KENWOOD

VIKING®

Viking Subscriber Software 23.1 General Release

Effective Release: July 21, 2023 – Amended July 28, 2023

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This Field Software Notice (FSN) announces the KENWOOD Viking® subscriber software version 23.1 release. This release provides new features and resolutions for Viking radios and the Armada radio programming suite. Major new features for VP8000 include support for the DMR Tier II protocol and Broadband Data/VPN Services.   Note that the Radio firmware and Armada must be upgraded as well as an option purchased to access these new features, and that some features in this release are applicable only to the VP8000.   Also with this release, the minimum system requirements for Armada and related applications have been upgraded to require 64-bit processors with Windows 10/11 operating systems.   This release supersedes KENWOOD Viking software release 22.1 for VPx000 and VMx000 series radios and the Armada Software Suite.

Amendment 1: The VP8000 Firmware image is now version 8.40.14. See the Customer Issues Addressed table for details.

Software Versions

The following table capture the Viking Software items and corresponding versions included in this release.

Item	Version
Armada Client	1.40.13
Armada Server	1.40.13
Armada Proxy	1.40.08
Armada CD	1.40.13
VP8000 Firmware Image	8.40.14
VP5000/6000 Firmware Image	8.40.13
VM5000/6000/7000 Firmware Image	8.40.13
VikingTune Lite	1.40.9
Data Registration Server	1.38.3
Elite Battery Management Server	1.30.5
Location Gateway	1.14.4
OTAP Server	1.40.6
Text Message Server	1.26.05

NOTE: Radio Firmware and Armada Version numbering has changed from 1.36.x to 1.40.x.   Version 1.38. x was intentionally skipped at this release.

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 23.1 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

Following new features are added in the 23.1 release.

Feature Description	Overview
DMR Tier II (VP8000 only)	Software option 8322000009 is required to enable the DMR conventional system type in the VP8000. See section DMR Tier II Protocol Support on page 5 for further details on supported features.
Broadband Data Services and VPN (VP8000 only)	Software option 8326000040 is required to enable Broadband Data Services. This feature adds ability to send P25 data over a broadband connection (Wi-Fi). Supported data types: Location Services (GPS), Elite Battery Management, Viking Text Message, OTAR, OTIP/OTAP, Optioning (VAULT or option file) and Firmware Updates. VPN configuration support is now available for secured access to the radio host network, if connecting from a WiFi hotspot or external public network.
Operator-Defined WiFi Networks	If enabled, radio users are allowed to add new Wi-Fi networks themselves. Wi-Fi networks may also still be pre-programmed from Armada. Applicable only for VP8000 or VM5/VM6000 remote mount with Wi-Fi accessory option.
Accessory Switching	Multiple accessory profiles (such as for different speaker mics) are now supported, and can be selected by the user. Switchable profiles will now support different accessory types, Tx and Rx Audio profiles, and settings for any programmable buttons on the accessory.
Conventional Wide Scanning	Allows Priority Scan lists to include channels from two or more conventional systems. This is similar to Radio Wide Scanning, but adds ability to have priority scan channels. Supported system types: Analog Conventional, P25 Conventional Digital, DMR Conventional Digital (Tier II)
VM7000 Boot Deck Selection	A specific deck can now be programmed as the selected deck upon boot.
Call Muted Icon	A new icon to indicate when an active call has been muted due to a call signaling mismatch. Shown if a call was muted due to mismatch of CTCSS/DCS on analog systems, or on digital systems if the talkgroup, NAC, or color code of the call are not per the active settings.
Manual Adjacent Site Search	Trunked systems only. For each trunked site, a list can be manually added of available adjacent sites to monitor. Useful where roaming is required between sites that do not broadcast adjacent site information, or when roaming to/from foreign systems not broadcasting site information over ISSI.
Short keypress duration	The duration required for short press-and-hold keypress and emergency press-and-hold are now configurable.
P25 Hangtime Icon	Icon will be displayed if repeater hangtime is active and TX/RX icons are enabled. Displayed only for group calls and unit calls in P25 Trunking channels.

Feature Enhancements

The following feature enhancements are available in the 23.1 release. These augment existing functionality in the subscribers and/or supporting applications.

