Viking Subscriber Software 24.1 General Release

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Overview

This Field Software Notice (FSN) announces the KENWOOD Viking® Subscriber Software Version 24.1 General Release. This release provides new features and resolutions for Viking radios and the Armada radio programming suite. A major new feature for VP8000 includes support for the DMR Tier III protocol. Radio firmware and Armada must be upgraded, as well as an option purchased to access this new protocol. DMR Tier III is only available on the VP8000, and the upcoming VM8000. This release supersedes KENWOOD Viking software release 23.1 for VPx000 and VMx000 series radios and the Armada Software Suite.

Software Versions

The following table lists the Viking Software items and corresponding versions included in the 24.1 General Release.

Item	Version
Armada Client	1.42.12
Armada Server	1.42.12
Armada Proxy	1.42.4
Armada CD	1.42.12
VP8000 Firmware Image	8.42.12
VP5000/6000 Firmware Image	8.42.12
VM5000/6000/7000 Firmware Image	8.42.12
VikingTune Lite	1.42.9
Data Registration Server	1.40.1
Elite Battery Management Server	1.32.1
Location Gateway	1.16.1
OTAP Server	1.42.1
Text Message Server	1.28.2

NOTE: Radio Firmware and Armada Version numbering has changed from 1.40.x to 1.42.x.

LEGACY SUPPORT: This general release does not include the discontinued VPx00 and VMx00 Viking radio models (a.k.a. 100 series Viking), for which the 20.1 General Release and its subsequent maintenance updates remain the final release for those models (8.30.x firmware versions). The 24.1 General Release of Armada continues to allow programming of the VPx00/VMx00 series radios, but it may have support exceptions and is provided AS-IS for this use since the software period for new features on VPx00/VMx00 has expired.

Features Added

The following table lists the new features added in the 24.1 General Release.

Feature	Overview
VM7000 UHF High Power Deck	VM7000 now supports High Power UHF Deck (450 – 520 MHz), model VM7830HBF. Estimated shipping late July 2024.
DMR Tier III (Vx8000 only)	Software option 8322000010 is required, and one other P25 protocol must be purchased to enable a DMR Trunking system on a VP/VM8000 radio. This release provides initial support of the DMR Tier III protocol and includes voice features only. No data features are currently supported. See section "DMR Tier III Protocol Support" below for further details on supported, and unsupported features in the 24.1 General Release.
DMR Tier II Auto-Slot Select (Vx8000 only)	DMR Tier II channels now choose their slot (slot 1 or slot 2) automatically on TX or RX instead of being forced to a preprogrammed slot.
EVRS Unit ID Passthrough	Pyramid Repeaters (SVR-252 and SVR-350 only) will now pass the source ID of any call to the mobile on transmit, and the mobile will pass the source ID of any call to the repeater on receive, to allow the correct source ID to be shown during the call.
P25 Trunking Over-the-Air Alias	Radios can receive 14-character user aliases during voice calls on MFID A4 [Harris] Phase 1 and Phase 2 P25 systems that support this feature. The radio will store this new alias in the call list and use the updated alias until reprogrammed by Armada.
P25 Trunking Location on PTT	Location on PTT for P25 Phase I systems with MFIDs 90 [Motorola] and A4 [Harris] is now supported.
Conventional PTT Release Tone	When programmed, the radio will transmit the PTT release tone (1375 MHz for 100 ms) after PTT is released. If Post-Tx ANI is enabled, the tone will transmit 250 ms after ANI tones have completed. This tone is sent in the transmission and is not heard audibly from the speaker of the TXing radio. This allows users receiving the call to know when the PTT of the transmitting radio has been released, and it is ok to transmit back.
Custom Boot Images	All x000 radios now support custom boot images.
Armada Table View with Bulk Edit	Armada now allows edit, copy, paste, and fill of multiple channel parameters at once with Table View. These parameters can also be copied in/out of Excel spreadsheets.
Armada Navigation	Armada now has 'back' (Alt+Left) and 'forward' (Alt+ Right) navigation.

