



MOTOTRBO FEATURE CATALOG

**VERSION 2.9
JUNE 2018**



HOW TO USE THIS CATALOG



Category icon

Official feature name

Click in this area to return to index (in Presentation Mode)

Single sentence summary

Full description

Link to video (if available)

Memorable tagline


Catalog version

Radio compatibility:


- Standard (solid)
- License required (dotted)
- Not available (strikethrough)

System compatibility:

- Standard (solid)
- License required (dotted)
- Not available (strikethrough)



TEXT TO SPEECH




Summary:

- Your radio can now read text out loud: channels, zones, functions, messages and work order tickets.

Detail:

- This feature is an add-on to [Voice Announcement](#). It removes the dependency on pre-recorded voice announcement files by installing speech synthesis software on the radio itself. Channel names, zones, programmable button functions, text messages and work order tickets are all read out loud to you.
- You can define a custom dictionary to ensure accurate readout of abbreviations and industry specific terminology, and choose from 27 different languages and several different voices.
- Programmable buttons can be configured to:
 - Turn the feature on and off.
 - Repeat the last announcement.
- All parameters are configurable using the CPS.
- This feature was introduced in software release 2.4. For each radio, you must purchase a license (HKVN4281) to use the feature.



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XPR5300e
XPR3500e
XPR3300e

SL7500
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XPR7500
XPR7300
XPR6500IS
XPR6500
XPR6300
XPR6100
XPR5500
XPR5300
XPR4500
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XPR3500
XPR3300
XPR2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO READS TEXT OUT LOUD

V2.6

NOTE: ONLY DIGITAL FEATURES ARE LISTED



CATEGORIES



AUDIO



EFFICIENCY AND PRODUCTIVITY



SAFETY AND SECURITY



CONNECTIVITY



SYSTEMS



AUDIO

Intelligent Audio

SINC+ Noise
Cancellation

IMPRES™ Audio

Mute Mode

Windporting

Rx Audio Leveling

Acoustic Feedback
Suppressor

Automatic Gain
Control (AGC)

Microphone
Distortion Control

Switch Speaker

User-Selectable
Audio Profiles

Trill Enhancement



EFFICIENCY AND PRODUCTIVITY

Dual Capacity Direct
Mode

Option Board

IMPRES™ OTA Battery
Management

Extended Range Direct
Mode

Scan

Hospitality Work Order
Ticketing

High Efficiency GPS

Priority Monitor Scan

Event-Driven Location
Update

Fast GPS

Home Channel
Reminder

Screen Backlight
Configuration

Voice Announcement

Text Messaging

Multi-Button PTT

Text to Speech

Radio Management

Low Voltage Battery
Technology

Voice Operated
Transmission (VOX)

Over-The-Air
Programming (OTAP)

Programmable Buttons

Wi-Fi Software Updates

IMPRES™ Energy

IMPRES™ Battery
Management



SAFETY AND SECURITY



CONNECTIVITY



SYSTEMS

Restricted Access to System

Basic Privacy

Bluetooth Audio

Direct Mode / Talkaround

Transmit Interrupt

Enhanced Privacy

Bluetooth Data

Single Site Conventional

Voice Interrupt and
Pre-Emption

IP Rating

Telemetry

IP Site Connect

Digital Emergency

Hazardous Location
Certification

Pre-Configured Telephone Patch

Capacity Plus
(Single-Site and Multi-Site)

Emergency Search Tone

HazLoc Battery Mismatch
Alert

Integrated Wi-Fi

Connect Plus

Remote Monitor

Indoor Location-Tracking

Telephony (Connect Plus)

Capacity Max

Radio Disable / Enable

Subscriber Access
Control

Telephony (Capacity Max)

Digital Voting

Man Down

Stun / Revive

Lone Worker

Radio Kill



INTELLIGENT AUDIO



Summary:

- Your radio monitors background noise and adjusts the speaker volume, so you don't have to.

Detail:

- Intelligent Audio is a receive-only feature that enhances the audibility of voice calls.
- It uses the radio or accessory's microphone to monitor levels of background noise. When it detects that the radio is in a loud environment, the speaker volume is automatically increased. When in a quiet environment, the volume is automatically reduced.
- The radio's volume can still be adjusted using the volume knob, but this feature eliminates the need for continual adjustment.
- Accessories are not required, but selected accessories are supported.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
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XPR 6580 IS
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XPR 3300
XPR 2500

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CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR CALLS, ALWAYS AT THE PERFECT VOLUME

V 2.9



IMPRES™ AUDIO



Summary:

- Your radio works seamlessly with your accessories to ensure that every call is heard perfectly.

Detail:

- Your MOTOTRBO radio contains a digital signal processor (DSP) that fine-tunes the audio signal from the microphone, enhancing clarity and reducing background noise. IMPRES™ audio accessories communicate their own unique set of audio parameters to the radio's DSP, to further optimize the audio processing.
- IMPRES technology also optimizes Automatic Gain Control (AGC) to compensate for variability of input level. Maybe some of your users don't speak directly into the microphone while they are operating machinery; maybe some others have to shout over heavy background noise, maybe others work in an environment that requires them to speak quietly. The IMPRES audio AGC optimizes the signal level so all these users are heard at a similar volume.
- A compatible IMPRES audio accessory is required.



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Connect Plus

I HEAR YOU, HOWEVER YOU SPEAK



WINDPORTING



Summary:

- Your RSM minimizes wind noise, so you can communicate clearly in difficult weather.

Detail:

- Wherever you work – in howling wind, driving rain, and severe weather – Windporting helps you communicate effectively and helps listeners hear clearly.
- Windporting technology eliminates the booming and howling sounds of wind blowing across your lapel microphone or remote speaker microphone. It also prevents water from clogging the microphone for clearer transmissions.
- Windporting is only available on selected accessories.



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I HEAR YOU, NOT THE WIND

V 2.9



ACOUSTIC FEEDBACK SUPPRESSOR



Summary:

- Your radio blocks acoustic feedback from other radios to eliminate unpleasant “howling”.

Detail:

- Audio Feedback Suppressor is a receive-only feature that improves the overall ability to communicate in the presence of acoustic feedback.
- If you’ve ever been near to a colleague when making a group call, you’re familiar with the acoustic feedback that can result: the audio coming out of the speaker feeds back into the microphone until nobody can hear anything except an unpleasant “howling” noise.
- The latest MOTOTRBO software alleviates this irritating problem. Using a sophisticated software algorithm, your radio is able to recognize the audio feedback from nearby radios and discard it. Now you never need to step away from your colleagues to make a call. And you can trust that your radio will allow your clients to enjoy their peace and quiet.
- This feature was introduced in software release 2.2A.



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YOU’LL NEVER NEED TO STEP AWAY TO MAKE A CALL

V 2.9



AUTOMATIC GAIN CONTROL (AGC)



Summary:

- Everyone can be heard clearly, whether they whisper or shout into the microphone.

Detail:

- The DMR vocoder delivers excellent voice quality even when there is high background noise and poor signal conditions – but to produce optimal voice quality, the input level into the vocoder must fall within a specific range: This is difficult, as each user has their own individual style: some hold the microphone close to their mouth; some speak loudly over background machinery, and some use a visor microphone or RSM that doesn't even face their mouth.
- To address this, MOTOTRBO digital employs Automatic Gain Control (AGC) in the audio transmit path. Its primary function is to produce the best voice quality possible under real life conditions. IMPRES audio builds on this technology to deliver optimal voice quality over an even greater input range.
- A secondary function of AGC is to produce uniform speech loudness at the receiving radio: soft talkers, shouters and users who turn away from the microphone will still come through loud and clear.



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BETTER AUDIO IN REAL LIFE CONDITIONS

V 2.9





MICROPHONE DISTORTION CONTROL



Summary:

- Your radio adjusts its microphone to match your voice, so your call is never distorted.

Detail:

- This is a transmit-only feature. It improves voice quality when the user is speaking loudly into the microphone, and works alongside the standard AGC (Automatic Gain Control) of the radio.
- The radio continuously monitors the quality of the speech data as it is being processed. When it detects early signs of audio distortion, perhaps by someone speaking loudly over background noise, the radio reduces the sensitivity of the microphone until the distortion disappears.
- Microphone Distortion Control is a natural extension of the Automatic Gain Control (AGC) feature, as it monitors and controls distortion of the transmit audio.
- This feature was introduced in software release 2.2A.



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Direct Mode
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Capacity Plus
Capacity Max
Connect Plus

CRISP AUDIO, HOWEVER LOUDLY YOU SPEAK



SWITCH SPEAKER



Summary:

- You can switch audio from your headset to your radio's speaker without unplugging.

Detail:

- This feature allows you to direct the audio stream to either an attached accessory or to the radio speaker, without the need to detach the accessory.
- In some situations, you need to wear an earpiece or headset in the office, but take it off when you head outside.
- Previously, the radio's internal speaker would be muted whenever an audio accessory was attached to the radio.
- Now, with the Toggle Audio feature, you can send the audio in either direction without disconnecting the headset or earpiece. The feature is activated through the radio menu or by pressing a pre-programmed button.
- This feature was introduced in software release 2.4.



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YOUR AUDIO, WHEREVER YOU NEED IT

V 2.9



USER-SELECTABLE AUDIO PROFILES



Summary:

- Your radio's audio characteristics can be tuned to suit your preference and your workplace.

Detail:

- Everyone's hearing is different. Depending on age and work history, you may have reduced sensitivity to certain frequencies. It doesn't help when your work environment has variable background noise.
- This feature allows you to customize the audio of the radio to suit your preference and work environment. You can select from two different "ambience" settings and six different audio profiles.

Ambience profiles:

- **Default**
- **Loud:** For loud environments: increases volume and noise suppression
- **Work Group:** For quiet environments: enables feedback suppression

Audio Profiles:

- **Default**
- **Level 1:** Mild compensation, for users exposed to industrial noise
- **Level 2:** Moderate compensation, for users exposed to industrial noise
- **Level 3:** Maximum compensation, for users exposed to industrial noise
- **Treble Boost:** For a "brighter" sound
- **Mid Boost:** For a more "nasal" tone – similar to legacy radios
- **Bass Boost:** For a deeper sound

- This feature was introduced in software release 2.4.



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AUDIO CUSTOMIZED TO YOU AND YOUR ENVIRONMENT



TRILL ENHANCEMENT



Summary:

- Your radio reproduces more languages with better accuracy.

Detail:

- The AMBE+2™ vocoder (AMBE = Advanced Multi-Band Exciter) is the industry-standard algorithm for converting speech into a narrowband digital data stream. It recognises the sounds made by the human voice and renders them as a set of highly-optimised codes. It allows digital radio to be extremely efficient, and as a side benefit, it helps remove some of the background noise from transmissions.
- However, the algorithm does not reproduce some languages very well. In particular, the “trill” or rolling “rrrr” sound in the Latin languages is transformed into a flattened “r”.
- This feature applies additional audio processing in the transmitting radio to enhance the sharpness of the trill. In this way, speech is more intelligible, but there is minimal impact to the way voice is transmitted: Non-MOTOTRBO radios in the system will receive the benefit of the enhanced transmissions however they will not be able to respond with a similar level of audio clarity.
- This feature was first introduced in software release 2.4.



