RadioMail v2.0

https://islandmagic.co/radiomail

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1 Getting started

RadioMail walks you through account setup on first launch so you can send and receive mail from this device.

1.1 What you need

- A valid amateur radio license and callsign
- An existing Winlink account, or one created during setup
- An iPhone, iPad, or Apple silicon Mac

1.2 First launch

1. Accept the disclaimer.
2. Enter your callsign. If RadioMail Classic is on the same device, callsign and password may already be filled in.
3. Wait while RadioMail checks iCloud for an account you already set up on another device. Skip this if you want to set up this device on its own.
4. Enter your Winlink password, or activate a new account. Set a recovery email so you can reset your password later.
5. Import a message backup if you have one.
6. Allow location if you want distances in Best Paths, and notifications if you want new-mail alerts.

1.3 After setup

Compose a message and address it to `TEST`. Winlink does not deliver mail to your own callsign.

After a few minutes, pull down on **Mailboxes** to fetch mail over the internet.

To exchange mail over radio, add a device first, then tap the antenna icon to start a radio session.

1.4 If you used RadioMail Classic

Export your mail in Classic first (**Settings** → **Export**), then import it during setup or later.

2 Compose

Write a message, address it to a station or an internet email address, and save a draft if you are not ready to send. RadioMail uses the system Contacts app. There is no separate address book in the app.

2.1 Addressing

A Winlink address is a callsign plus `@winlink.org`, for example `K2BQJ@winlink.org`. In **To** or **Cc**, you can type the callsign alone and omit `@winlink.org`.

You can also address tactical addresses (for example `EOC12` or `TAC3`) and ordinary internet email addresses. Type the full internet address, or pick it from Contacts.

2.2 Looking up recipients

While typing in **To** or **Cc**, matching contacts appear. Prefer `@winlink.org` addresses when a contact has more than one email.

Selecting a Contact List adds every address in the list. This is especially useful for groups you message regularly.

Tap the plus button on **To** or **Cc** to open the contact picker.

2.3 From and tactical addresses

From lists your primary callsign and in-service tactical addresses. In **Settings** → **Account**, turn **In Service** off to keep a tactical address saved without offering it in compose or fetch.

2.4 Drafts

Tap **Cancel** while composing. Choose to save a draft or discard the message. Saved drafts appear in **Drafts**, where you can open them later to finish and send.

2.5 Signature

In **Settings** → **Messages**, you can append a signature to new mail, replies, and forwards (up to 255 characters).

2.6 Position reports

Touch and hold **Compose**, then choose **Position Report**. A map opens with your location and an optional comment. Choose **Send Now** or **Hold for Radio**. RadioMail queues a normal Outbox message to `QTH` with the subject `POSITION REPORT`.

Your position will then be published to the APRS network and visible online at aprs.fi.

2.7 Peer-to-peer only

While composing, tap **Cc, From:** and turn on **Deliver only when peer-to-peer**. See Sending and receiving email.

3 Sending and receiving email

Each message you compose can be sent over the internet or wait for a radio session. There is no separate Telnet mode. Delivery over Wi-Fi or cellular is part of normal messaging.

3.1 Send Now

When you compose a message, choose **Send Now**. RadioMail delivers it over Wi-Fi or cellular when a connection is available. If you are offline, the message stays in the Outbox until you are online or you start a radio session.

3.2 Hold for Radio

Choose **Hold for Radio** to keep the message in the Outbox until you start a radio session. Use this when you want to operate over the air, or when you expect to be offline.

3.2.1 Peer-to-peer

Peer-to-peer is a special way you can identify message that you intend to deliver to another operator directly, bypassing the Winlink systems.

A peer-to-peer message is limited to the **To** recipient. It is held for radio automatically, and it is delivered only when you connect directly to a station whose callsign matches that recipient.

While composing, tap **Cc, From:** and turn on **Deliver only when peer-to-peer**.

