

Theory of Operation

AGRICULTURE

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TRIMBLE RESELLER CONFIDENTIAL

Precision-IQ: Firmware Version 6.50 Theory of Operation

Display versions: GFX-350™ v1.50, GFX-750™ v2.50 and TMX-2050™ v6.50

This document provides details about the new features that are included in the Trimble® Precision-IQ™ version 6.50. While development is ongoing to implement a variety of features, enhancements, and bug fixes, these are the main features of this release:

[AutoSync Simplification Features and Benefits](#)

[Support for John Deere Runlines](#)

[Merging a John Deere Runline into a Precision-IQ Display](#)

[Calibrating a John Deere Runline](#)

[Field-IQ Planter: Row Crop Planter Support Updated](#)



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AutoSync Simplification

Screens affected: New AutoSync™ Service app screens.

What's new: The AutoSync Service app, which replaces the Trimble Ag Mobile app, directly supports the AutoSync feature on a Precision-IQ supported display.

What's different: The Trimble Ag Mobile app does not need to be manually launched when setting up AutoSync. The app has been renamed to **AutoSync Service**. Also, specific Android permissions are no longer set manually.

Note: For complete installation and configuration details, refer to the updated AutoSync support guide.

AutoSync Simplification Features and Benefits

The AutoSync Simplification feature makes it easier to start AutoSync on the display. The benefits of this feature include:

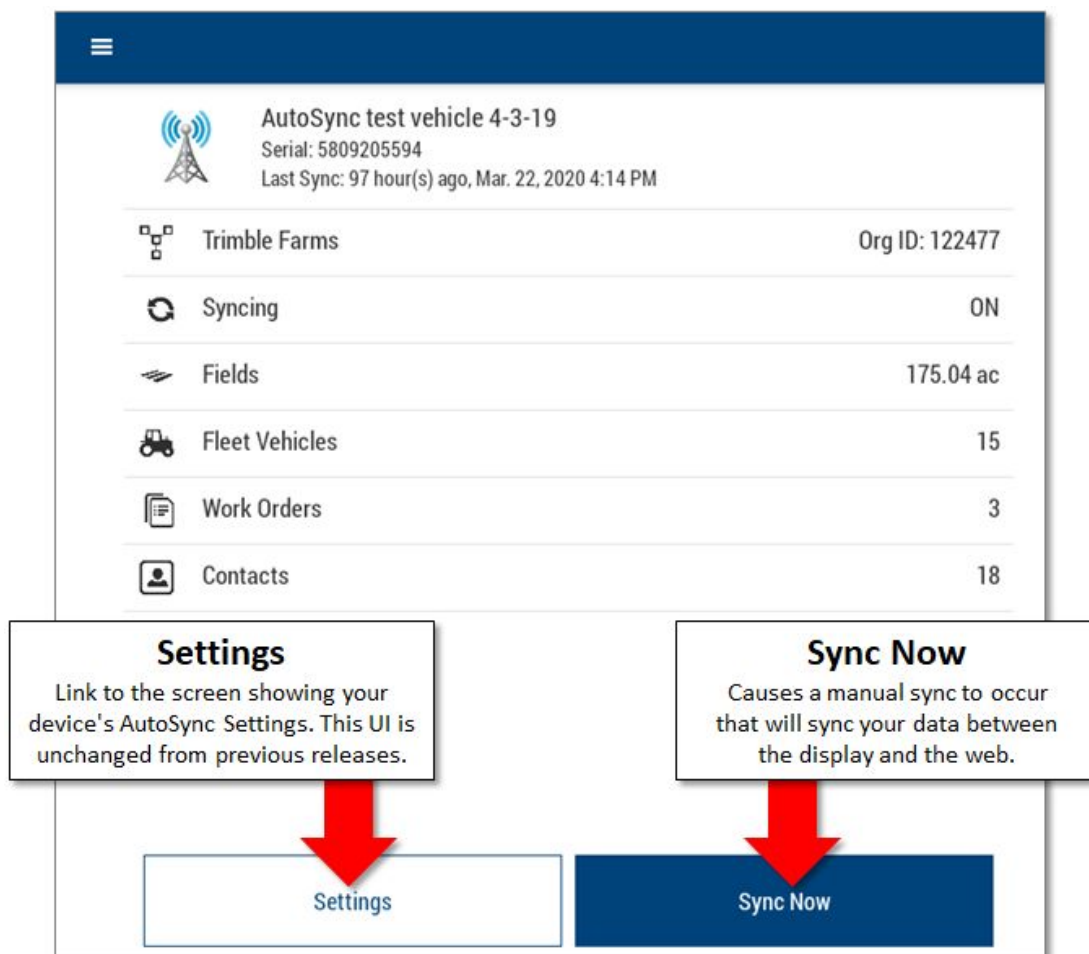
- You no longer need to launch the Trimble Ag Mobile app prior to using AutoSync the first time. This app, now called AutoSync Service, will launch automatically and run in the background.
- You no longer need to set Android permissions to enable AutoSync to run. These will be set automatically.

