# 2023 Software Related Changes (5.02)

- Try using the Help tips (question mark icon) accessed by swiping up from the bottom of the screen for additional information on new features if it is available.

Data Format:

- All data handling on the console has been changed to TaskData format. This allows it to be more easily transferred to and from the console between other platforms.

- This has resulted in some more major changes on the console mostly in the Guidance/mapping operation.

- If upgrading to 5.02 from older software it will convert all data to the new format but a backup of the data should be taken first. There is no way to go back to the older software and restore the data unless it was copied off the console first.
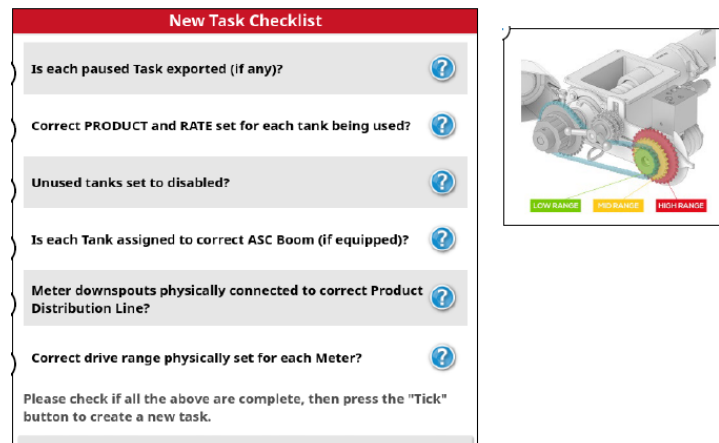
Tasks:

- Job terminology has changed to be called Tasks instead. You can still create a Field as before but now there will be Tasks created within the Field to perform the application.

- You now need to actually start the Task by pressing the Task Status icon in the top right corner of the guidance screen before you will see any coverage applied. This will allow you to calibrate and seed without a Task started so test strips don't show up within the Task before it is started.
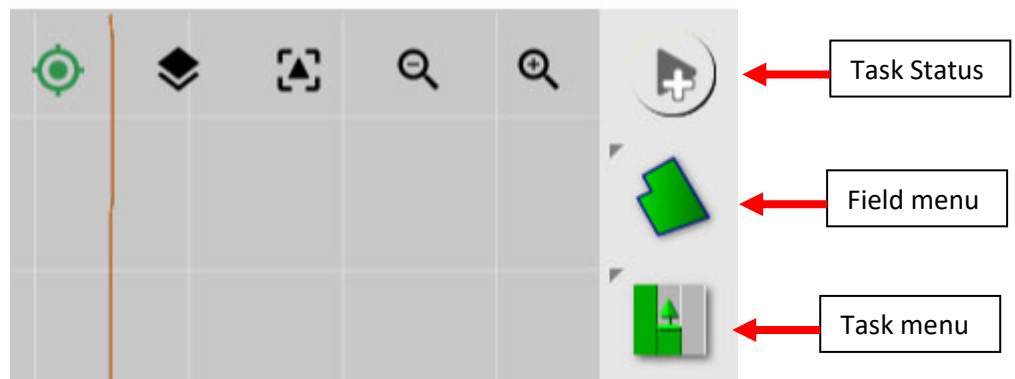
- There is a warning message that comes up to alert you if you turn the Master on and start applying product without an active Task. This is to ensure you start/resume the Task if you intend to record the coverage.

- New Task Checklist:

    o An informational checklist exists to direct users to appropriate steps to take when changing tasks especially if the seeding configuration/crop type changes.

    o Extra images can be opened for each checklist item for further clarity.

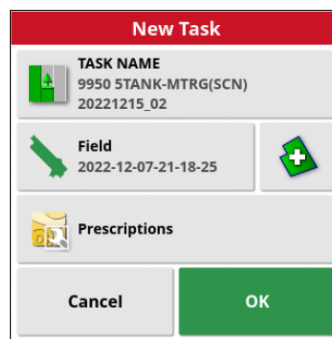   o Added a step to prompt to export the Task if desired.

- Note there is no longer a quick start feature but you can just simply use the create new task button in the Task Menu and then select or create a field, create a task and configure VRC all from this one window.

- If the customer doesn't care to use their coverage data after the season then they can simply just hit the Start Task button and it will start a default task in a default field based on the location.

- If they have an existing field boundary for the field they are in it will automatically select that field if the Start Task button is pressed to create a default task under that field.

- There is a Task Status window that will come up if the task is not able to be started for some reason (similar to the Master status window).

    o There are a number of icons that indicate what state the task is in.
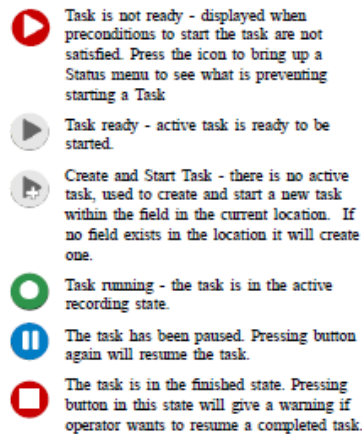
- The Task can be paused and resumed or completed when done. After a restart you will need to resume the Task by pressing the Task Status icon.

