

ATGP 2024



Configuring the Kenwood TM-D710G
Mobile for the Appalachian Trail Golden
Packet

*This guide is specifically for ATGP 2024
APRS is set to 9600 baud ONLY*

Outline

Overview

Requirements

Steps

Validation & Testing



Overview

Appalachian Trail Golden Packet (ATGP)

The ATGP event consists of 16 stations digipeating packets the length of the Appalachian Trail

While based on the APRS standard, several non-standard APRS settings are **MANDATORY** - otherwise, the event *will not* be successful

*All stations must be configured **identically** and operate following the scheduled phases to ensure success!*

Following ALL steps DRAMATICALLY increases the probability of success! We're not kidding!



High-Level Steps

- Factory Reset
- Program Channels
- Configure two Programmable Memory slots
 - PM5 - ATGP: for the event
 - PM4 - OTR (On The Road): for *on your way* to the event
- Field Operations
- Tips
- Troubleshooting



WARNING!!!

FULL Factory Reset Required

If you reset your radio and follow every step in this document, you'll be in great shape!!!


- Backup Early/Backup Often!
- Any troubleshooting/support efforts will ALWAYS begin with "Please factory reset your radio"
- There are seemingly infinite possibilities for configuring any transceiver - resetting your radio guarantees we start on a level playing field
- We have tested and validated the ATGP configuration
- Configuration from factory default ensures no other factors can negatively affect the ATGP-supported configuration!
- If you run into issues in the field, we are confident that it's not due to the configuration of your transceiver :-)
- **Please** do not deviate from the recommended settings



Perform FULL Reset

Yet another warning - backup your radio if you have anything you care about!

- Let's rip the band-aid off & get this out of the way!
- Make sure you backed up your current configuration - use either
- Kenwood MCP-6A (specifically for the Kenwood D710G)
 - https://www.kenwood.com/i/products/info/amateur/mcp6a_e.html
- RT Systems KRS-D710 Radio Programming Software ***
 - https://www.rtsystemsinc.com/TM-D710_c86.html
 - *** Requires RT Systems USB-K5G Programming Cable
- Enter the Menu by pressing F + Push the VFO knob
- **AUX**
 - **999 - RESET - FULL RESET & Confirm**



Programmable Memory (PM) Settings

- There are five (5) Programmable Memory slots - In addition to the Base Config
- Channels saved in memory are common across the base configuration and all 5 PM slots
- Any other settings are preserved in the selected PM
- There is no native functionality to permit copying settings from one PM to another
- ***BE CAREFUL with AUTO PM STORE (option 922)***



All PMs General Settings

*Any setting NOT documented here
should be left at the **DEFAULT VALUE***

- FOLLOW THIS SECTION VERY CLOSELY!!!
- APPLY THE FOLLOWING TO **BOTH PM4 & PM 5**
- Several settings are set to the default value but are documented here as they are important for the event
- AUDIO & MIC PF Keys are *Recommended* Settings
- All other settings are **MANDATORY**
- AUDIO
 - 000 - KEY BEEP: **DISABLE** (Personal Preference)
- AUX
 - 908 - MIC PF1 (D Key): *ENTER*
 - 909 - MIC PF2 (C Key): *LOCK*
 - 910 - MIC PF3 (B Key): *LOW*
 - 911 - MIC PF4 (A Key): *BEACON*
 - 917 - APO (Auto Power Off): **OFF**
 - 922 - AUTO PM STORE: **ON** (*More Details Later*)
 - 925 - 927: DATE/TIME/TIME ZONE
 - 930 - INT. DATA BAND (PACKET): **A-BAND**



Auto PM Store


Takes a snapshot of the current state of the selected PM any time the radio is powered OFF

Understand its use and use it to your advantage

Use it to ensure the configuration is using EXACTLY the desired settings when you power cycle the radio


Follow the steps CLOSELY and ask us if you have any questions!!!

- Recommended Steps
- Select desired PM
- Ensure Auto PM Store is **ON**
- 922: AUTO PM STORE
 - **ON**
- Configure the transceiver EXACTLY as documented for the PM
- Turn Radio Off
- Turn Radio On - Confirm settings
- Disable Auto PM Store
- 922: AUTO PM STORE
 - **OFF**



Programming Channels into Memory Slots

1. Channels are global - they are available across all PM slots
2. It doesn't matter which PM or VFO is selected when you program channels
3. You can select programmed channels from either the A-band or B-Band once a channel is saved into a memory slot
4. Use VFO knob or keypad on speaker/mic to select desired frequency
5. Press F + SHIFT to select +/- offset or simplex
6. If/when Tone is REQUIRED, press TONE - will see either {T} or [CT] icon displayed (PL or CTCSS)



Programming Channels into Memory Slots

6. Press F + T.SEL - rotate VFO to locate desired tone - push VFO to select displayed value
7. Press F - note flashing number - select the desired Memory Channel slot
 - a. Be careful! Do NOT OVERWRITE previously programmed Memory Channels
8. Press M.IN soft-key on left side to save the Memory Channel

Helpful tip!