Feature Description	Overview
64-bit Application Support	All Armada and Viking Data applications now require 64-bit processors running under Microsoft Windows 10 or Windows 11. Support for 32-bit processors and prior Windows operating system versions has ended.
Radio-to-Radio Location Data Forwarding	This feature allows location data to be sent by one or more subscribers to a "central" radio which then forwards the data to a locally connected Location Host Service. This is only supported on digital conventional channels.
Deprecate PID usage for VPx000/VMx000 radios	SLN mapping to a PID is no longer required in managing encryption keys.
Enable/Disable Remote Unit Monitor	If Remote Unite Monitor is disabled, the radio will ignore any monitor requests while on that system.
Armada: Unsupported Options Display	The radio info (properties) dialog will now display unsupported options for the current radio type in grey tone. Options not supported in the current firmware version will be shown in red.
Armada: Display Improvements	Scaling for High DPI screens is supported with this release. This release also improves High Contrast mode support for accessibility.
Custom Tones for Priority Call Alert, Denied & Busy.	Custom priority call alert tones can now be programmed for conventional, DMR and P25. Custom tones are also now programmable for P25 Trunking denied and busy.
Low Battery Beep Interval	The portable Low Battery Beep option can now be configured to sound between every 1-10 minutes.
AGC Improvements	The AGC feature has been updated to improve microphone levels and voice quality. An AGC Gain parameter and Selection dropdown has been added to the Microphone Audio Profiles in Armada.
Resend of External Emergency Alarm	Previously, when the external emergency line was activated, emergency must be cancelled via a function button for the external line to function again. With this change, reasserting the emergency line will now cause the radio to reenter emergency and resend the alarm. Exiting emergency still must be performed with a function button.
P25 Busy Mode Updates	- PTT while in busy mode will cause the subscriber to request the call again. Previously, these PTTs would be ignored. - While in busy mode, the subscriber will now unmute for calls that are taking place on the selected Talkgroup or MFID90 Supergroups. - While in busy mode, the subscriber will now unmute for calls that are taking place on a priority group if scan is enabled. This is also true for MFID90 Supergroups that are associated with a priority group.

Customer Issues Addressed

Following is a list of the customer impacting issues that have been resolved in the 23.1 release.

Issue	Overview
Scan Halted by Conventional Static Data Registration	If a user sets up the subscriber to do Static Data Registration in P25 Conventional, the subscriber will stop scanning to do the data registration and will not ever start scanning again even though the display icon indicates scanning. This issue has been addressed by this release.
VM7000 Unselected Deck Not Showing Signal Strength While Roaming	There was an issue where multideck decks that had roamed to foreign P25 sites would not show the signal strength icon. This issue has been corrected in this release.
VM6000 With VCH Issue with Scan Edit Icons	Scan edit icons were not working on the VM6000 with Viking Control Head (VCH). This issue has been fixed in this release.
VM7000 Multiband Secondary Band Deck Audio Does Not Adjust Above 50	A Multiband Multideck radio has a primary band deck and then several secondary decks of different bands. There was an issue where the audio level for calls received on any of the secondary bands was capped at 50 (of 100). This issue has been fixed in this release.
Stuck in busy state on certain Harris P25 systems	Some Harris P25 Trunking systems can put Viking subscribers into the busy state and then fail to notify the Viking subscriber when the busy situation is over. When this happens, Viking subscribers sit in the busy state unable to transmit and not receiving for the whole Busy Update Time. This has been addressed by playing Rx audio and allowing PTT attempts while in the busy state.
Transmit on Analog Conventional RX Only Channel Stops RX Audio	If attempting to transmit on an Analog channel with transmit disabled while actively receiving a call, the call audio was muted. This issue has been addressed in this release.
Keypad Lockout during Pending Update Can Hang Subscriber	With keypad lockout enabled, and re-booting with an Armada write pending, the radio can be stuck on the "Pending Update" screen. This issue has been addressed in this release by bypassing the Pending Update. Then, any Pending Updates while keypad lockout was enabled during boot now need to be applied using the Apply Update function after boot.
VP8000 ANR / Mic Accessory Issue (Amendment 1)	An issue was found with ANR enabled when booting with certain Mic Accessories attached. The general release has been amended with version 8.40.14 of the VP8000 firmware to correct this issue.

DMR Tier II Protocol Support

The Viking 23.1 release adds initial support for DMR Tier II digital conventional radio systems. A software option purchase, part number 8322000009, is required to enable this protocol.   DMR uses Time-Division Multiple Access (TDMA) technology. It divides a single frequency (12.5kHz) to create two-time slots or channels. This allows communications on two paths simultaneously using a single frequency. DMR Tier II is a conventional digital system type. The following lists the major features presently supported with the DMR Tier II protocol for VP8000 at the 23.1 release.

