This procedure describes how to disable the Warfighter Electronic Bridge (WEB™) Ground Control Station (GCS) internal radio and configure an external Doodle Labs handheld radio as an active standoff radio for disconnected ground station operation.

Step 1: Unbox and Verify Contents

Table 1: Required Equipment

Qty	Item
3	Black Widow (BW) Aircraft
1	WEB Ground Control Station (GCS)
1	WEB Standoff Radio
1	WEB Standoff Radio Battery (PALIX Battery Pack)
2	Standoff Radio Antennas
1	Battery Charger
11	Aircraft Batteries
1	50 m Shielded Ethernet Cable (RJ45 Cat6A)
2	USB-C to RJ45 Ethernet Adapter Cables
1	Mighty Mouse to RJ45 Interface Cable (30 in)
1	Mighty Mouse 6-Pin Receptacle Connector
1	Aluminum Tripod with Ball Head
1	Tube Mounting Kit (Bracket, Hose Clamp, and Hardware)
1	Doodle Sense License

Figure 1: Handheld Radio with Installed Battery

Step 2: Battery Charge Check

Check the charge level and operating state of each battery before installation.

1. Press the **Power (⏻)** button on the battery.
2. Observe the LEDs for approximately 1.5 seconds. The number of illuminated LEDs indicates the approximate battery charge level.
    - If all LEDs flash briefly once, the battery has exited sleep mode. Press the Power button again to display the charge level.
    - If the second and fourth LEDs flash briefly, the battery may be in shipping mode. Insert the battery into the charging station to wake it, then verify the battery displays its charge level and charging status.
    - See *Figure 2* for battery LED indicator patterns.

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Figure 2: Battery LED Indicator Patterns Reference Table

	LED PATTERN (LED 1 → 5)	DESCRIPTION / MEANING
SYSTEM STATUS	0-0-0	Forced Power On
	-X-X-	Shipping Mode or Error (three blinks indicate SMBus communication error)
	--0--	Powered on and drawing current
	-----	Stealth Mode Enabled. (LEDs disabled).
	-----	Powered off
CHARGE LEVEL (SINGLE TAP)	00000	Single tap shows >90% full
	0000-	Single tap shows 75–90% full
	000--	Single tap shows 50–75% full
	00---	Single tap shows 25–50% full
	0----	Single tap shows 0–25% full
CHARGING (ON CHARGER)	00000	Solid while on charger means fully charged
	0000X	Charging, 90–100% full
	000X-	Charging, 75–90% full
	00X--	Charging, 50–75% full
	0X---	Charging, 25–50% full
	X----	Charging, <25% full
	X---X	Alternating left/right LEDs – too hot or too cold to charge
	--X--	Stuck in bootloader mode due to invalid firmware (e.g., failed firmware update). Press battery button 5 times quickly to reboot. If issue persists, place on Smart Charger to reprogram.
ANIMATIONS & MODES	>>0<<	Entering shipping mode
	>>>>0	Powering on
	0<<<<	Powering off

LEGEND: 0 On · X Blinking · - Off · > Animation to the right · < Animation to the left

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Step 3: Install the Batteries

1. **Install the aircraft battery:** Align the battery with the rails on the bottom of the aircraft and slide it into place until it clicks. Verify it is fully seated.
2. **Install the WEB battery:** Align the battery with the rear rails on the WEB and slide it downward until it clicks. Verify it is fully seated.

Step 4: Power On the Aircraft

1. Unfold the aircraft arms until each arm clicks into its locked position:
    - Front arms: rotate down and forward.
    - Rear arms: rotate down and backward.
2. Press and hold the aircraft battery **Power** button until all five LEDs illuminate in sequence, then release.
3. Verify the aircraft completes startup:
    - The battery briefly displays the charge level, then the center LED remains illuminated.
    - The aircraft fan starts.
    - Within 10–30 seconds, the startup tones play and the lights near the gimbal illuminate white.

Step 5: Power On the WEB

1. Press and hold the GCS battery Power button until all five LEDs illuminate.
2. Allow the WEB to complete startup.
3. Verify the WEB screen illuminates and displays the Teal Drones startup screen.
4. Verify the WEB opens to the Home screen.
5. Pair and Connect the WEB to the Aircraft

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Step 6: Assemble Power On the Standoff Radio

1. Set up the tripod on a stable, level surface. Extend and lock the legs, then verify the tripod is stable.
2. Remove the tripod head.
3. Thread the Doodle Radio Cradle mounting brackets onto the tripod.
4. Tighten the mounting brackets until secure and verify they do not move freely.
5. Feed the USB-C to Ethernet adapter cable through the radio cradle.
6. Connect the USB-C connector to the ETH/USB H port on the handheld radio.
7. Secure the connector using the screw terminals.
8. Install the battery on the handheld radio.
9. Install the handheld radio into the cradle.

