



B.B. LINK

OPERATOR MANUAL

v1.0



Thank you for giving B.B. Link a go. We hope it will bring you more enjoyment out of your iPhone and radio.

The B.B. Link adapter has been designed to act as a bridge between Bluetooth Low Energy (BLE) and Bluetooth Classic, enabling devices that normally can't communicate to connect seamlessly. It is designed specifically for the Kenwood TH-D74/5 radios, which use Bluetooth Classic, allowing them to pair with iOS devices that support BLE only. This opens the door for apps like RadioMail to utilize the radio's built-in TNC as a packet modem.

Your phone's USB-C port provides the necessary power for the adapter. Just plug it in, pair with your radio, and you're good to go.

Compatibility

The adapter requires an iOS device capable of delivering power via USB-C. It is compatible with the following device featuring a USB-C connector:

iPhones

- iPhone 15
- iPhone 15 Plus
- iPhone 15 Pro
- iPhone 15 Pro Max

iPads

- iPad Pro 11-inch (1st generation or later)
- iPad Pro 12.9-inch (3rd generation or later)
- iPad Air (4th generation or later)
- iPad mini (6th generation)

The adapter is only compatible with the following radio models with built-in KISS TNC:

- Kenwood TH-D74
- Kenwood TH-D75

Writing Conventions

In this guide, 'iPhone' means any iPhone or iPad with USB-C. The Kenwood TH-D74 or TH-D75 radios will be referenced as 'TH-D74/5' or just 'the radio'.

Do Not Plug the Adapter Into the TH-D75

While B.B. Link is designed to plug directly into USB-C, beware that the USB-C connector on the TH-D75 won't power the adapter. The radio does not act as a power delivery host. If you want to use the adapter with a previous generation iPhone that lacks USB-C, a portable charge power bank can be used instead.

Do Unplug After Use

Unplug the adapter when not in use to conserve your phone's battery. Bluetooth Classic connections draw substantial power. The adapter can get warm after extensive use.

Handle with Care

The adapter is small, but it will protrude from your device when plugged in. Handle with care to avoid damaging the connector. Always unplug the adapter when not in use. Remove the adapter by gripping its case, not pulling on the lanyard.

Warnings

Keep the adapter away from liquids.

Keep it out of direct sunlight and away from excessive heat.

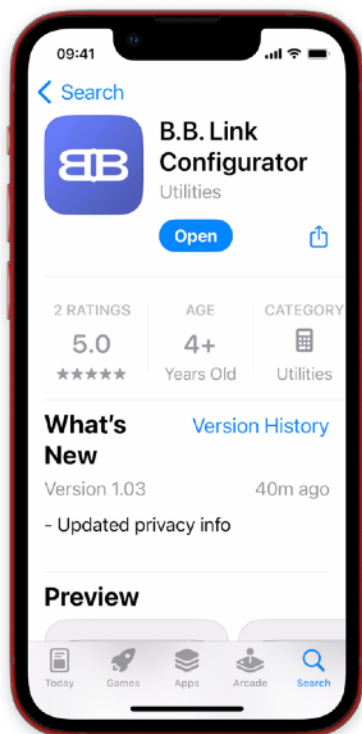
CHOKING HAZARD - Small parts. Not for children under 3 years.

1. Setup

The adapter needs to be paired with your radio once. After that initial pairing, B.B. Link will automatically try to reconnect to the radio when powered on. To pair the adapter with your radio, you will need the B.B. Link Configurator app.