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

INCREASED FIDELITY FOR MORE LANGUAGES

V 2.9



SINC+ NOISE CANCELLATION



Summary:

- Your radio gives you more options to filter out background noise, so you're heard more clearly.

Detail:

- All MOTOTRBO radios have **basic** noise cancellation, which provides effective suppression of background noise in a wide range of user environments.
- SINC+ (enhanced Single-input Industrial Noise Cancellation) provides two new configurations: "Enhanced" and "Enhanced Auto".
 - “**Enhanced**” applies exceptionally effective suppression of background noise for environments that are consistently noisy.
 - “**Enhanced Auto**” adapts the amount of suppression based on the volume of ambient noise detected, and is ideally suited for users who move between quiet and loud environments. In a noisy situation, the maximum noise suppression is applied. In a quiet situation, only a little noise suppression is applied, and maximum speech detail is retained.
- SINC+ is very affordable, although not quite as effective as dedicated dual-microphone noise-cancellation accessories.
- This feature was introduced in software release 2.5. For each radio, you must purchase a license (HKVN4373) to use the feature.



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Direct Mode
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IP Site Connect
Capacity Plus
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FLEXIBLE, AFFORDABLE NOISE CANCELLATION

V 2.9



MUTE MODE



Summary:

- Easily mute and unmute your radio as you move between noisy and quiet environments.

Detail:

- This feature allows you to immediately mute your radio without turning down the volume or powering off the radio.
- In some situations, you may enter an environment where you need your radio to be silent immediately. This could range from entering a meeting, walking into a room where total silence is required, to simply having an uninterrupted conversation with another.
- Previously, you would need to lower the volume or turn off your radio entirely.
- With Mute Mode, your radio can enter a silent state, and return to your normal volume setting when appropriate.
- This can be triggered by a programmable button or a “face down” position.
- Face Down muting is only available on radios with accelerometer.
- Radios can be un-muted if there is an emergency or by a set timer that you can program on your radio.
- This feature was introduced in software release 2.7 and requires radio license **HKVN4493**.



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

INSTANTLY MUTE AUDIO WHENEVER NEEDED

V 2.9



RX AUDIO LEVELING

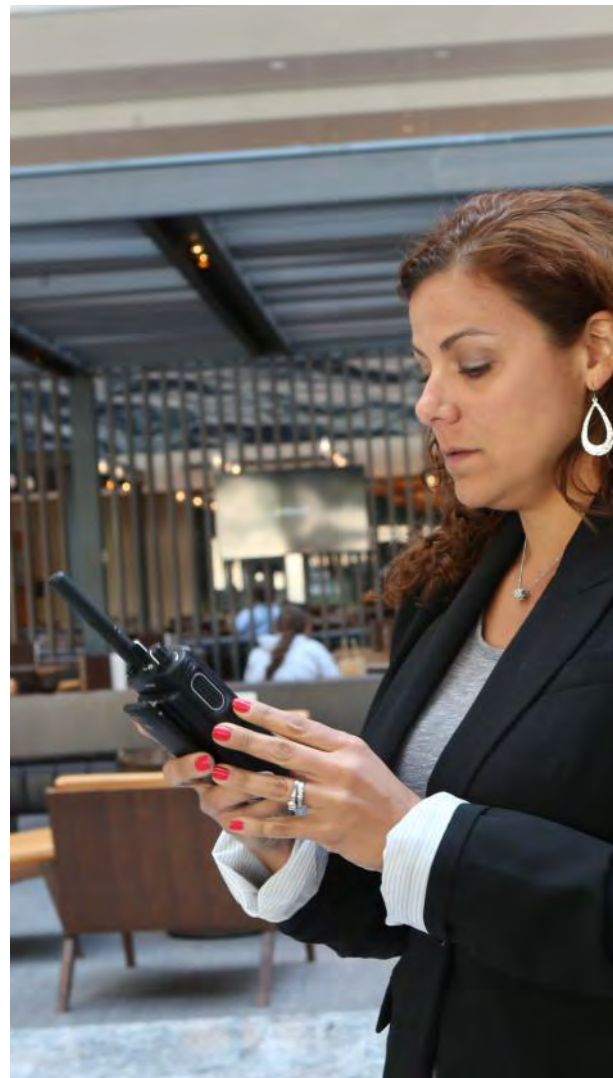


Summary:

- Your radio adjusts for inconsistent audio levels on the other end.

Detail:

- MOTOTRBO radios are constantly extending their ability to deliver clear and intelligible audio. Rx Audio Leveling enhances your audio to make sure audio levels are consistent no matter who or what is on the other end.
- If you have mixed fleets of radios you have likely experienced varying audio levels. Rx Audio Leveling adjusts every received transmission to the desired volume level so that the delivered audio is consistent for all transmissions.
- If you have a mixed configuration of radios (e.g. Tx AGC ON for some, Tx AGC OFF for others; some radios with accessories, others without, etc) you have likely experienced varying audio levels. Rx Audio Leveling keeps your audio consistent over a wide range of transmit levels and user-use positions.
- Rx Audio Leveling requires radio license **HKVN4492** to operate and delivers significant benefit to the overall audio experience.
- Available in Analog and Digital Mode



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

CONSISTENT AUDIO, FOR ALL VOLUMES



DUAL CAPACITY DIRECT MODE



Summary:

- Unlock the full capacity of DMR without a repeater, to double your channel capacity at no extra cost.

Detail:

- To allow both timeslots of a 12.5kHz DMR channel to carry simultaneous and independent traffic, you usually need a repeater (to provide the timing reference). But MOTOTRBO radios are able to synchronize automatically and collaboratively, eliminating the requirement for a central reference.
- This allows you to use both timeslots, doubling capacity and increasing spectrum efficiency without the cost of a repeater and its associated infrastructure.
- This feature was introduced in software release 2.1.



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Direct Mode

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~~Capacity Plus~~

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~~Connect Plus~~

DOUBLE YOUR CAPACITY AT NO EXTRA COST

V 2.9



EXTENDED RANGE DIRECT MODE



Summary:

- Low capacity, and high coverage at a low cost.

Detail:

- Significantly increases coverage area on a single frequency beyond a direct mode solution
 - Inbound burst is repeated 90 ms later on outbound (time division duplex)
 - Radio can receive directly from another radio or through repeater
 - Best reception path selected
- No need to change channels to talkaround when not in vicinity of repeater
- When receiving directly from radio, talkaround icon is displayed
- Subscribers can continue to operate in Direct Mode and the improvement in range will be transparent to the subscriber.
- Transmissions with other Direct Mode users will not be impacted.
- This is a chargeable feature on the repeater only, not on the subscriber.



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EXTEND YOUR RADIOS REACH

V 2.9



HIGH EFFICIENCY GPS



Summary:

- Increase the precision, capacity and reliability of your GPS solution without adding more channels.

Detail:

- This feature reduces the size of MOTOTRBO GPS location update messages, increasing the effective GPS capacity of the system. When used with a control station console, capacity increases by 200-350%; and with a wireline console by 200-700%. You can use the additional capacity in one or more of these ways:
 - 1) **Increase the precision** of the location information, by increasing the GPS location update rate (max 1 every 7.5s).
 - 2) **Increase the number of GPS users** without using extra channels.
 - 3) **Increase reliability** by reducing the message collision rate.
- This feature was introduced in software release 2.3.



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INCREASED PRECISION AT NO EXTRA COST

V 2.9



Summary:

- Increase the efficiency and speed of GPS updates in your MOTOTRBO Connect Plus system.

Detail:

- This feature allows you to provision dedicated “Fast GPS Report Channels”: up to 28 channels per site.
- When radios register at the site, they are allocated a particular timeslot on a particular channel to provide their GPS location updates.
- This reduces load on the control channel and increases speed and reliability.
- Updates can be scheduled for
 - Every 30 seconds (1 report every frame, 16 per superframe)
 - Every 1 minute (1 report every 2 frames, 8 per superframe)
 - Every 2 minutes (1 report every 4 frames, 4 per superframe)
 - Every 4 minutes (1 report every 8 frames, 2 per superframe)
 - Every 8 minutes (1 report every 16 frames, 1 per superframe)
- This feature was introduced in Connect Plus software release 1.6. For each GPS slot on the system, you must purchase a license (HKVN4290) to use the feature. Licenses are registered and activated on the Site Controller.



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VOICE ANNOUNCEMENT



Summary:

- Your radio can be programmed to confirm actions or alerts with an audio prompt.

Detail:

- When you're working in limited visibility, or when you need to keep your eyes on the job, or when you just need 100% confidence you've hit the right button, voice announcement can help.
- The feature allows you to associate a pre-recorded audio clip with a radio function. So when you switch channels, your radio will announce the name of the new channel. When you transition between zones, your radio will let you know. And if you need to use programmable buttons without looking at them, your radio can confirm that you hit the right key.
- A large selection of audio files is provided by Motorola, but you can also record your own. Files and associations are managed through the CPS software.



SL 7500e
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XPR 7580e IS
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XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
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XPR 6580 IS
XPR 6500
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XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



TEXT TO SPEECH



Summary:

- Your radio can now read text out loud: channels, zones, functions, messages and work order tickets.

Detail:

- This feature is an add-on to [Voice Announcement](#). It removes the dependency on pre-recorded voice announcement files by installing speech synthesis software on the radio itself. Channel names, zones, programmable button functions, text messages and work order tickets are all read out loud to you.
- You can define a custom dictionary to ensure accurate readout of abbreviations and industry specific terminology, and choose from 27 different languages and several different voices.
- Programmable buttons can be configured to:
 - Turn the feature on and off.
 - Repeat the last announcement.
- All parameters are configurable using the CPS.
- This feature was introduced in software release 2.4. For each radio, you must purchase a license (HKVN4281) to use the feature.



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SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO READS TEXT OUT LOUD

V 2.9



VOICE OPERATED TRANSMISSION (VOX)

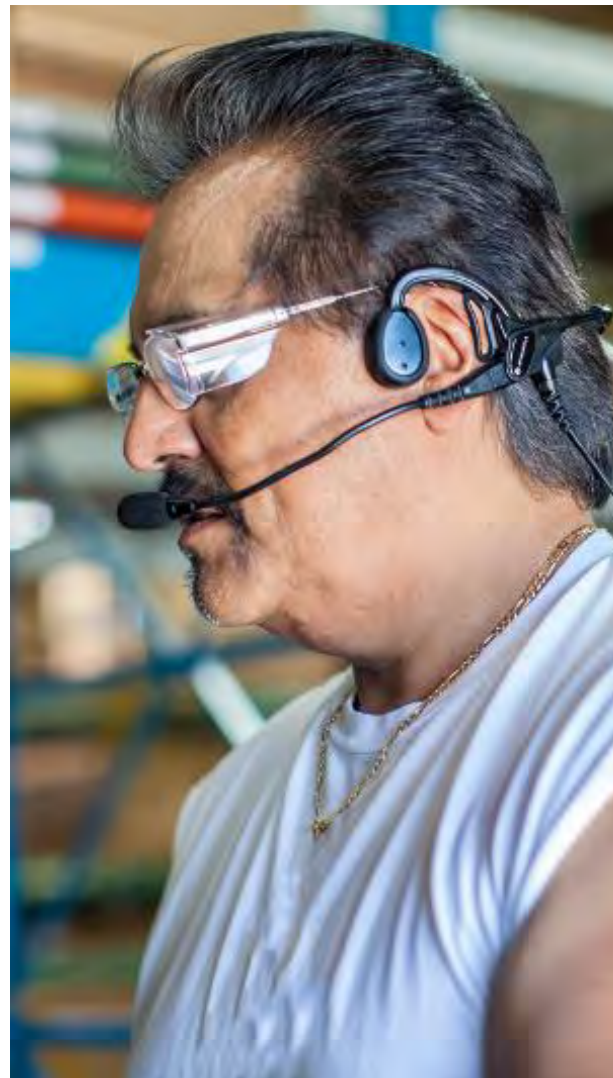


Summary:

- Voice activation allows your radio to be completely hands-free.