3.3 Fetching mail

Fetch New Messages Automatically is on by default in **Settings** → **Messages**. RadioMail checks for new mail periodically while it is open. Background fetch uses Wi-Fi or cellular and follows iOS scheduling, so it can lag depending on battery and other system conditions.

Pull down on **Mailboxes** or the Inbox list to fetch now.

3.4 Outbox

Held-for-radio messages show a radio icon. Peer-to-peer messages show a radio icon plus P2P.

If you want to force send messages in your Outbox when you are online, tap the paper airplane to send queued mail.

Peer-to-peer messages always stay in the Outbox until you connect to the recipient station over radio.

4 Radios and modems

Add the radios and modems you use so they are ready when you start a radio session. RadioMail discovers supported devices over Bluetooth and Wi-Fi.

In a session, only devices that work with the mode you picked are offered. You choose which one to use for that session. There is no automatic failover.

On the Mailboxes screen, reorder the device list so your preferred device appears first.

4.1 Supported devices

See the compatibility list for the full set.

Radios that can set frequency and mode show **AUTO**. Other devices show **MANUAL**. With a manual device, set the dial and mode on the radio yourself before you start a session.

4.2 Icom IC-705

The IC-705 can connect over Wi-Fi, or over USB with Bluetooth for control.

Wi-Fi: Turn the radio on and join the same Wi-Fi network as your iPhone, iPad, or Mac. After you add the radio, enter the credentials set on the radio.

The radio can also operate as its own Wi-Fi access point, which is useful in the field.

On the IC-705:

1. MENU → SET → WLAN
2. Turn WLAN ON.
3. Open Connection Type.
4. Select Access Point.
5. Configure the SSID and password if needed.
6. MENU → SET → WLAN SET → Remote Settings → Network Control, and set it to ON.
7. On your iPhone, iPad, or Mac, open Wi-Fi settings and join the IC-705 network.

In RadioMail, tap **Add Device** and wait for the radio to appear. This can take up to a minute.

RadioMail searches for the IC-705 on port **50001** by default. If you use a non-standard port, open **iOS Settings** → **Apps** → **RadioMail** and enter that port there.

USB + Bluetooth: USB provides the radio’s audio. Bluetooth is required for PTT, frequency, and mode control.

To pair Bluetooth on the IC-705:

1. MENU → SET → Bluetooth Set
2. Set Bluetooth to ON.
3. Select Pairing/Connect.
4. Select Pairing to make the IC-705 discoverable.
5. In RadioMail, tap **Add Device** and wait for the radio to appear.

Plug the radio in over USB before you start a session.

4.3 Digirig Lite and AIOC

Plug either adapter in at any time. RadioMail detects it and uses the built-in packet and ARDOP modems. Other Digirig models, such as Digirig Mobile, are not supported.

AIOC requires firmware v1.4 or later with AutoPTT turned on.

Open the radio’s squelch fully, and set the volume in a usable range.

Tap the device to open the audio monitor. Watch the input while you adjust the radio volume so the level is high enough to decode, without clipping.

5 Radio sessions

A radio session exchanges mail with another station over the air. Tap the antenna icon to begin. You can connect out to a station, or listen for an incoming peer-to-peer connection. In either case you can send mail, receive mail, or both.

Add a device before you start.

5.1 Connect

1. Tap the station area and pick a channel. Use Best Paths to find a station that is likely to work.
2. Confirm the device. If more than one device supports that mode, tap the device row to choose another. RadioMail uses only the device you select. There is no automatic failover.
3. Check **AUTO** or **MANUAL**. AUTO devices set frequency and mode for you. MANUAL devices leave the radio alone — set the dial and mode yourself before you connect.
4. Tap **Connect**. The log shows progress as the session runs.

While the session is running, the screen stays awake when possible so the link to your device is not dropped. Automatic internet send and receive wait until the radio session ends.

5.2 Listen

Listen waits for another station to connect to your callsign for peer-to-peer mail.

