

SmartOar App User Guide

2026 Ver 1.3

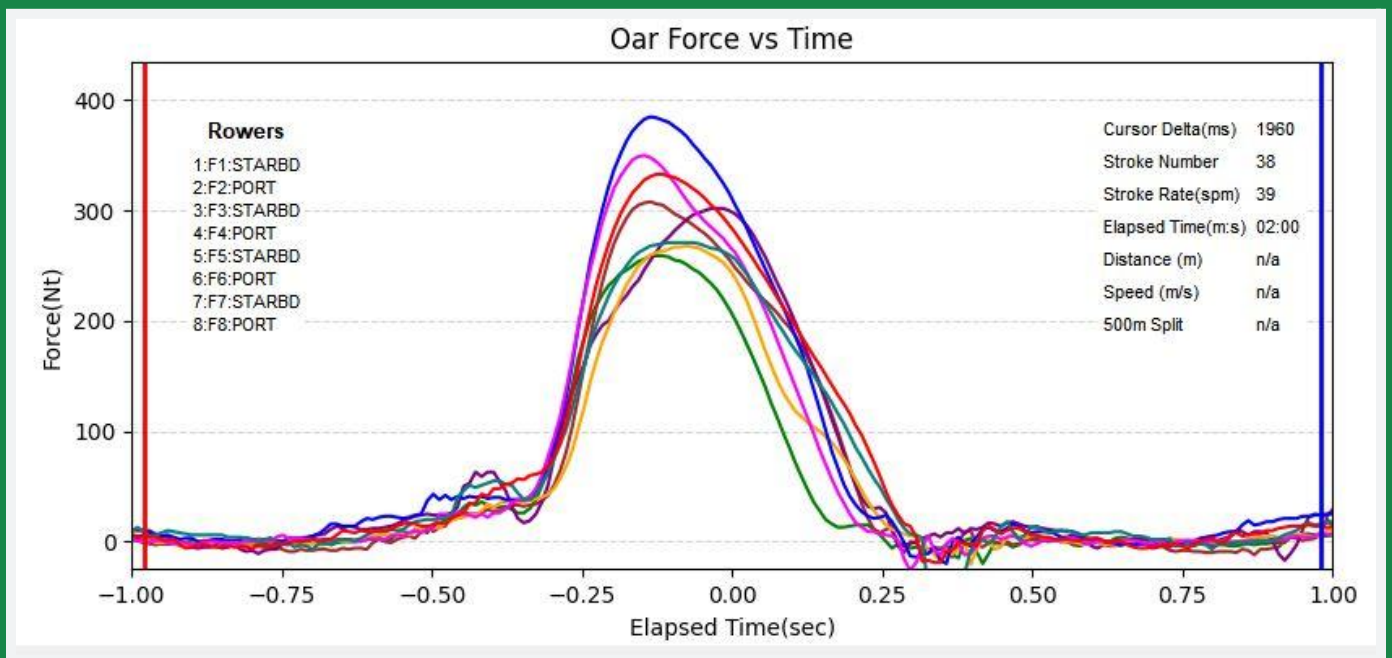
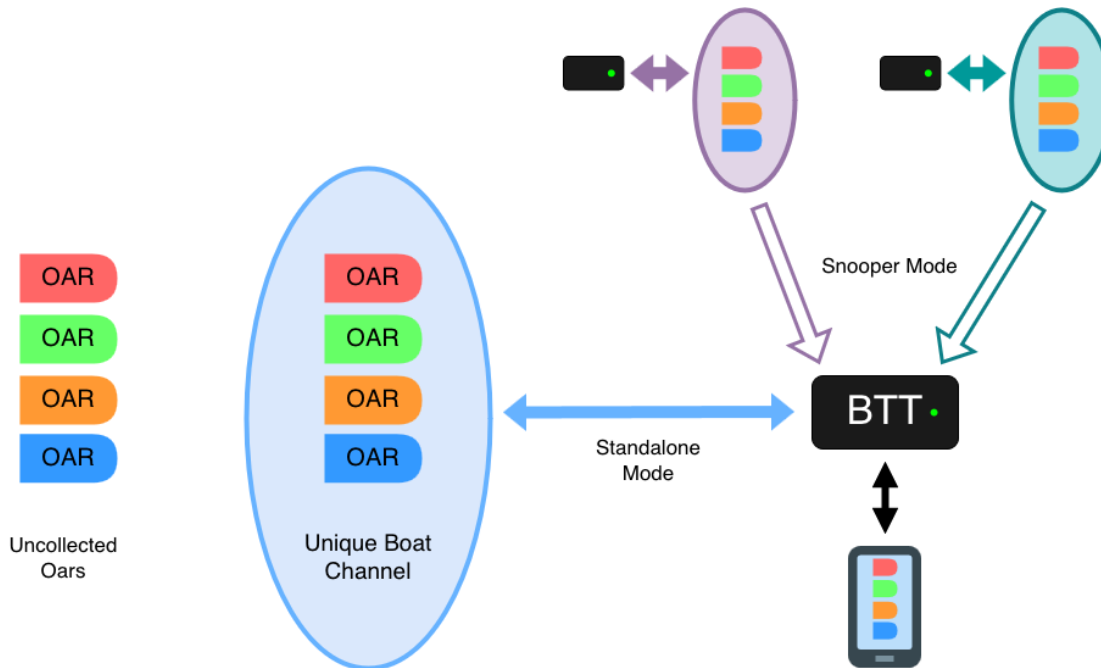


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Overview

The SmartOar App allows you to control/monitor up to 24 oars through a single connection to a Bluetooth Translator Device (BTT). The BTT converts the oar radio signals to Bluetooth for display on an Android device such as a cell phone or tablet. You can, in real-time, observe/record the force curves of groups of oars, including groups controlled by other BTTs on the water. A BTT can be purchased with or without a GPS/Accelerometer. It might be best to work through the App options using this doc as a guide.



Connection Modes

The App can start its connection to the BTT in either Standalone or Snooper Mode. You can find additional oars through either mode.

→ Standalone Mode

- Find and capture oars, then move them to a clear radio channel for oar data transmission
- Match selected oars to seats in one or more boats

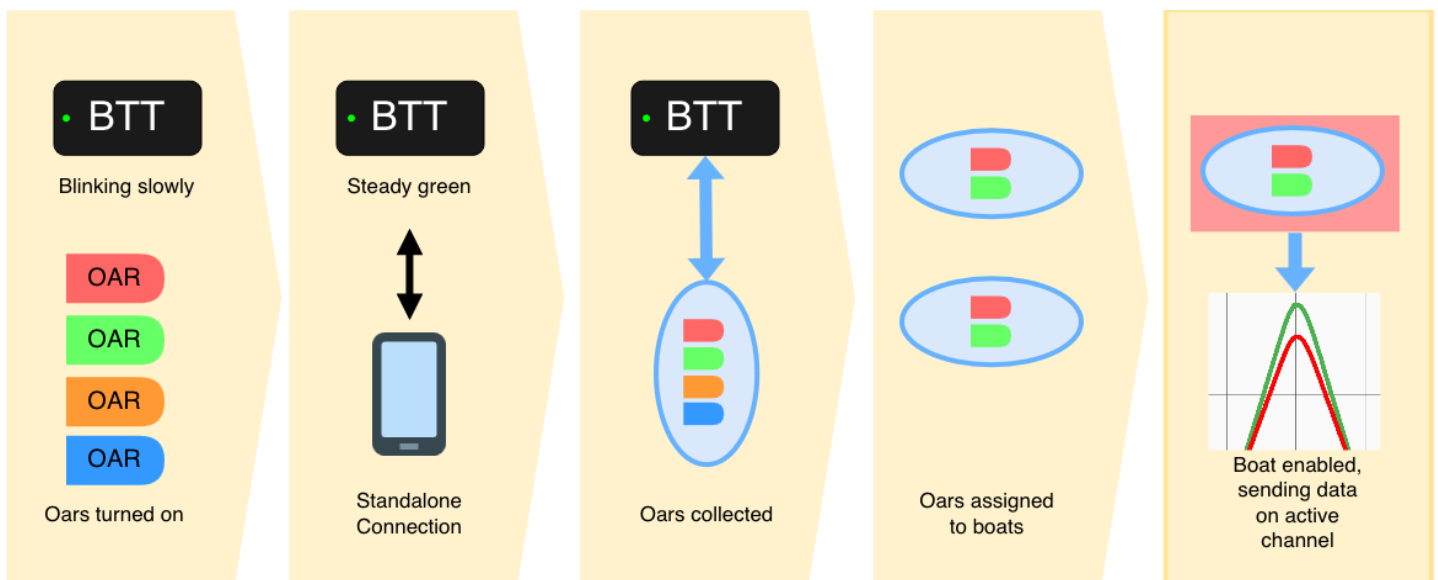
→ Snooper Mode

- Scan channels to find oars transmitting data
- Select and enable the channel you wish to monitor
- Only discovers oars captured and enabled through other BTTs

- Select and enable a set of oars to start transmitting their data

Basic Use

STANDALONE



Capture and Enable Oars

Oars in each boat must be captured and enabled through a Standalone BTT connection. If there are multiple BTTs in the field, this process should be completed for each BTT in turn to avoid reuse of an active radio channel which can lead to interference between oars.