Detail:

- This feature allows your radio to start transmitting automatically as soon as it hears your voice. This is especially useful when you are operating machinery or driving a vehicle.
- The feature is designed to work with specific accessories that position the microphone close to your mouth.
- You should be aware that VOX will be activated by any voice, so if you are working in close proximity to another person, you may experience some inadvertent transmissions.
- If your radio is operating in a mode that delivers a Talk Permit Tone (TPT), you should start with a “trigger” word, then wait for the Talk Permit Tone before you speak.
- VOX is suspended whenever you press the PTT button on your radio, and can be resumed by pressing a pre-programmed button, changing the channel, or power-cycling the radio.



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SL 7500

XPR 7550 IS

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SL300

CM300d

CM200d

CP200d

Direct Mode

Conventional

IP Site Connect

Capacity Plus

Capacity Max

Connect Plus

PUSH-TO-TALK BECOMES SPEAK-TO-TALK

V 2.9



PROGRAMMABLE BUTTONS



Summary:

- You can personalize your radio to access functions with one touch

Detail:

- Because MOTOTRBO radios have so many features and functions, it's sometimes useful to program quick access shortcut keys.
- Every MOTOTRBO radio has programmable buttons, and a wide range of different functions can be assigned to them through the CPS.
- More advanced radios have a dedicated (and recessed) orange emergency button, but the emergency function can be assigned to any programmable button on any radio that supports digital emergency.
- The SL300 programmable button can scroll through several different functions.



Available Functions

- All Alert Tones On/Off
- Backlight Intensity (Mobile)
- Backlight Auto On/Off (Portable)
- Battery Indicator (Portable)
 - Bluetooth Connect
 - Bluetooth Disconnect
- Bluetooth Discoverable On/Off
- Bluetooth Headset Audio Switch
 - Brightness
 - Call Alert
- Call Forwarding Set/Clear
 - Call Log Access
- Channel Announcement
- Channel Down (Mobile)
- Channel Up (Mobile)
 - Contacts
- Day/Night Display Toggle
 - Emergency Off
 - Emergency On
- Ext PA On/Off (Mobile)
- GPS On/Off
- High/Low Power
- Horn & Lights On/Off (Mobile)
 - Intelligent Audio On/Off
 - Keypad Lock (Portable)
 - Man Down
 - Manual Dial For Private
 - Manual Site Room
 - Message
- Microphone AGC On/Off
 - Monitor (Portable)
 - Nuisance Delete
- One Touch Access 1- 6
- Option Board Feature 1- 6
 - PA On/Off (Mobile)
- Permanent Monitor
 - Phone Call
 - Phone Exit
- Phone Manual Dial
 - Privacy On/Off
 - Radio Check
 - Radio Disable
 - Radio Enable
 - Radio Name
- Radio/Accessory Speaker (Portable)
 - Remote Monitor
- Repeat last voice announcement
 - Repeater Access #1, #2
 - Repeater/Talkaround
 - Scan On/Off
 - Site Alias
 - Site Lock On/Off
 - Status
- Telemetry Button 1-3
 - Text Message
- Tight/Normal Squelch
- Toggle AF Suppressor (Portable)
- Toggle External PA On/Off (Mobile)
- Toggle Internal PA On/Off (Mobile)
 - Toggle PA for Voice Announcement (Mobile)
- TX Interrupt Remote De-key
 - Unassigned
- Voice Announcement On/Off
 - Volume Set Tone
 - VOX On/Off
 - Zone Selection
 - Zone Toggle

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5	1	XPR 7500e
3	1	XPR 7300e
5	1	XPR 7580e IS
4	(1)	XPR 5500e
4	0	XPR 5300e
4	0	XPR 3500e
2	0	XPR 3300e
3	0	SL3500e

2	1	SL 7500
5	1	XPR 7550 IS
5	1	XPR 7500
3	1	XPR 7300
5	1	XPR 6580 IS
5	1	XPR 6500
3	1	XPR 6300
3	0	XPR 6100
4	(1)	XPR 5500
4	0	XPR 5300
4	0	XPR 4500
2	0	XPR 4300
4	0	XPR 3500
2	0	XPR 3300
4	0	XPR 2500

(1)	0	SL300
4	0	CM300d
2	0	CM200d
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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO, PERSONALIZED



Summary:

- IMPRES technology gives you the most from your battery investment.

Detail:

- With manufacturing tolerances, age, history, environmental conditions and general usage, the capacity of a rechargeable battery will vary significantly from its rated value. If you use an ordinary battery, you will encounter situations where it dies unexpectedly; sometimes prematurely; and always at the worst possible moment.
- IMPRES radios, batteries and chargers are different. They have additional built-in circuitry that monitors the exact state of the battery cells. You will get early notification of a battery nearing the end of its life, and can plan replacement accordingly. What's more, you'll never need to throw away a perfectly good battery based only on its age, or keep extra spare batteries "just in case".
- IMPRES chargers sense when a battery needs reconditioning, and automatically schedule a deep discharge and recharge cycle to maximise the life of the cells. The lifetime of IMPRES batteries is on average 40% longer than ordinary batteries.



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Direct Mode
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Connect Plus



OPTION BOARD

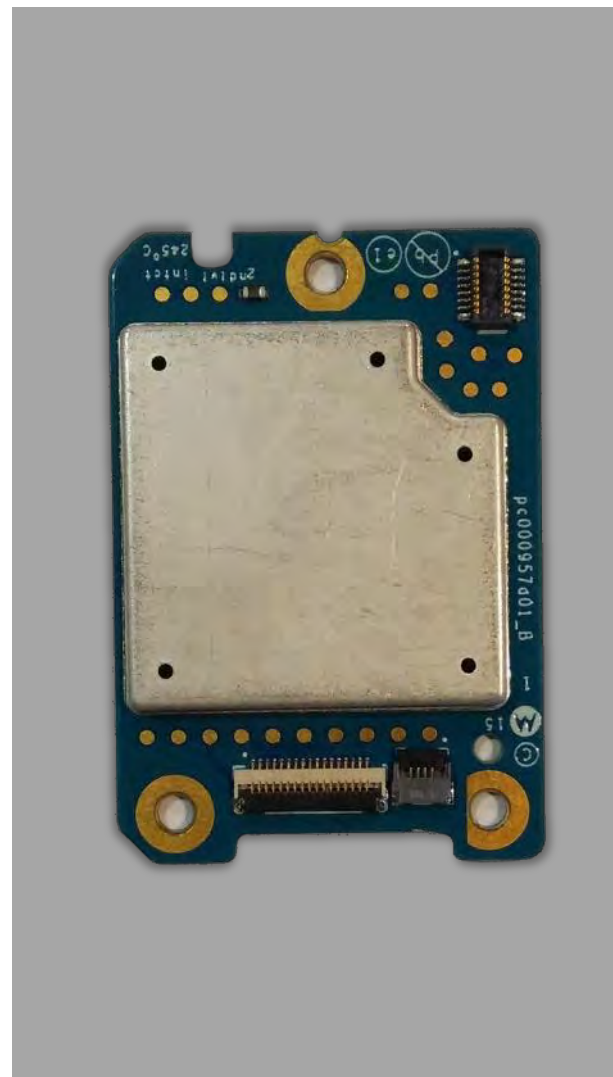


Summary:

- An extra internal processor for your radio, allowing developers to customize your radio's functionality.

Detail:

- MOTOTRBO radios have an internal physical interface to accommodate an option board with its own onboard processor and software. The option board can interoperate with the radio to create a custom end-user feature or solution, which can be as simple as Man Down, or as complex as Connect Plus trunking.
- The option board has access to the radio inputs (for example button presses and system signals), and can instruct the radio to perform certain actions (for example display text or re-route audio). It can also activate or de-activate specific functions such as Scan or Text Messaging.
- The option board also allows the radio to communicate with other devices within the radio system, such as a server hosting a database.



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CM300d
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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



SCAN



Summary:

- You can program your radio to listen out for calls across your whole team.

Detail:

- This feature instructs a radio to listen for activity on several channels and/or talkgroups, as defined by a **Scan List**. When the radio detects a call in progress on one of these channels or talkgroups, it pauses the scan and plays the transmission. If “talkback” is configured, the user can then push the PTT button and reply to that channel / talkgroup.
- The scanning of multiple talkgroups on the same channel is called **Group Scan**. It’s simple and ideal for small, simple systems. Because only one call takes place on a channel at any given time, the scanning radio will never miss a transmission.
- The scanning of multiple channels is called **Channel Scan**. It is more flexible and the Scan List can even include analog channels, but you may miss calls, as the radio cannot tune to multiple frequencies / technologies at the same time. It is therefore recommended that the Scan List is kept as short as possible.
- The Scan List can contain one Priority-1 and one Priority-2 channel; all others are considered Non-Priority. Higher priority channels are scanned more frequently. During playback, the radio will continue to scan higher priority channels periodically, producing short “audio holes” while the radio re-tunes.



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO IS ALWAYS ON THE ALERT



PRIORITY MONITOR SCAN



Summary:

- Your Connect Plus or Capacity Max radio will interrupt your call when a higher priority calls starts.

Detail:

- This feature allows you to manage calls according to their priority in a busy environment.
- When the system is set up, talkgroups can be assigned priority levels (1 or 2).
- Calls are initiated on these talkgroups in the normal way. Idle radios will be listening on the control channel, and will join if they are members of the talkgroup.
- However, radios participating in other calls will be on trunked channels, would not hear the call announcement on the control channel, and so would not know that the priority call has started.
- Priority Monitor Scan therefore announces the priority call to all radios in calls. Announcements are made 4x per second (2x per second if the repeater is also hosting the control channel).
- If the new priority call is relevant to them, radios will leave the call in progress, and make a Late Entry to the priority call.
- Radios will not leave Emergency, Multi-Group, Private or Site All Calls.
- The feature was introduced for Connect Plus in R1.6 and for Capacity Max in R2.7
- In R2.9, Priority Call is introduced for Capacity Max supporting DMR Tier 3 compliance.