- When a task is completed it will prompt the user to export it is desired.
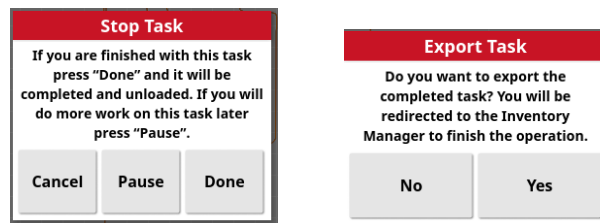
- There is a popup in the bottom right corner of the Guidance screen that indicates certain things that the console automatically is doing regarding loading fields or tasks. E.g. It will tell you the field name as you drive into it and it will automatically load that field.
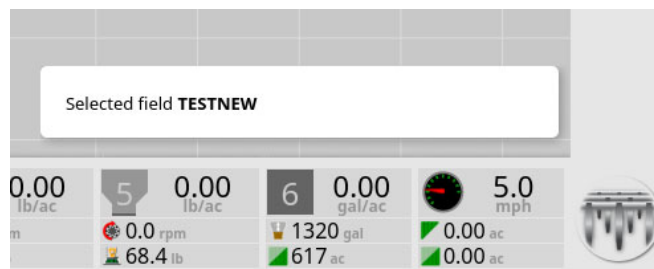
- To set a default task name it is now under the Implement settings tab.

- An inactive field can now be loaded by pressing and holding on the grey boundary line that shows up on the Guidance screen for other fields that exist with boundaries.

Map layers:

- There is now just a single selection for the tank/PackMaster layers on the Guidance screen.

- Only active tanks will show up as options when selecting a coverage layer.

- To view the applied rate you just need to highlight that layer selection or to view the boom coverage you can just de-select the applied rate layer.
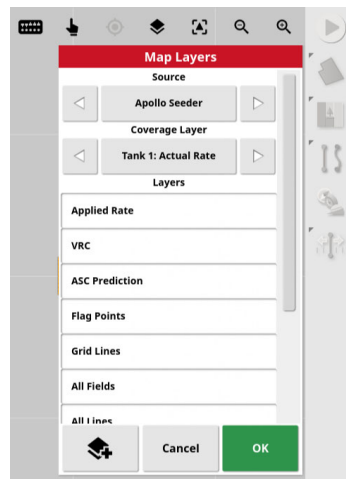
DynaCal (9000 A/C):

- For rate errors above 10% it will just alarm and suggest to inspect for issues or recalibrate.
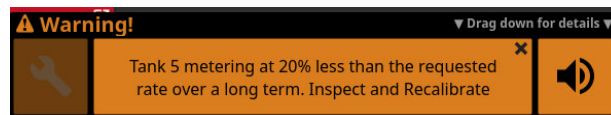
- For any rate errors under 10% you get an alarm showing the error and if you go to the seeder controller screen you will see a popup that suggests a new cal factor that you can accept.

- There is a DynaCal status panel in the seeder controller screen that can be viewed anytime to check the parameters and either accept new cal factors or reset the alarms if an issue has been corrected. To have the option to accept new cal factors the error has to be higher than the current accuracy confidence threshold based on the metered sample size from each respective tank. This accuracy confidence threshold will be reduced for better accuracy the longer the product is meter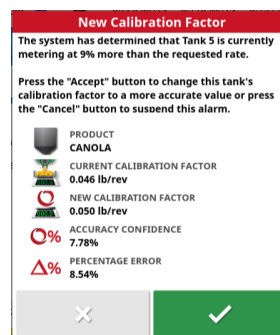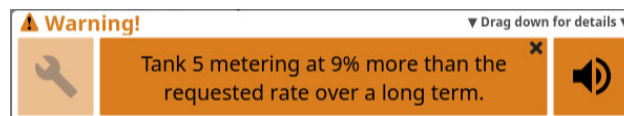ed out of the tanks. Errors under 5% will not alarm and if a cal factor adjustment is desired under this level it will have to be entered manually.

- The scale link ECU's have an internal inclinometer that can be turned on to compensate for hill angles. The pitch and roll angles can be displayed on the Digi-Star screen in the Universal Terminal and the level can also be zeroed from here when on a flat surface if it is inaccurate.
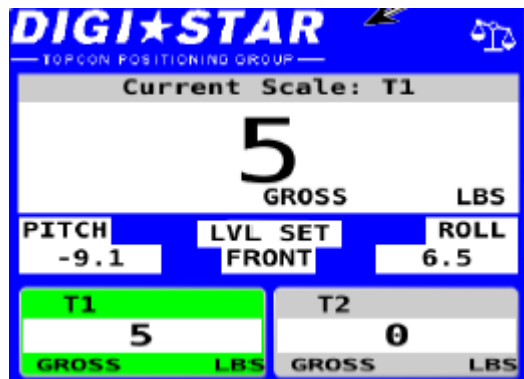
- Removed some alarm settings from the DynaCal alarm page to eliminate confusion with extra unused information displayed. Also fixed a couple oddities with the alarm states if any of these alarms were ever disabled and then re-enabled.

- There is now an Empty Tank Weight setting (Implement/Apollo Seeder/Seeder/Granular/Tank) and Loadcell Capacity setting (Implement/Apollo Seeder/Seeder/Weigh Scales/Scales) for each tank in Dealer access level to set these appropriately for each model if a custom profile is created for proper DynaCal functionality. These affect the DynaCal accuracy confidence threshold calculations for how soon it can detect rate errors based on the metering sample size and expected error in the load cells based on their size.