1.1 Installing the B.B. Link Configurator App

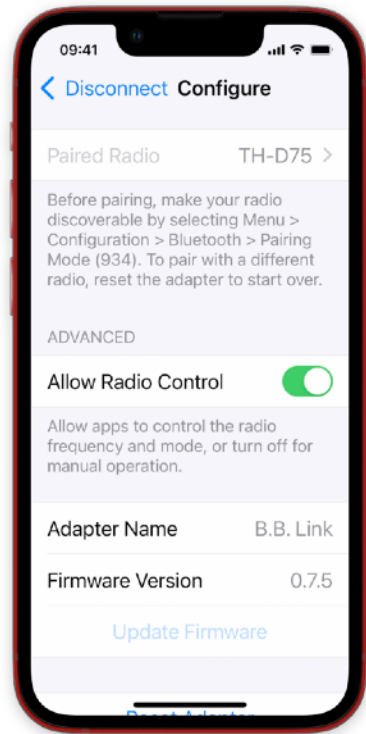
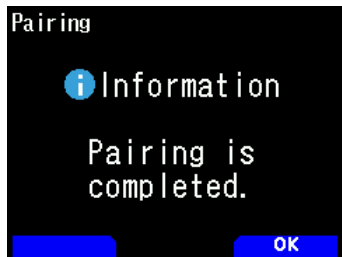
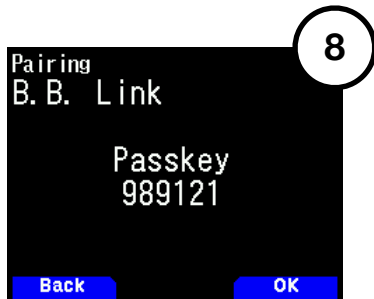
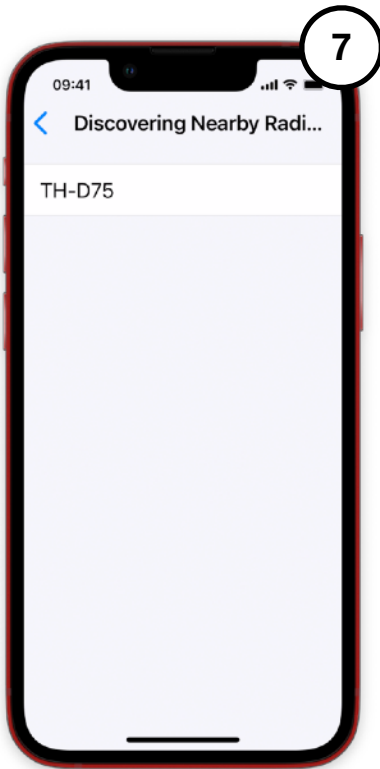
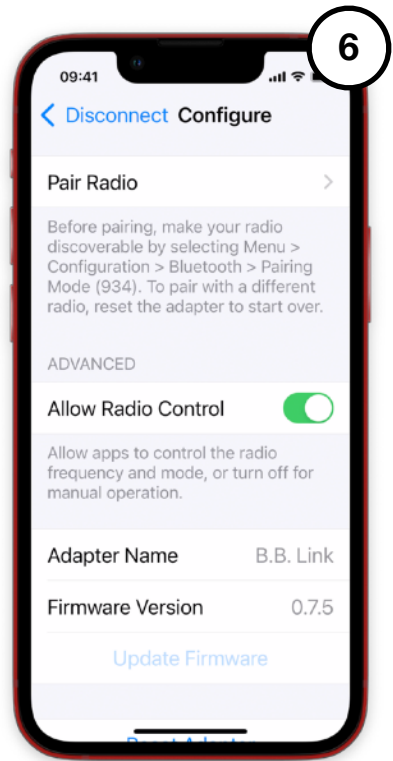
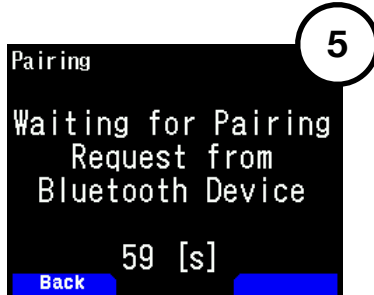
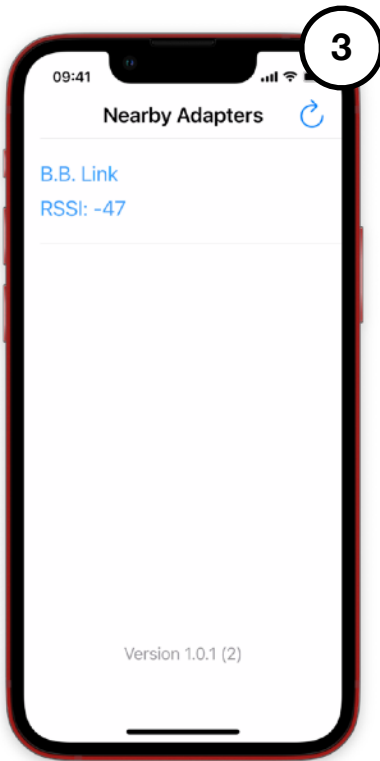
Open the App Store on your iPhone, search for 'B.B. Link Configurator' and download it. You can also scan the QR code to get there directly.