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Direct Mode
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IP Site Connect
Capacity Plus
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YOUR RADIO IS ALWAYS ON THE ALERT



HOME CHANNEL REMINDER

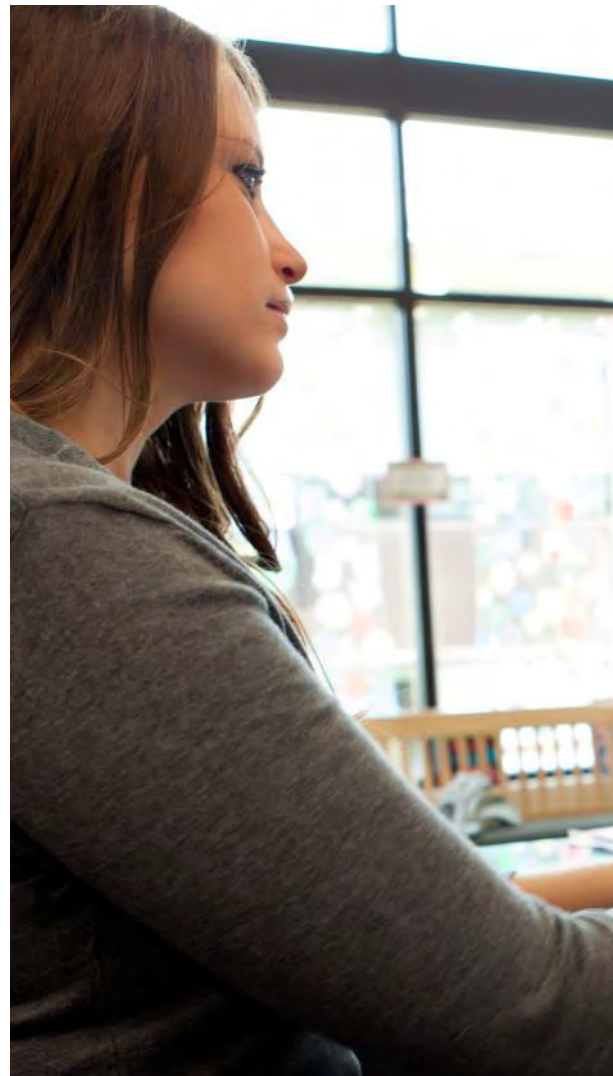


Summary:

- Your radio reminds you when you're away from your regular channel.

Detail:

- When a user primarily uses just one channel, you can program the radio to set that as the "Home Channel".
- This is particularly useful for inexperienced workers: they can stay on the same channel except when a special situation arises.
- If the user changes the channel – either deliberately or by accident, and does not return within a time limit, the radio can be configured to sound a "reminder".
- The reminder can be a pre-programmed voice announcement or a text-to-speech programmed prompt.
- This feature is configured through the CPS software.
- This feature was introduced in software release 2.4A.



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Direct Mode
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IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



TEXT MESSAGING

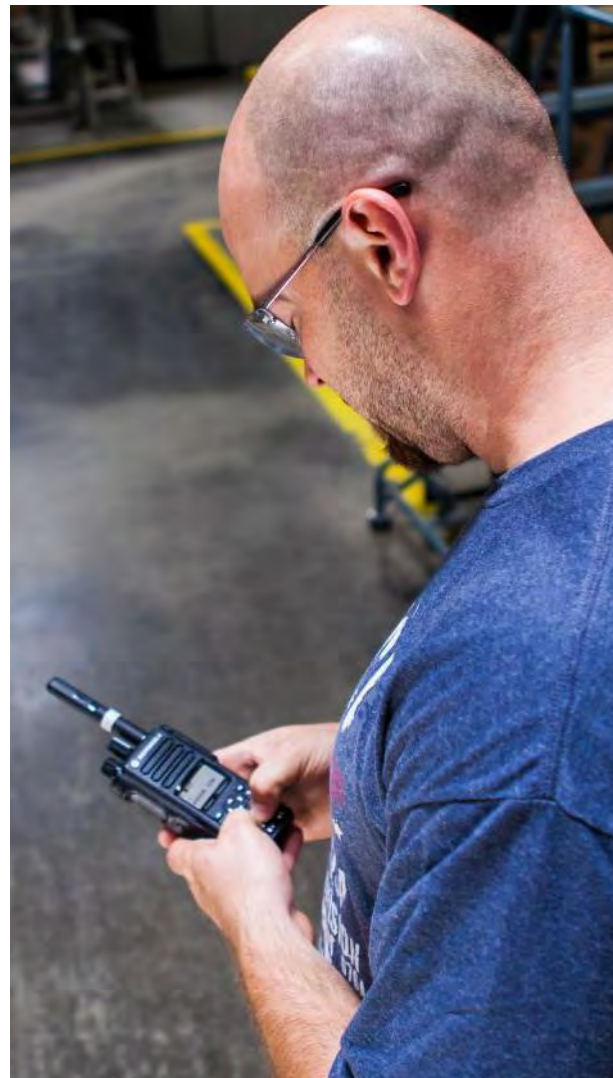


Summary:

- Connect with your colleagues even when it's not appropriate to talk.

Detail:

- MOTOTRBO has a built-in text messaging service that can be expanded for even greater capability.
- Using the **built-in text messaging services**, radio users can create, send, receive, store and display text messages to and from other radio users: individuals or groups. Messages can be freeform (with optional predictive text entry), or one of up to 10 pre-programmed "quick texts".
- Non-display radios can only send quick texts (using programmable buttons). Display radios can send and receive freeform and quick texts, and can store up to 30 received or sent text messages.
- The **MOTOTRBO Text Messaging Server** extends the service:
 - Radios can send/receive texts to/from email accounts.
- The **MOTOTRBO Text Messaging Application** can be run on a Windows PC connected to a MOTOTRBO radio.
 - Dispatchers can use the Application to access an extended feature set, including presence.
- Third party applications are also available to extend text messaging capabilities even further.



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Direct Mode
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Connect Plus



RADIO MANAGEMENT



Summary:

- Program your radios efficiently, using templates or flexible configuration libraries.

Detail:

- Radio Management is an application that streamlines the programming of your radios – particularly large fleets.
- You can create “template” codeplugs that allow efficient cloning of radio configurations while allowing for individual radio identifiers. A template is required for each role and each radio model. Templates and radio programming history records are stored on a database.
- For direct programming, a Device Programmer application (running on a Windows PC) can program up to 16 radios simultaneously. It queries the radio and the database and makes updates as required.
- You can use [Over-the-Air Programming](#) to update radios remotely.
- From Radio Management version 2.0, a Device Programmer can use Wi-Fi to send large files to the radio – for example firmware upgrades and voice announcement files. See [Wi-Fi Software Updates](#) for details.
- Radio Management 2.0 also introduces “Configuration Mode”. This allows you to create codeplugs from a library of common components, rather than rigid templates. For example you can maintain a common set of talkgroups across a system, regardless of radio model.
- The Radio Management application is pre-configured with 10 licenses. You must obtain a free-of-charge license (HKVN4101) for each additional radio.



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Direct Mode
Conventional
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OVER-THE-AIR PROGRAMMING (OTAP)



Summary:

- The benefits of Radio Management, without the need to touch your radios.

Detail:

- Over The Air Programming allows you to use the data capabilities of MOTOTRBO to update your radios' configurations.
- Using [Radio Management](#), you can define and schedule changes to your radio codeplugs, to be implemented over-the-air. These changes can be:
 - Enablement of new features
 - New or modified channels, talkgroups and aliases
- Updates are downloaded to the radio in the background, and are implemented according to the schedule you define. The radios do not need to be taken out of service or returned to a central location.
- Your business is not disrupted and users can continue to communicate throughout the process.
- For Connect Plus systems, OTAP connects to the Network Manager, not Radio Management.



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Direct Mode
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Capacity Plus
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PROGRAM YOUR RADIOS ANYWHERE, ANYTIME

V 2.9



WI-FI SOFTWARE UPDATES

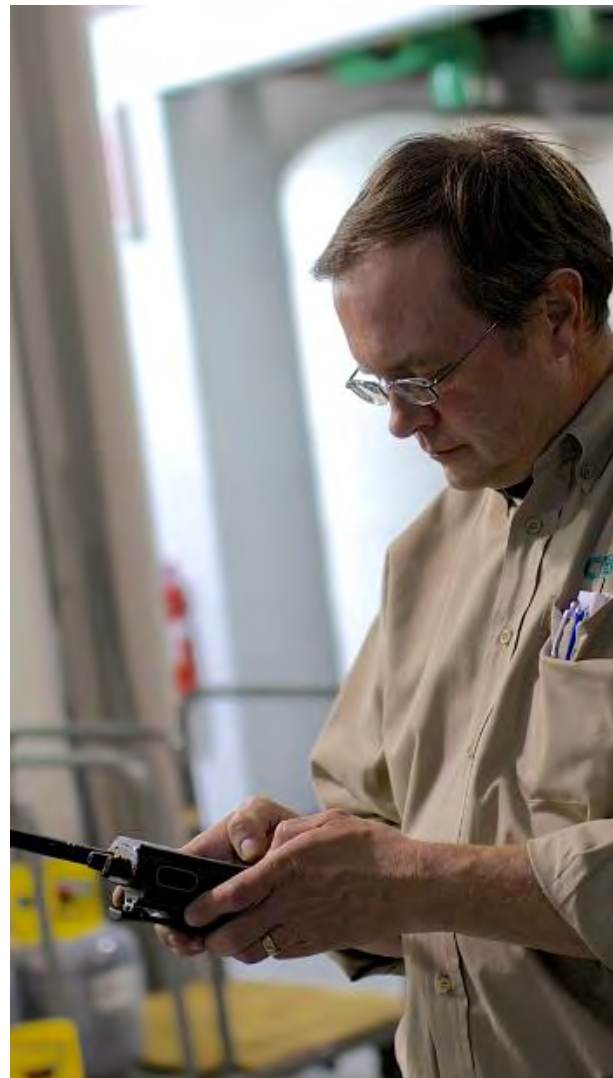


Summary:

- Your radios can now be completely updated, without the need to bring them back to base.

Detail:

- This feature uses the Wi-Fi interface on the latest generation of radios to enhance [Over-the-Air Programming](#). You can now send large files to your radios – for example new radio firmware, voice announcement files and splash screen images.
- This feature requires the new functionality in version 2.0 of **Radio Management**. The device programmer needs to be connected to the Wi-Fi network, but it can be located remotely – for example located and operated at the Radio Dealership office.
- All the functionality of Over-the-Air Programming is available over Wi-Fi. Updates can be batch-programmed and scheduled for a particular date. Radios continue to operate as normal while they are downloading updates.
- Remote updates save the time and cost of locating all radios, bringing them to a central location and disrupting normal business operations.
- This feature was introduced in software release 2.6.0.
- In R2.9, Certificate Based Wi-Fi Access was released to comply with WPA-Enterprise 802.1x networks.
 - Managing, deploying and updating your devices are easier
 - Reduces risk of snooping



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



IMPRES™ BATTERY MANAGEMENT



Summary:

- Check the long-term health of your radio batteries whenever they're inserted into a charger

Detail:

- IMPRES Battery Management allows you to check and record the condition of your batteries.
- Whenever a battery is inserted into an IMPRES charger, the charger will read its state and condition, and upload that data to the Battery Management Application (BMA). The BMA maintains a record for each battery, showing age, type, serial number, condition, charging history and health. From this data, you can tell which batteries need to be replaced, and when.
- From this data, you can:
 - Reduce unplanned downtime from unexpected battery failures.
 - Eliminate the waste of premature battery disposal.
 - Reduce your holding of spare batteries.
 - Identify and correct poor workplace charging practices.
 - Identify missing or lost batteries.
- Chargers must be connected to the BMA using USB or Ethernet.
- You must purchase a license (HKVN4036) to use the IMPRES Battery Management Application.