STEP 1

→ Turn on all oars you wish to control with a given BTT.

→ Turn on the BTT that will be associated with these oars. The green light should be blinking slowly.

STEP 2

→ Launch the App.

- It will attempt to connect to the last used BTT, if any.
- The App requires bluetooth and location to be enabled and permitted in Android “Settings” to find and connect to BTTs

→ To select a **new** BTT source, click “override” from the connection page to go to the main menu. Swipe Left to Right to access the menu if necessary.
Choose Setup → Select source.

- Available bluetooth devices will be listed, with BTT devices in bold. Click “Scan” if your device is not listed.
- You may need to pair the BTT device. The pairing pin is **1234 or 0000**. This can be accomplished through the App or through Android “Settings”.

→ Select “Standalone Mode” from the connection popup or “Find Standalone Oars” from the main menu after connection.

STEP 3

→ When the BTT has found a clear channel and captured the oars, the app will open the Boat Assignment page. Alternatively, click on “Assign seats” in the main menu.

- Captured oars appear in the left column

- Click “Find more oars” to capture any missing oars. Make sure they are turned on and not captured by another BTT. You can always turn an oar off then on to free it up if unsure of its status.
- Seat oars manually or automatically by oar number into the boat on the right. Highlight the oar on the left side then select its seat on the right. You can also autoseat the oars in a port or starboard rig.
- If the BTT has GPS and an accelerometer, indicate whether it is in the boat. If the BTT is in the boat, it will send additional data. Place the Accelerometer in seat 9 or 10 to monitor its data.
- To seat another boat from this list of oars, click “Save” to save the current boat to the boat list at the top left. The seats will be cleared and new oars can be assigned.
- If there are oars in the list that don’t belong to any boats you wish to control, you may click “Release remaining oars” to remove them from your channel so they can be captured by another BTT.

- ➔ Click “Enable” to start receiving data from the currently viewed boat. This activates the BTT’s operating channel and strokes will be displayed in real-time.

- ➔ If the accelerometer is located in the selected boat, you will need to zero it before viewing or recording its data. Click “Zero accelerometer” from the main menu when ready. The rowers should be resting at half-slide to zero.

- ➔ Enable a different boat by selecting it from the main menu or by editing and enabling it in the Boat Assignment page.

Working With Multiple BTTs

As mentioned above, each BTT in Standalone Mode first looks for a suitable operating channel for oar transmissions. The App tells the BTT to scan all the available channels. It avoids channels that have BTT/Oar activity. It then selects the quietest channel as its operating channel. Found oars are moved to that channel and data starts flowing when a boat is ENABLED.

It is important to ensure that two BTTs don't decide to use the same operating channel, and active stroke data is the best indicator of an occupied channel. However this depends on everyone being nearby and active during initialization.

It may be more convenient to get all the BTTs on separate channels before finding oars so that you can set up boats on the water without needing to be in range of other BTTs. In this case, use the following process:

STEP 1

- While gathered in close proximity, turn off all BTTs and start all of the Apps you wish to run in Standalone Mode.

STEP 2

- Turn on one BTT and allow it to connect to an App, but **do not select an initial mode from the popup menu.** The connection will complete without collecting oars.
 - The BTT will choose a channel and start sending short "I am here!" transmissions to mark its presence on its selected channel.
 - The App will move to the Main Page Settings Menu.
- Repeat this process with each remaining BTT/App pair.
 - Previously chosen channels will be detected and excluded providing each standalone operator a clear channel.

STEP 3

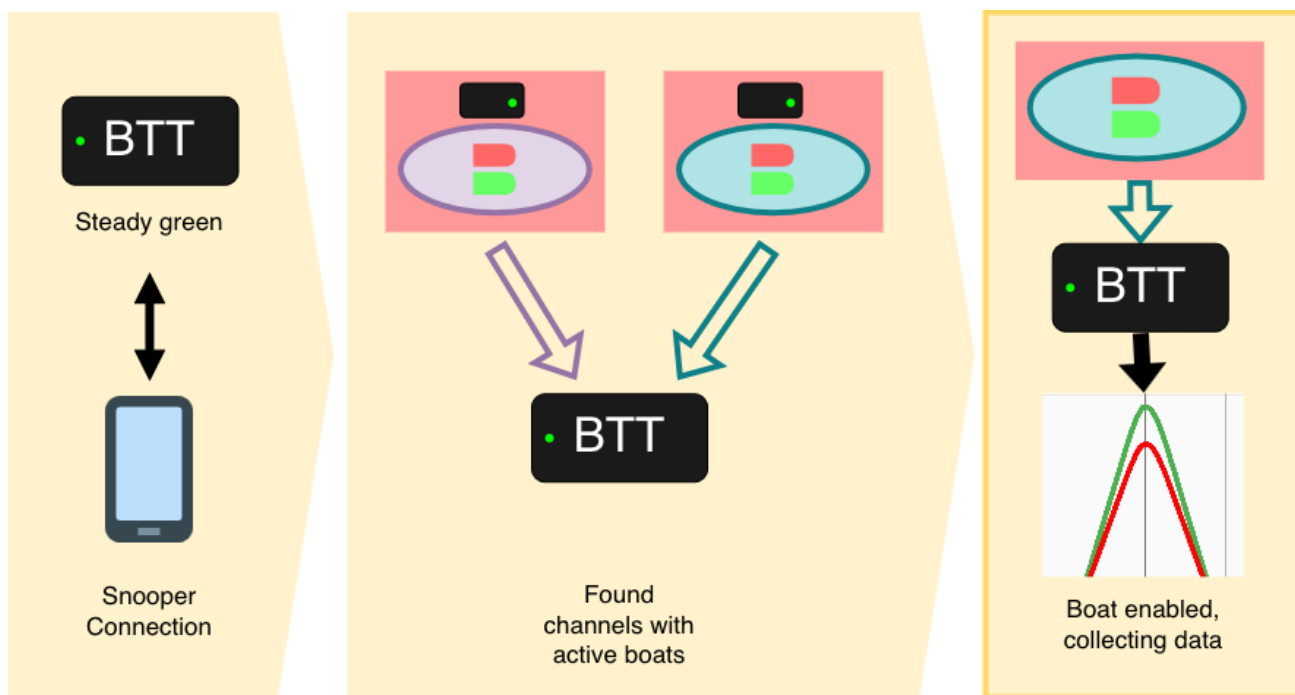
- Once all BTTs have chosen separate channels, each may collect oars without conflict regardless of distance between BTTs.
 - Turn on all oars to be controlled by a given BTT and select "Find Standalone Oars" from the Main Settings Menu to collect them.
 - Repeat for each Standalone BTT.

Restarting the App

Occasionally you may want to restart the App when on the water. When that happens you must release the oars before exiting or power cycle them so they can be recaptured. An added complication occurs when there are multiple standalone BTTs, some of which may be out of range which could lead to channel conflicts when the App is restarted.

Accordingly, the App remembers (for 15 minutes) its last operating channel and will use it unless you tell it to "Rescan for best channel".

SNOOPER



Monitoring Multiple BTTs from One App

Snooper Mode allows you to view and record force curves from oars captured and enabled by other Standalone BTT connections. If you are running a boat in standalone mode, you can also snoop other boats.