1.2 One Time Pairing

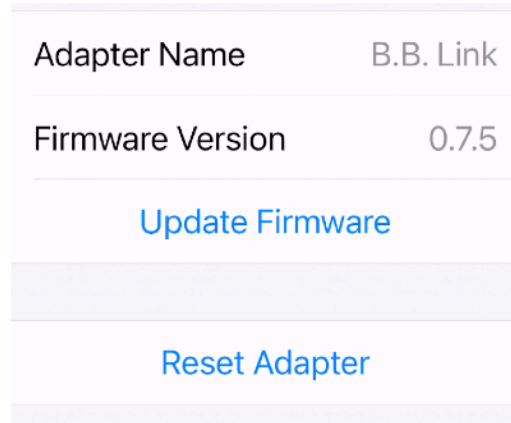
1. Plug the adapter into your iPhone.
2. Open the B.B. Link Configurator app and allow Bluetooth access.
3. After a few seconds, your B.B. Link adapter should appear in the Nearby Adapters screen. Select it by tapping its name.
4. Power on your TH-D74/5 radio.
5. Put your radio in Bluetooth Pairing Mode: **Menu > Configuration > Bluetooth > Pairing Mode (934)**
6. Tap **Pair Radio** in the Configurator app to search for your radio.
7. Once your radio appears in the Discovering Nearby Radio screen, tap its name to select it.
8. On the radio, confirm the pin request by pressing **OK**.

Congratulations, your radio is paired with the adapter. It will auto-reconnect when the radio is on, shown by the  icon on the radio screen. You can quit the Configurator app now.



1.3 Pairing with Another Radio

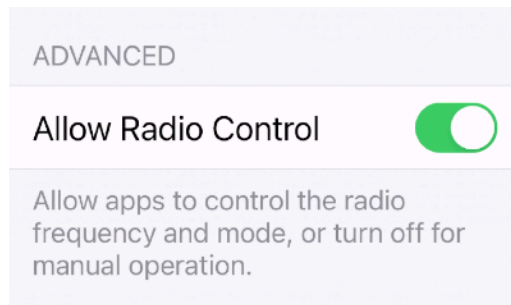
B.B. Link pairs with one radio at a time. To switch radios, use the **Reset Adapter** option in the Configurator app, then pair with the new one.



1.4 Radio Control

B.B. Link can manage your radio's mode and frequency, enabling apps like RadioMail to adjust the dial to a station's frequency at the beginning of a session and revert it afterwards. The adapter detects whether the A or B band is set for TNC data use and selects the appropriate VFO for frequency changes. The band can be selected via the radio's menu at **Configuration > APRS > Basic Settings > Data Band (506)**.

If manual control is your preference, simply turn off this feature, and the adapter will ignore those commands.

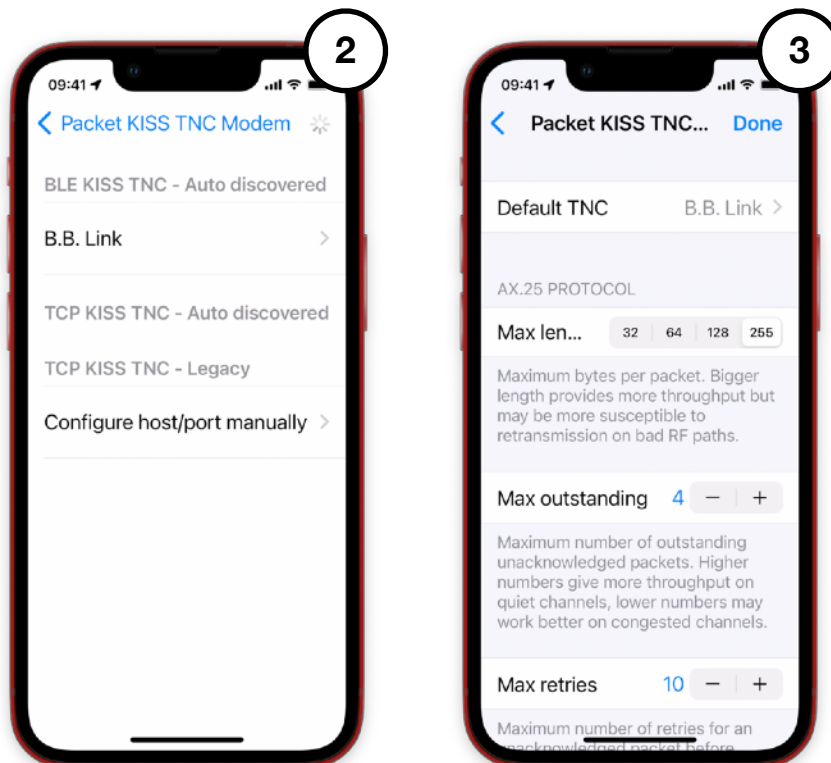


2. Using with RadioMail iOS App

RadioMail is an iOS app designed to work with Winlink, a global email service for amateur radio operators. It allows licensed operators to send and receive emails over radio when traditional internet is unavailable. The app is compatible with various TNCs, making it a valuable tool for those in remote locations or emergency situations. Learn more at <https://radiomail.app>.