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

SAFER, SMARTER, POWERED FOR LONGER

V 2.9



IMPRES™ OTA BATTERY MANAGEMENT



Summary:

- Track the long-term health of your radio batteries while they're in use.

Detail:

- IMPRES Battery Management now supports automatic collection of battery information over the air. This removes the need for wired connections to charger units.
- In the same way as “wired” [IMPRES Battery Management](#), the Battery Management Application (BMA) maintains a record for each battery that's used on the system. But now the BMA can get its data via the MOTOTRBO radio network itself, either through a direct MNIS (IP) connection to a repeater, or using a control station.
- Parameters are configurable through the CPS – but by default, radios register their battery one hour after they power-up, and a battery's data is read once every 21 days.
- Over-the-air Battery Management manages the long-term health of batteries. **It is not meant to show real-time energy levels.** If immediate battery data is needed, a manual read of a battery can be requested via the BMA, but this results in additional data traffic.
- This option is available for all system types except Connect Plus.
- This feature was introduced in software release 2.4.



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SAFER, SMARTER, POWERED FOR LONGER

V 2.9



HOSPITALITY WORK ORDER TICKETING

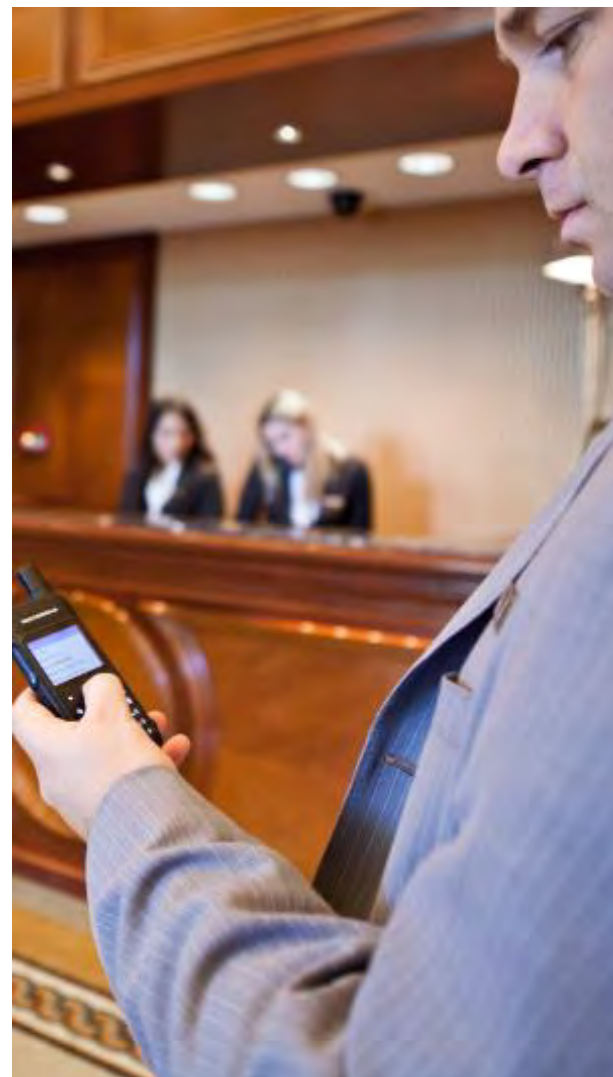


Summary:

- Improved efficiency and accountability for differentiating the guest experience.

Detail:

- Work Order Ticketing allows you to co-ordinate activities and manage issues more efficiently within the hotel or resort.
- MOTOTRBO has been integrated into the world's leading hospitality Work Order Ticketing solutions:
 - HotSOS
 - SynergyMMS
 - eConnect
 - Guestware
- Tickets use pre-configured templates on the radio, simplifying entry and translation. Tickets are allocated to the right users in the right language.
- The work order ticket process can be more discreet than a voice conversation: there are no need to speak any sensitive information or room numbers. The accountability of a ticket also leads to better employee ownership, and can even be linked to staff rewards and compensation.
- Software release 2.3A added new features: Log In/Out, Create Ticket On Radio, Room Status Update.



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XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



EVENT-DRIVEN LOCATION UPDATE



Summary:

- Your radio can be configured to send an alert and location update whenever an event occurs.

Detail:

- To give you better visibility of your fleet and better accountability of your workforce, this feature enables the reporting of events and their locations.
- The MOTOTRBO radio must be connected to the external “trigger” device via the accessory connector GPIO lines. The corresponding “GPS Report” entry in the radio’s CPS must also be enabled.
- An alert will then be sent to the dispatcher whenever the event occurs, identifying incident and location. Event examples include:
 - School bus / truck door opening or closing
 - Snowplow vehicle’s salt spreader being activated
 - Security guard’s weapon being drawn
 - Refinery worker’s breathing apparatus low air alarm
- Using a suitable application, you can also record alerts with their time and location and archive them for future reference.
- This feature was introduced in software release 2.4.



~~SL 7500e~~

~~XPR 7500e~~

~~XPR 7300e~~

~~XPR 7580e IS~~

~~XPR 5500e~~

~~XPR 5300e~~

~~XPR 3500e~~

~~XPR 3300e~~

~~SL3500e~~

~~SL 7500~~

~~XPR 7550 IS~~

~~XPR 7500~~

~~XPR 7300~~

~~XPR 6580 IS~~

~~XPR 6500~~

~~XPR 6300~~

~~XPR 6100~~

~~XPR 5500~~

~~XPR 5300~~

~~XPR 4500~~

~~XPR 4300~~

~~XPR 3500~~

~~XPR 3300~~

~~XPR 2500~~

~~SL300~~

~~CM300d~~

~~CM200d~~

~~CP200d~~

~~Direct Mode~~

~~Conventional~~

~~IP Site Connect~~

~~Capacity Plus~~

~~Capacity Max~~

~~Connect Plus~~

SO YOU KNOW WHAT’S HAPPENING, AND WHERE

V 2.9



SCREEN BACKLIGHT CONFIGURATION



Summary:

- Your radio screen can be configured to light up whenever you need it, and for as long as you need it.

Detail:

- If you can't hear your radio – perhaps you're working in an extremely noisy environment, or you turned the volume all the way down – you can use the screen backlight as an alert.
- Rather than just illuminating in response to a key-press, the backlight can be configured to illuminate whenever a call is received:
 - Voice call
 - Text message
 - Job ticket
 - Telemetry message
 - Call alert
 - Emergency alarm
- The display can be configured to stay on for a suitable interval:
 - 5, 10, 15, 20, 25, 30, 40, 50 or 60 seconds, or indefinitely.
 - Extended backlight use will drain the battery prematurely.
 - To safeguard battery life, the backlight for SL-series radios cannot be left on indefinitely.
- This feature was introduced in software release 2.4.



SL 7500e

XPR 7500e

XPR 7300e

XPR 7580e IS

XPR 5500e

XPR 5300e

XPR 3500e

XPR 3300e

SL3500e

SL 7500

XPR 7550 IS

XPR 7500

XPR 7300

XPR 6580 IS

XPR 6300

XPR 6100

XPR 5500

XPR 5300

XPR 4500

XPR 4300

XPR 3500

XPR 3300

XPR 2500

SL300

CM300d

CM200d

CP200d

Direct Mode

Conventional

IP Site Connect

Capacity Plus

Capacity Max

Connect Plus

USE YOUR SCREEN BACKLIGHT TO ALERT YOU

V 2.9



MULTI-BUTTON PTT



Summary:

- You can create your own radio interface with individual buttons for each channel.

Detail:

- For specific applications, you may need to embed your MOTOTRBO radio interface in a vehicle or control panel, and key up different channels with different external buttons. This feature allows you to realize that. Interfacing to the radio's accessory connector, you can assign inputs to channels.
- For example, you could design an interface panel with 4 buttons and configure it such that pressing button 1 calls dispatch; button 2 calls the supervisor; button 3 calls the maintenance team, and button 4 calls the emergency response crew.
- This is a chargeable feature. To use it, you must first purchase the Entitlement Identification (EID). Button assignments and functions can then be configured through CPS.
- Motorola does not produce customized interface panels, but can advise you on the design of your own.
- This feature was introduced in software release 2.4. For each radio, you must purchase a license (HKVN4280) to use the feature.



~~SL 7500e~~
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~~XPR 7300e~~
~~XPR 7580e IS~~
~~XPR 5500e~~
~~XPR 5300e~~
~~XPR 3500e~~
~~XPR 3300e~~
~~SL3500e~~

~~SL 7500~~
~~XPR 7550 IS~~
~~XPR 7500~~
~~XPR 7300~~
~~XPR 6580 IS~~
~~XPR 6500~~
~~XPR 6300~~
~~XPR 6100~~
~~XPR 5500~~
~~XPR 5300~~
~~XPR 4500~~
~~XPR 4300~~
~~XPR 3500~~
~~XPR 3300~~
~~XPR 2500~~

~~SL300~~
~~CM300d~~
~~CM200d~~
~~CP200d~~

~~Direct Mode~~
~~Conventional~~
~~IP Site Connect~~
~~Capacity Plus~~
~~Capacity Max~~
~~Connect Plus~~



LOW VOLTAGE BATTERY TECHNOLOGY



Summary:

- Your radio and battery work together to deliver extremely long talk-times.

Detail:

- This feature increases the talk-time of portable radios without increasing battery size or weight.
- MOTOTRBO radio power is nominally 7.4V, and a fully-charged battery delivers 7.4V. However, as the battery discharges, its output voltage drops. When the voltage drops to 6V, a standard radio and battery shut off, leaving a significant amount of energy remaining in the battery.
- A Next-Generation MOTOTRBO radio with a low-voltage battery will continue to operate until the voltage drops to 5V, making more of the battery's capacity available for use. The new "low voltage" batteries are still nominally 7.4V, but provide power down to 5V.
- In this way, real world battery life can be increased to >27 hours.
- Low voltage batteries will work with earlier-generation radios, but without increasing talk-time. New radios are compatible with standard batteries, but will not deliver significantly better battery life.
- This feature was introduced in software release 2.5.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 6300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

SAFER, SMARTER, POWERED FOR EVEN LONGER

V 2.9



RESTRICTED ACCESS TO SYSTEM



Summary:

- Unauthorized users are prevented from communicating through your repeater.

Detail:

- RAS (Restricted Access to System) provides two methods to prevent unauthorized subscribers from accessing the system: RAS Key Authentication and Radio ID Range Check. When used together, they provide robust and flexible options to control access.
- RAS Key Authentication:** Through the CPS, the repeater and the radios are configured with RAS “keys” (between 6 and 24 characters long). The radio uses its RAS key to encode transmissions, and the repeater uses its key to decode them. If the radio’s RAS key is incorrect or missing, the repeater will disregard the transmission.
- Radio ID Range Check:** A range of radio IDs is configured in the repeater. Only if the transmitting radio ID is within this range will its transmissions be repeated.
- This feature is available on Conventional, IP Site Connect, Capacity Plus, Linked Capacity Plus systems.
- This feature was introduced in software release 2.2. You must purchase a license per repeater to use this feature:
 - HKVN4177A for XPR 8400 and SLR 5000
 - HKVN4178 for MTR 3000 and SLR 8000



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

KEEP YOUR PRIVATE SYSTEM PRIVATE



TRANSMIT INTERRUPT



Summary:

- Use your radio to clear the channel so urgent traffic can get through.