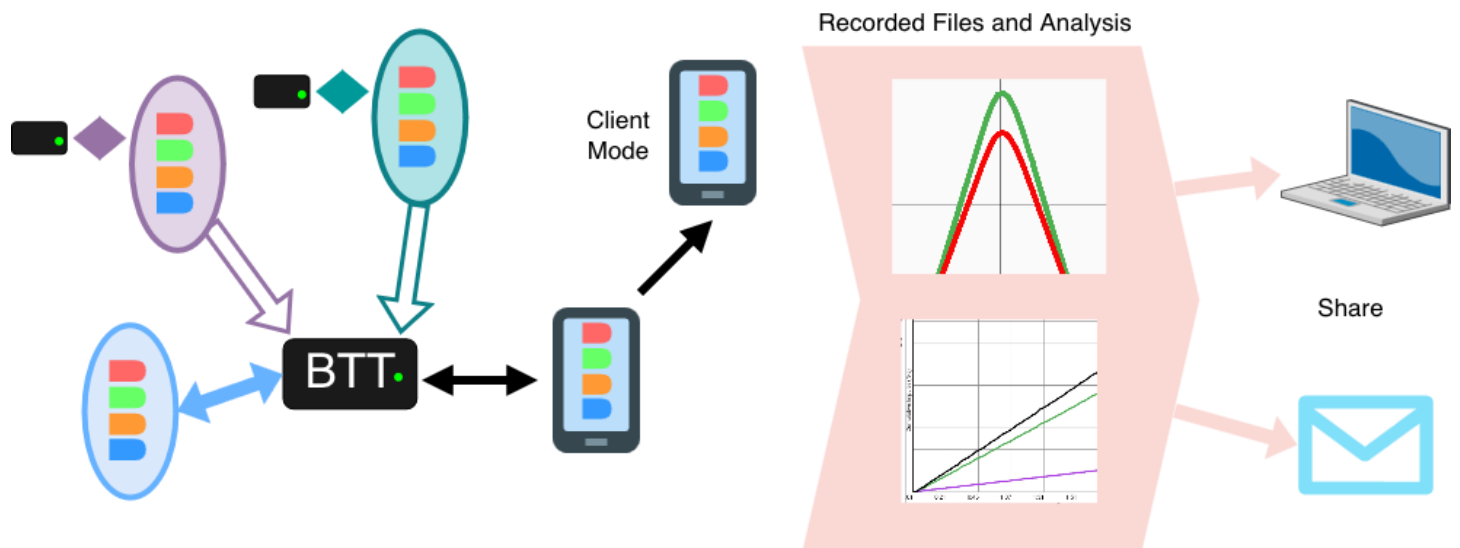
STEP 1

- ➔ If the App is already connected to a BTT, select “Find Snooper Oars” from the main menu to start scanning for active boats.
- ➔ Otherwise, launch the App and connect to a BTT. Select “Snooper Mode” from the connection pop-up.

STEP 2

- ➔ Select the boat you want to monitor from the list in the main menu or by clicking “Assign oars”. If only one active boat is found, it will be selected by default. The seat assignments are the ones set by the controlling App.
- ➔ If the boat you are monitoring is changed or disabled by its controlling Standalone connection, the App may automatically rescan and update the data display.
 - Select “Find Snooper Oars” any time you want to resync to currently active oars and channels.

Other Features



CLIENT/SERVER CONNECTIONS

In Server Mode, an Android phone or tablet can “Serve” out force curves to other (paired) Android devices running the App in client mode. Multiple clients can connect to a server. Be aware that Bluetooth has very limited range. A client can simultaneously act as a server to its own clients to increase Bluetooth range.

ENABLE CLIENTS TO CONNECT

- It is best to pair your device beforehand with potential clients to avoid disruption. You can do this in the system bluetooth settings for the device.
- In the App, select “Setup” and toggle on “Server” mode. This value will be remembered when you next open the app.

- ➔ Connect to a BTT and proceed as usual to find and enable oars. Any clients that connect to the server will receive data from whatever boat you are monitoring.

- ➔ You can filter the oar data received by each client by editing their “boat” through the Boat Assignment page:
 - Click “Assign seats” in the main menu and select the client you wish to edit from the popup.
 - “Auto” seating for a client clears their filter.

CONNECT AS A CLIENT

- ➔ Launch the App and click “Override” to reach the main menu. You may need to drag left to right to bring up the menu.

- ➔ Select “Setup” and toggle on “Client” mode.

- ➔ Click “Select source” and choose the device you want to connect to.
 - You will not be able to connect until the App is open on the primary device and they have enabled “Server” mode.
 - The oar data on the server device will be relayed to your App.

LOW BATTERY

A low battery alert will display next to the oar label of an oar to warn you that it needs to be charged. A low battery alert for the connected BTT will display in the upper left corner of the plot. These alerts are only displayed while the device is enabled and sending stroke data. Both types of alerts mean you have only 10 minutes of operating time before the oar or BTT shuts down.

RECORDING AND EXPORT

Record live strokes for comparison and review.

- Toggle on and off recording in the lower right corner of the main plotting screen. You can start the recording before strokes begin, but nothing will be saved until at least one full stroke from any oar is received.

- Multiple recorded sessions of the same oars will be added as separate “Pieces” into a single file. When the set of enabled oars changes, a new file will be started.

Recorded Files Page

Edit and manage files from the “Recorded Files...” page.

Recorded files are saved to a folder in your device’s Downloads directory in a directory called “Stroke data”. Depending on your device permissions, you may need to choose or create this folder yourself. You will be prompted to do this on your first recording session.

- Click the Edit icon beside a file to view and edit the file metadata: names of Pieces within the file, and names associated with each oar.
 - Click “Save” to save your changes to the file.

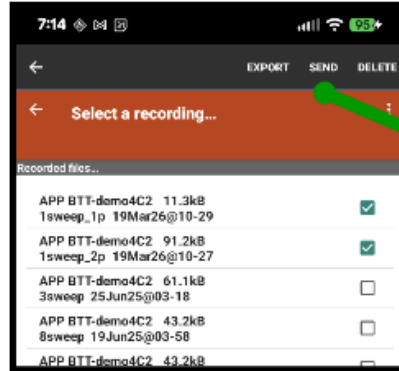
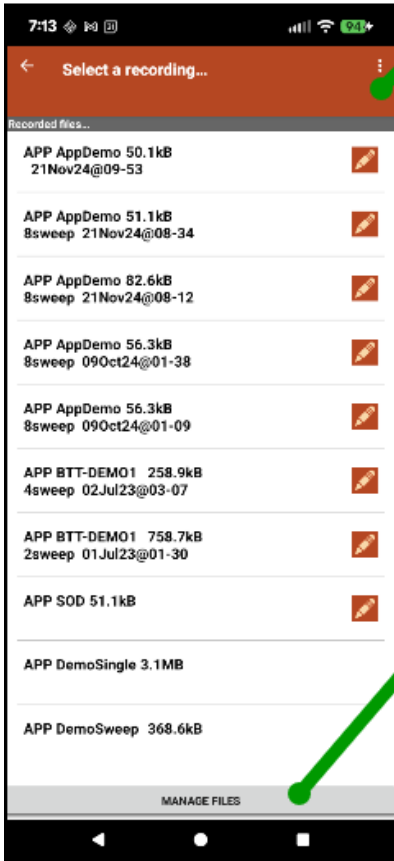
- Click “Manage Files” at the bottom of the screen to perform actions on multiple files:
 - Export to another directory on your device
 - Send by email or message app
 - Delete to clear space

- ➔ Click “Import” in the top right menu to import .SOD files from elsewhere on your device for playback, editing, and analysis.

Import

Import .SOD files from another folder on your device.