This new version of the AutoSync Service app also includes memory and performance optimizations to speed up the syncing and other display operations.

With this new feature, the original version of the Trimble Ag Mobile app will no longer be available as an app on the display. The app has been renamed **AutoSync Service**. Its function is to support AutoSync on the display. The Trimble Ag Mobile app is still available as a standalone app- for mobile devices on the [Google Play Store](https://play.google.com/store/apps/details?id=com.trimble.agmobile) and the [Apple Store](https://apps.apple.com/us/app/trimble-ag-mobile/id1444444444).

Sync Details Screen

After launching the AutoSync Service app on a display, a new **Sync Details** screen will be visible:

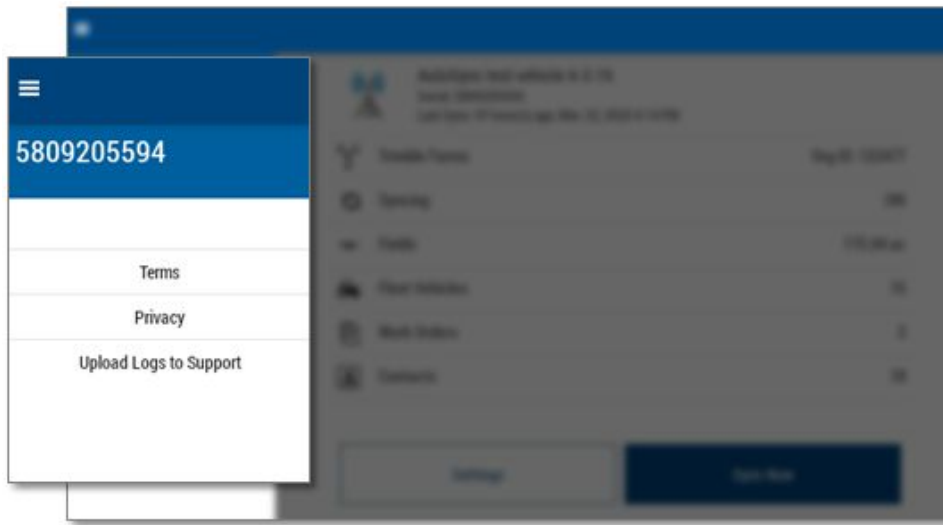


Launching the AutoSync Service app manually is ***no longer required*** for AutoSync to start, as it was required previously. ***Note: to improve system performance, the AutoSync Service app should be closed when finished using it by tapping on the square icon at the bottom of the screen to view open apps, and swipe sideways on the AutoSync Service app.***

Data that is displayed includes the following diagnostic details:

- Vehicle name
- Serial # of Precision-IQ Display
- Last Sync - date & time + relative time (5 min ago)
- Organization name
- Organization ID
- AutoSync enabled status
- Fields - synced area count
- Fleet - Count of synced Vehicles in the organization
- Work Orders - Count of synced Work Orders dated 3 months before and after the current date
- Contacts - Count of Contacts in the organization

The menu in the upper left corner shows the following:

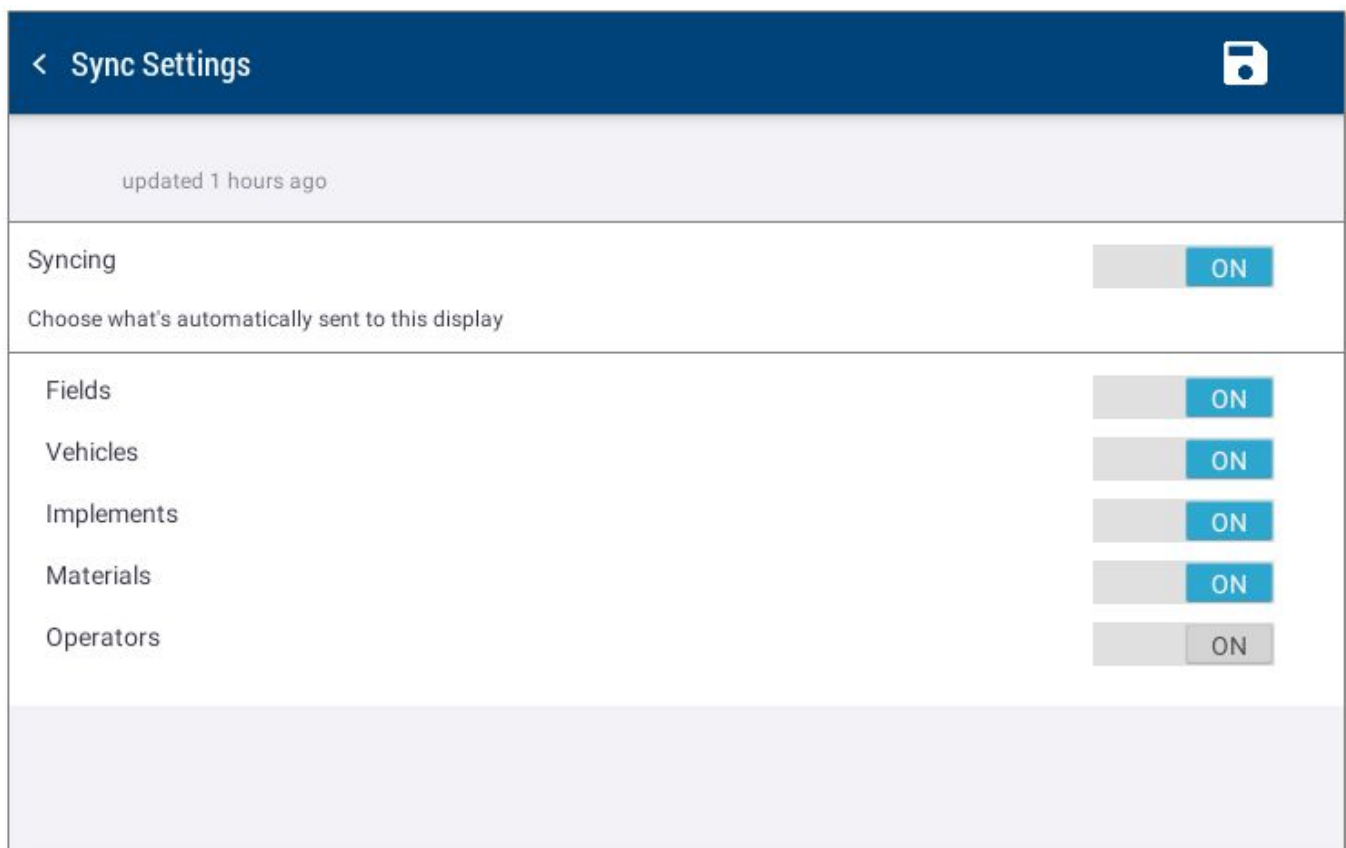


- Device Serial Number
- Terms
- Privacy
- Upload Logs - send **AutoSync Service** logs for support

Sync Settings Screen

This is the Sync Settings screen. If you tap on it you will see the vehicle you are currently using.

In this screen, you can set the sync options for that vehicle - what types of data gets synced and whether AutoSync is enabled for the vehicle. Please note if you are using Work Orders, you will not be able to turn these options off since Work Orders needs to be able to sync all these variables.



Summary

AutoSync is now easier to set up because there is no need to set permissions or open a secondary app in order to start AutoSync. AutoSync must still be enabled within Precision-IQ on the display.

The Trimble Ag Mobile app on the display has been replaced by the AutoSync Service app, and the functionality of that app is to support AutoSync. The Trimble Ag Mobile app is still available on other Android and iOS mobile devices.

Settings for the AutoSync feature that are important to note in Precision-IQ settings are are:

- Syncing Features
 - AutoSync can be turned ON/OFF
 - Work Orders can be turned ON/OFF
 - Work Order selection menu filters can be managed
- Logging
 - Enable AutoSync verbose logging
 - This setting should be turned on to capture AutoSync issues and if Support requests logs

Support for John Deere Runlines

Screens affected: Data Transfer, Field Manager, Run screens

What's new: With this release of Precision-IQ, Data Transfer area has added the function of **merge** so that John Deere field data can be imported into existing Precision-IQ field data sets.

What's different: Without this merge option, John Deere field data transferred to the display through the use of **transfer** would be:

- Copied as **new** - where the data did not exist on the display.
- Copied as **overwrite** - where the data on the display is overwritten with the new data.

Requirements: This feature requires the Advanced Guidance 1 license to be installed on the Precision-IQ display **and** on any Precision-IQ display where the John Deere runline will be used:

Part Number	Description
96552-16	License, Multi-Platform, Guidance: Advanced Guidance 1, No Expiry

Note: The “Guidance: Advanced Guidance 1” license unlocks the ability to use John Deere Guidance lines in the runscreen and also allows the user to **Guide to Access Paths** if they are used by the organization.