Feature Enhancements

The following feature enhancements are available in the 24.1 General Release. These augment existing functionality in the subscribers and/or supporting applications.

Feature or Fix	Overview
Backlight Menu Updates	The backlight menu now allows the backlight to be turned on/off independently from the current backlight brightness level. For multideck radios backlight brightness level and on/off state are synced for all decks for uniform backlight operation among all decks.
Separate Backlight Settings for Top and Front Displays (VP8000 and VP6000)	The top and front displays can have separate on/off states and brightness levels, or they can be synced to have the same on/off state and brightness level shared between them.
VMx000 Temp Backlight Updates	"Backlight on Rx" and "Backlight on Keypress" are now multideck primary-deck controlled parameters. The primary deck settings are utilized on secondary decks. Previously, "Backlight on Keypress" only applied to KCH-21 control heads for mobile radios. It now applies to all control heads.
F1 Soft Buttons for All Menus/Submenus	A soft button for the F1 button has been added to all menus/submenus. This primarily shows "SAVE" or "SELCT" in most menus.
Location Report PTT Hold-Off Time	To prevent spamming location reports, a programmable timer is available to specify the minimum amount of time between PTT-triggered location reports.
Programmable Button PTT	Any programmable button can now be assigned as a PTT button.
VM7000 Rx Emergency Display	On VM7000 setups, Emergency Alarm notification is now a flash message on line 2 of the display.
DMR Frequency Display Improvements	For DMR Conventional systems, Display Information will now show the time slot alongside the channel frequency.
Multideck Volume Display	All decks in a multideck setup will now display the volume at the same time when "Deck Volume Offset Down/Up" or "Unselected Volume Offset" functions are programmed.
Location Data w/o GPS Lock	Radio will now send location data, even without GPS sync for the following: • Immediate Location Report from LSHS • Display GPS Send Button Press • Armada Programmed Emergency Trigger • Armada Programmed Low Battery Trigger • Armada Programmed Status Trigger • Armada Programmed Power On Trigger • Armada Programmed Power Off Trigger • Emergency Triggered Location Report This allows radios that have lost satellite sync to report their last known location.

Feature or Fix	Overview
Data Registration Service Configuration Improvements	Three new configuration options have been added for DRS: • Expiration Timeout (4 – 12 hours specified in seconds) – Controls how long the DRS waits on average before attempting to ping a radio. • Discovery Unavailable Period (5 – 30 minutes specified in seconds) – Controls how long the DRS waits between ping attempts once a failure has been detected. • Log Level (0 – 2) – A diagnostic field that can assist system administrators in troubleshooting connectivity issues
Authentication Failure Messages	Five error messages now exist for different Authentication Failed scenarios: • Auth Failed • No Auth Key • Auth Timeout • FNE Auth Failed • FNE Could Not Auth at This Time This provides better identification of failure reason to the user.
RSD Terminology	Master/Slave terminology has been replaced by Parent/Child respectively.
OTIP via Armada Proxy	Armada Proxy now shares OTIP connections with Armada. This allows remote sites to connect to radios via WiFi, then forward that connection to Armada Client or Armada Server.
Armada Searchable Combo Boxes	Allow filtering/searching of fields with combo boxes of long lists (TG/Channel).
Armada Channel ID Table Base Frequency Change	Armada used to restrict the Channel ID Table Base Frequency to the band plan base frequency. Some customers use Channel IDs with a base frequency outside of this range. Armada has been updated to allow base frequencies of 1 MHz to 1 GHz with a step size of 1.25 kHz.
Armada CTCSS/DCS List Copy/Paste	CTCSS/DCS lists now support copy/paste. DMR Tier 2 lists are not compatible with P25 Conventional lists. The values must match the combo boxes exactly, (e.g. 67 must be represented as 67.0).
Armada Fleet Pane Improvements	The Armada Fleet Pane now supports independent filtering for the connection status, and the activation/transfer status columns.
Armada Status Bar Improvements	Armada now adds quick access in the status bar for Radio Tag, Profile Tag, and SUID. If SUID is selected, the desired system must also be selected.
Armada Child Key Restriction Enhancements	On ESKs, when "Allow change of 'Require ESK to Edit'" is enabled, system owners can now add restrictions on which Unit IDs, TGs, and AGs can be edited.