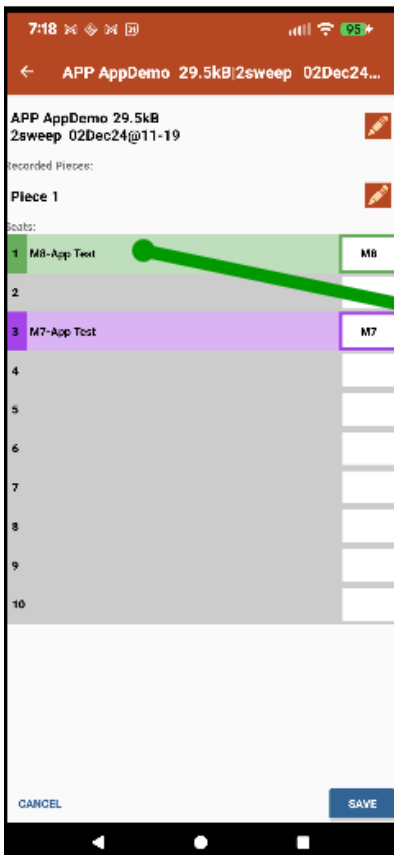
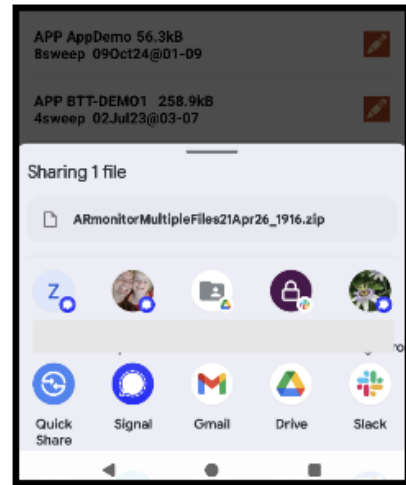
Files will be copied into your default recording folder and made available for editing, playback, and analysis.



Export one or more files to another folder on your device.

Send them through email, sms, or other share option.

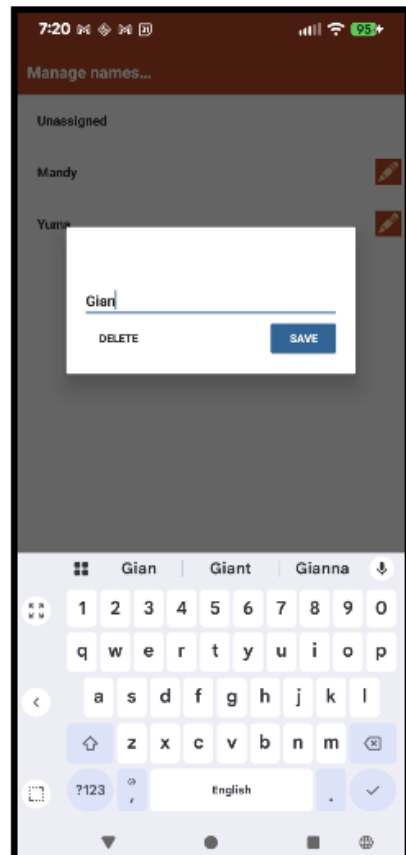
Delete files to free storage space.



Edit the filename and name of each included Piece.

Add names to recorded bars from a saved name list.

Select "Unassigned" to remove a name.



PLAYBACK AND ANALYSIS

Review recordings stroke by stroke and generate basic performance graphs without leaving the App.

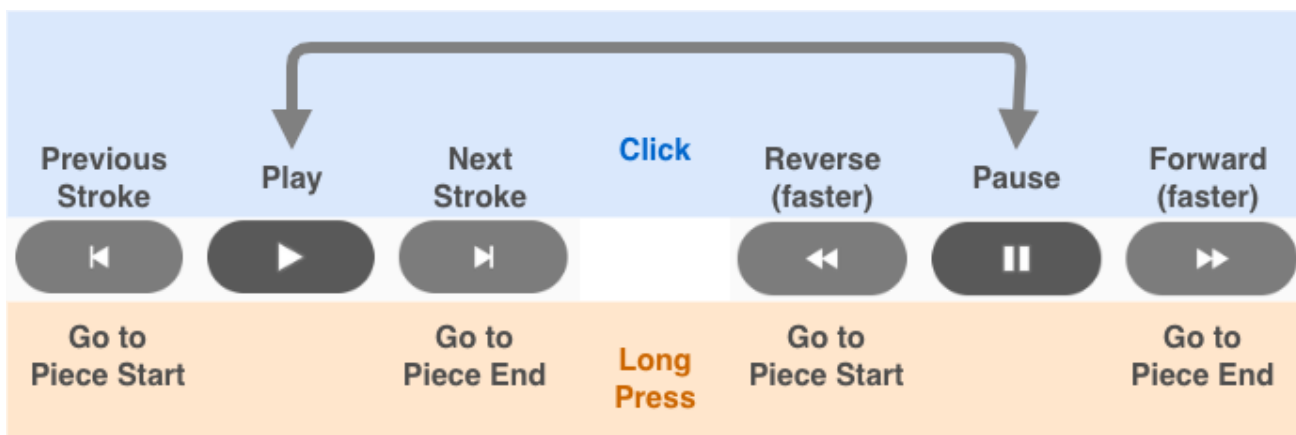
→ In the Recorded Files page, click on the file you wish to review

→ Swipe the menu in from the left to switch between Playback Mode and other analyses.

Playback

Playback loops within one piece until the user advances to the next one.

Controls have different functions in Playing and Paused modes, and on click or long-press interaction (see below).



GRAPHS

→ Pinch to zoom or use one finger to pan the graph along the axes. Double tap to return to the initial scale.

→ Use the menu in the upper right to save a graph as an image to your Downloads folder for export.

→ Tap oar names (seat:letter-number) in the legend on the left to toggle lines for individual oar data series.

Basic Stats vs. Time

This graph shows the total impulse for the boat, as well as stroke rate (strokes per minute) and speed (m/s), when available, over the recorded time. Pieces are separated by vertical lines.

Oar impulse scale is shown on the right axis, and is the same for all oars.
Boat impulse scale is shown on the left axis.

Sum of Impulses

This graph shows the cumulative impulse for the boat and for each oar over the recorded time, in Newton-seconds. Pieces are separated by vertical lines.

Menu Options

MAIN (SETTINGS) MENU

Show m/sec

Toggle speed units displayed in the plot view. Choose m/sec or 500m split. Speed is only displayed when a BTT with GPS is assigned to the boat you are monitoring, and the GPS has a location. Speed is determined by averaging GPS readings from the start of a stroke to the start of the next stroke. For this reason the speed displayed in live mode is actually the calculated speed for the previous stroke. When the file is saved, the speed value is saved for the correct stroke,

Assign oars/names/boats...

Open the Boat Assignment page to view and edit (Standalone) oar seats and names, release unused oars, and enable new boats.

Unassigned oars are listed on the left. To assign an oar to a seat, select an oar which will become highlighted in black and assign it to a seat position by selecting the white box to the right of the seat number. Press again to unassign the oar. You can also “AUTOSEAT PORT RIG” or “AUTOSEAT STBD RIG” to assign all oars if the oar numbers match the seat positions. “CLEAR” will unassign all oars for a given boat.

“SAVE” will save the assigned oars as a boat.

“ENABLE” will save the oars as a boat and begin displaying force curves. If your BTT has GPS, you must also select “BTT is in this boat” or “BTT is not in this boat”.

Once an oar is assigned to a seat, the name programmed into the oar appears next to the seat number. You have the option of replacing this with the rowers name. If you select the name, a new screen will appear with a list of the names of your rowers. You create this list by selecting “ADD” then, after entering a name, select “SAVE”. When you select a name, it will appear in the previously selected seat position. Selecting “Unassigned” will restore the oar’s programmed name. This can be useful in keeping track of your rowers in the boat.

From this menu (top left) you can add a boat or select an existing boat in order to make changes.

On the bottom left you can: “RELEASE REMAINING OARS”, “FIND SNOOPER OARS” or “FIND STANDALONE OARS”.

Boats...

Any boats created from the current set of oars your BTT is monitoring are listed here for easy switching. The boat name indicates which oars letters/numbers are in the boat, and the name of the BTT associated with them.

Select a boat name to start viewing real-time strokes from those oars.

Find Standalone oars...

Request BTT scan for uncollected oars. Found oars will be captured to this BTT's active channel and presented in the Boat Assignment page for seating.

The BTT can collect up to 24 oars, but only 8 may be enabled at one time (in one boat).

Find Snooper oars...

Request BTT scan for oars transmitting on other BTTs' active channels. Found oars will be automatically seated in boats as assigned through their Standalone connection(s). If more than one boat is found, select the one you want to monitor from the Boat Assignment page or the main menu Boats list.

Zero accelerometer

Request BTT to use the current measurement to set the baseline for its internal accelerometer. The rowers should be resting at half-slide to obtain the best zero.

Setup...

Open the Setup Menu (see below).

Recorded Files...

Open the File Selector page for Playback or Export (see below).