1. Tap **My Station** to set frequency, mode, and baud or bandwidth.
2. Confirm the device row (**AUTO** or **MANUAL**).
3. Tap **Start**. AUTO devices set frequency and mode from My Station. MANUAL devices leave the radio alone.
4. Status shows “Waiting for incoming connection.” When a station connects, the exchange runs. Listening continues afterward.

Only Outbox messages whose sole recipient is that station are offered for the exchange.

6 Packet mode

Use Packet when you want to exchange mail on VHF or UHF with a compatible modem. Pick a packet channel in a radio session, then choose a device that supports Packet.

6.1 Devices

Add a packet-capable device first. See Devices and the compatibility list.

Common options include Bluetooth radios, Mobilinkd, DigiPi or Dire Wolf on the local network, Digirig Lite or AIOC with the built-in modem, and IC-705 (Wi-Fi or USB + Bluetooth).

Channels may be 1200 or 9600 baud. Only devices that support the channel's baud appear in the session picker.

RadioMail supports zero configuration devices discovery as described in those specifications:

- Specification for KISS over BLE
- Specification for user-friendly DNS-SD discovery of KISS over TCP

6.2 Digipeaters

Digipeaters retransmit on the same frequency so you can reach stations beyond line of sight. RadioMail supports up to two digipeaters for Packet.

In **Settings** → **Digipeaters** → **Packet**, enter each callsign and turn **Use Digipeater** on or off. When digipeating is on, the session shows the via path.

Packet and VARA FM digipeaters are not interchangeable. Each mode needs digipeaters that understand that protocol.

6.3 Packet parameters

Packet settings are saved per device. Open a device and tap **Packet** under **Modes** to edit max frame size, outstanding frames, retries, wait time, TX delay, persistence, and slot time.

6.4 Connection scripts

When you add or edit a personal station, you can attach a connection script. RadioMail connects to the first node using the station's callsign and frequency, then runs the script before the mail exchange.

Lines that start with `c`, `conn`, or `connect` are sent as commands. Other lines wait for matching text from the station. Matching is case insensitive. If no response arrives, the script times out after 60 seconds.

Example:

```
Welcome, new user
c radio WH6AZ-11
```

Instructs RadioMail to wait for `Welcome, new user` after connecting and then issue the `c radio WH6AZ-11` command to further connect to `WH6AZ-11`.

You can give a personal station a display name when a script is set, so several entries that share a callsign stay easy to tell apart.

7 ARDOP mode

RadioMail includes a built-in ARDOP modem. Pair it with an audio adapter such as Digirig Lite or AIOC, or with an IC-705 over Wi-Fi or USB + Bluetooth. See Devices.

7.1 Start a session

1. Add a device that supports ARDOP.
2. Open a radio session and pick an ARDOP channel. **Best Paths** can help you choose. See Stations directory.
3. Confirm **AUTO** or **MANUAL** on the device row. AUTO sets frequency and mode for you.
4. Tap **Connect**, or use **Listen** for peer-to-peer.

ARDOP channels use a bandwidth such as 500, 1000, or 2000 Hz. Match the channel listing and your radio filter when you operate manually.

7.2 Built-in modem

With Digirig Lite or AIOC, plug the adapter in when you need it. RadioMail detects it and uses the built-in modem. Keep phone notifications quiet so alert sounds are not sent to the radio.

For audio level checks, open the device and use the sound check tools when available.

8 VARA FM and HF modes

VARA is a proprietary software modem available only as a Windows application. RadioMail does not run VARA on the phone. It connects over Wi-Fi to a VARA FM or VARA HF instance on a computer.

Because configuring that link by hand is fragile on a phone, RadioMail expects the varanny agent on the computer. Varanny announces the modem so RadioMail can find it with little setup, and it can manage the modem remotely.

8.1 What you need

- A computer on the same Wi-Fi network running VARA FM or VARA HF and varanny
- Local Network permission for RadioMail in iOS **Settings** → **RadioMail**

Only one client can use a VARA instance at a time. Close other apps connected to it before you start a session.

8.2 varanny

varanny helps VARA run as a network service. It can advertise the modem so RadioMail finds it automatically, start and stop VARA, switch configuration files, show remote audio levels, and launch `rigctld` for radio control when needed.