Tank Fill (9000 A/C):

- The tank fill now shows a live readout of the measured tank weights as they are filled. There are a number of parameters that can be viewed as the tanks are filled.

- If you have a boundary created it will show you the amount of product required to finish the remaining area. You can manually change the area if you don't have a boundary or you just want to fill for a certain area. If you require more volume than the tanks can fit it will just default to fill the tanks to their maximum.

- You can set all tanks to the limiting one if desired to show the fill levels to not carry around extra weight. Or you can set them to fill to maximum if you want to ignore the area remaining and fill the tanks right full if you're going to continue seeding the same crop type.

- The tank graphic shows a blue background for amount of product and a red line for the fill target. The background will turn orange when you are close to the fill target and will turn green when you reach it. Also the % full value will turn orange when you are close to the fill target, green when you reach it and red when you are over the target.
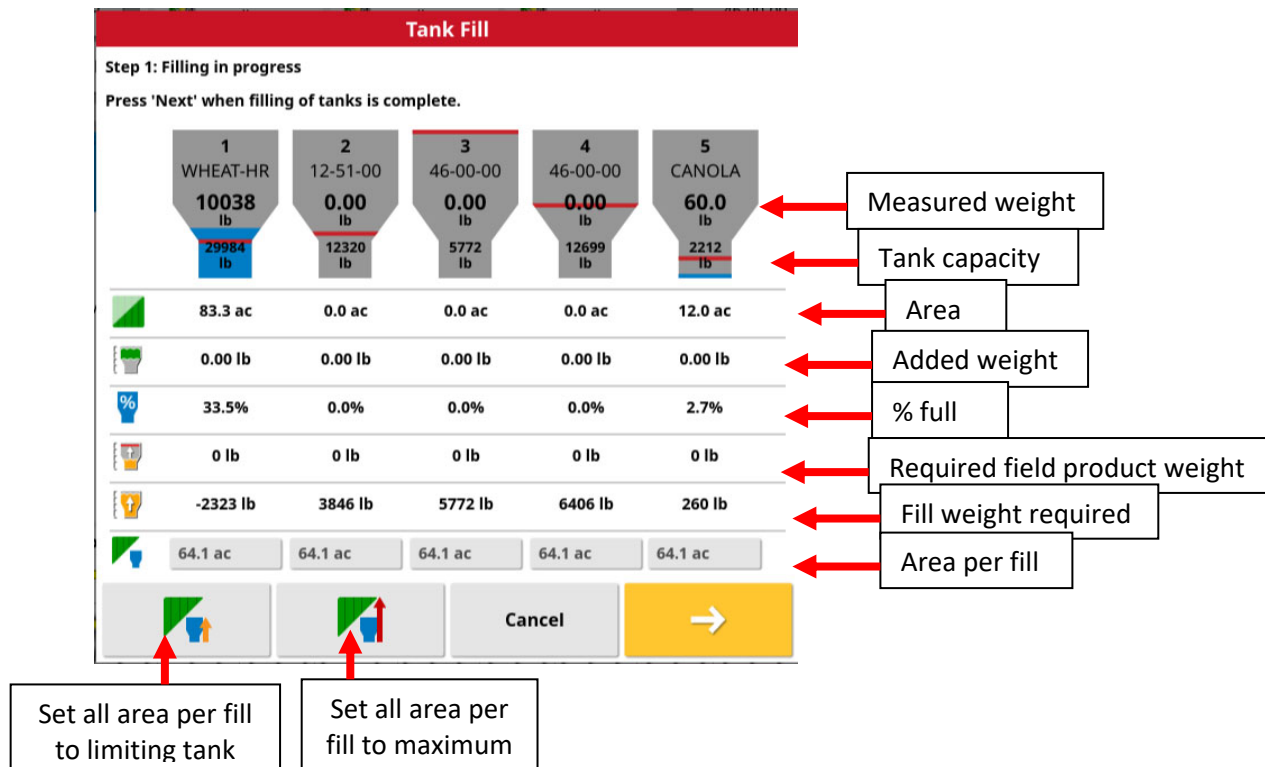
- o The next step will allow you to adjust the densities for any products if you can actually fit more than the theoretical full value listed for the tanks.

- o When you press OK to exit this wizard it will set the theoretical weight to the current measured weight for all tanks. This will also reset the DynaCal calculations to start over.

- DynaCal Reset if the tank fill wizard is not used:

  o When the system detects that a certain weight has been added to the tanks it will prompt the user to match the theoretical starting weight to the actual measured scale weight. DynaCal data is reset any time this popup is accepted or any time the fill wizard or individual tank fill or fill all tanks functions are used from the console or keypad.
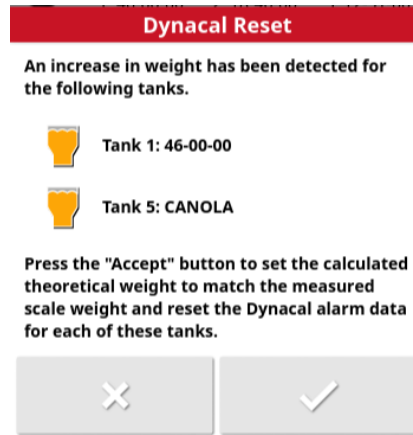
  o This will prompt upon power up of the console if the tank was filled without the monitor powered on.