2.1 Pair B.B. Link

1. In RadioMail, go to **Settings > Packet KISS TNC Modem > Default TNC**.
2. After a few seconds, B.B. Link should appear. Select it.
3. Tap **Done**.



The adapter is now ready to be used by RadioMail to make connection with packet stations.

2.2 Make a Connection

Make sure the adapter is plugged in and the radio is powered on.

1. In RadioMail, tap the envelope to start an exchange session.
2. Tap **Favorites**.
3. Select **PACKET** and pick a station from your **Favorites**.

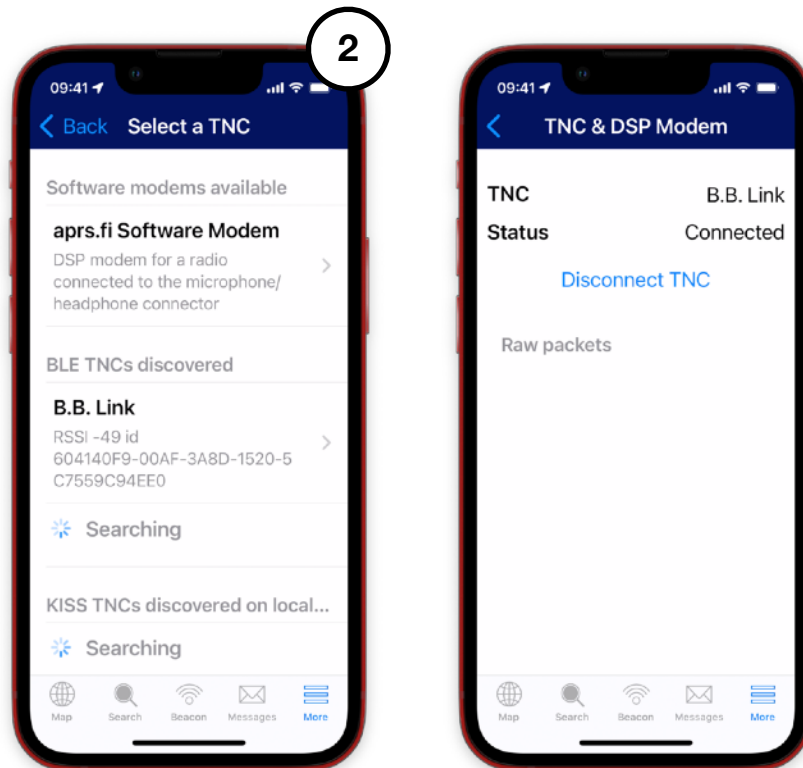
RadioMail will automatically connect to the B.B. Link adapter for the session.

3. Using with aprs.fi iOS App

The aprs.fi iOS app provides live APRS tracking and mapping. It allows licensed operators to track callsigns, upload their position, and add markers on a map. You can send and receive APRS short text messages. Learn more at <https://aprs.fi>

3.1 Pair B.B. Link

1. In aprs.fi, go to **More** and tap Select a TNC.
2. After a few seconds, B.B. Link should appear. Select it.



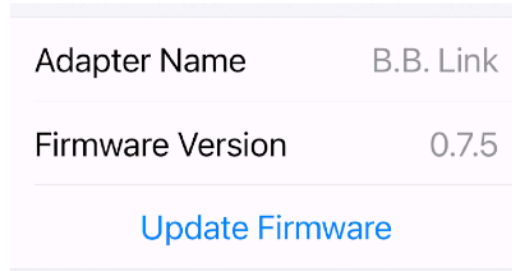
The adapter is now ready to be used by aprs.fi. The application will use the radio TNC to beacon your position, as well as sending and receiving messages.

4. Firmware

Your adapter ships with the latest firmware. New updates may roll out occasionally. Always test an update before field use.