Figure 3: Radio Cradle Mounted to Tripod

Figure 4: Cable Routing on Tripod and Radio Cradle

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Step 7: Connect the Radio Cabling

1. Connect the RJ45 cable to the handheld USB-C to Ethernet adapter.
2. Connect the opposite end of the RJ45 cable to the Glenair Nett Warrior RJ45 coupler.
3. Connect the Nett Warrior adapter to the WEB GCS.

Figure 5: RJ45 Cable, USB-C Ethernet Adapter, and Glenair Nett Warrior Coupler

CAUTION – The red stripe orientation on the Nett Warrior adapter is critical.

4. Align the red identification stripe on the Nett Warrior connector with the notch on the WEB GCS port.
5. Push the connector straight into the port until you feel and hear it click.
6. Verify the connector is fully seated. The red identification band should not be visible from the front of the controller.
7. Apply firm, steady pressure if necessary. Do not twist or use excessive force.
8. If the connector does not seat, remove it, inspect for damage or debris, verify the orientation, and reconnect.

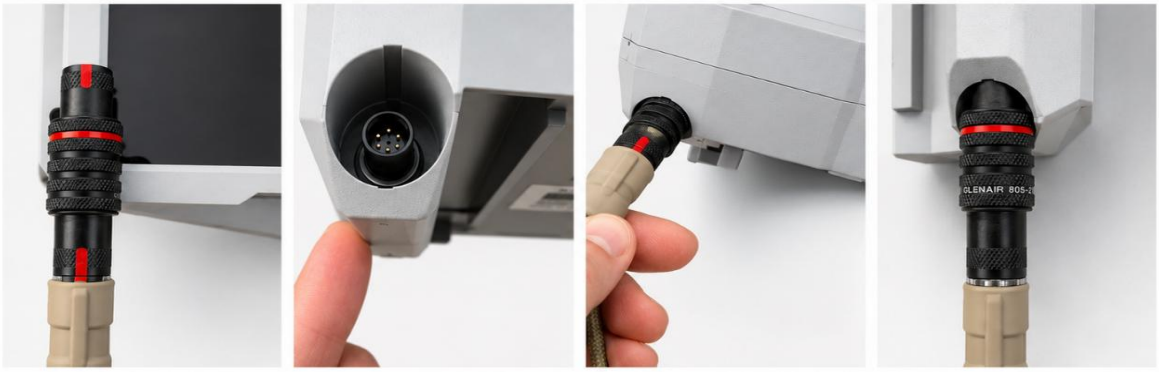

Figure 6: Gle2333.0nair Nett Warrior Coupler Installation

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Step 8: Position and Power On the Handheld Radio