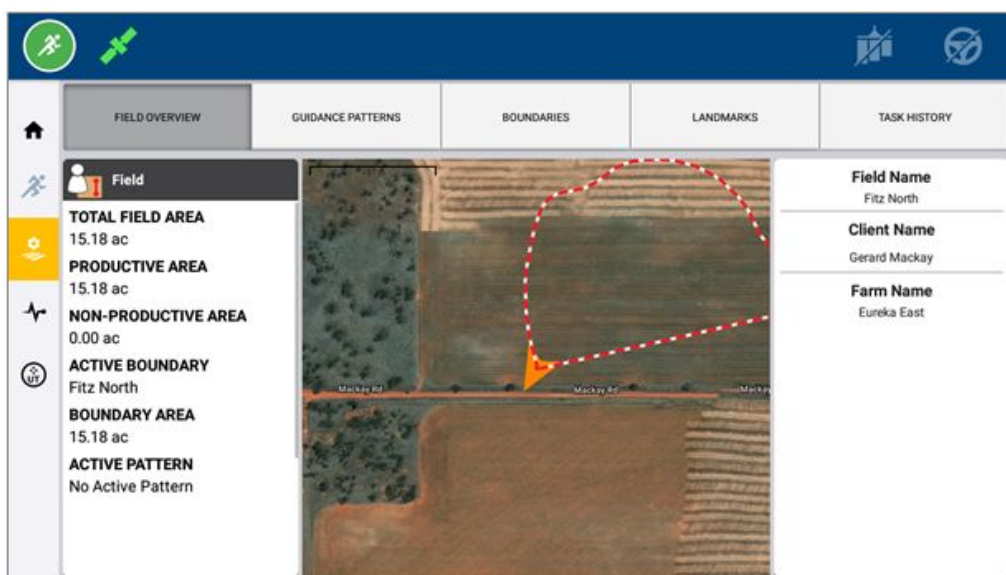
Once the license is installed, there are two main steps for adding a John Deere runline to your field data set:

1. [Merging a John Deere Runline into a Precision-IQ Display](#)
2. [Calibrating a John Deere Runline](#)

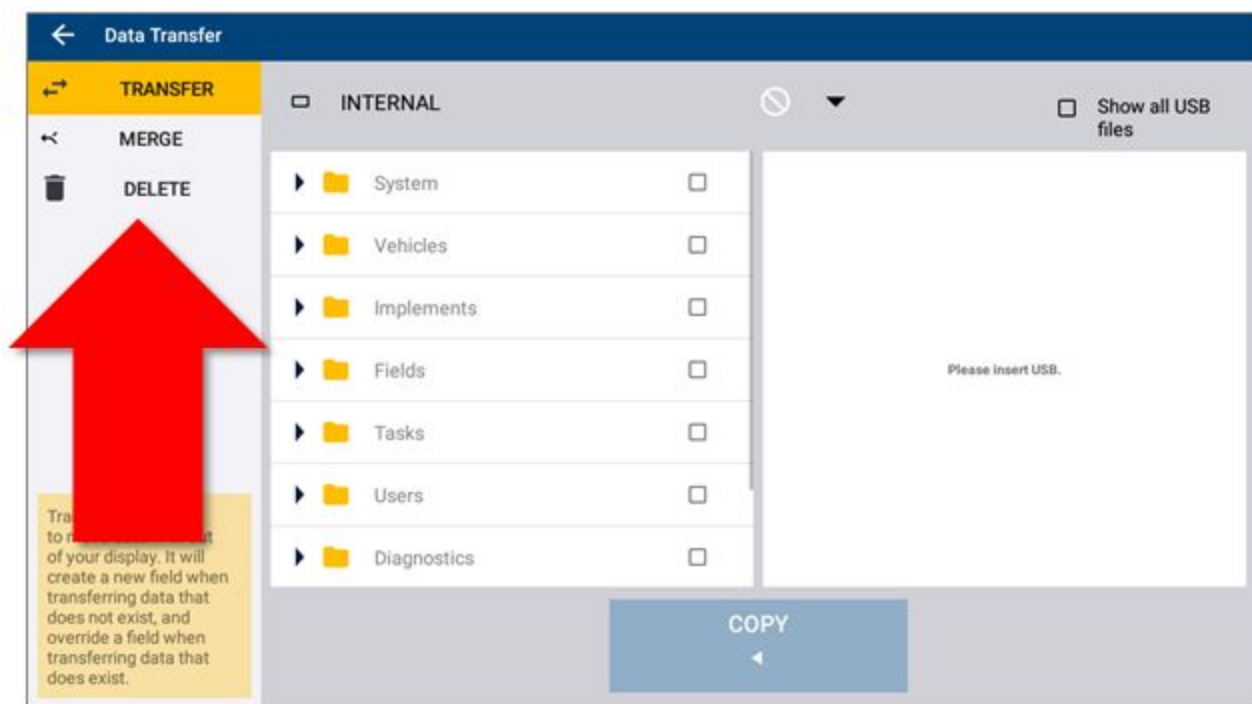
Merging a John Deere Runline into a Precision-IQ Display