- If you followed the recommendations on slide 8, the PF1 (D key) on the Speaker/Mic calls ENTER.
- When in VFO mode, you can press D and key in a frequency from the keypad.

Programming Channels

Recommended Line Up

Memory Channel	Description	Frequency	Where Used
0	Standard APRS Frequency	144.390 MHz Simplex No Tone	PM4 OTR A-Band
1	Your Favorite Local Repeater	EXAMPLE - KC4AQS 146.805 (+0.600 MHz) Tone 100	PM4 OTR B-Band
2	ATGP APRS Frequency	144.340 MHz Simplex No Tone	PM5 ATGP A-Band
3	ATGP Voice Frequency	445.925 MHz Simplex Tone [T] 100 Hz or CTCSS [CT] Tone 100 Hz	PM5 ATGP B-Band

Note: The ATGP Voice Frequency has been corrected - it was mistakenly changed to 444.925 MHz for the past two years - please use 445.925 MHz (Tone 100 Hz).

ATGP 2024 Configuration

PM5



ATGP 2024 Tactical Callsigns

Please ensure you have the correct callsign +
SSID programmed BEFORE going onsite

Site	Callsign	Site	Callsign
Springer Mountain	SPRNGR	Camelback Mountain	CAMLBK-8
Clingmans Dome	CLNGMN-1	Sam's Point	SAMSPT-9
Roan Mountain	ROAN-2	Bovina Center	BOVINA-10
Comers Rock	COMERS-3	Mount Greylock	GRYLCK-11
Apple Orchard Mountain	AOMTN-4	Equinox Mountain	EQUINOX-12
White Rock Cliff	WHTRCK-5	Mount Washington	MTWASH-13
Gambrill State Park	MDMTNS-6	Sugarloaf	SUGARL-14
Governor Dick Hill	GDHILL-7	Mount Katahdin	KATHDN-15

NOTE: SPRNGR is technically SPRNGR-0 (the 0 is implied)



PM 5 ATGP General Settings

*Any setting NOT documented here
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- Several settings are set to the default value but are documented here as they are important for the event
- AUDIO & MIC PF Keys are *Recommended Settings*
- All other settings are **MANDATORY**
- AUDIO
 - 000 - KEY BEEP: **DISABLE** (Personal Preference)
- AUX
 - 900 - POWER ON MESSAGE: ATGP
 - 908 - MIC PF1 (D Key): ENTER
 - 909 - MIC PF2 (C Key): LOCK
 - 910 - MIC PF3 (B Key): LOW
 - 911 - MIC PF4 (A Key): BEACON
 - 917 - APO (Auto Power Off): **OFF**
 - 922 - AUTO PM STORE: **ON** (*More Details Later*)
 - 925 - 927: DATE/TIME/TIME ZONE
 - 930 - INT. DATA BAND (PACKET): **A-BAND**



PM 5 ATGP APRS Settings

Page 1 of 3

- Any setting NOT documented here should be left at the **DEFAULT VALUE**
- Remember ALL settings are PM specific!
- Several settings are set to the default value but are documented here as they are important for the event
- All other settings are **MANDATORY!!!**

APRS

- 600 - BASIC SETTINGS
 - MY CALLSIGN: <Tactical Callsign + SSID>
- 601 - INTERNAL TNC
 - DATA BAND: A-BAND
 - DATA SPEED: 9600 baud (ATGP 2024 is 9600 ONLY)
- 602 - GPS PORT
 - BAUD RATE: 4800 bps
 - INPUT: OFF
 - OUTPUT: OFF
- 605 - MY POSITION
 - Slot 1: Enter latitude and longitude
 - Press USE soft-key - ensure * is displayed
- 606 - BEACON INFORMATION
 - SPEED: OFF
 - ALTITUDE: OFF
 - POSITION AMBIGUITY: OFF
- 607 - POSITION COMMENT
 - Special
- 608 - STATUS TEXT - Covered separately later

Settings continued on next page...