- The KarTech handheld remote will now read messages off the CANBUS to display individual tanks weights by scrolling through tanks as they are filled and can be used to indicate fill targets by reading set rates on the console.

VRC:

- The VRC setup/configuration window has changed. There is also now a preview of the VRC prescription map shown during the attribute layer selection. The VRC scale, default rate, and units can be adjusted in this window.
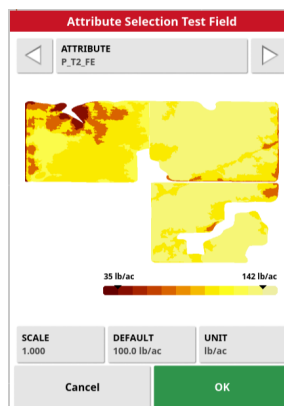

  o The task needs to be paused in order to adjust the scale and default rate. You should be stopped to perform this function or else it will automatically pause the task and stop seeding to make this adjustment.

- There is a new method of storing VRC files on the console to be able to select when configuring VRC for the task.

  o For version 5 software you can load fields/boundaries into the console through the Inventory Manager with the same file structure on a USB as was done with version 4 software.

```
✓  USB Drive (D:)
   ✓  📁 Clients
      ✓  📁 Client Name 1
         ✓  📁 Farm Name 1
            ✓  📁 Field Name 1
               📁 Boundaries
                  📄 Boundaries Field Name 1.dbf
                  📄 Boundaries Field Name 1.shp
                  📄 Boundaries Field Name 1.shx
            ✓  📁 Field Name 2
               📁 Boundaries
                  📄 Boundaries Field Name 2.dbf
                  📄 Boundaries Field Name 2.shp
                  📄 Boundaries Field Name 2.shx
```
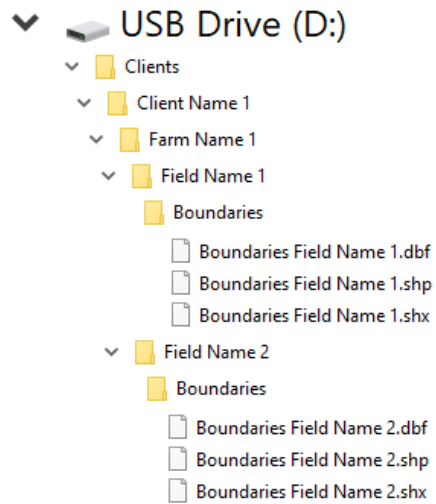
  ▪ From Inventory Manager, under Category select Fields.

  ▪ With USB inserted, under External Inventory select Convert Legacy Data.

  ▪ With Client and Farm filters set to All, highlight all Fields listed on the right USB panel.

  ▪ Press the Import Selected Items to Console button to load fields/boundaries onto the console.
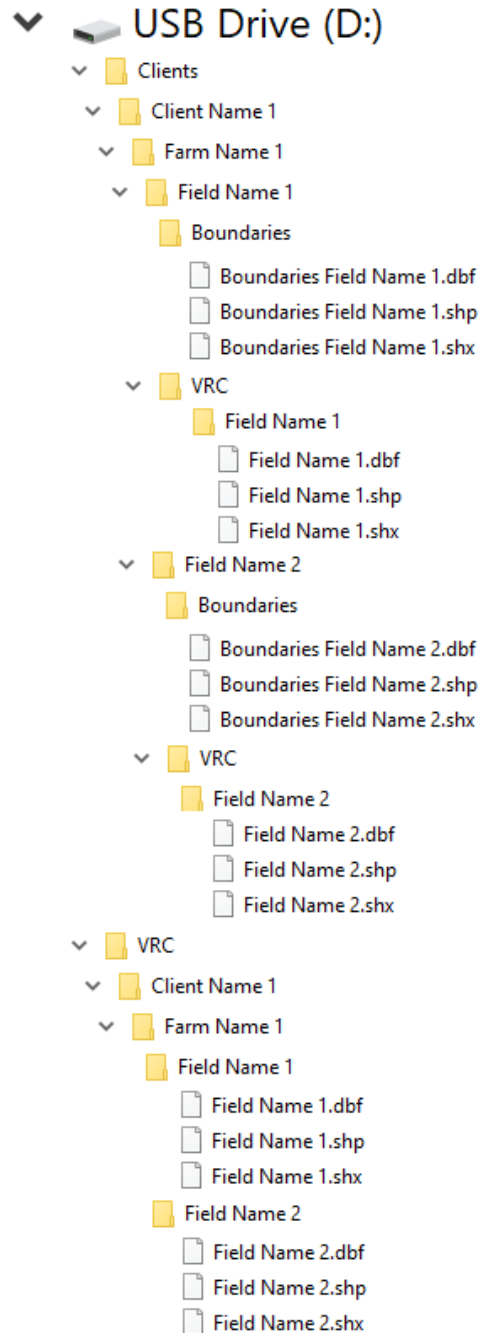
- For version 5 software to get the VRC files stored under each field to be easily selectable when the task is started in that field and VRC is configured you need to load them differently than version 4 software. You need to have an extra VRC folder on the USB with the VRC files structured under each field name and do an extra step to transfer these files onto the console through the Inventory Manager.
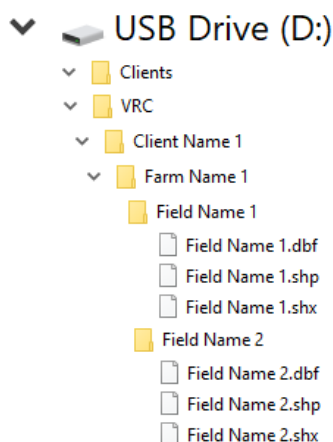
- From Inventory Manager, under Category select VRC.