Manage Names...

Open the Rower Names list to add or edit names, which can be assigned to seated oars in the Boats Assignment page. The procedure is the same as described above under "Assign oars/names/boats".

About...

Open the About page to find software versions and contact information. If connected to a BTT, you can its software from this page.

Exit

Click here to exit the App and shutdown and turn off your BTT and any oars it has collected. This is also important to avoid hanging the bluetooth connection.

SETUP MENU

Mode

Select default remote source. Most users will be connecting to a BTT; choose Client to connect to a nearby phone or tablet for relayed data.

Server

Toggle this on when you want to allow client devices to connect to your phone or tablet for relay.

Demo

Set Demo mode to test the system. The action depends on your current connection status:

- Standalone connection with oars enabled → Oars will send test data.
- Not connected to BTT → App will display a collection of fake oars with test data.

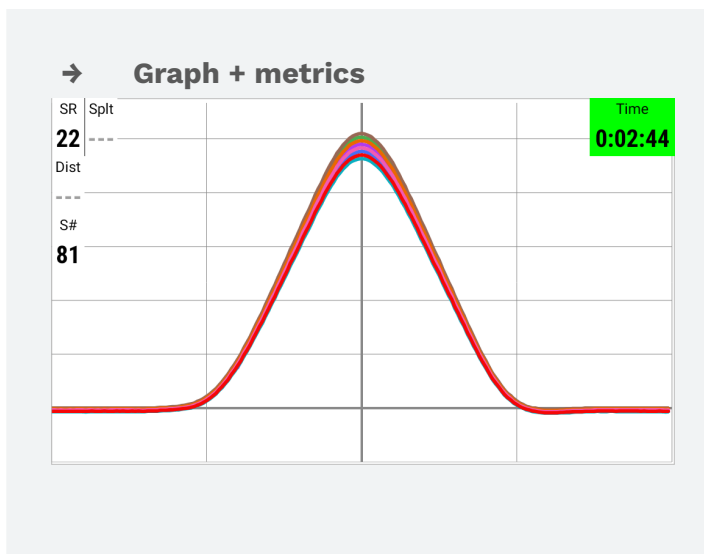
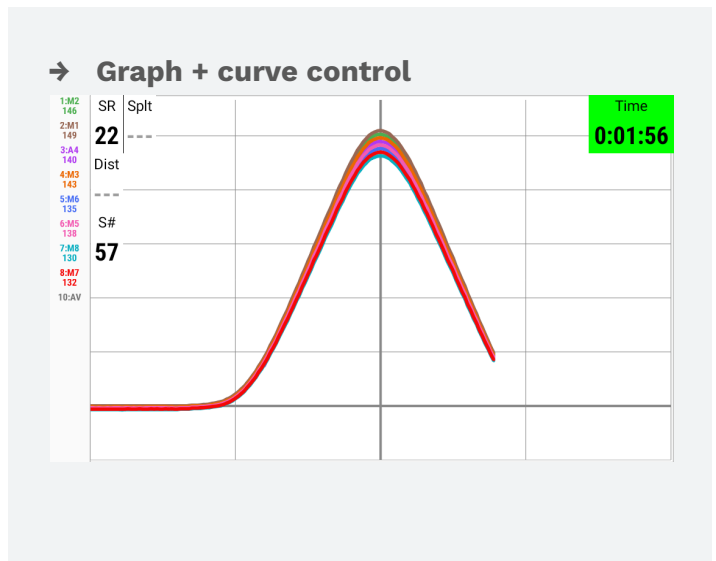
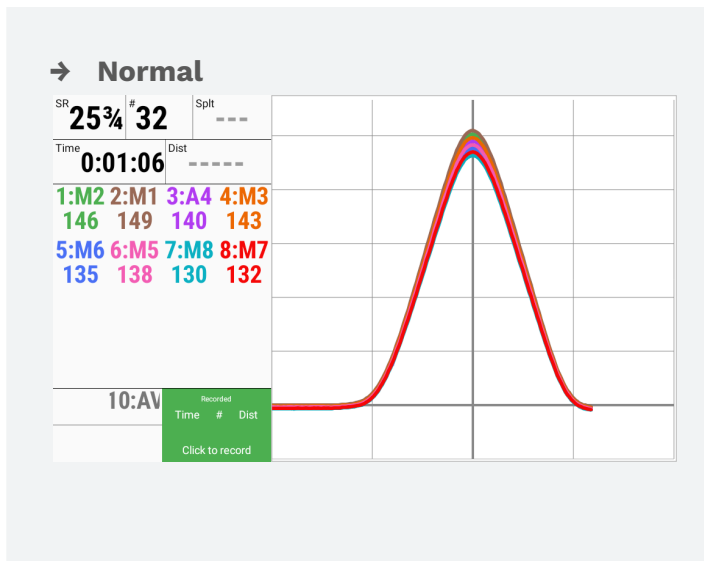
Display brightness

Set the screen brightness level of your device. Select Max in the popup to improve viewing in daylight. Requires permission through Android Settings.

Landscape setup

Landscape mode was created to provide options for rowers viewing their curves in the boat.

They generally have something to work on like catch/finish timing or curve shape, so curve size is a priority. Choose how curves and stroke statistics are displayed when the tablet is in landscape orientation:



Select source...

Click to discover nearby bluetooth devices and select the BTT (BTT Mode) or tablet (Client Mode) to connect to. After choosing a source, the currently connected BTT, if any, and its collected oars will be shutdown prior to disconnection. If you have trouble finding a BTT, you may have to pair the BTT using the system “Settings”. The many versions of the Android OS can cause difficulties in pairing within the App.

Rename BTT

While connected to a BTT, click here to edit its name. This name will show up in the Select source menu and connection messages, and will be added to any recordings for reference. The BTT will restart after a name change. Due to Android version idiosyncrasies, you will likely need to unpair then repair the BTT after a name change.

Options...

Open the Options menu (see below).

OPTIONS MENU

Accelerometer data smoothing...

Active only if GPS is in the boat or if an legacy external accelerometer is assigned to the boat. You can smooth the curve by increasing the averaging.

Diagnostics...

Open the Diagnostics menu (see below).

DIAGNOSTICS MENU

Count dropouts

Toggle this to display a running count of dropped data packets.

- 0's Drops indicate the BTT did not receive any data from an oar for a portion of the stroke.
- BT Drops indicate the App did not receive data, or received only 0s for part of the stroke.
- This display also shows the running nSplit value.

Show BTT Log

Open a text view of the communication log for the current BTT connection. The 10 most recent logs can also be found in your device's Downloads→SmartOarLogFiles folder.

RSSI Data

Select to display the BTTs received signal strength indication (RSSI) for each oar.

- RSSI only → displays the missed values : average signal strength for each oar in the oar legend
- RSSI and stroke → plots strokes as usual, but shows the signal strength for each oar in place of the impulse in the oar legend
- Hide RSSI → normal plotting view with impulse value for each oar in the oar legend

RECORDED FILES...

Select a recording...

A list of recorded files appears. The filename includes the name of the BTT used in recording, the size of the file, the number and type of oars and the time and date of the recording. Selecting a recording will initiate playback.

Edit a recording...

Click the pencil icon next to the filename to edit Piece and Oar names for the file (default is oar letter-number)

SETTINGS MENU Within RECORDED FILES...

At any time, swipe screen from left to right brings up a menu related to a selected recording.

Graph type...

Several Types of plots are available depending on whether GPS was part of the recording.

- Pinch to zoom graph.
- Slide with one finger to pan along either axis.
- Double tap the graph to reset to the original scale.
- Click labels in the legend to add/remove curves.

→ Playback

- Recorded force curves are played back.
- Controls at the screen bottom allow you to Pause / Run
- Arrows step stroke-by-stroke from Pause or increase playback speed in forward or reverse from Run.

→ Basic Stats vs Time

- Boat Impulse (NT-s) vs Time
- Boat Speed (m/s) vs Time
- Stroke Rate vs Time

- **Sum of Impulses**
 - Total Boat Impulse (NT-s) vs. Time
 - Each Contributing Oar Impulse (NT-s) vs. Time

Landscape Mode

Control Playback curve views in Landscape orientation (see above).

Recorded Files...

Click to choose a new file to review.

Exit Playback

Exit the Playback page to view live data and connections.