PM 5 ATGP APRS Settings

Page 2 of 3

- Any setting NOT documented here should be left at the **DEFAULT VALUE**
- Remember ALL settings are PM specific!
- Several settings are set to the default value but are documented here as they are important for the event
- All other settings are **MANDATORY!!!**

APRS

- 609 - PACKET FILTER
 - POSITION LIMIT: *OFF*
- 610 - STATION ICON
 - *Portable/Tent*
- 611 - BEACON TX ALGORITHM
 - METHOD: *AUTO*
 - INITIAL INTERVAL: *1 min*
 - *(Adjust based on Site Plan)*
- 612 - PATH:
 - TYPE: *OTHERS*
 - PATH: *HOP7-7,HOP7-7*
 - Press USE soft-key - ensure * is displayed
- 613 - NETWORK
 - *APRS*
- 614 - VOICE ALERT: *OFF*
- 616 - DIGIPEAT (MY CALL)
 - DIGIPEAT: *ON*
- 617 - UICHECK
 - TIME: *15 sec (default is 28 sec)*



PM 5 ATGP APRS Settings

Page 3 of 3

- Any setting NOT documented here should be left at the **DEFAULT VALUE**
- Remember ALL settings are PM specific!
- Several settings are set to the default value but are documented here as they are important for the event
- All other settings are **MANDATORY!!!**

APRS

- 618 - UIDIGI
 - UI DIGI: *OFF*
- 619 - UIFLOOD
 - UIFLOOD: *ON*
 - ALIAS: *HOP*
 - SUBSTITUTION: *ID*
- 620 - UITRACE
 - UITRACE: *ON*
 - ALIAS: *TEMP*
- 622 - AUTO REPLY MESSAGE
 - REPLY: *OFF (ALWAYS!!!)*
- 625 - INTERRUPT DISPLAY
 - DISPLAY AREA: *ENTIRE ALWAYS*
 - AUTO BRIGHTNESS: *ON*
 - CHANGE COLOR: *ON* (your preference)
 - INTERRUPT TIME: *10 sec* (your preference)

Define a label for PM5 that displays when the radio is powered on and PM5 is selected

- 900 - POWER ON MESSAGE: *ATGP*



ATGP Channel Selection

- A-Band
 - **ATGP APRS Frequency**
 - Memory 2
 - **144.340 MHz**
- B-Band
 - ATGP Simplex Frequency
 - Memory 3
 - **445.925 MHz**
SIMPLEX
Tone 100 Hz [T]
-or-
CTCSS 100 Hz [CT]



PM5 ATGP

Enable APRS & Beaconing

While fully configured, the radio *will not decode received packets* without the Internal TNC enabled

1. Press **TNC** soft key to enable
2. Ensure **APRS96** is displayed

The radio *will not beacon (transmit) packets* without the TNC enabled and Beaconing enabled

1. Press **KEY**
2. Select **BCN**
3. Ensure **BCN** is displayed



PM5 ATGP

Auto PM Store

- Ensure Auto PM Store is still ON
 - 922 - AUTO PM STORE
 - ON
- Power Off Radio
- Power On Radio
- Confirm Settings
 - 922 - AUTO PM STORE
 - OFF
- Make some trivial changes
- Power Off Radio
- Power On Radio
- Confirm Settings HAVE REVERTED



Adjusting PM5 ATGP Voice Channel

Use CTCSS instead of
Tone

Page 1 of 2

- The previous pages covered setting Tone on the ATGP voice channel - this applies to receive only
- You may be in an area where it is advantageous to use CTCSS [CT] which applies to both transmit and receive
- 445.925 MHz Simplex with CTCSS Tone (100 Hz)
- This will ensure tone applies to both transmit and receive and help filter out any RFI that you may experience at your site
- Follow the procedure on the following page to change from [T] to [CT]

Adjusting PM5 ATGP Voice

Channel

Use CTCSS instead of
Tone

Page 2 of 2



Before



After

If you already programmed your radio and need to update the channel, follow these steps:

1. Ensure **Auto PM Store** is ON (Menu 922)
2. Ensure you are in **MR** (Memory Recall) mode
3. Select the channel in memory for **445.925** MHz (should be channel 3 if you followed this guide)
4. Press the **KEY** button until you see a **TONE** button available
5. Press it until the **T** changes to **CT**
6. Press **T-SEL** to ensure the tone is still set to 100 Hz
7. Press **F** then ensure you see “3” flashing to ensure the change is saved to the same memory slot
8. Press **M.IN** to save the change
9. Power radio off then Power radio on
10. Confirm **PM5** is set to channel 3 - **445.925** MHz Simplex CTCSS Tone (100 Hz)
11. *Disable* **Auto PM Store** (Menu 922)
12. Power radio off then Power radio on
13. Ensure PM5 reflects what you confirmed in Step 10

This is how your radio SHOULD look when fully programmed for ATGP

ATGP PM5

How it should look...