1. Place the handheld radio at least 10 ft (3 m) from the aircraft.

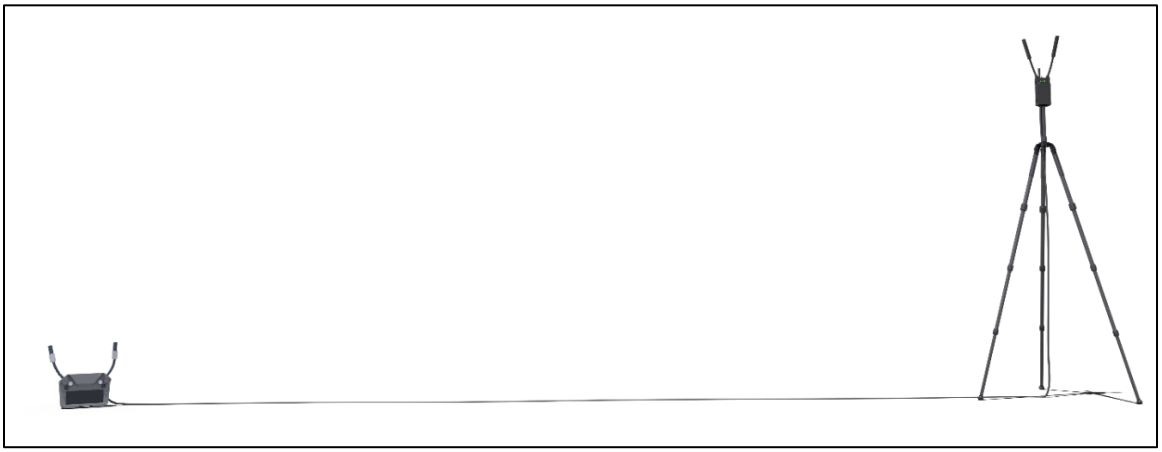

Figure 7: Handheld Radio Positioned at Least 10 ft (3 m) from the Aircraft

2. Press and hold the handheld radio battery power button for approximately 10 seconds.
3. Release the button when the Battery and RSSI indicators illuminate green.
4. Verify:
    a. The Battery indicator is illuminated and is not red, indicating sufficient battery charge.
    b. The RSSI indicator is illuminated green.
        i. The RSSI indicator may blink green when the radio is powered on but not connected to an aircraft.
        ii. The RSSI indicator remains solid green when connected to an aircraft.
5. If the RSSI indicator does not illuminate, verify the cable connection and battery charge, then repeat the power-on procedure.

Figure 8: Solid Green RSSI Indicator

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Step 9: Configure and Activate Standoff Radio

Disable the Internal Radio (If Required)

a. Open **Network Monitor**. *(Figure 9)*

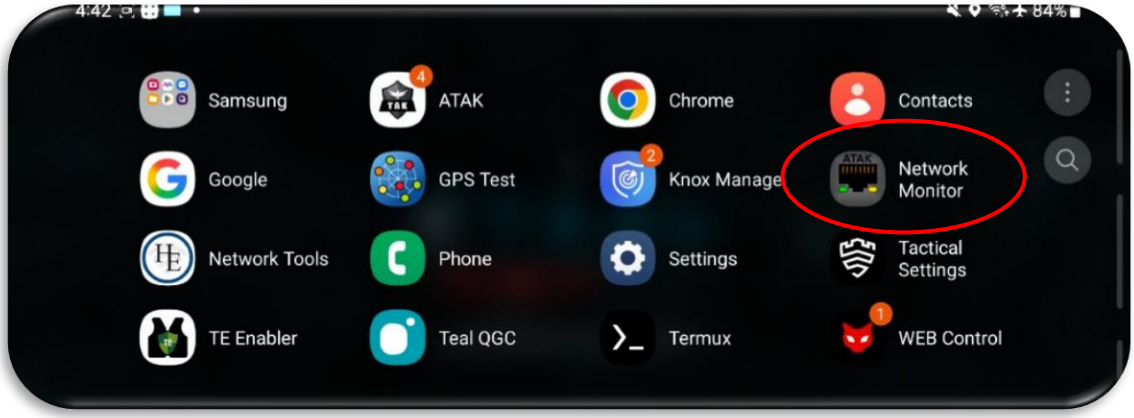

Figure 9: WEB Home Screen — Network Monitor Icon

b. Press and hold the **Radio** button to disable the internal Doodle Labs radio.

c. Verify:

- The Radio indicator is **red**.
- The Doodle Labs Radio status box is **red**.