- With USB inserted, under External Inventory select USB.

- With Client, Farm and Field filters set to All, highlight all files listed on the right USB panel.

- Press the Import Selected Items to Console button to load VRC files onto the console stored under each field.

- Then there will be the corresponding VRC file available right from the Target selection window instead of having to filter to find the file on the USB or in the VRC folder on the console.

- The VRC files can be included formatted in the Clients folder as they were before for version 4 software to allow eithe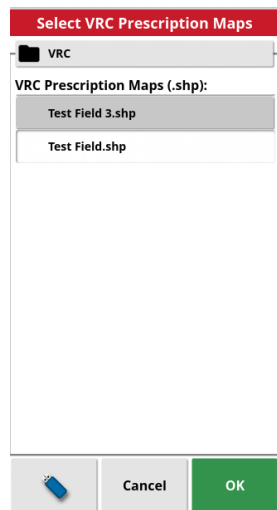r software version to accept the files. If the USB is formatted as shown below then this will allow files to be loaded properly for either software version. There should be a Clients and a VRC folder on the root of the USB.

USB Drive (D:)
- Clients
  - Client Name 1
    - Farm Name 1
      - Field Name 1
        - Boundaries
          - Boundaries Field Name 1.dbf
          - Boundaries Field Name 1.shp
          - Boundaries Field Name 1.shx
        - VRC
          - Field Name 1
            - Field Name 1.dbf
            - Field Name 1.shp
            - Field Name 1.shx
      - Field Name 2
        - Boundaries
          - Boundaries Field Name 2.dbf
          - Boundaries Field Name 2.shp
          - Boundaries Field Name 2.shx
        - VRC
          - Field Name 2
            - Field Name 2.dbf
            - Field Name 2.shp
            - Field Name 2.shx
- VRC
  - Client Name 1
    - Farm Name 1
      - Field Name 1
        - Field Name 1.dbf
        - Field Name 1.shp
        - Field Name 1.shx
      - Field Name 2
        - Field Name 2.dbf
        - Field Name 2.shp
        - Field Name 2.shx

o For version 5 software you can now alternatively have all VRC files saved in one single folder and transfer them to the console through the Inventory Manager and manually select from a full list of files if this option is desired.
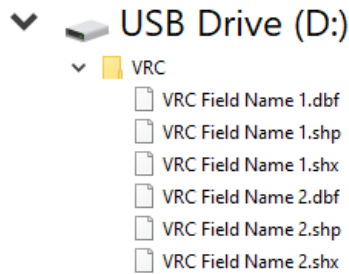
```
∨  💾 USB Drive (D:)
   ∨  📁 VRC
         📄 VRC Field Name 1.dbf
         📄 VRC Field Name 1.shp
         📄 VRC Field Name 1.shx
         📄 VRC Field Name 2.dbf
         📄 VRC Field Name 2.shp
         📄 VRC Field Name 2.shx
```

▪ From Inventory Manager, under Category select VRC.

▪ With USB inserted, under External Inventory select USB.

▪ With Client, Farm and Field filters set to All, highlight all files listed on the right USB panel.

▪ Press the Import Selected Items to Console button to load VRC files onto the console in a single folder.

▪ When configuring VRC, from the Target selection window select Shapefile and on the next window select the Console button on the bottom of the window then you can select the appropriate VRC file from the console VRC folder.

Select VRC Prescription Maps
📁 VRC
VRC Prescription Maps (.shp):
Test Field 3.shp
Test Field.shp
🗑   Cancel   **OK**

- It is now possible to configure the PackMaster control to a VRC prescription. The VRC file is loaded the same way as product applications and can be used either to control pack force or hydraulic pressure. This feature is not recommended to be used at this time unless confidence in gained in the actual desired pack force/hydraulic pressure throughout the field to ensure intended performance.

PackMaster:

- A new alarm has been added to alert the operator if they are outside the pressure control limits of the specific drill model/opener type when controlling to a set pack force. This is to alert if there would be instability in the control at minimal pack force or too high of a pack force to attain or that could cause damage. If controlling to hydraulic pressure the low alarm is not triggered since it can control to a lower pressure in this mode without being unstable.

- Bourgault started providing a factory PackMaster load cell calibration tag on new units that is tied to the opener with the load cell installed. These calibration values that are recorded at the factory can be entered directly in the X35 PackMaster settings. If there is any question of performance of the drill controlling to pack force the first step should be to do an actual PackMaster calibration to confirm these values.