OTR Configuration PM4



PM4 OTR

- OTR = On The Road
- This PM is **OPTIONAL** but **HELPFUL!**
- Our Shack Potato uses it to track our whereabouts
- It is intended for you to use on your way to or returning from the event
- Use New-N Paradigm (WIDE1-1,WIDE2-1) so your packets will be digipeated by local stations
- Settings like HOP7-7, UIFLOOD, etc. are not applicable




PM 4 OTR APRS Settings

Page 1 of 3

- Any setting **NOT** documented here should be left at the **DEFAULT VALUE**
- Remember **ALL** settings are PM specific!

APRS

- 600 - BASIC SETTINGS
 - MY CALLSIGN: ***YOUR FCC ISSUED CALLSIGN (+SSID)***
- 601 - INTERNAL TNC
 - DATA BAND: ***A-BAND***
 - DATA SPEED: ***1200 baud*** (standard APRS)
- 602 - GPS PORT
 - BAUD RATE: ***4800 bps***
 - INPUT: ***GPS*** (Location from Internal GPS)
 - OUTPUT: ***OFF***
- 605 - MY POSITION
 - ***NOT USED*** - Location provided by Internal GPS (602 - INPUT: GPS)
- 606 - BEACON INFORMATION
 - SPEED: ***ON***
 - ALTITUDE: ***ON***
 - POSITION AMBIGUITY: ***OFF***
- 607 - POSITION COMMENT
 - ***Enroute***
- 608 - STATUS TEXT -
 - *1: TEXT: ***!GP! <Your desired message>***
 - Press USE soft-key - ensure * is displayed
 - ***!GP! is a "Shriek"***
 - <http://aprsisce.wikidot.com/menu:view>



PM 4 OTR APRS Settings

Page 2 of 3

- Any setting NOT documented here should be left at the **DEFAULT VALUE**
- Remember ALL settings are PM specific!

- 609 - PACKET FILTER
 - POSITION LIMIT: *OFF*
- 610 - STATION ICON
 - *Personalize* - Jeep used in example
- 611 - BEACON TX ALGORITHM
 - METHOD: *SmartBeaconing*
 - INITIAL INTERVAL: *5 min*
- 612 - PATH:
 - TYPE: **New-N PARADIGM*
 - WIDE1-1: *ON*
 - TOTAL HOPS: *2*
 - PATH IS VIA: *WIDE1-1,WIDE2-1*
 - Press *USE* soft-key - ensure *** is displayed
- 613 - NETWORK
 - *APRS*
- 614 - VOICE ALERT: *OFF*
- 616 - DIGIPEAT (MY CALL)
 - DIGIPEAT: *ON* (you can digipeat packets for others in the area too!)
- 617 - UICHECK
 - TIME: *28 sec*



PM 4 OTR APRS Settings

Page 3 of 3

- Any setting NOT documented here should be left at the **DEFAULT VALUE**
- Remember ALL settings are PM specific!

- 618 - UIDIGI
 - UI DIGI: *OFF*
 - ALIASES: *<BLANK>*
- 619 - UIFLOOD
 - UIFLOOD: *OFF*
 - ALIAS:
 - SUBSTITUTION: *ID*
- 620 - UITRACE
 - UITRACE: *ON*
 - ALIAS: *TEMP*
- 622 - AUTO REPLY MESSAGE
 - REPLY: *OFF (ALWAYS!!!)*
- 625 - INTERRUPT DISPLAY
 - DISPLAY AREA: *ENTIRE ALWAYS*
 - AUTO BRIGHTNESS: *ON*
 - CHANGE COLOR: *ON* (your preference)
 - INTERRUPT TIME: *10 sec* (your preference)

Define a label for PM4 that displays when the radio is powered on and PM4 is selected

- 900 - POWER ON MESSAGE: *ATGP*



PM4 OTR Channel Selection

- A-Band
 - Standard APRS Frequency
 - Memory 0
 - 144.390 MHz
- B-Band
 - KC4AQS Repeater (example)
 - Memory 1
 - 146.805 MHz (+0.600 MHz) - PL 100
- *Use whichever repeater(s) are in the vicinity of where you are traveling to/from - the KC4AQS repeater is merely an example*



PM4 OTR

Enable APRS & Beaconing

While fully configured, the radio *will not decode received packets* without the Internal TNC enabled

1. Press **TNC** soft key to enable
2. Ensure **APRS12** is displayed

APRS96 is only used for the ATGP 2024 event

The radio *will not beacon (transmit) packets* without the TNC enabled and Beaconing enabled

1. Press **KEY**
2. Select **BCN**
3. Ensure **BCN** is displayed



PM4 OTR

Auto PM Store

- Ensure Auto PM Store is still ON
- 922 - AUTO PM STORE
ON
- Power Off Radio
- Power On Radio
- Confirm Settings
- 922 - AUTO PM STORE
OFF
- Make some trivial changes
- Power Off Radio
- Power On Radio
- Confirm Settings HAVE REVERTED

This is how your radio SHOULD look when fully programmed for OTR (On The Road)...en route to/from the event...