Note: This step assumes that you have exported a John Deere RCD field file to a USB drive. The exported file should be saved to the USB's root folder.

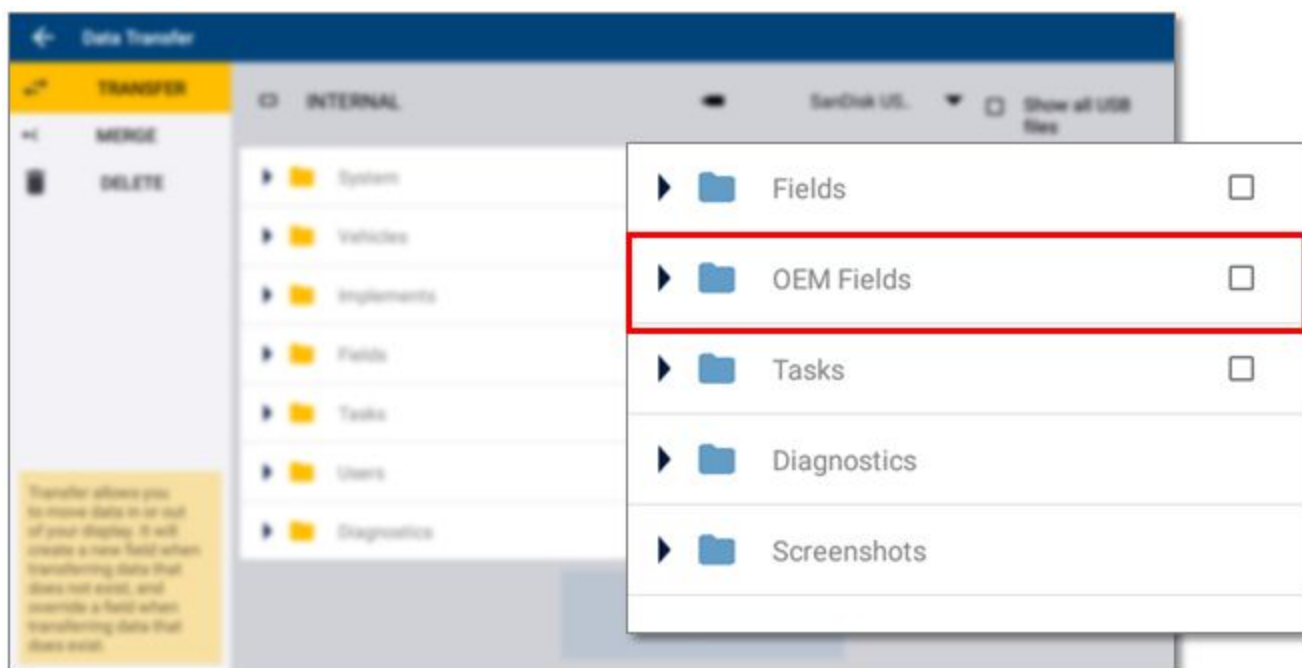
For this step, a John Deere runline will be merged into the Precision-IQ's field data set. Here is an example of a field before the merge:



On the Precision-IQ Home screen, tap **Data Transfer**. These are the transfer options on the Data Transfer screen:



Now, insert a USB drive with the field data that you want to transfer. The Data Transfer page will update to show the Precision-IQ-compatible contents of the USB drive. The exported John Deere runline will be saved in the **OEM Fields** folder:

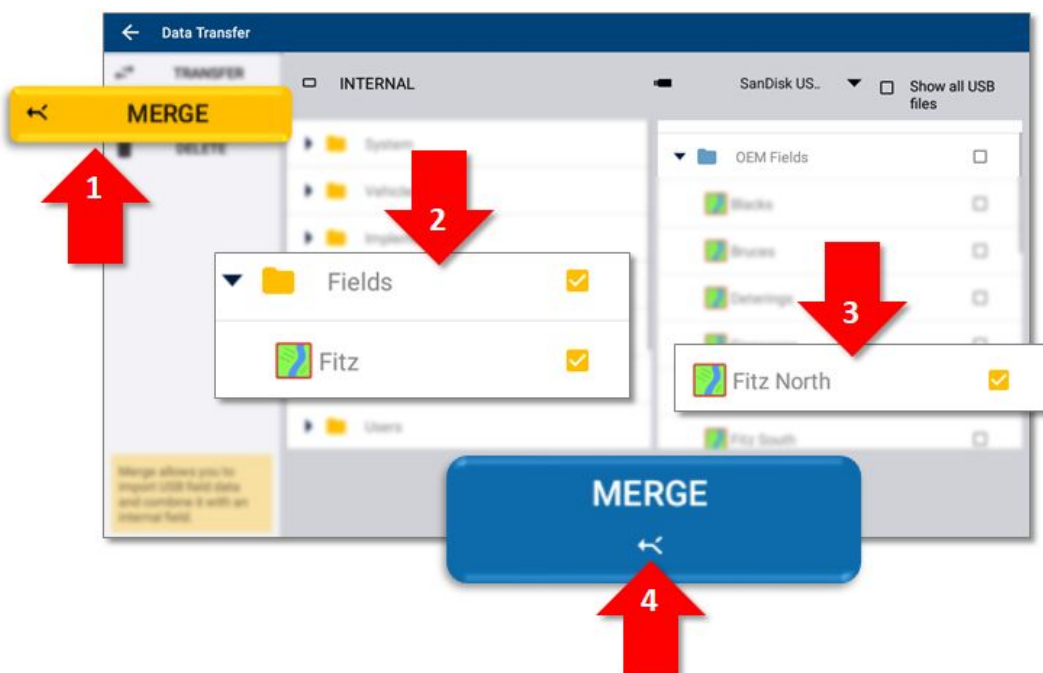


Follow the steps below to merge the new John Deere data into an existing Precision-IQ field:

Note: If the field created on the John Deere does not exist within the Precision-IQ field data set; then use the traditional **transfer** UI to bring the field and AB lines into the system.

1. Tap **Merge** in the upper-left part of the screen.
2. On the display side (INTERNAL), navigate to and select the field that you want to update.
3. Navigate to and select the field from the USB drive that you want to merge onto the display (John Deere data format only).
4. With both profiles selected, tap the now-active **Merge** button.

Only one source field and one destination field can be selected at one time.



Once the merge is complete, review the field data to see that the new data is added:



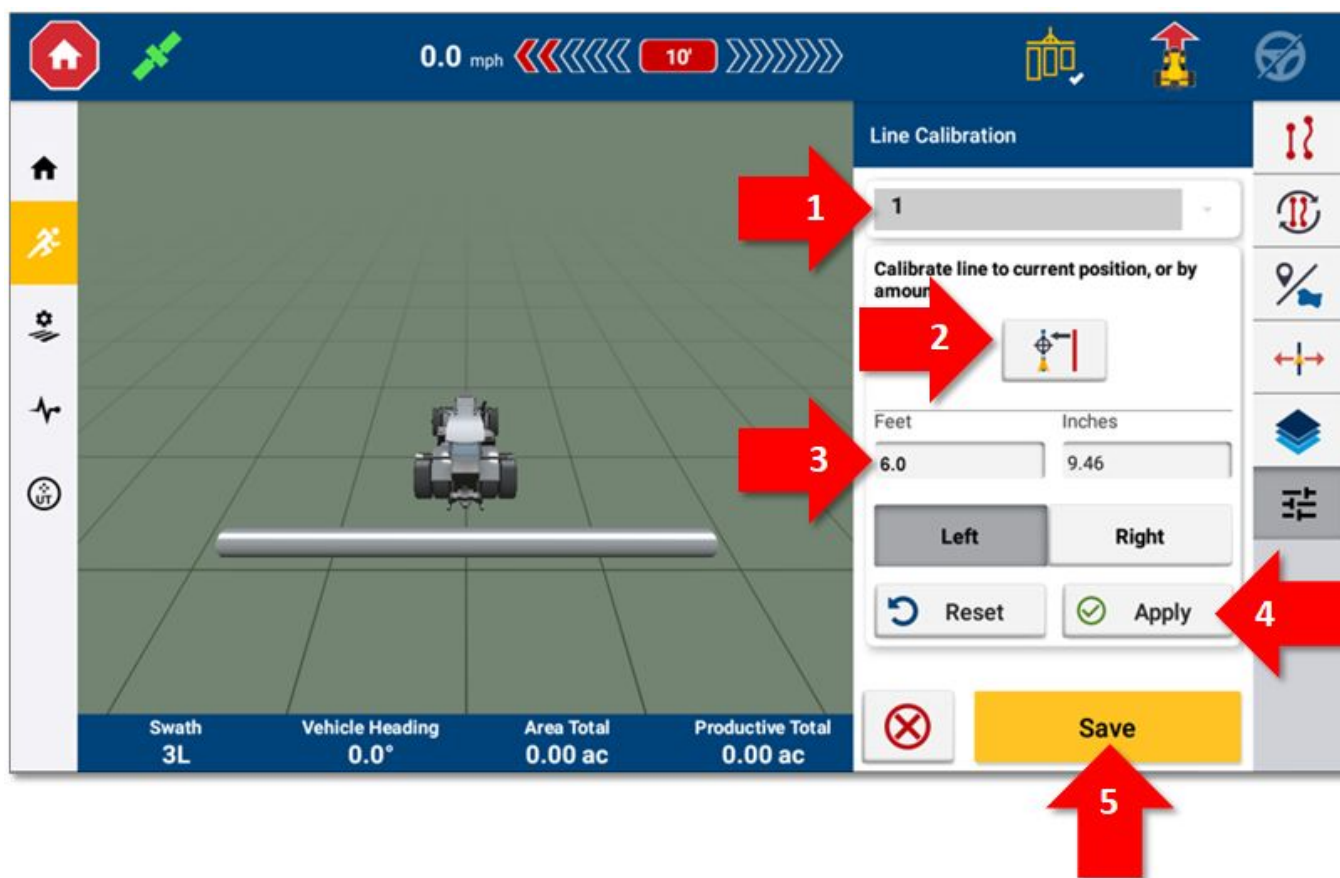
Calibrating a John Deere Runline

Once the runlines are merged, they need to be calibrated to work within the Precision-IQ environment. Drive the vehicle to the John Deere runline's original location. In Precision-IQ, enter the Run screen. A pop-up message will appear informing you that there are uncalibrated lines within this field.

Tap **Calibrate** on the pop-up message or access the calibrate drawer using the button on the right feature bar.

Follow the steps below to calibrate a John Deere runline.

1. Select a line that needs to be calibrated from the drop-down list.
2. Tap the **Calibrate Line** button.
3. The Run screen will update to adjust the line to the correct location. The distance value will automatically be entered. You can update the values if needed.
4. Tap the **Apply** button. It is recommended that you drive the line and adjust the calibration point as needed.
5. Repeat until you are satisfied with the runline. Tap **Save**.



Field-IQ Planter: Row Crop Planter Support Updated

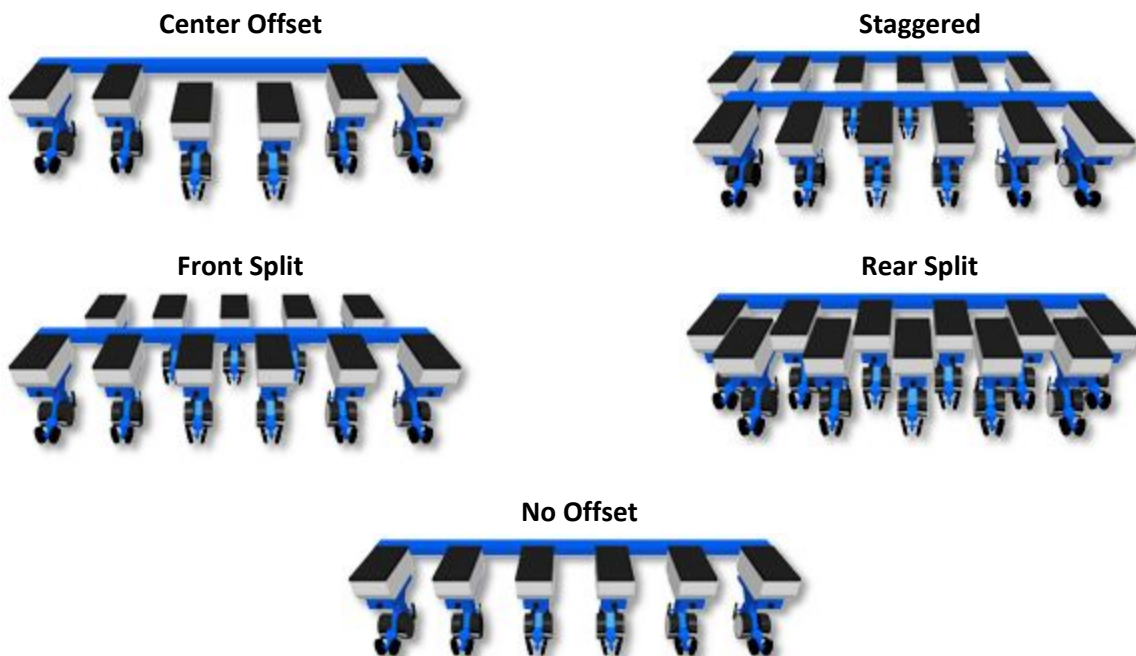
Screens affected: Implement configuration screen and Run screen. Remember the GFX-350 display system requires a Field-IQ application license in order to configure and use a Field-IQ application system.