- The calibration procedure notes for PHD drill models have been updated to ensure that the drill frame and opener are positioned as close as possible to the regular operating conditions. Instead of the option of blocking up the packer tire for calibration we want to ensure a hole is dug under the opener tip to keep it off the ground for calibrating. This is to prevent skewing the calibration results by an excessive amount based on the angle of the opener which would prevent PackMaster control to pack force from performing as intended.
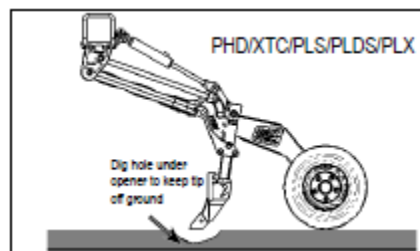
ASC:

- There is now a setting to overlap a specific distance if desired at the start and end of a pass in addition to the control mode adjustment for each boom. You now have to flip through the booms to adjust specific overlap and control settings for each boom individually by opening the ASC Boom Control window. This will allow you to leave exact on/off time values entered for sectional control and just adjust these overlap distances if you want a bit more overlap at the headlands to prevent misses.
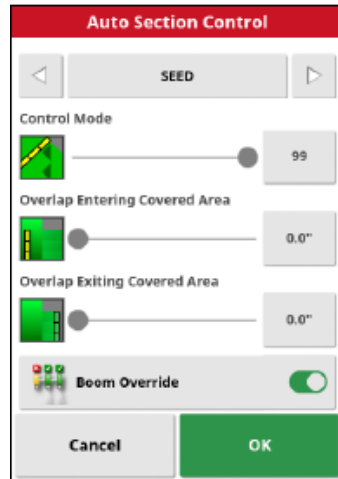
3rd fan:

- Full 3rd fan support has been added for TriMax equipped units on all factory 9000 A/C profiles. The third fan just needs to be enabled in the fan settings and it can be displayed on the seeder mini-view and dashboard.
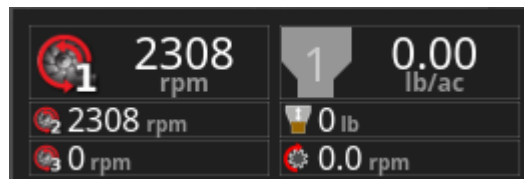
  o This will now apply the regular fan speed to start limitations to the 3rd fan.

  o Previous units with version 4 software that had to enable an auxiliary fan and configure the drive can now just enable the 3rd fan with a new implement profile.

ECU auto detection and upgrading:

- For the Scale Link ECU's you can now detect both of them in the correct order using the Auto Detect button without unplugging them to detect one at a time. There is now a special settings file loaded onto the 2nd scale link for the saddle tank that allows it to be recognized as the 2nd scale link automatically.

- For the Apollo ECU's there are now special detection plugs installed in the appropriate ECU's from the factory to allow them to be recognized as the correct ECU. You can simply press the Auto Detect ECU's button to detect all the ECU's in the correct order instead of having to detect ECUs one at a time. There is also an option to flash LED's on the ECU to manually assign them on a list based on this if the detection plugs aren't installed. This will eliminate the need to unplug ECU's to detect them one at a time.

- The 3420 Drill Fold ECU currently should still be unplugged for the auto-detection process and then plugged back in after this step to configure the profile properly. Alternatively you can leave it plugged in and perform the auto-detect but then it will not be able to distinguish it from the Master ECU but you can use the flashing sequence to determine which is the actual Master ECU and assign it accordingly but then leave the Drill fold ECU unassigned to configure the implement profile properly.

- There is a new ECU configuration legend decal added on the Air Cart and a copy included with the manuals to label each ECU accordingly. This will aid in the setup process based on the specific unit configuration.

- The corresponding CM-40/EM-24 firmware is now bundled with the console software to allow a one button upgrade of all ECU's at once. Simply press the upgrade button and it will determine and list which ECU's need upgrading before performing the upgrade. The old method is still available to select individual ECU's to upgrade with files on a USB or the bundled files on the console. This method is still needed to upgrade the 3420 Drill Fold ECU. CM-40 ECU's need to be at main firmware 10.05.01 or newer to accommodate this one button upgrade from bundled files.

Scale Link ECU:

- Going forward on new units it will be possible to update the Scale Link ECU and save/load XML settings files over the ISOBUS File Server with a USB in the port on the console. This will allow the entire Scale Link ECU update and save/load process to be performed from the console rather than having to open up the Scale Link ECU and insert a USB directly on the board. On older Scale Links, the bootloader and firmware would need to be updated one last time using the old method to the latest firmware in order to access over the ISOBUS File Server which is not a critical update as it doesn't provide any benefit once the unit is already setup and functional.

I2I Coverage Sharing:

- There is more diagnostics information available for the CL-55 device. Under the System Info screen the CL-55 information is available and shows the firmware version, serial number, etc. to ensure the console is connected to the CL-55.

- The LED's on the CL-55 have changed to give more information on the state it is in.

Red - This will be blinking during the boot up process and go out once startup is completed if the CL55 has a cellular connection, otherwise it will keep blinking. A solid red light means there is an error detected and the system should be powered down and restarted.

Amber - Indicates that the CL55 has a GPS position from its connected antenna.

Green - Indicates that the CL55 has power and the switched power is activated to turn on. When switched power is deactivated this green light will go out followed by any other lights after the shutdown of the CL55 is complete. Ensure the CL55 is completely shut down before restarting to ensure proper functionality. The green light will blink when connection to another CL55 device is achieved.