Detail:

- The Transmit Interrupt suite of features allows a supervisor or dispatcher's radio to clear a channel when it is in use.

Voice Interrupt allows a supervisor's radio to stop and clear down a voice transmission, then start a new voice transmission. It is typically used to communicate urgent information to a group in an emergency situation.

Emergency Voice Interrupt allows a supervisor's radio to stop a voice transmission, and start its own emergency transmission.

Remote Voice De-key allows a supervisor's radio to stop a voice transmission, for example to silence a radio that is inadvertently transmitting.

Data Over Voice Interrupt allows a data application to stop a voice transmission and start a data transmission.

- All MOTOTRBO radios can respond to Transmit Interrupt commands, but only designated radios can issue Transmit Interrupt commands.
- You must purchase a license (HKVN4085) to use this feature on XPR 3000e, 3000 and 2500 radios.
- For Capacity Max, see [Voice Interrupt and Pre-Emption](#)



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300

XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

WHEN YOUR CALL MUST GO THROUGH



VOICE INTERRUPT AND PRE-EMPTION



Summary:

- Your Capacity Max system can interrupt a call whenever a priority transmission is needed.

Detail:

- Capacity Max provides features that allow you to interrupt existing calls if there's an urgent requirement.
- **Voice Interrupt** allows a supervisor (radio user or dispatch console operator) to interrupt a radio that is currently transmitting. This allows the supervisor to speak to other users on the call. After the interruption, the call can continue as before.
- All MOTOTRBO radios can respond to Voice Interrupt commands, but only designated radios and applications can issue Voice Interrupt commands.
- **Call Pre-emption** is initiated by the system whenever a priority call (Emergency Call or All Call) is initiated, but no vacant channel is available. The system tears down an existing call and takes over the channel for the priority call. The call is terminated and must be re-started.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

WHEN YOUR CALL MUST GO THROUGH

V 2.9



DIGITAL EMERGENCY



Summary:

- A MOTOTRBO user in distress can sound an alarm to summon assistance.

Detail:

- Digital Emergency can be triggered by a feature (e.g. Man Down), or by pressing the Emergency button or footswitch.
- When the emergency is initiated:
 - Supervisor(s) receive(s) audio and visual alerts with the initiator's ID.
 - Initiating and supervisor radios enter Emergency Mode.
 - Calls contain an emergency indication, and are transmitted using Emergency Voice Interrupt.
- The radio can be configured to do the following:
 - **Emergency Alarm** only
 - **Emergency Alarm** and **Emergency Call**
 - **Emergency Alarm** with **Voice to Follow**
 - **Emergency Voice Interrupt** for **Emergency Alarm**
 - **Emergency Voice Interrupt** for **Emergency Voice**
- Once the situation is resolved, the Emergency is cleared by the supervisor and initiator radios.



SL 7500e

XPR 7500e

XPR 7300e

XPR 7580e IS

XPR 5500e

XPR 5300e

XPR 3500e

XPR 3300e

SL3500e

SL 7500

XPR 7550 IS

XPR 7500

XPR 7300

XPR 6580 IS

XPR 6500

XPR 6300

XPR 6100

XPR 5500

XPR 5300

XPR 4500

XPR 4300

XPR 3500

XPR 3300

XPR 2500

SL300

CM300d

CM200d

CP200d

Direct Mode

Conventional

IP Site Connect

Capacity Plus

Capacity Max

Connect Plus

GET HELP WHEN YOU REALLY NEED IT

V 2.9



EMERGENCY SEARCH TONE



Summary:

- Your radio will sound a loud audio alarm when it enters Emergency Mode.

Detail:

- When you trigger an Emergency Call, you may not be able to describe your location. If the alarm is triggered by a Man Down notification, you may not even be able to speak.
- The Emergency Search Tone feature causes your radio to emit a continuous attention-grabbing sound as soon as it enters Emergency Mode. Rescuers can then come to your assistance by following the sound of the radio.
- The tone also has some deterrence effect: for example if a security guard feels threatened by a crowd, the Emergency Search Tone will clearly signal to all present that reinforcements are on the way.
- This feature was introduced in software release 2.4A.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100

XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO DIRECTS RESCUERS TO YOUR LOCATION

V 2.9



REMOTE MONITOR



Summary:

- You can discreetly activate another radio's microphone, and listen in to what's happening

Detail:

- Sometimes you need to find out more about a radio's situation. For example when one of your staff is incapacitated or unresponsive, or when a radio is suspected stolen.
- The Remote Monitor command instructs the target radio to initiate a private call to the commanding radio. The microphone is activated for a set duration, but without giving any indication to the user.
- Only designated radios can issue Remote Monitor commands.
- All MOTOTRBO radios can respond to Remote Monitor commands.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 6300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

ANOTHER SET OF EARS, JUST WHEN YOU NEED THEM





RADIO DISABLE / ENABLE



Summary:

- You can use your radio or application to remotely disable and re-enable other radios.

Detail:

- To have proper control over your radio fleet, you need to be able to remove rogue or stolen radios from service – then re-enable them when they're recovered. This feature gives you that capability.
- The “Disable” command disables a radio, and can be sent from a suitably configured radio, or from a third-party application.
- Once a radio is disabled, it will show a blank display, will not be able to make or receive calls, and will be locked to its site or channel.
- Radios can be re-enabled by using the “Enable” command from a radio or application. The target radio must be turned on and be within coverage of the site or channel where it was disabled.
- Radios can also be re-enabled through the CPS.
- Only designated radios can issue Radio Enable or Disable commands.
- All MOTOTRBO radios can respond to Radio Enable or Disable commands.
- Capacity Max has a similar feature called [“Stun / Revive”](#).



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 6300e
XPR 3500e
XPR 3300e
SL3500e
SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500
SL300
CM300d
CM200d
CP200d
Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



MAN DOWN



Summary:

- If the radio's position or movement falls outside normal user behavior, it initiates an emergency call.

Detail:

- This feature is designed to safeguard workers who are at risk of being incapacitated in a hazardous environment.
- The radio contains a timer which can be activated if:
 - **Movement:** Radio moves
 - **No movement:** Radio stops moving
 - **Angle:** Radio is tilted beyond a certain angle
 - **Angle + No movement:** Radio is tilted and stops moving
- When the timer expires, the radio will sound a warning to the user. If the warning is not acknowledged promptly, the radio will initiate an emergency call. At the same time it will start audible and visual beacons on the radio, to help rescuers find the user quickly.
- The feature is available on radios with a built-in accelerometer:
 - XPR 6580 IS, XPR 7550 IS and XPR 7000e Series radios
 - For each radio, you must purchase a license (HKVN4179A) to use the feature.
- It is also available through the Connect Plus Option Board:
 - XPR 6000, XPR 7000, and XPR 7000e radios on a Connect Plus system
 - For each radio, you must purchase a license (HKVN4072) to use the feature.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 6300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO CALLS FOR HELP WHEN YOU CAN'T



LONE WORKER



Summary:

- If a user shows no signs of activity for a period, the radio will initiate an emergency call.

Detail:

- This feature is designed to safeguard workers who are working alone. All parameters are configured through the CPS software.
- If there is no activity on the radio for a period of time, the radio will issue an alert to the user. If the user does not acknowledge the alert promptly, the radio will initiate an [Emergency Call](#). At the same time it will start audible and visual beacons, to help rescuers find the user quickly.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300

XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO TAKES CARE OF YOU

V 2.9



BASIC PRIVACY



Summary:

- Your radio encodes your voice and data to prevent you being overheard.

Detail:

- Basic Privacy is a simple feature that helps keep your voice and data calls confidential without impacting your system performance.
- The feature is designed to prevent casual eavesdropping, but does not provide strong protection against a determined hacker. It uses a digital algorithm to encode voice and data, using a single 16-bit key from the 255 predefined keys available. Signalling and control messages are not encoded.
- Basic and Enhanced Privacy features use Motorola proprietary mechanisms, and are not interoperable. Privacy types cannot be mixed within a system.
- Enhanced Privacy provides a higher level of protection than Basic Privacy, but may result in slightly lower voice quality and slightly increased system access times.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



ENHANCED PRIVACY



Summary:

- Your radio encodes your voice and data to protect your calls.

Detail:

- Enhanced Privacy is a feature that helps keep your voice and data calls highly confidential.
- The feature is designed to be a strong protection against a determined attack. It uses the ARC4 cryptographic digital algorithm to encode voice and data using a 40-bit key. The radio can store 16 different keys, and can use different keys for different channels. All voice and data calls are encoded, but signaling and control messages are not.
- Basic and Enhanced Privacy features use Motorola proprietary mechanisms, and are not interoperable. Privacy types cannot be mixed within a system.
- Enhanced Privacy provides a higher level of protection than Basic Privacy, but may result in slightly lower voice quality and slightly increased system access times.
- You must purchase a license (HKVN4084) to use this feature on XPR 3000e, 3000 and 2500 radios.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO SECURES YOUR CALLS



IP RATING



Summary:

- Your radio is built to be tightly sealed against dust and moisture.

Detail:

- The IP Rating (International Protection or Ingress Protection) is a 2-digit code that declares how well a product is sealed.
- The first number refers to protection against solid objects:

#	Object Size	Example
0	—	No protection against contact and ingress of objects
1	>50 mm	Protected against large objects
2	>12.5 mm	Protected against fingers
3	>2.5 mm	Protected against tools
4	>1 mm	Protected against wires
5	Dust	Dustproof: Dust may enter, but not enough to interfere with product operation
6	Dust	Dust-tight: No dust may enter

- The second number refers to protection against liquids:

#	Protection
0	Not protected against liquid intrusion
1	Protected against vertical dripping water
2	Protected against water dripping at an angle
3	Protected against spraying water
4	Protected against splashing water
5	Protected against water jets
6	Protected against powerful water jets
7	Protected against immersion (up to 1m / 3ft for 30 mins)
8	Protected against immersion (beyond 1m / 3ft – Motorola tests to 2m / 6.6 ft for 2 hrs)

- For example, a radio rated **IP56** is **dustproof and waterproof, but not submersible**.
- Portable radios generally require better sealing than mobile radios.



IP54	SL 7500e
IP68	XPR 7500e
IP68	XPR 7300e
IP68	XPR 7580e IS
IP54	XPR 5500e
IP54	XPR 5300e
IP67	XPR 3500e
IP67	XPR 3300e
IP54	SL3500e

IP54	SL 7500
IP67	XPR 7550 IS
IP57	XPR 7500
IP57	XPR 7300
IP67	XPR 6580 IS
IP57	XPR 6500
IP57	XPR 6300
IP54	XPR 6100
IP54	XPR 5500
IP54	XPR 5300
IP54	XPR 4500
IP54	XPR 4300
IP55	XPR 3500
IP55	XPR 3300
IP54	XPR 2500

IP54	SL300
IP54	CM300d
IP54	CM200d
IP54	CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOUR RADIO IS PROTECTED



HAZARDOUS LOCATION CERTIFICATION





Summary:

- Your radio is certified for use in flammable and explosive environments.