Setup guides are on the varanny wiki.

8.3 Using VARA in a session

1. Add the VARA FM or VARA HF device.
2. Open a radio session and choose a matching channel.
3. Tap **Connect**.

VARA FM channels are narrow or wide. VARA HF channels use a bandwidth such as 500, 2300, or 2750 Hz. Pick the listing that matches how the gateway is published.

8.4 Digipeaters (VARA FM)

Up to two digipeaters can be set for VARA FM in **Settings** → **Digipeaters** → **VARA FM**. Packet and VARA FM digipeaters are not interchangeable.

8.5 Radio control

If VARA does not key PTT or set frequency on its own, RadioMail can use `rigctld` (Hamlib) when the host and port are configured for that device. Confirm your radio works with `rigctl` interactively before you rely on it in a session.

8.6 Portable appliance

You can build a complete headless VARA modem on a small stick PC.

9 Stations directory

Use the station directory to find who to connect to. Favorite stations you use often, or open **Best Paths** when you want channels ranked by how likely you are to reach them.

9.1 Best Paths

During a radio session, tap the station area to choose a channel. The **Best Paths** tab ranks stations using:

- Distance for VHF and UHF (packet and VARA FM)
- Ionospheric predictions for HF (VARA HF, ARDOP, and HF packet)
- A slider from now through the next 24 hours for hourly forecasts
- Your transmit power and noise level
- Your exchange history and anonymous reports from nearby operators

Short low-band HF paths may show an **NVIS** badge. Use a high-angle antenna for those.

9.2 Filtering

Use filters to narrow the directory to stations that match your radio and location.

Tap the filter control on **Stations** to turn filtering on or off. When filtering is on, a **Filtered by:** line summarizes the active choices. Tap that line to edit filters.

You can filter by:

- **Modes** (for example Packet, ARDOP, VARA FM, VARA HF)
- **Bands**
- **Origin** (**Published** directory stations or **Custom** personal stations)
- **Service codes**, when you have more than one code configured
- **Only nearby stations** (about 185 miles on VHF/UHF, 400 miles on HF)

Best Paths in a radio session uses the same mode and band filters. It does not apply proximity or origin filters.

9.3 Favorites

Stations you favorite appear under **Favorites** so you can open them quickly without searching the full directory.

9.4 Personal stations

Add Station creates a personal entry with one channel, the full callsign including SSID, favorited by default, and an optional grid square for distance. Adding the same callsign again creates another independent entry.

9.5 Directory updates

The public Winlink directory refresh in the background about every 8 hours. Pull to refresh on **Stations** to update now.

9.6 Service codes

In **Settings** → **Stations** → **Directory**, list additional Winlink service codes (for example EMCOMM). Non-public codes appear as a small label on directory rows and in the session picker.

10 Mailboxes

Organize, find, and act on mail from the Mailboxes screen. Smart views, flags, search, and bulk edit help you keep the list workable in the field.

10.1 Smart mailboxes

Smart mailboxes can include **Today**, **Unread**, **Flagged**, **Attachments**, and **Forms**. Tap **Edit** next to Mailboxes to show, hide, or reorder them. Regular folders always stay visible. Which mailboxes appear, and in what order, is saved locally for your device.

10.2 Flags

Flag a message for your own tracking. Flags are not sent with the email. You can flag from the toolbar, the actions sheet, a swipe, or bulk edit. A red flag appears next to the paperclip in the message list.

10.3 Bulk edit

Tap **Select**, then choose messages. Use **Select All** or **Deselect All** as needed. The bottom bar offers **Mark Read**, **Move**, and **Trash**. Tap **Cancel** when you are done.

10.4 Search

Search the current mailbox, or search across all mailboxes. With **All Mailboxes** selected, each result shows its source mailbox before the date.

10.5 Preview lines

In **Settings** → **Message List**, choose how many preview lines appear under each message: **None**, **1**, **2**, or **3**.