Customer Issues Addressed

The following table lists the customer-impacting issues resolved in the 24.1 General Release.

Issue	Overview
Dell Optimizer Causing USB Write Issues with Armada	It has been reported that users encounter an error related to TCP Socket when attempting to perform read and write operations. Further investigation from the end user determined that Disabling the Dell Optimizer Service allowed the computer to read/write without issues. To bypass this issue, it is recommended users not use the Dell Optimizer Service as it is not compatible with Windows 11. If performance is an issue, customers are encouraged to explore alternative solutions, such as the deployment of a solid-state drive (SSD). See recommended hardware settings for more information. If disabling the Dell Optimizer Service is not a viable option, an alternative approach is to configure the Dell Optimizer settings, specifically by deactivating the Automatic Network Switching and Optimize Network Traffic options within the network settings of Dell Optimizer. This has been known to solve issues with TCP socket connections. For those who have utilized Dell Optimizer to optimize battery life on their laptops, it is worth noting that Windows 11 provides its own battery optimization software, accessible through the Power & Battery settings in Windows Settings.
Toggle Function Switching While Powered Down	An issue was found where when functions were programmed to a toggle switch, the radio was powered down, the switch position changed, and the radio rebooted, the function state prior to power down was retained, instead of utilizing the current state of the toggle switch. This has been addressed in this release.
ABCD Toggle not switching on Custom Zone Select	An issue was found where, occasionally, when toggling through zones with Custom Zone Select on the ABCD Toggle, the previous zone would stay displayed, even though the ABCD toggle switch was no longer in that position. This has been addressed to read the correct position on any position change.
Multiband Radio Mismatched Keys Between Decks	Having KWD-AE30K encryption modules with different hardware versions allowed for keyset mismatch between decks on multiband radio configurations. Key sets are now synchronized between decks with different SCM hardware versions to ensure they match.
Allow Keypad Lockout on Toggle Switch During Lockout	Previously "Keypad Lockout" could not be assigned to the toggle switch if "Toggle Control" lockout was enabled. This has been updated, allowing the user to enable or disable "Keypad Lockout" when assigned to a toggle switch, regardless of the toggle control lockout settings.
No Volume Control During Boot with Standy Activated	Certain scenarios of standby exit allowed the volume level to remain at 0, even if the volume knob was adjusted. This has been addressed in this release
Authentication Timeout Handling Updates	There was an issue where the radio was ignoring Authentication Response messages, causing the radio to retry authentication the max number of retry attempts before authentication failure. This has been addressed to ensure the radio allows the system to finish the authentication process. If no packet is received, the radio will re-attempt Unit Registration.

Issue	Overview
P25 Standard Unit Call Causing False PTT Events	There was an issue where the radio would transmit without a PTT press following a Standard P25 Trunking Unit Call. This has been addressed in this release.
AGC May Render ANR Ineffective (VP8000 only)	There was an issue when both Automatic Gain Control (AGC) and Automatic Noise Reduction (ANR) were used simultaneously where ANR did not seem to be working as expected in high noise environments. This has been addressed in this release. ANR works best with multiple-microphone inputs. It is recommended that the Viking ANR feature is used on the VP8000 with either the KMC-70 or KMC-54WD Speaker Microphones, or without any speaker microphone, as they all have dual microphone inputs.
VP8000 MSA G1 Incompatibility	MSA released new G1 SCBA units with updated Bluetooth hardware that was incompatible with VP8000 radios. Updates were made to allow the MSA units to connect with VP8000 radios.
Armada Radio ID Editor Crash	Clearing a field (OTAR RI, Unit ID, MDC ID, et.), then right clicking in that field caused Armada to crash. This has been addressed in this release.
External Backup Services Causing Armada Crashes	Armada Client was not detecting external backup services (OneDrive, Google Drive, Dropbox) causing a crash during backup. Armada Client now detects them but does not support them. Users wanting live backup should use Armada Server.
VP8000 KVL 4000 Keyloading Failures	VP8000 radios have experienced intermittent connectivity with KVL 4000 keyloaders. This has been addressed in this release and the connection is now stable.