Detail:

- A “HazLoc” (Hazardous Location) is an area where flammable or explosive gases, liquids, dust or “flyings” may be encountered.
- Health and safety regulations often mandate that products used in these areas must be HazLoc-certified: specifically designed not to cause accidental sources of ignition. The industry standards are:

 **FM_3688:** Factory Mutual standard, also tested and certified by Factory Mutual. **This standard is retired: no new product can be manufactured after 2015, although current product remains safe and compliant.** Product has a green certification marking.

 **TIA-4950:** TIA (Telecommunications Industry Association) standard. Motorola product is tested and certified by UL (Underwriters' Laboratories). Product has a white certification marking.

 **CSA157:** Specified and certified by the Canadian Standards Association. Product is colored blue.

- For compliance, the radio must use the correct battery: FM batteries cannot be used on TIA/UL radios and vice versa. From software release 2.5, you can program the radio to sound an alert if the wrong battery is installed: see [HazLoc Battery Mismatch Alert](#) feature.



	SL 7500e
	XPR 7500e
	XPR 7300e
	XPR 7580e IS
	XPR 5500e
	XPR 6300e
	XPR 3500e
	XPR 3300e
	SL3500e

	SL 7500
	XPR 7550 IS
	XPR 7500
	XPR 7300
	XPR 6580 IS
	XPR 6500
	XPR 6300

	XPR 6100
	XPR 5500
	XPR 5300
	XPR 4500
	XPR 4300
	XPR 3500
	XPR 3300
	XPR 2500

	SL300
	CM300d
	CM200d
	CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

YOU'RE SAFER IN DANGEROUS ENVIRONMENTS



HAZLOC BATTERY MISMATCH ALERT



Summary:

- Your Hazloc radio alerts you when an incompatible battery is attached.

Detail:

- This feature provides an audible and visual alert when the wrong battery is attached to a Hazloc-certified radio.
- The radio certification type (None, FM or UL) must be set when the radio is first programmed from the MOTOTRBO CPS.
- During power up, the radio detects the attached battery. The radio will respond according to the matrix below:

	FM Battery	UL Battery	Next-Gen UL Battery
	NNTN8129AR	NNTN8560A	PMNN4489A
MOTOTRBO FM-certified Radio	-	ALERT	ALERT
MOTOTRBO UL-certified Radio	ALERT	-	ALERT
Next-Gen MOTOTRBO UL-certified Radio	ALERT	ALERT	-

- If the battery is not of the correct type, the radio will sound an alert and play a voice announcement (if configured). The radio status LED will also turn red, and for display radios, "Wrong Battery" is displayed on the screen.
- For a list of Hazloc-approved radio models and corresponding batteries, refer to the FM manual (687153L01) or UL manual (MN00111A01).



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~~Capacity Plus~~
~~Capacity Max~~
~~Connect Plus~~

YOU'RE SAFER IN DANGEROUS ENVIRONMENTS



INDOOR LOCATION TRACKING

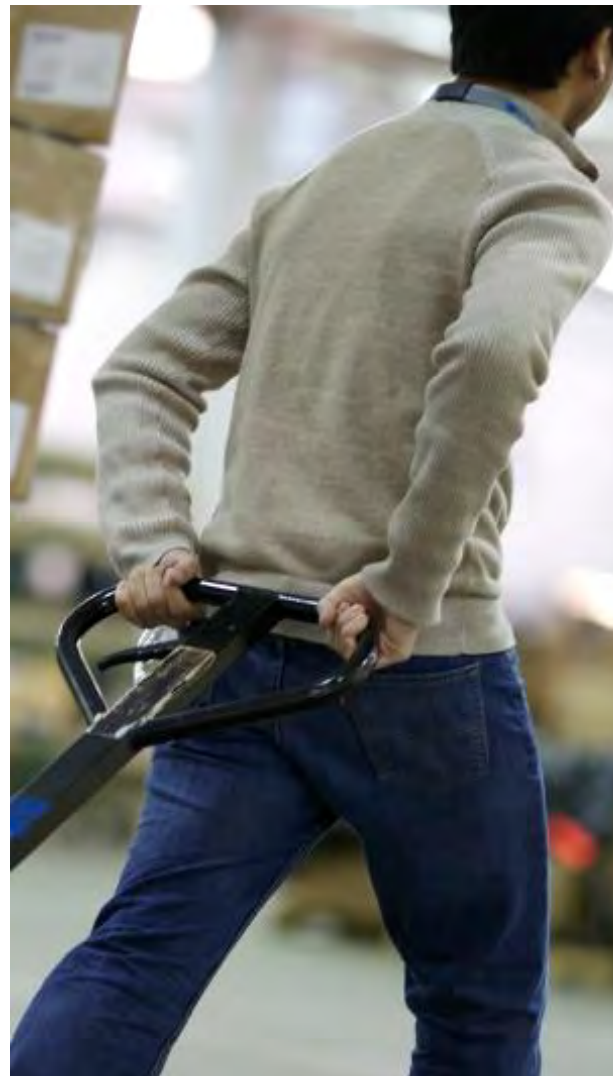


Summary:

- Your radio systems tracks your workers, even when they are inside the building.

Detail:

- This feature uses Bluetooth Low Energy (a mode of Bluetooth 4.0) in the latest MOTOTRBO radios to find the position of radios inside a building.
- It relies on Bluetooth beacons (“iBeacons”), which are installed at known, fixed points around the building. These small, battery-operated units broadcast their unique identifier over Bluetooth.
- The radio continually listens for iBeacons, and periodically sends a measurement report (beacon IDs and their signal strengths) over the MOTOTRBO data channel to a dispatcher application.
- The application uses the report to calculate the likely position of the radio and displays it on a map in a similar way to GPS. The more beacons the radio reports, the more accurate the location fix will be.
- Motorola will offer iBeacons for sale as part of this solution. Compatible applications are available from our Application Partners.
- This feature was introduced in software release 2.6.0. For each radio, you must purchase a license (HKVN4432A) to use the feature.



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LOCATE ALL YOUR WORKERS AT A GLANCE



SUBSCRIBER ACCESS CONTROL

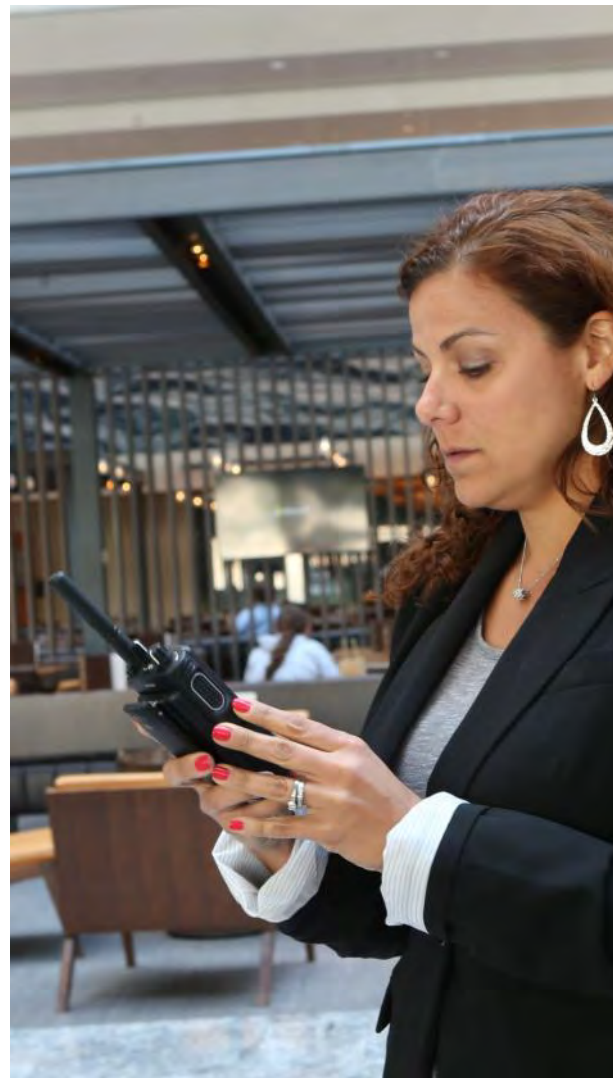


Summary:

- You can define who can access your Capacity Max system, and which services and sites they can use.

Detail:

- A Capacity Max system uses Subscriber Access Control (SAC) to define which radios can register on the system, which services they can use, and which sites they can access.
- This allows the system owner to maintain good security, and provide differential service levels to different types of user.
- Using Radio Management, the system administrator can individually disable or enable the following services for each radio, application, and data gateway:
 - Permitted to Initiate:
 - Group Data Call
 - Individual Data Call
 - Group Voice Call
 - Broadcast Call
 - Individual Voice Call
 - Multi-site Voice All Call
 - Site-wide Voice All Call
 - Telephone Call
 - Emergency Call
 - Remote Monitor
 - Short Data Call
 - Stun / Revive
 - Call Alert
 - Permitted to receive:
 - Individual Voice Call
 - Stun / Revive
 - Remote Monitor
 - Individual Telephone Call



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Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



STUN / REVIVE



Summary:

- You can quickly deactivate a radio, to prevent it accessing your Capacity Max system.

Detail:

- Capacity Max uses Subscriber Access Control (SAC) to define which radios can access a system. You can remove or block a user's access by disabling them in the SAC database.
- However, sometimes you need to block a radio immediately – for example when you suspect that it is stolen.
- The “Stun” command is issued by a Control Room Application (Console) over the control channel, a wireless console, or wireless radio. This instructs the radio not to process any user-initiated requests for service. The receiving radio authenticates the command, then acts on it.
- A “Stunned” radio will continue to register on the system, roam to different sites, and send location updates, but it will not be able to initiate or receive calls.
- A radio is “Revived” using a command from the Control Room Application, or by USB re-programming.



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RADIO KILL



Summary:

- You can use your application to remotely kill, or permanently disable, a radio.

Detail:

- To have proper control over your radio fleet, you need to be able to remove rogue or stolen radios from service, permanently. This feature gives you that capability.
- A radio can only be killed from a voice application, like a console.
- A killed radio disables all functionalities across all personalities.
- The radio can be powered on / off and over the wire, but accepts only those commands which are essential for un-killing the radio. Code-plug or firmware cannot be programmed into a killed radio.
- While powered on, it indicates its “Killed” state.
- In Killed state, the radio does not respond to the keypad, channel knob, or buttons. The radio does not make over-the-air transmission and reception. A killed radio cannot be revived from the Kill state by any over-the-air message
- A radio being killed will always authenticate the network using the same authentication key used for registration.
- Unkill can only be done at a Motorola Depot



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BLUETOOTH AUDIO



Summary:

- Step away from your desk, step out of your driving seat, and still stay connected.

Detail:

- The Bluetooth Audio feature allows you to connect wireless audio accessories such as headsets, earpieces and push-to-talk buttons to your radio. You are free to roam up to 10 meters (30 feet) from your radio, while staying connected to your colleagues.
- For users of mobile radios, you can step out of the cab, check the load of your truck, supervise the children in the back of the bus and deliver the package to the front door – all without losing connectivity.
- For users of portable radios, you can leave your radio on your desk, move freely around your office and still stay in touch.
- Bluetooth Audio also enables the use of specialised accessories, such as an in-ear earpiece for covert communications.
- Next-generation radios are compatible with Bluetooth 4.0, but this delivers no additional audio functionality.
- For XPR 6000 Series radios, you must purchase an external Bluetooth dongle (PMLN5712).