Blue - Indicates that the CL55 has a cellular network connection. Blinking blue light indicates an update is in progress.

- There is a new workflow for starting tasks if configured with I2I to share coverge between multiple units.

- Now you start a task on the first unit in the field and then the other units join a shared task by either acknowledging the popup when a shared task is available or pressing the icon shown below in the task menu to manually start the join task wizard.
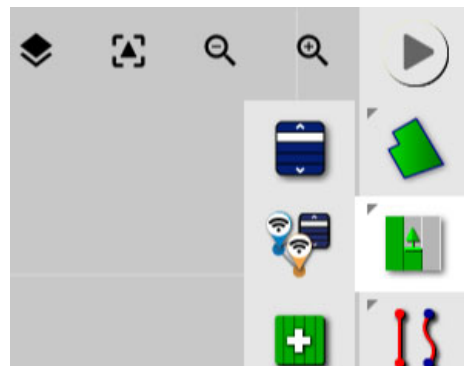

- If the field names match between units, then the available tasks will be automatically filtered to only show available tasks in the same field.

-   It is recommended to name shared tasks something recognizable and intuitive, so that it is obvious for all other operators and for reviewing data later if desired.

-   There is a configuration window that allows you to join any task if a field or product file isn't exactly matching across consoles. **It is still highly recommended to make sure your fields and products are all copied across from one console so they are auto linked and the join task process is simplified.** Otherwise you can manually select a corresponding field and product from the local console to configure the shared task.


-   This window lists all products that will be applied to shared coverage. If all products are matching and there is nothing to confgure this product table won't appear.

-   You can select the appropriate field, create a task name and configure VRC from this window.

-   If both units are out of range of each other at the beginning of the field, both units will need to begin separate individual tasks, which will then be merged when units get into range of one another. Once units get into range the tasks can be merged following the same process as joining tasks. Existing coverage from both units will then be merged. This merging process can be done while the task is active and running. A similar merging process applies for 2 units working in a shared task coming in range of other units working in a separate shared task and numerous other scenarios with mulitple units working together if not conencted when starting the task.

-   The popup that appears when pressing and holding on remote units has more information. It will now display the area covered by remote units and applies this to the area remaning calculation if a field boundary is created to represent a true area remaining in the field.
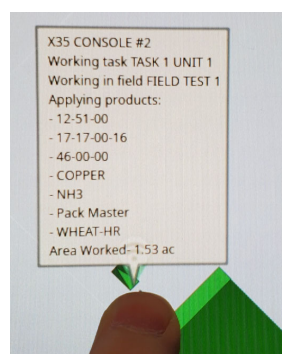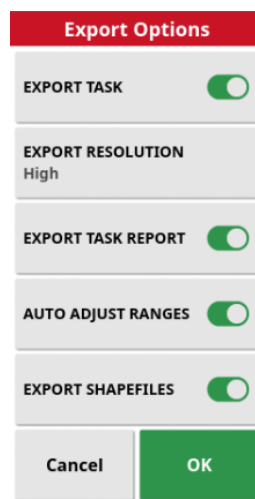
Inventory Manager:

- There is now a split panel to show you what is on the console beside what is on the USB to easily see what is on each and select things to be transferred back and forth.
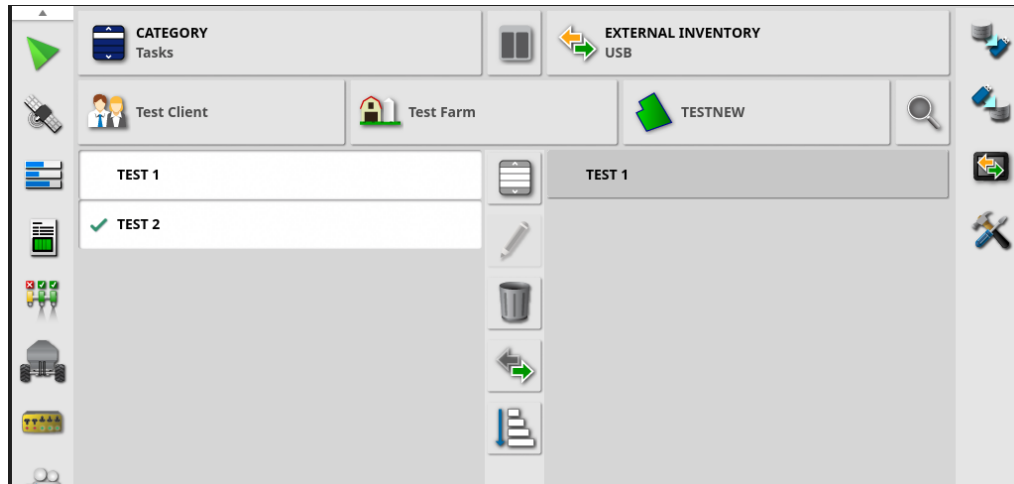
- The sorting in the inventory manager has changed so you can filter or sort based on some extra parameters. Where the Client/Farm/Field structure apply you can filter to certain ones or select All to display everything.

- There is the option to Convert Legacy Data to load data from version 4 software or to load Client/Farm/Field structured files to get existing fields/boundaries loaded onto the console.

