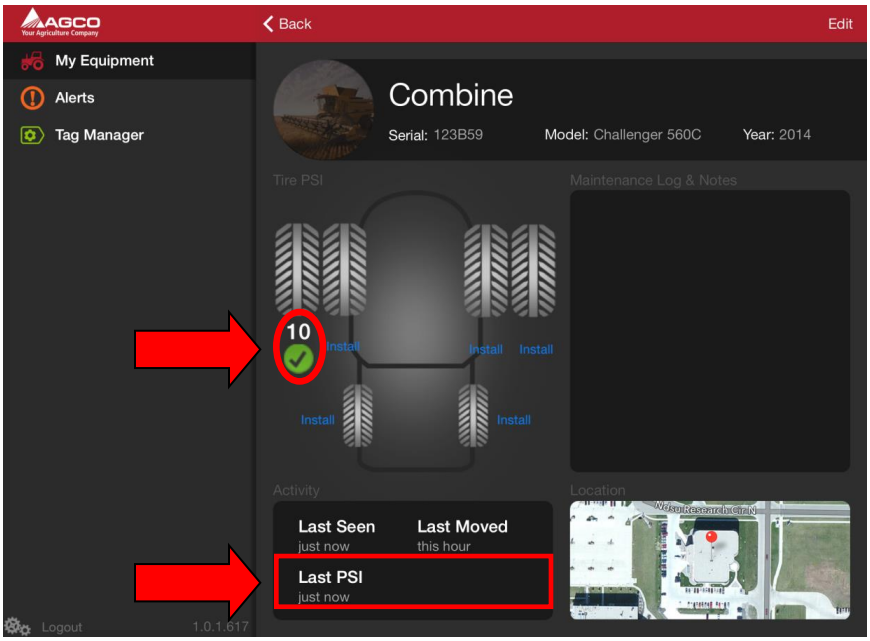

Figure 12: Viewing tire pressure sensor information.

3.4 Adding Maintenance Log and Notes for machine

NOTE: This feature is not functional in the Ag Tag Demo app.

3.5 Viewing Alerts

The Alerts screen in the Ag Tag Demo app only indicates the type of information that may be included in a production app – you cannot interact with any component on this screen. In a production app, the Alerts screen will display warnings and notifications about the Ag Tag system, including low battery levels on the Ag Tag reader, if a firmware update is available, or is a built-in-test on an Ag Tag has failed.

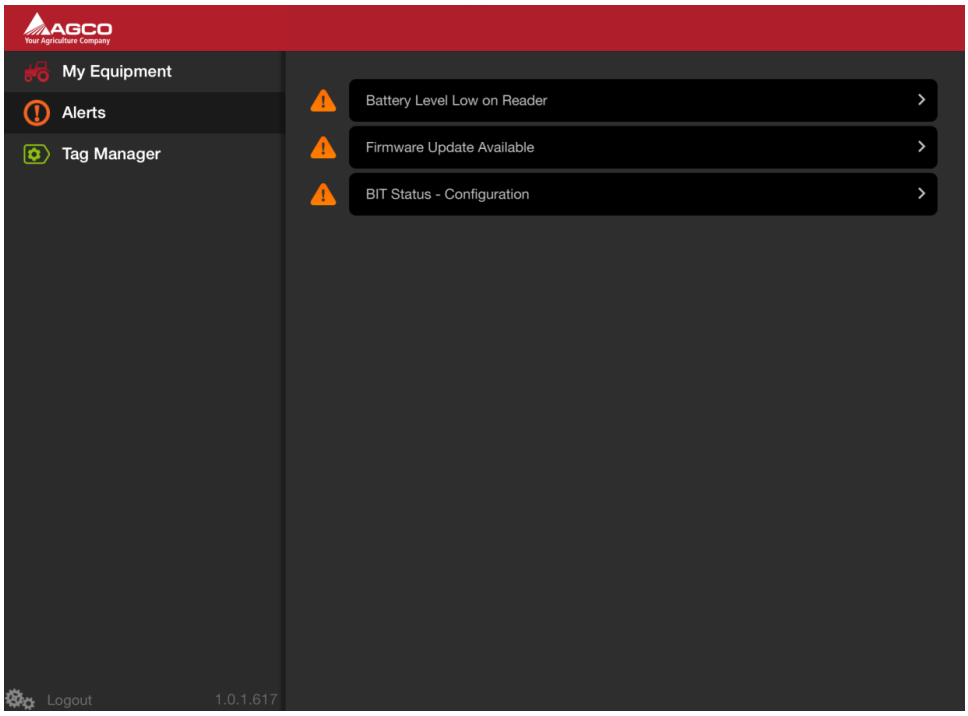

Figure 13: Viewing alerts

3.6 Accessing system event and troubleshooting information

Tap the gear icon on the bottom of the Ag Tag Demo app screen to navigate to the Activity Log screen. The Activity Log screen gives "events" that occur with the Ag Tag Demo system, including when an Ag Tag or tire pressure sensor's signal is read by the iPad. For more information on how to read the Activity Log or to use it to troubleshoot a specific issue, contact Appareo for more information.

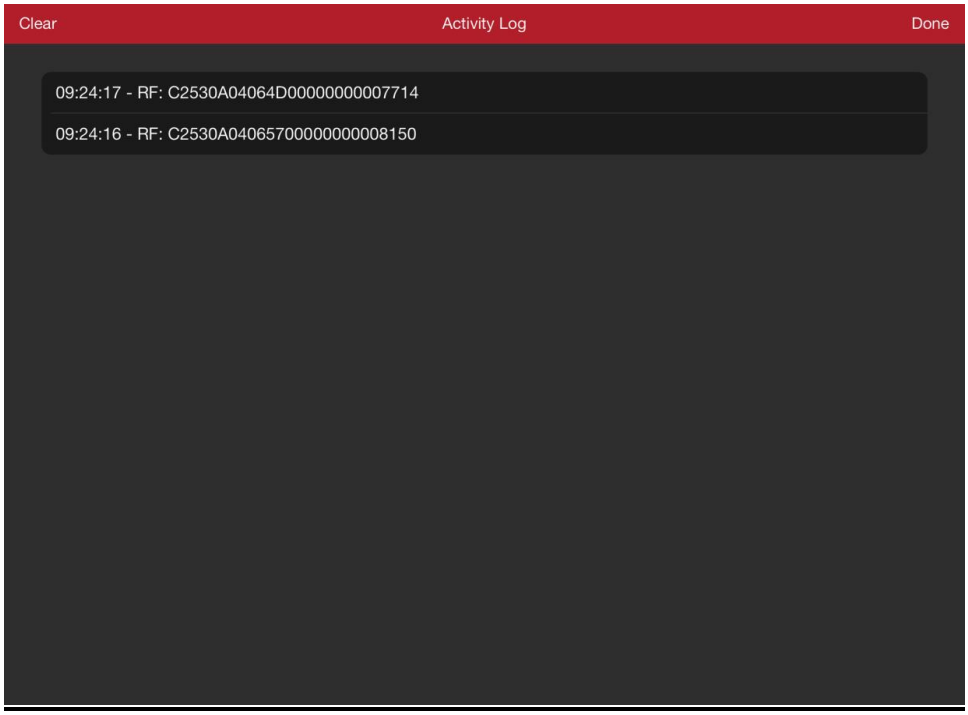

Figure 14: Viewing the Activity Log

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