OTR PM4

How it should look...



Field Operations





ATGP 2024

9600 ONLY

11:00 EDT until we are successful!

PM5 ATGP

Verify the following


- **PM5** is selected
- **APRS96** is displayed
- **BCN** is displayed
- ATGP APRS Frequency is selected on **A-Band** (Memory Ch. 3)
- ATGP Simplex Voice frequency is selected on **B-Band** (Memory Ch. 4)

If you see APRS12, you did not program your radio correctly!
Switch to APRS 9600 bps as follows:

- 601 - INTERNAL TNC
 - DATA SPEED: 9600 bps
 - **NO OTHER CHANGES**

If you've never used APRS at 9600 baud before...

- APRS 1200 - you can clearly hear packets (sounds a little like a modem)
- APRS 9600 - sounds like a short burst of static
- Don't be alarmed if you don't hear packets! Watch the TX indicator lamp to determine when the radio is transmitting.



ATGP Beacon Rate

PM5 ATGP

One goal of the event is to ensure we do not flood the network with too many packets

Beaconing too frequently is the best way to do that!

We typically start with everyone using a beacon rate of 1 minute to get packets flowing

Stations at/close to either end stay on 1 minute the duration of the event!

Refer to the Site Plan document for the recommended Beacon Rate for your site

611 - BEACON TX ALGORITHM
INITIAL INTERVAL :

The Shack Potato is the ultimate decision maker for Beacon Rate settings - when in doubt, reach out!



ATGP Status Message Updates

PM5 ATGP

Periodically update the Status Text to reflect the operator's FCC issued callsign and the stations heard

EXAMPLE 1: If W4JEW is on CLNGMN-1 and hears stations 0, 2, 3, 4, 5, 6, and 7 - change message to:

```
608 - STATUS TEXT
*1 TEXT: W4JEW 0, 2-7
```

EXAMPLE 2: If AB1PH is on GRYLCK-11 and hears ALL stations , the message would be:

```
608 - STATUS TEXT
*1 TEXT: AB1PH 0-10,12-15 GOLD!
```

That's the GOLDEN PACKET!

Tips





ATGP Site Plan Document

PM5 ATGP

Double-sided (2 page) PDF

Lots of helpful information included!

Ensure you bring a copy of the ATGP Site Plan document for your location with you the day of the event!

Encourage other operators to bring a copy as well for backup!

Site Plans will be provided no later than 72 hours before the event - ideally earlier!



Poop Happens! How to be prepared?



PM5 ATGP

- If ONLY the A-Band is displayed...
 - Push and HOLD the B-Band volume knob until the A-band is displayed
- If ONLY the B-Band is displayed...
 - Push and HOLD the A-Band volume knob until the B-band is displayed
- Use the LOCK function to ensure you do not inadvertently change any settings - until you actually need to
 - Speaker/Mic PF2 (C Button) should be LOCK
- Have we mentioned how helpful the Shack Potato can be???
 - Contact info is on the Site Plan. Contact adjacent station via simplex voice (or improvise) if you do not have cell coverage!



ATGP More Poop!



PM5 ATGP

- The radio will NOT beacon packets unless the GPS signal is locked.
- If you opt to use GPS instead of manually inputting coordinates, make sure the iGPS indicator is flashing - that means it has a lock.
 - Use the **POS** soft-key then the → key to rotate through the GPS status screen to determine the GPS status.
- Squelch - the radio will not transmit (beacon or digipeat) if the squelch is open.
 - Keep the squelch tight (unless you have a need to hear the signals for short diagnostics).
 - Adjust the squelch by using the outer knob for the volume knob so it's just above the point where you hear noise/static.
 - You may have to make periodic adjustments based on the noise floor where you are operating.



ATGP

More Poop!



PM5 ATGP

- It can be very helpful to have an additional APRS-enabled radio to validate your Kenwood radio is beaconing.
- Manually initiate beaconing by pressing BCN twice (disable/enable). The radio will send a packet immediately when beaconing is enabled.