- Exporting Tasks and Task Reports are handled through the Inventory Manager.

  o With a USB inserted, highlight the Task(s) you want to export and select Save Selected Items to USB button.

  o Select options for exporting on the window that appears and press OK.

- The Export Task Data option in the Inventory Manager allows you to save all TaskData to a USB if you want to use it in another platform.

    o There is also the option to select what to do with the TaskData after the export.

    o "Delete only tasks after export" would be a good option after the season to remove them to create space on the console for the next season.
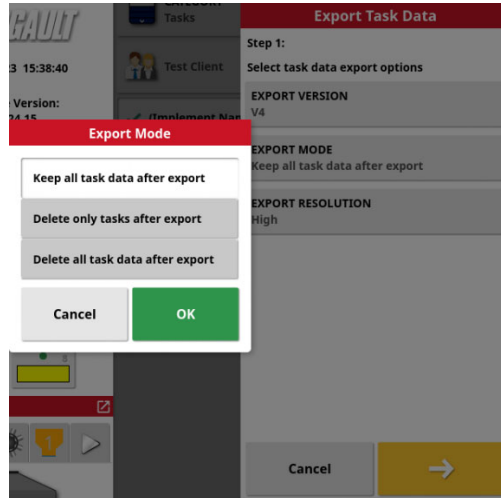
Air Planter:

- There is an extra Apollo Seeder level showing in the settings with a different method of selecting the active implement. This is required to accommodate the dual implement control functionality that has been added for the Air Planter option to run as an ISO implement on a single console along with the regular Seeder implement.

- There is an Air Planter feature that can be enabled under System/Features/Implement for a few items to be monitored in the regular Seeder Controller when this option is installed.

- When the Air Planter feature is enabled there is an Induction settings tab to setup the A/S Fan and Bulk Fill Fan pressure sensors along with a Seed Tower level sensor to have them show up to monitor in the seeder controller window.

- On the Guidance screen flip the Source selection to view coverage for the Air Planter application.
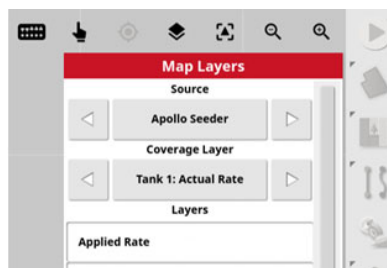
Implement Profiles:

- After creating a new implement profile and configuring all the settings, the system should be fully power cycled to ensure all changes take effect properly. In version 4 software the console automatically restarted when certain parameters were changed during setup of the implement profile but this is removed for most cases with version 5 software. So just one fresh restart is recommended once everything is configured properly.

- You can now turn on the Drill Fold feature in Dealer access level so this allows you to create a custom implement profile with a 3420 drill.

- The folders for the factory profile selection have been updated to indicate the year that the dual granular ASC boom units were introduced. The intention is that any newer unit would select this option (even if it is just a single shoot unit) since that is the new style we went to at that time. These older single granular ASC boom profiles are for pre dual boom units where both booms were controlled by the same hydraulic valve vs controlling individually for each boom.

- The naming of the granular boom Section Control selections have been updated to SEED (SS/TRIMAX BOOM) and FERT (DS BOOM) to clear up that the TriMax (line 3) control is tied to the Seed boom (single shoot - line 1) and the Fert boom is the double shoot - line 2.

General:

- The day mode is now a white color scheme to be brighter to see better during the day. The night mode is a black color scheme to be easier on the eyes at night. Select auto and the monitor will flip between these modes based on the current light conditions. You can also manually selected either Day or Night mode if one color scheme is preferred over the other. Virtual tank switches have been modernized to show as a toggle switch vs a button.

- With the new TaskData format there are certain parameters that can no longer be changed while operating in a Task (e.g. boom assignments for tanks, certain geometry settings, etc.). If attempting to change these parameters while a Task is active there will be a warning message indicating this can cause problems with the Task. For corrections like this a new Task would be required. The version 4 software allowed some of these changes but this may have also prevented operations from functioning as intended and just didn't warn the operator.

- The granular section valve state when the master is switched off has been changed to be defaulted to the open position instead of following the ASC requirement based on coverage.

- For 3420 Drill Fold ECU firmware the sequence times for the mid-lock/RTH tire were increased. This was to accommodate the change to ensure the RTH tire is in the correct position before the mid-lock changes state to prevent damage to the unit.

- There is a new fluctuating fan speed alarm to tell you if your fan speed is fluctuating outside an acceptable range.

- Some features/settings unused by Bourgault have been hidden in Dealer access level to simplify the console a bit.

- There is the ability to customize a mini-view with shortcuts to functions on the console under Auxiliary Control Setup on the UT screen. Now you can also customize a few commonly used functions to be placed above the Master icon if desired.

- There is the ability to enable/disable the dashboard which allows the UT screen to be made larger if configured with the XD console just using the UT for the Seeder application.

- There is now an Internal Sim selection in Dealer access level under the GPS Receiver type to simulate GPS and drive around using controls on a miniview for demonstrations on the console.

- Diagnostic logs required for troublshooting purposes can now be generated and renamed to identify the issue and multiple logs can be stored on the console to copy off later or you can chose to save right to a USB.

- There is now a video capture feature to save a video clip to a USB accessible from swiping up on the bottom of the screen along with the regular screen capture feature to provide a good video clip for troubleshooting purposes.