11 Forms

Use standard Winlink forms when you need a structured message. More than 100 forms are included. Your callsign and location fill in automatically when available.

11.1 Compose with a form

Touch and hold the compose button, then choose **Compose with Form**. On iPad, you can also tap the form icon in the compose toolbar.

11.2 Library and Recents

Compose with Form has **Library** and **Recents** tabs. Recents keeps the last 10 forms you submitted. In the library, type a form name to find matching templates and see their folder path.

11.3 Layout on iPhone and iPad

On iPad, forms open full screen. On iPhone, turn on the experimental mobile-friendly layout in **Settings** → **Forms** to stack labels above fields on eligible forms. If a form looks wrong, switch back to the original table layout from the toolbar.

11.4 Received forms

When a message uses a known form, a banner appears at the top. Tap the banner to view the form. You can also inspect or save the form attachments if you need the files themselves.

11.5 Share and annotate as PDF

While viewing a form, tap the **Share** icon. RadioMail creates a PDF of the form and opens the system share sheet. From there you can save it, print it, send it, or open it in another app to annotate it with Markup.

11.6 Forms mailbox

Turn on the **Forms** smart mailbox to list every message that has a form attached. See Mailboxes.

11.7 Reply with a form

Some forms include a reply template. When you receive one of those messages, the reply toolbar offers an extra option so you can reply with the matching form.

11.8 Updates

Forms refresh in the background about every 8 hours. In **Settings** → **Forms**, you can choose the update channel and open a Change Log when one is available. Pull to refresh on the Forms Library to update now.

11.9 Custom forms

You can import custom forms. Download the form zip without expanding it, then point form import at that file.

12 Location

Share where you are in outgoing email when you want recipients to see it, and open a map when a received message includes a position.

12.1 Share location in messages

By default, location is not added to emails. In **Settings** → **Location**, turn on **Share Location** to include your coordinates in outgoing message headers. Recipients can see those coordinates, including people on the internet.

12.2 Location source

Use Current Location (on by default) uses the device GPS when available. Turn it off to enter a **Grid Square** manually instead.

12.3 Maps on received mail

When a message includes location data, an icon appears next to the sender. Tap it to open a map.

- A blue circular icon means GPS-sourced coordinates.
- A grey circular icon means manually entered coordinates.
- A square icon means a grid-square location (neighborhood-level precision).

12.4 Position reports

To send a dedicated position report, see Compose.

13 iPhone, iPad, and Mac

Use RadioMail on more than one device. iCloud keeps your mail and related settings in sync so you can pick up on iPhone, iPad, or Mac with the same context.

13.1 Working offline

You can operate in the field without internet. Run radio sessions, send and receive mail over the air, and keep working. When the device is back online, iCloud catches up. Changes from each device merge until your mailboxes agree again. Later, open RadioMail on your Mac or another device and your messages are there.

13.2 What syncs

- Messages and mailboxes
- Accounts and tactical addresses
- Favorites and personal stations

The Winlink directory and the Outbox stay on each device. Directory distances are calculated on the device, so proximity reflects that device’s location.

13.3 Setting up a second device

During setup, onboarding pauses on **Checking iCloud** after you enter your callsign. If another device already set up the account, RadioMail can adopt it, including mail and the password from iCloud Keychain. Skip this if you want to set up this device on its own.

13.4 A note on Mac

RadioMail runs on Apple silicon Macs as an iPad app, not as a native Mac app. It does not get direct USB access or the hardware integrations that native Mac apps have.

Use iPhone or iPad in the field, then continue on your Mac with mail synced.

14 Troubleshooting

14.1 Remote logging

Remote logging sends diagnostic logs to help troubleshoot a problem.

1. Fully quit RadioMail (do not leave it only in the background).
2. Open iOS **Settings** → **RadioMail**.
3. Turn on **Log to Remote Server**.
4. Open RadioMail, reproduce the issue, then let us know.

Turn remote logging off when you are finished so the device is not sending extra traffic to the logging server.