Appendix A: Update Your BTT

Periodically, the BTT's software will need to be updated to include new features and fixes. You can update from the version built into the App or from an external version downloaded into your Android device. Typically, a new App release will include the latest BTT update, and the transfer can be handled from the About page.

- Check the current version of a connected BTT in the About page.
 - *Example: BTT-DEMO2 Rev7.0.1*

- Click Update BTT. Any collected oars will be released before updating.

- Choose the update you wish to apply. The most recent available update will be listed. If you want to use a version saved elsewhere on your device, choose "Select File" and select it from the device's file explorer.

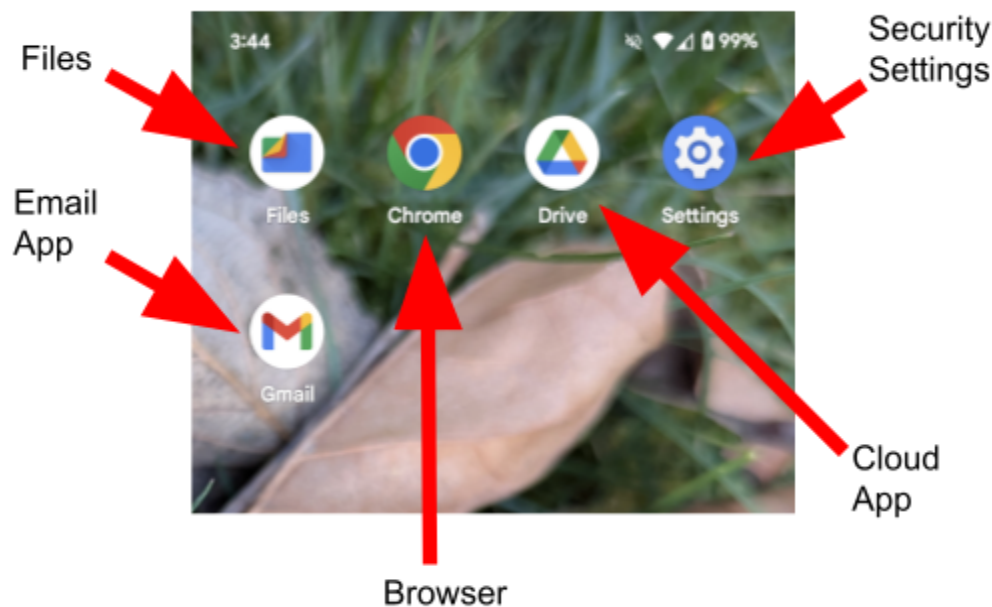
- Confirm that you want to begin the update, and trigger the BTT's bootloader mode (red and green lights alternating quickly). The update may take a few minutes. It's important that the BTT does not run out of power during this process.

- After a successful update, the BTT will return to normal mode (steady green light), establish a channel, and start scanning for oars to collect.

Appendix B: Installation

How to install the SmartOar ARmonitor App from the “.apk” file.

Android Phone or Tablet



1. Check Tablet Security settings.

- Go to Settings -> Apps -> Special App Access -> Install unknown apps
- Check that the app you will use to download the apk (email, browser, cloud storage, or Files) is allowed to install it.
- You can safely undo these changes after the apk is installed.

2. Transfer the file to the Tablet in one of the following ways:

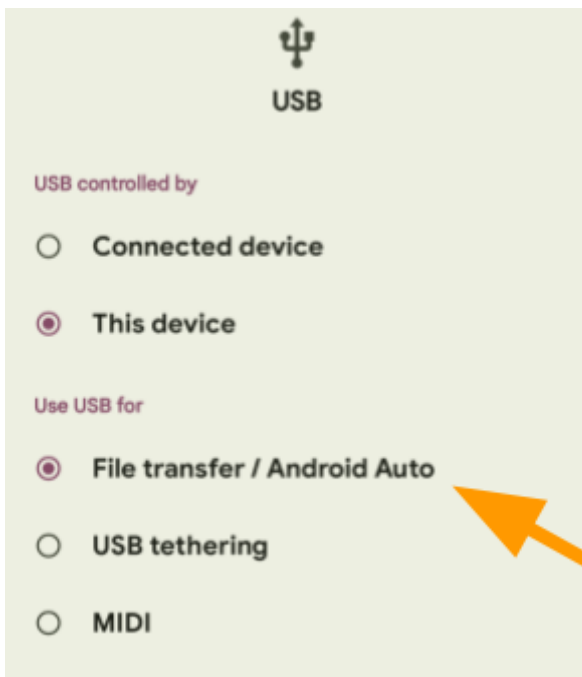
- Through your personal email on the destination Tablet:
 - If your email account is set up on the Tablet, open the email with the apk file on that device, click “Download”, and then “Save” or “Open”.
 - If you are not prompted to install the app, see Install or Update the App, below.
- Through cloud storage, like Google Drive or DropBox:

- i. Share the apk file to your cloud account directly from the email or by saving the file first and then uploading it.
- ii. On the destination Tablet, open your cloud storage app or a browser, find the apk file
- iii. If you are not signed in to your cloud account on the destination Tablet, you will need to get a public “share link” for the uploaded apk and copy it into the browser nav bar.
- iv. Download the apk file.
- v. See Install or Update the App, below.

continued next page →

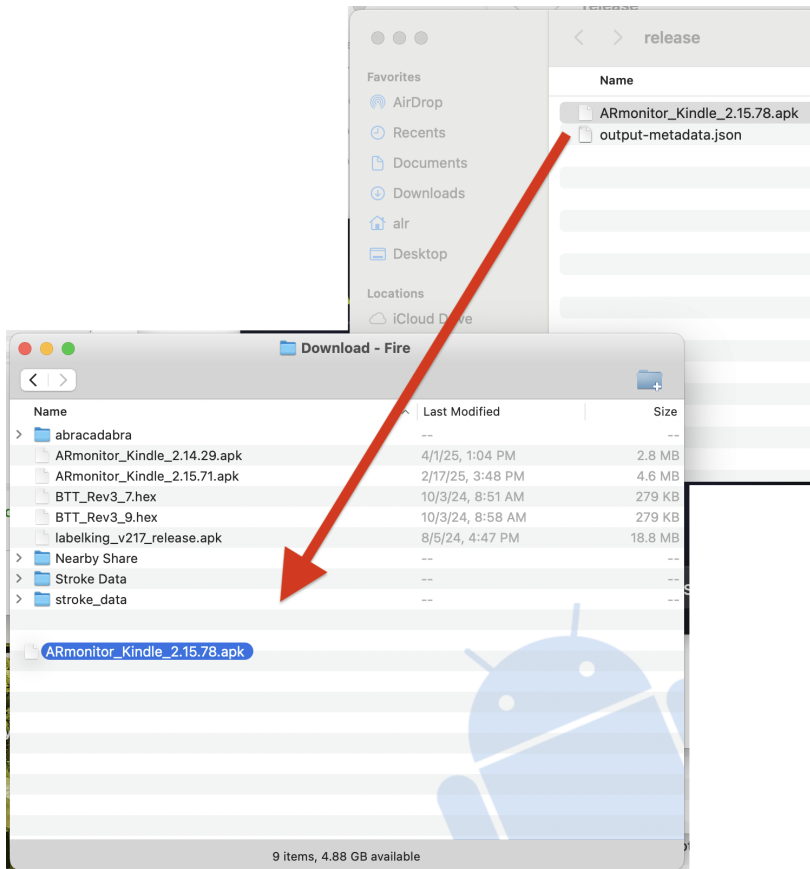
c. Through USB:

- i. If you are using Windows or Linux, there is a built-in utility.
- ii. If you are using Mac (OS X 10.5 and up), you will need to install a free file transfer utility. Unfortunately, the official Android File Transfer is no longer available from Google/Android, so this only works if you already have it installed on your Mac.
- iii. Download the apk file to your computer.
- iv. Unlock your Tablet and connect it to the computer with a USB cable. (Reconnect now if it was already connected.)