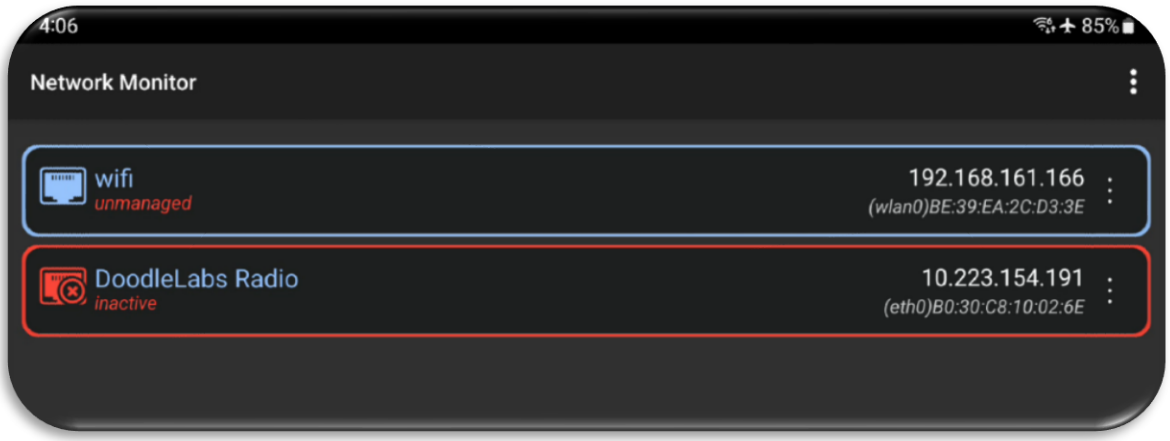

Figure 10: Internal Doodle Radio Disabled

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Activate the Standoff Radio

a. Navigate to **Settings > Radio**.

b. Wait several seconds while the WEB GCS detects the connected handheld radio.

c. Verify the handheld radio appears in the Radio Settings list.

d. Select the detected radio.

CAUTION – Do not disconnect the handheld radio while activation is in progress.

e. Select **Set as Active**.

f. Wait for the activation process to complete.

g. Verify the handheld radio displays as the Active radio.

Figure 11: Detected Standoff Radio

Figure 12: Active Standoff Radio Configuration

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Step 10: Verify Network Configuration

a. Open **Network Monitor**.

b. Verify the following interfaces are displayed:

- **eth0** — Internal radio
- **eth1** — Standoff radio
- **wlan0** — Wi-Fi

c. Verify **eth1** is active and displays green.

d. Verify **eth0** is inactive and displays red.

e. Verify the **eth0** IP address does not begin with **10.223**.

f. If eth0 is not configured correctly, see *Appendix B: View/Edit Configuration → Static Address Procedure.*

NOTE: Use the **eth0/eth1 interface labels**, not the displayed Network names, to identify the interfaces.

Figure 13: Correct Network Monitor Configuration

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Step 11: Synchronize the Radio Configuration (If Required)

If the radio configuration stored on the WEB GCS does not match the aircraft radio configuration, a **Sync** button is displayed.

1. Open **WEB Control**.
2. Select **Sync**.
3. Wait for synchronization to complete.
4. Allow the WEB GCS to reconnect to the aircraft automatically.
5. Verify the aircraft reconnects successfully.

Figure 14: Radio Configuration Synchronization

Step 12: Verify Connection

Verify the following:

- ✓ The handheld radio is Active in WEB Control.
- ✓ The aircraft is connected.
- ✓ RSSI is present.
- ✓ Telemetry is updating.
- ✓ The WEB communicates through the handheld radio.

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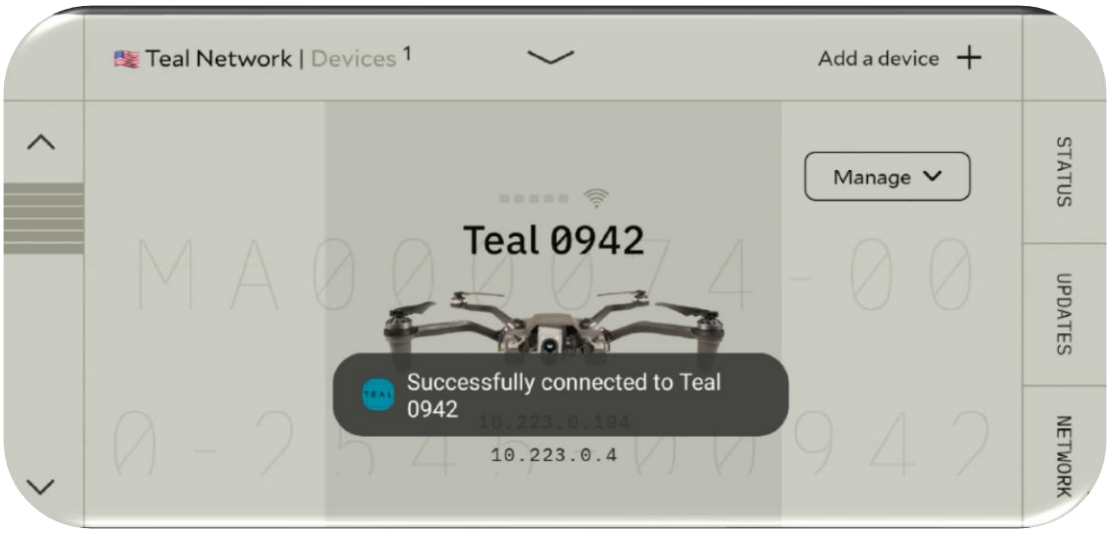