DMR Tier III Protocol Support

The Viking 24.1 General Release adds initial support for DMR Tier III Trunking Sytems. A software option for DMR Tier III (Part Number 8322000010) is required to enable this protocol, as well as an option for at least one other P25 protocol (P25 Conventional or P25 Trunking). It is only available for Vx8000 series radios.

Supported Features

The following table lists the DMR Tier III features supported in the 24.1 General Release.

Feature	Overview
Talk Group Call	Call on specified talk group
Broadcast Call	One way group call, which has no hangtime and allows user to select specific group of users to call. Supported in Emergency Group Call
Emergency Call and Associated Features	Same as P25 Emergency Call
Priority Call	Setting to mark calls that take precedence over normal calls when system resources are available
Individual Call	Unit-to-unit voice call
All Call	One-way voice call to all users within same system, no hangtime
Voice Call Encryption	Receive and transmit call using DES, AES, and ARC4
Status / Status Polling	Send user-defined status codes on TGs. Range from 0-99
Message Trunking	Used to keep payload channel allocated for entire call
Transmission Trunking	Used to deallocate the payload channel right after call owner releases PTT
Emergency Alarm	Prompts radio to send notification to system when user enters emergency
Registration	Process to register SU on system
Talk Group Subscription/Attachment	SU can subscribe to a list of 1-7 TGs
Deregistration	Process to allow SU to deregister from a system when leaving the network
Unsolicited Radio Check	System-initiated check to a unit or TG to determine if radio is listening
Scan	Same as P25, but does not have programmable priority channels
Multiple Control Channels	Requires match of Control Category and PAR value to acquire CC

Dialing Schemes
  1. DMR Standard
  2. Native Dialing Schemes
	1. Used to call a Fleet ID, can be a group or individual fleet ID.
	2. Used to call a single unit ID or TG ID

Authentication	Process to verify SU is allowed on the system – uses defined standard

Feature	Overview
Stun/Revive/Kill	System commands sent to radios. Stun prevents radio from TX and RX on the system. Only affects DMR System. Revive reenables TX and RX. Kill completely disables entire radio, all systems/protocols, but maintains Armada Security Policies. Can't be undone by system, only Armada.
Roaming and Associated Features	Same as P25
Call Cancellation (Individual & Group Calls)	Unit Call: Radio ends call prior to call being answered Group Call: Cancels group call requested when queued for system resources
Control Channel Hunt (Short Hunt, Commanded, Resuming, Comprehensive)	Process for finding a control channel
Rx Groups List	List of TGs the radio may receive a call from, set on a per channel basis
Random Access Control	A programmable random access timer is used when a radio tries a random access attempt of the system. If the timer fails, the request is denied.
Status Bar/Site Display	Same as P25 site alias
Site Lock & Site Search	Same as P25
Radio Wide Scan	TG Tx Contacts may be programmed to RWS lists Call list TX contact channels are not allowed in RWS lists
Call List Tx Contact and Tx Contact Select	Individual units or TGs the radio can receive calls from.
Affiliation Icons and Indications	Icons/tones/messages used to notify user of affiliation status.
Disable Site Trunking	The SU will go out of range if the site is in site trunking
PTT ID Display	The ID of the radio placing the call
Rx Talk Group Display	The radio displays the alias or number of the talkgroup on which the call is being received.
User ID Display	If the ID of the call being received is included in a User Group ID list, the alias of that group is displayed.
Key ID Rx Display	The radio displays the key alias (as assigned in the Hardware Keys Table or Software Keys Table) used to decode received calls. Only one key programmed in TG list, or override on per channel
Talkgroup Tx Display	Determines whether radio displays or emits tones when a system access failure occurs
Transmit Timeout	This timer determines the maximum duration of a continuous transmission
PTT Warning Time	Specifies the time before the "Time Out Timer" expires that a warning beep is given to let the user know that their transmit is close to timing out.

