

Winlink Express with VARA FM – Troubleshooting Guide for EMCOMM & Amateur Radio Clubs



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Purpose: It's our goal to have as many Winlink capable HAMS as possible within the Outer Banks and surrounding communities. This guide provides step-by-step guidance to diagnose and

resolve issues when using Winlink Express with VARA FM in both emergency and non-emergency situations.

1. Basic Prerequisites

Before troubleshooting, confirm:

- You have a registered **Winlink account** (callsign + password).
 - The **latest versions** of Winlink Express and VARA FM are installed.
 - VARA FM modem is **licensed** (optional but improves performance).
 - The correct **audio interface** (Signalink, Digirig, USB soundcard, etc.) is used.
 - **Firewall exceptions** are created for Winlink and VARA FM if required
 - Proper **cabling and connections** are made between radio sound card and PC.
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2. Software Setup & Configuration

Winlink Express:

- Go to **Settings > Winlink Express Setup**:
 - Enter your **callsign** and **grid square**.
 - Enable modes like **Telnet**, **Packet Winlink**, or **VARA FM Winlink** as needed.

VARA FM Session:

- In Winlink Express, open a **VARA FM Winlink** session.
 - Ensure VARA FM modem window launches.
 - If not:
 - Go to **Settings > VARA FM Setup** and confirm correct executable path.
 - Make sure no other app is using the COM port or sound device.
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3. Audio Interface Troubleshooting

Check Windows Sound Settings:

- Open **Control Panel > Sound** > Select your interface:
 - Playback and Recording devices should NOT be set as default.
 - Levels: Mic input ~50-80%; Playback ~50-100%
 - Disable AGC, Noise Suppression, Echo Cancellation under **Enhancements**.

In VARA FM:

- Go to **Settings > SoundCard**:
 - Set correct input/output device.
 - Use "**Auto Tune**" button to check TX audio and verify radio keys (Transmits).
 - Monitor **waterfall Constellation** for signal reception.
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4. Radio Configuration

Radio Mode and Settings:

- Set radio to **FM mode** (not NFM or AM).

- Disable:
 - Squelch (set to 0)
 - Compression/Compander
 - Audio filters

PTT and Frequency:

- Use VOX (e.g., Signalink) or CAT/PTT control.
 - Confirm correct **simplex frequency** or gateway channel.
 - Remove CTCSS/DCS.
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5. VARA FM and Winlink Settings

VARA FM Configuration:

- COM Port for PTT must match your interface.
- Set **TX Drive** to avoid overmodulation (watch ALC/power meter).
- Start with **200 ms PTT delay** if first TX's are being cut.

Winlink Express:

- Select known reachable gateway (manual entry or channel select).
 - Monitor log window for status and error messages.
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6. Testing and Diagnostic Tools

- **VARA FM Tune** button for transmit verification.
 - Use **spectrum waterfall** to diagnose receive problems.
 - Use **dummy load** to test without radiating RF.
 - Consider loopback test with another nearby station or radio.
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7. Common VARA FM Errors

Error	Likely Cause	Suggested Fix
VARA modem not responding	Invalid path or crash	Check .exe path, restart modem
No soundcard detected	Interface not recognized	Reinstall driver, reconnect device
PTT failed	COM port conflict	Verify PTT port, check device manager
No signal detected	Incorrect RX device or gain	Adjust audio input, verify with waterfall
Overdriven signal	TX audio level too high	Reduce TX gain in VARA
Timeout: no connection	Frequency mismatch or weak signal	Confirm gateway freq, antenna, power

8. Environmental and RF Issues

- **Line-of-sight:** FM is sensitive to obstructions.
 - **RF Interference:** Other nearby transmissions can block reception.
 - **Antenna:** Ensure proper SWR and height for coverage.
 - **Ferrites:** Use on audio cables to prevent RF feedback.
 - **Grounding:** Bond all equipment to a common ground.
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9. Pre-Support Checklist

Before seeking outside help:

If problems persist, gather:

- Screenshots of settings
- Logs or error messages
- Your callsign, radio model, interface type
- Contact KY4Y – help will be provided or identified

Check:

- Winlink Groups.io
- QRZ.com forums
- EMCOMM club contacts

Document Version: 1.0 (June 2025)

This guide is a living document. Please send additions or corrections to your club's EMCOMM coordinator KY4RY.

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