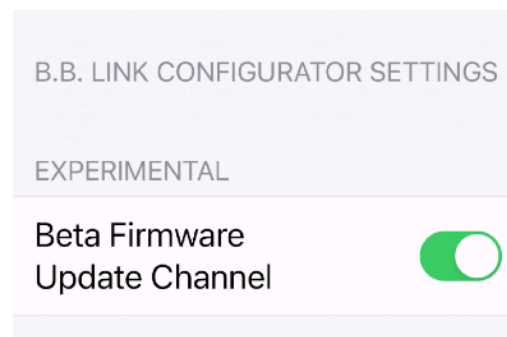
4.1 Over the Air Updates

The B.B. Link Configurator app checks for firmware updates. If one's available, you can install it on your adapter. Allow time for this—updating takes several minutes to complete and can't be interrupted. Updates require an internet connection to be available.



4.2 Experimental

To test out upcoming features or bug fixes, you can enable the experimental firmware channel for pre-release versions. Just head to your iOS Settings, find **B.B. Link Configurator**, and toggle the **Beta Firmware Update Channel** option to on. Keep in mind, beta firmware can be a bit rough around the edges, so switch it on only if you really need to. If you want to return to the main, stable channel, simply turn the option off and update your firmware once more.



4.3 Hacking

The firmware is open source. You can download it from <https://github.com/islandmagic/bb-link>. You can dive in, explore how it works and make modifications if you want. You can flash new firmware via the Arduino IDE using the ESP32 PICO-D4 board profile. Go wild, but please be mindful that we can't provide support for adapters running modified firmware.

5. Troubleshooting

Sometimes things might not work perfectly. A bit of experimentation often helps resolve the issue and you might learn something new.

B.B. Link Configurator can't find the adapter

- Ensure no other apps are using the adapter and that they're completely closed, not running in the background. To quit an app on iOS, swipe up from the bottom to the middle of your screen and pause. Find the app, then swipe its preview upwards to close it.
- Do not pair the iPhone directly to the adapter. Go to **Settings > Bluetooth**. If the adapter is listed in the **MY DEVICES**, select the ⓘ and select **Forget This Device**.
- Ensure that Bluetooth access is authorized for the B.B. Link Configurator. Go to iOS Settings, find the section for B.B. Link Configurator and toggle the **ALLOW B.B. LINK CONFIGURATOR TO ACCESS Bluetooth** option on.

RadioMail can't connect to the adapter

- Ensure no other apps are using the adapter and that they're completely closed, not running in the background. To quit an app on iOS, swipe up from the bottom to the middle of your screen and pause. Find the app, then swipe its preview upwards to close it.
- Do not pair the iPhone directly to the adapter. Go to **Settings > Bluetooth**. If the adapter is listed in the **MY DEVICES**, select the ⓘ and select **Forget This Device**.
- Ensure that Bluetooth access is authorized for the RadioMail. Go to iOS Settings, find the section for RadioMail and toggle the **ALLOW RADIOMAIL TO ACCESS Bluetooth** option on.

The radio won't pair

Make sure that Bluetooth functionality is turned on for the radio. Go to **Menu > Configuration > Bluetooth > Bluetooth (930)** and set it to **On**.

The radio does not transmit

If the adapter connects to the radio but the radio does not transmit, check the TNC settings. Go to **Menu > Configuration > Interface > KISS (983)** and set it to **Bluetooth**.

The wrong VFO is used

To set which VFO is used for TNC KISS, adjust the Data Band setting in **Menu > APRS > Basic Settings > Data Band (506)**. If the Data Band is set to VFO B but the radio is on VFO A in single mode, the connection won't work. A good practice is to set the Data Band to VFO B and switch the radio to dual mode to use VFO A for voice and VFO B for data.

Frequency or mode not changing

In some rare occasion, the radio stops responding to bluetooth commands altogether which prevents the adapter from changing frequency and switching to the proper KISS TNC mode. If things look stuck, take out the radio battery, give it a moment, then pop it back in. This simple reset usually gets things back on track.

6. Acknowledgments

The Kenwood TH-D74 and TH-D75 radios are trademarks of JVCKENWOOD Corporation.

The aprs.fi app is copyright of GainIO Ltd.

RadioMail is a registered trademark of Makena Ventures LLC dba IslandMagic Co.

7. Regulatory Information

As a licensed amateur radio operator, you're likely familiar with this verbiage.

USA

Contains ESP32-PICO-MINI-02 module, FCC ID: 2AC7Z-ESPPICOMINI

This device complies with part 15 of the FCC Rules. 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.

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 or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation 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.

Canada

Contains ESP32-PICO-MINI-02 module, IC: 21098-ESPPICOMINI

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Europe

The ESP32-PICO-MINI-02 module inside the adapter has been fully tested to comply with EC requirements for CE marking, certificate number: E1177-211086.



Download this manual
<https://go.islandmagic.co/bb-link-manual>