Figure 15: Successful Teal Connection

Step 13: Troubleshooting

Issue	Possible Cause	Corrective Action
Radio not detected	Cable or adapter issue	Verify all cable connections
No active radio status	Radio not configured correctly	Verify radio configuration and retry synchronization
No associated stations detected	Encryption mismatch	Verify encryption settings
Cannot connect to aircraft	Channel or bandwidth mismatch	Verify radio channel and bandwidth settings
WEB GCS not detecting radio	Adapter orientation incorrect	Verify red stripe orientation on adapter cable

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Appendix A – Standoff Radio Factory Reset and Connection Recovery

Use this procedure to reset the standoff radio and reestablish communication with the WEB GCS when normal troubleshooting does not restore the connection.

CAUTION: This procedure resets the standoff radio configuration. Perform this procedure only when directed as a troubleshooting or recovery action.

A.1 Verify Ethernet Connection

1. Open **Network Monitor**.
2. Verify an active connection is displayed for **eth1**.
3. If the connection is not active, refer to **Appendix B** before continuing.

A.2 Access the Radio Configuration Interface

1. Open **WEB Control**.
2. Navigate to **Settings > Radio**.
3. Scroll down, if necessary, and locate the **RADIO IP** address.
4. Record the RADIO IP address.
    - **NOTE:** The RADIO IP address begins with **10.223.x.x**.
5. From the Android Home screen, swipe up from the bottom of the screen to open the application tray.
6. Open **Google Chrome**.
7. Enter the RADIO IP address in the Chrome address bar.
8. If the **Your connection is not private** warning appears:
   a. Select **Advanced**.
   b. Select **Proceed to 10.223.x.x (unsafe)**.
9. At the login prompt, enter:
    - **Username:** root
    - **Password:** Leave blank.
10. Select **Log In**.

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A.3 Reset the Standoff Radio

1. Select the **Menu** (☰) in the upper-left corner.
    - **NOTE:** For easier navigation, orient the WEB GCS vertically in **Portrait** mode.
2. Select **Advanced Settings**.
3. Open the **Menu** (☰) again.
4. Select **System** to display the additional system options.
5. Scroll down and select **Backup / Flash Firmware**.
6. Select **PERFORM RESET**.
7. Verify the loading indicator appears.
8. Allow **2–3 minutes** for the reset to complete.
9. Close Google Chrome.

A.4 Clear the WEB Control App Cache

1. Open **WEB Control**.
2. Navigate to **Settings > Support**.
3. Locate **APP CACHE**.
4. Select **Clear**.

A.5 Reestablish the Radio Connection

1. In WEB Control, navigate to **Radio > Radio Profiles**.
2. Perform one of the following:
    - Create a new radio profile.
    - Modify the existing radio profile and apply the change.
3. Allow the WEB GCS and standoff radio to reestablish communication.
4. Verify the standoff radio displays as connected in WEB Control.
5. Verify the aircraft connection is restored.

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Appendix B – Configure the Internal Radio Network Interface

Use this procedure if **eth0** is not correctly configured in Network Monitor.

1. Open **Network Monitor**.
2. Locate **eth0**, the onboard/internal radio interface.
3. Select the **three-dot menu** to the right of **eth0**.
4. Select **View/Edit Configuration**.
5. Select **Static Address**.
6. Select **OK**.
7. Scroll to the network configuration fields and locate:
    - **IP Address**
    - **Subnet Mask**
    - **Gateway**
8. Verify the **eth0** IP address does not begin with **10.223**.
9. If any of the configuration values begin with **10.223**, replace the values with those shown in the approved **eth0 configuration image**.
    - **NOTE:** Confirm the required state of the **Default** checkbox before publication. The source procedure contains an unresolved reviewer comment regarding whether this option must be cleared.
10. Select **Save**.
    - **NOTE:** After selecting **Save**, the screen may appear unchanged for approximately five seconds before closing.
11. Wait approximately five seconds for the configuration to update.
12. Verify **eth0**:
    - Displays **red/inactive**.
    - Displays the approved network configuration.
    - Does **not** use the **10.223.x.x** subnet.
13. Verify **eth1**, the external/standoff radio interface, displays **green/active**.
14. Return to the standoff radio configuration procedure.

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