Feature	Overview
Quick Fade timer	Specifies the time the radio will stay on the control channel when synchronization is lost before returning to CC hunt.
Scan Hold Timer	Specifies the delay that occurs after the radio no longer receives a message before scanning resumes.
Unit Call Initiate Ring Timer	The time that the radio will wait for an answer after initiating a unit call.
Roaming Out of Range Indication	Indicates if the radio will display "out of range" on the display and/or emit an out-of-range tone
System Access Indication	Selects how a System Access failure is indicated and (for Firmware 8.28.x or later) enables/disables the System Affiliation Icon.
RSSI Thresholds	Used in the roaming algorithm to determine the site available
Power Levels List	Set the high and low power level for all available bands
Single Touch List	Configure single touch UI functions for status and unit calls
Sites List	Assigns aliases for sites on a network.
System Preferred List	Allows setting site preferences for a talk group
Tone Assignments	Allows customization of alert tones
User Group ID List	A programmed alias is displayed when a received ID lies within a programmed block
Customized Roaming	Allows for customization of the roaming algorithm
Tx Disabled	Allow for a receive only channel
Call Settings List	Used to configure settings for unit call.
Auto Scan	Determines if a channel automatically enables scan function when selected

Unsupported Features

The following table lists the DMR Tier III features NOT supported in the 24.1 General Release.

Feature	Overview
Transmit Interrupt	A radio can interrupt the transmission of another radio *NOTE* Could have system interoperability issues for mixed-vendor fleets if other radios utilize Tx Interrupt
DGNA (Dynamic Group Number Assignment)	Gateway and console-initiated group number updates *NOTE* Could have system interoperability issues if deployed on systems with gateways/consoles utilizing DGNA
Telephone (PSTN/PABX) Call	Call from radio to telephone
UDT Short Data Service/Polling	Data Service
Packet Data Call	Allows access to an IP-based data payload channel
Power Save	Allows subscriber unit to adopt a periodic sleep cycle while on a control channel using timing parameters exchanged between system and unit
Power Control	Allows DMR Trunking System to dynamically control the transmit output power of a subscriber unit
OTAR	Over the air Rekeying
De-key	Feature where the system or and the radio can force another radio to cease transmitting
Ambient Listening Service (Remote Monitor)	Same as in P25 Radio Unit Monitor.
Call Diversion	Forward call to another destination address
Full Duplex Calls	Rx and Tx simultaneously
OTAP	Over the air reprogramming of a radio
GPS	Sending a location information
Text Message	Sending and receiving text messages
Non-dedicated Control Channel	CC that can be used as a traffic channel
Alternate Slot Control Channel (TSCCAS)	Second slot of Trunking Station Control Channel
Unified Single Block Data Polling Service	Single data block polled from CC or Alternate Slot
Quasi-Transmission Trunking	Hybrid of message and transmission trunking
IP Connection Advice	Equivalent to P25 IP Data Context Activation
Include Call (Talkgroup & Individual)	Add third party to the call
Over-the-Air Alias	Alias updates over the air

DMR Tier III - Compatibility Testing

DMR Tier III functionality in Viking VP8000 24.1 General Release has been tested with the following repeater types. This does not guarantee successful interoperation in all cases with varying system versions, nor with all features.

System	Version & Notes	Compatible
Leonardo	MIB 23.2 FW Version 6.0.25.4 & newer	Yes
Tait	TN9300 FW Version 03.46.00 & newer	Yes
Motorola	MOTOTRBO DMR Compatibility Mode	No Unknown
Hytera	Known compatibility issues exist	No