Feature / Description	Descripton
Repeater Mode	Used by subscribers communicating through repeater. Requires Channel to be programmed with split Rx/Tx frequency pair. Supports 2 configurable hangtimes: Call Hangtime and Channel hangtime.
Direct Mode	Used by subscribers communicating radio-to-radio. Direct mode is activated when Channel is programmed with a single TX and Rx frequency or if Talkaround is activated.
Base Station Activation	If the outbound channel has no activity, the subscriber can initiate a request to enable it. Configurable parameters: Tx Wakeup Time, and Tx Wakeup Message Limit.
Color Code	Call muting by Color Code is supported. This is similar to analog use of CTCSS/DCS signaling. Color Code range is from 0 to 15. The radio will only unmute if the Received color code matches the programmed color code and slot.
Slot Selection	A channel is configured for time slot 1 or slot 2, and the radio will always and receive and transmit on the assigned slot. Slot Selection only affects repeater channels when Talkaround is not enabled.
Individual Call Standard	Individual unit call where the radio will place the call immediately without checking if intended recipient is on the channel.
Individual Call Enhanced	The radio will first verify via handshake that the target radio is present first on the channel before initiating individual call.
Individual Call by Contact	An individual call can also be placed by activating PTT with a unit id programmed as the TX contact name. Both standard and enhanced are supported.
Broadcast Call	One-way group call with no hangtime. Supported for emergency group call.
OVCM	Open Voice Channel Mode (OVCM) allows subscribers to join on Group Calls or Unit Calls if the OVCM call modifier is present regardless of Talkgroup ID or Unit ID.
All Call	One-way voice call from any user to all users within the same system. Initiated when the call is placed with the All Call Talkgroup is selected as the Tx Contact.
Tx Contact per channel	Contacts programmed per channel may be Talkgroups or units from system's Call List.
Tx Contact Override	This is a per channel setting to override the Tx Contact's OVCM and Broadcast settings.
Tx Contact Select	Allows operators to dynamically change the Tx Contact of the selected channel, or revert to the Armada programmed value.
Tx Admit	This feature provides flexibility for permitting calls on the channel. Settings are impolite, polite to color code, and polite to all.

Feature / Description	Descripton
Tx in Call Admit	The Tx In Call Admit feature determines if a transmission is permitted on the channel while in a call. The Tx In Call settings follow the Tx Admit settings.
Talking Party Identification	Talking Part Identification shows the user what individual unit the radio is receiving from, and when applicable, what talkgroup the radio is receiving the call on.
Group ID Scan	The Group ID scan feature allows scanning of multiple talk groups on the selected DMR channel.
Talkaround Hangtime	This is a system wide control for how long a radio will maintain the previous talkaround or direct mode call's information for talkback and talking party identification purposes
Talkgroup Tone Assignment	This option can be set to play a tone when a specific talkgroup is received.
Unaddressed Call	Group call to one of 16 pre-defined Unaddressed Talkgroups. Only one Unaddressed Talkgroup can be programmed per system.
Radio Check, Inhibit and Uninhibit	An optional Admin menu may be programmed to allow Radio Check, Radio Inhibit and Radio Uninhibit.
Security Override	Security Override allows a channel to be programmed to override the security strapping mode and key of any call made on the channel in normal mode.
RSSI Priority Call Detection	RSSI Priority Call Detection allows a channel to be programmed to make use of RSSI detection when that channel is a Priority 1 or a Priority 2 channel in a Priority Scan List
Encryption	Supported Encryption algorithms: • ARC4 (a.k.a. "Enhanced" Encryption) • DES and AES (a.k.a "Advanced" Encryption)

The below are additional supported features that substantially match the behavior of the similarly named feature in P25 Conventional System – refer to Armada Help for further descriptions.

- Priority Scan
- Scan
- Emergency Call
- Emergency Alarm
- Radio Inhibit
- Radio Uninhibit
- Radio Check
- Call Alert

- Mixed Mode
- Monitor Function
- 2 Tone Encode/Decode
- User Group Id
- Single tone encoder
- DTMF
- Five tone encoder
- MDC

- GE Star
- RTT
- ANI
- Tx Steering
- Talk back timer

DMR Tier II - Unsupported features

The following features are not supported in the current release. Features not supported may be planned for later releases, but no assurance or schedule can yet be provided.

- Auto Slot Select
- Dual slot direct mode
- Call Interruption
- Over the air alias
- GPS over Voice

- Remote Monitor
- DMR Roaming
- OTAP
- OTAR
- Location Services

- Text Message
- IP over packet data protocol
- "Basic" Encryption or Scrambling methods from other manufacturers

DMR Tier II - Compatibility Testing

DMR Tier II functionality in Viking VP8000 23.1 release has been tested with the following repeater types and tested radio-to-radio for the noted subscribers. This does not guarantee successful interoperation in all cases with varying system versions, nor with all features.

Repeater	Subscriber (Version)
Motorola XPR 8300	**Kenwood Viking VP8000 (this release)**
Kenwood Kairos KA-xxx series	**Kenwood NX-5300 (K 4.32.00)**
Kenwood TKR-D	**Motorola XPR 7550e (R02.22.01.1005)**
Tait TB7300	**Tait TP900 (2.29.10.00089)**

For questions regarding this Field Service Bulletin, please contact the KENWOOD Viking team at 1.800.328.3911, option 3.