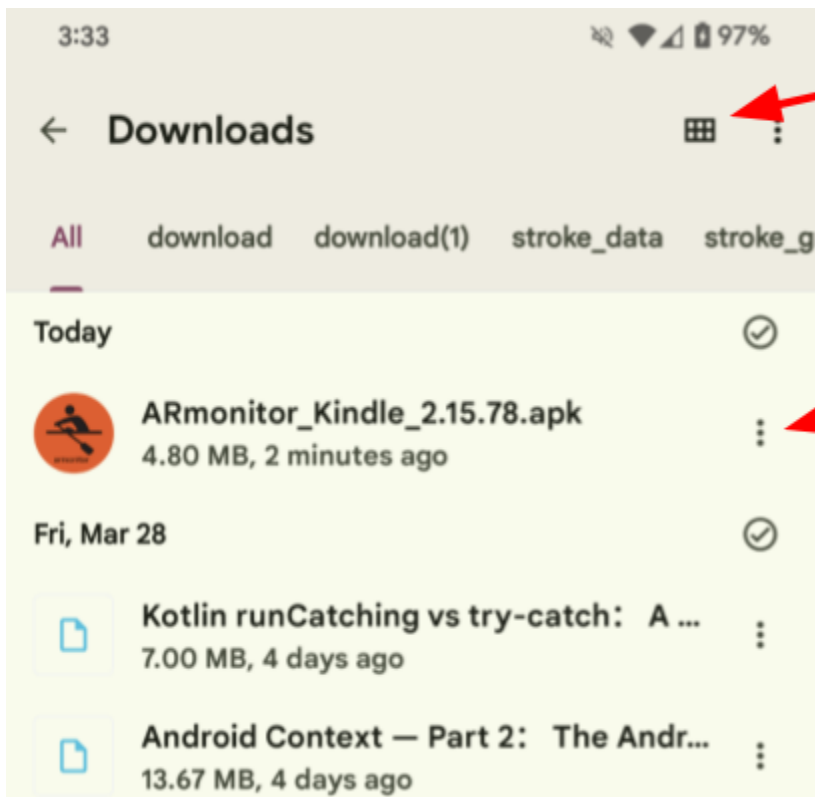
- v. A notification for the USB connection will appear on the Tablet. Click that to check that the USB connection allows File Transfer (MTP). Some USB cables do not transfer data, only charge, so if this doesn't work, try another cable.
- vi. If you don't get a notification, go to Settings -> Connected Devices -> USB, and select Use USB for “File transfer”
- vii. If the file transfer utility does not automatically start on your computer,
 1. Mac: Go to “Applications” and start the Android File Transfer program from there.
 2. Windows: Check your computer's settings to make sure that Windows automatically detects new hardware.

continued next page →



- viii. A window will open to list your Tablet's file system contents. Find the "Download" folder and double-click to open it.
- ix. Drag the apk file from your computer file system into the file transfer utility window.
- x. See Install or Update the App, below.

continued next page →



Toggle list/grid
to see full
filenames

Select file and
move into a
custom folder in
case you need
to revert a
future update

3. Install or Update the App:

- a. On the Tablet, open the “Files” app.
- b. In the “Downloads” folder, find the apk file, and click it to open the install prompt.
- c. Let Google scan the app if requested, then “Install” and “Open”.

Kindle

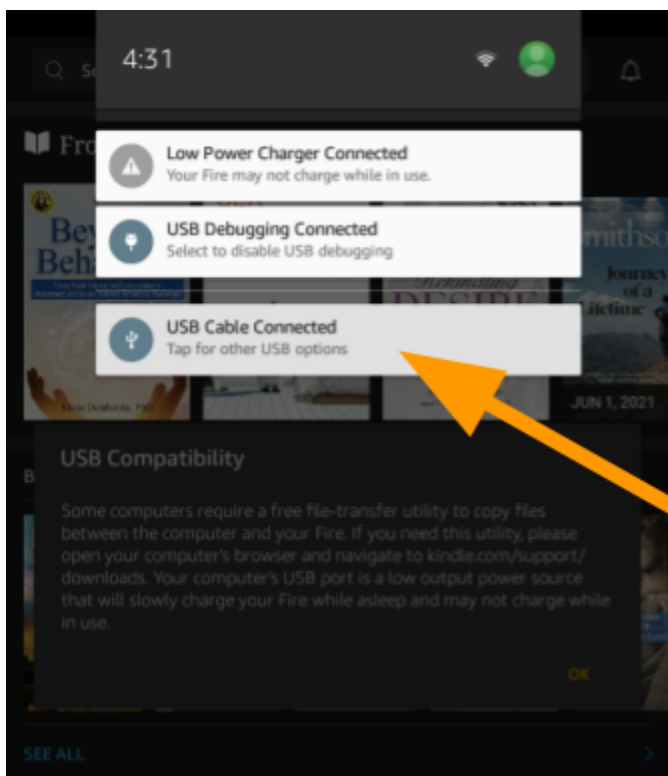
1. Check Kindle Security settings.

- a. On the Kindle Home screen, click the “Settings” icon.
- b. Click “Security & Privacy”.
- c. Click “Apps from unknown sources”.
- d. Allow app install from Email or Browser app, depending on where you will access the apk link.
- e. You can safely undo these changes after the apk is installed.

2. Transfer the file to the Kindle in one of the following ways:

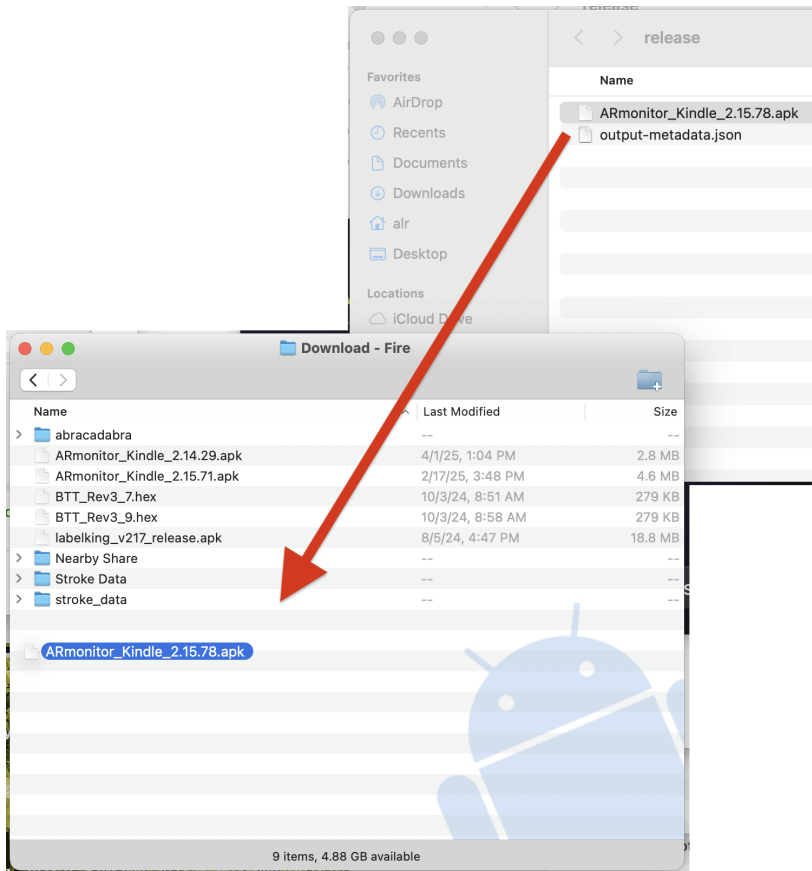
- a. You cannot transfer this type of file through Amazon’s “Send to Kindle” ...@kindle.com email address.
- b. Through your personal email on the Kindle:
 - i. If your email account is set up on the Kindle device, open the email with the apk file on that device, click “Download”, and then “Save” or “Open”.
 - ii. If you are not prompted to install the app, see Install or Update the App, below.
- c. Through cloud storage, like Google Drive or DropBox:
 - i. From your phone or computer, share the apk file to your cloud account directly from the email or by saving the file first and then uploading it.
 - ii. If you don’t have the cloud storage app on your Kindle, you can use the Silk browser, but you will need to get a public “share link” for the uploaded apk.
 - iii. On the Kindle, open your cloud storage app or browser, find the apk file, and download it.
 - iv. See Install or Update the App, below.
- d. Through USB:
 - i. If you are using Windows, there is a built-in utility.
 - ii. If you are using Mac (OS X 10.5 and up), you will need to use a free file transfer utility. Unfortunately, the official Android File Transfer is no longer available from Google/Android, so this only works if you already have it installed on your Mac.
 - iii. Download the apk file to your computer.
 - iv. Unlock your Kindle device and connect it to the computer with a USB cable. (Reconnect now if it was already connected.)