What's new: This release of Precision-IQ includes updated support for row crop planters. Features include support for new planter row offsets, row-to-section and section-to-drive groupings, advanced wire assignment, and population and blockage monitoring.

What's different: Previous releases of Precision-IQ did not support these advanced planter setup.

Supported Offsets

Center Offset and Interplant planter row offsets are now supported:



Supported Groupings

Row-to-Section and Section-to-Drive groupings are available for all planter layout types and provides the following benefits:

- Allows for custom definition of rows to sections.
- Allows for custom mapping of Sections to Rate control drives

Section-to-Drive Grouping



Row-to-Section Grouping



Supported Advanced Wire Assignment

Advanced wire assignment is available for Section outputs and Seed Sensor inputs. This feature allows for custom wire mapping of section control output and Seed Sensors:

Section ID	SCM Output Pin	
1	A 1	
2	A 3	
3	A 5	
4	A 7	
5	A 9	
6	A 11	

Supported Population and Blockage Monitoring

Population Monitoring: Skips/Multiples and singulation graphs are available in addition to seed rate graph that show:

- Real-time row-by-row population statistics.
- Row by row details available.

Precision-IQ displays:

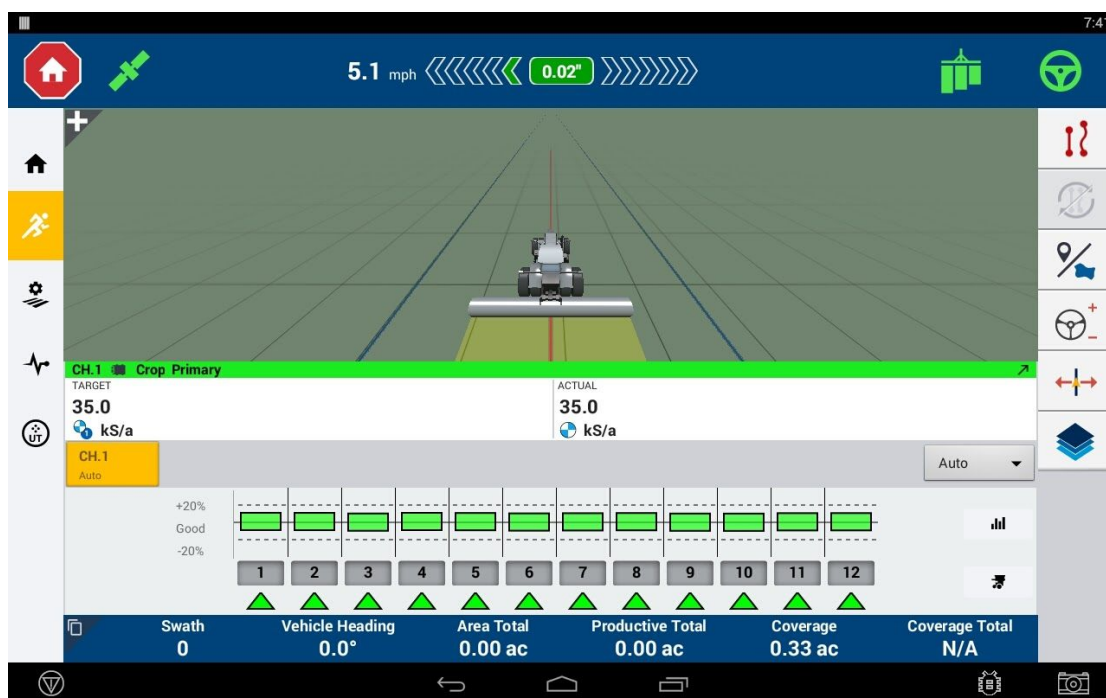
- TMX-2050 (XCN-2050) and GFX-750 (XCN-1050) up to 96 rows
- GFX-350 (XCN-750) up to 24 rows

Blockage Monitoring (for all product types): If a blockage sensor is available and configured the system will report if row product flow is occurring

Precision-IQ displays:

- TMX-2050 (XCN-2050) and GFX-750 (XCN-1050) up to 96 rows
- GFX-350 (XCN-750) up to 24 rows

Seed Static view



Blockage view