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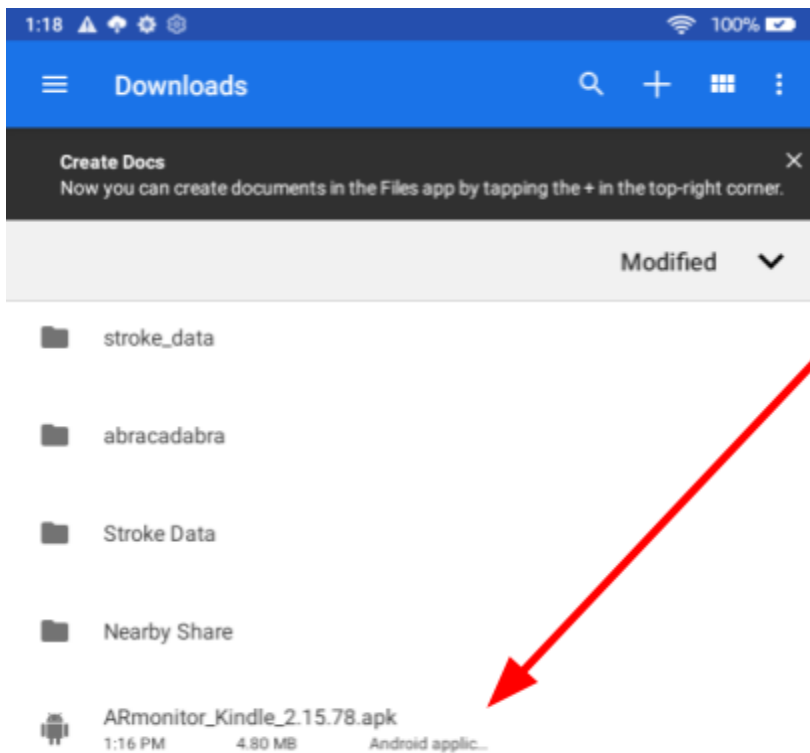
- v. A notification for the USB connection will appear on the Kindle. Click that to check that the USB connection allows File Transfer (MTP). Some USB cables do not transfer data, only charge, so if this doesn't work, try another cable.
- vi. Click "OK" on the warning about file utilities.
- vii. If the file transfer utility does not automatically start on your computer,
 - 1. Mac: Go to "Applications" and start the Android File Transfer program from there.
 - 2. Windows: Check your computer's settings to make sure that Windows automatically detects new hardware.

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- viii. A window will open to list your Kindle's file system contents. Find the "Download" folder and double-click to open it.
- ix. Drag the apk file from your computer file system into the file transfer utility window.
- x. See Install or Update the App, below.

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Click to install.

Long press to select and move to a custom folder in case you need to revert a future update.

3. Install or Update the App:

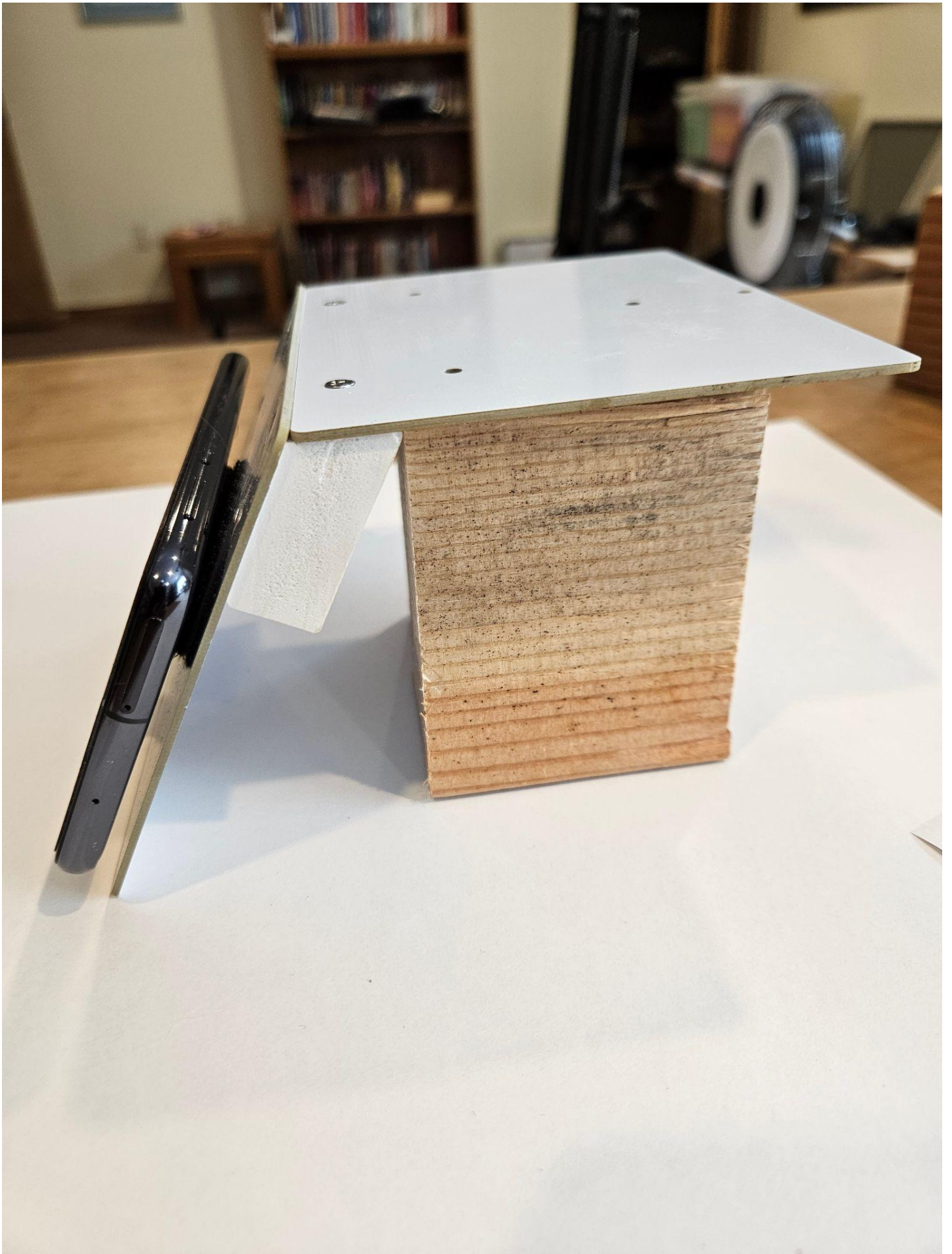
- a. On the Kindle, from the Home screen, click "Files".
- b. In the "Download" folder, find the apk file, and click it to open the install prompt.
- c. Click "OK" on the warning about file utilities.
- d. Click "Install", then "Open".

Appendix C: Operating Scenarios

1. You are controlling the BTT from the launch and want a rower to see their curves. Given the limited Bluetooth range, Client/Server mode is not your best option. One solution is to acquire a BTT without GPS, put it in the boat and run it in Snooper mode so that a rower connected to that BTT can see their curves. If a BTT has GPS, it serves best in the shell yielding boat speed with the cox running the App. The Coach, in the launch, can snoop in on the curves of this and other boats. The cox can pass the App device to a rower so they can see their curve or run the App in Client/Server mode so that both can see the curves. One caveat here is the Bluetooth range. One can always place a cell phone midway in the boat. This cell phone can connect to the coxes phone as a client while acting as a server to the phone toward the bow.



2. How do you mount a BTT in a boat? The BTTs are shipped with a velcro pad in the back and matching pads to attach to the boat or launch. In a launch, mount the BTT up high and away from the motor which can generate interference. In the shell, a good place is on a rigger outboard of the hull for good line of sight.
3. How do you mount a cell phone or tablet so a rower can see their curves? We sell a bracket for wing riggers and a standoff mount for footplates. Contact us about your needs. You can mount a BTT on the top of the wing bracket and have a self-contained snooper that is easy to move from seat to seat.





Appendix D: Trouble With the Force Curve

[How to Use Force Curves to Fix Technique - Alicia R. Clark](#)

[VIDEO GUIDES – smartOar®](#) - Provided by by Joel Furtek