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Direct Mode
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IP Site Connect
Capacity Plus
Capacity Max
Connect Plus

UNLEASHES YOU AND YOUR RADIO

NEW

V 2.9



BLUETOOTH DATA



Summary:

- Your radio can interface with other Bluetooth devices, for easier data entry and control.

Detail:

- To enhance the data capabilities of MOTOTRBO radios, you can interface a Bluetooth data entry device to the radio – for example a barcode scanner. When used with a Work Order Ticketing system, this significantly increases the convenience of the user interface.
- Other smart devices can also use the Bluetooth data connection as a network interface (Personal Area Network, or PAN). For example, a PC or tablet can use the secure, resilient MOTOTRBO network to connect to a database of biometric records or license plate information.
- Bluetooth 4.0 (in Next-Generation radios) delivers:
 - **Classic Bluetooth:** Backwards-compatibility with earlier devices.
 - **Bluetooth Low Energy:** Lower power consumption, with approximately the same range. Optimized for fast setup of simple links – so ideal for applications such as [Indoor Location Tracking](#).
 - Future interoperability with new Bluetooth accessories and sensors
- For “Capable” models, you must purchase a license (HKVN4249) to use the feature.
- For other radios, you must purchase a license (HKVN4088) to use the feature.



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Direct Mode
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Capacity Plus
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TELEMETRY



Summary:

- Use your radio network to interconnect people, machines and sensors.

Detail:

- MOTOTRBO radios have a programming interface that can also support GPIO (General Purpose Input / Output) and USB signalling for telemetry purposes.
- This can be used to connect MOTOTRBO users to sensors:
 - For example, your alarm system can be connected to a MOTOTRBO radio, so you receive a text alert on your radio when an intrusion is detected. Or your production machinery can be connected to a MOTOTRBO radio, so your maintenance technicians receive breakdown notifications on their radios – including diagnostic information, if required.
- It can also be used to connect MOTOTRBO users to actuators:
 - For example you can connect a MOTOTRBO radio to the door lock of a secure facility – and lock and unlock the door remotely using your radio.
- And it can be used for a combination of both:
 - For example a remote environmental sensor can send periodic readings to a remote server, using a data channel on the MOTOTRBO system.



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Direct Mode

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Capacity Plus

Capacity Max

Connect Plus

EVERYTHING INTERCONNECTED BY MOTOTRBO

V 2.9



PRE-CONFIGURED TELEPHONE PATCH



Summary:

- Telephone users can connect to a pre-configured radio channel quickly and easily.

Detail:

- The existing MOTOTRBO telephone patch offers flexibility, but access can be time-consuming:
 - The telephone user dials a specific number or extension
 - After hearing the tone, they have 3 seconds to enter the radio ID and repeater slot number on their telephone keypad.
 - They will then be connected to the radio user or talkgroup.
 - If there is an error, the tone will repeat, prompting them to re-enter the radio ID and repeater slot number.
- This new enhancement allows the configuration of a “default” radio user – for example Security. If the system does not detect an entry within 3 seconds of the tone, the telephone user is automatically connected to Security.
- So, for example, all the desk-phones at a facility can be pre-programmed with an “Emergency” number that will always reach Security. Advanced users know they can reach other radio users by entering additional information.
- This feature was introduced in software release 2.4.



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INTEGRATED WI-FI

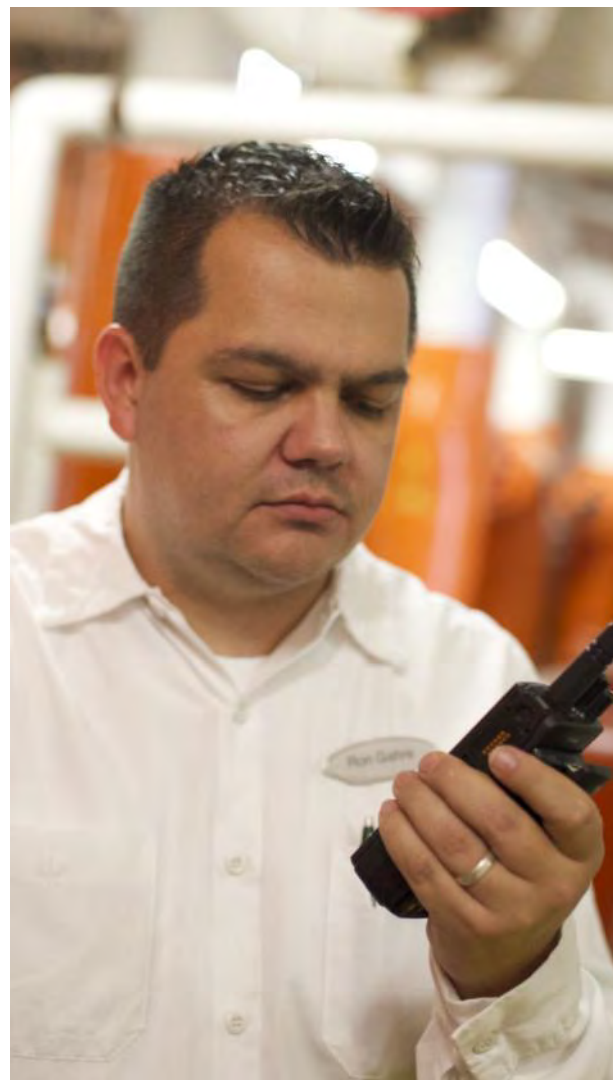


Summary:

- Your radio now has a broadband interface.

Detail:

- Wi-Fi connectivity is now available on selected MOTOTRBO radios.
- The Wi-Fi interface is compliant to 802.11b/g/n, and supports up to 8 Mbps data rates. It is designed to access only private Wi-Fi networks, using WPA, WPA-2 or WEP security protocols.
- The initial application will be for downloading large configuration files to the radio, for example new radio firmware, voice announcement files and screen images. This is available in software release 2.6.0, and requires the new functionality of Radio Management version 2.0. See [Wi-Fi Software Updates](#) for details.
- Wi-Fi is not designed to enable broadband services such as internet browsing on a MOTOTRBO radio, however there will be opportunities to use Wi-Fi for other purposes in the future. It is also expected that Application Development Partners (ADPs) will use the Wi-Fi interface for new applications.
- This feature was introduced in software release 2.5. For each radio, you must purchase a license (HKVN4381) to use the feature, except for "Enabled" radios, where it is pre-activated.
- In R2.9 Certificate Based Wi-Fi access (WPA-Enterprise 802.1x) was introduced. This increases the security of Wi-Fi enabled devices for enterprise networks.



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TELEPHONY (CONNECT PLUS)



Summary:

- You can connect telephone users to your Connect Plus radio users.

Detail:

- A Connect Plus system can be connected directly to an analog or digital telephone network, to allow your workers to interact with customers or office staff.
- Introduced with Connect Plus release 1.5, the XRI 9100 Interconnect Gateway interfaces MOTOTRBO with the telephone network.
- You can connect analog telephone lines to the XRI 9100 via Cisco SPA-8800 SIP Gateways. Each gateway has a capacity of 4 lines, and up to 4 can be connected for a total of 16 analog lines.
- From Connect Plus 1.7 (software release 2.6.0), you can also use digital SIP Gateways to connect to digital telephones and softphones.
- The preferred SIP Gateway is the Cisco Unified Communications Manager (CUCM). This is a powerful and flexible software application that runs on a Cisco server.
- You must purchase capacity licenses for the XRI 9100 to support digital telephone interconnections.
- This system supports “overdial”: the entry of numbers into an automated system (using the radio keypad) after the call is connected. This can be either “live” (pressing radio keys while holding down the PTT button) or “buffered” (entering the phone number and overdial numbers together before initiating the call).



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YOUR WORKERS ARE EVEN BETTER CONNECTED



TELEPHONY (CAPACITY MAX)

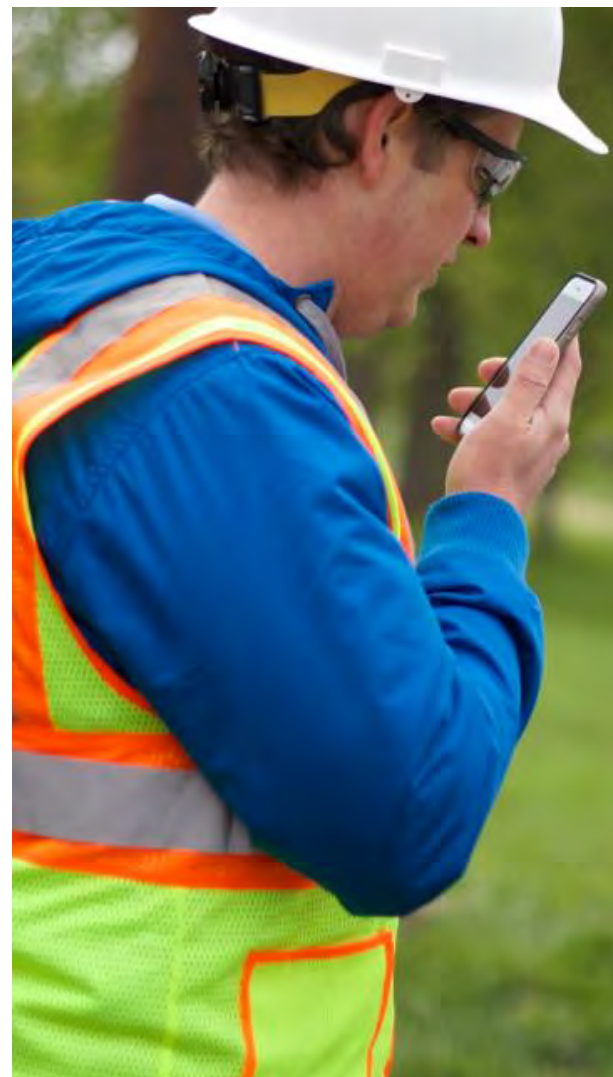


Summary:

- You can connect telephone users to your Capacity Max radio users.

Detail:

- Telephone interconnect on a Capacity Max system is supported through a third-party telephone application, connected to the system via the Voice and Radio Command (VRC) Gateway on the Capacity Max System Server (CMSS).
- The system supports the following call types:
 - Radio-initiated call to telephone
 - Telephone-initiated call to radio
 - Telephone-initiated call to talkgroup
- Calls can be initiated by dialling a number on the radio keypad, through the radio address book, or with a pre-programmed button. Calls are half-duplex, with priority to the radio: When a radio user presses the PTT button, the telephone user is interrupted.
- This feature also supports “overdial”: the entry of numbers into an automated system (using the radio keypad) after the call is connected.
- The system administrator can enable or disable this feature per radio using [Subscriber Access Control \(SAC\)](#).
- Support for DMR Tier 3 industry standard compliant telephony calls has been added with R2.9.



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Direct Mode
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IP Site Connect
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SHARED FREQUENCY CONTROL CHANNEL (CAPACITY MAX)



Summary:

- Now customers can deploy Capacity Max even when dedicated channels aren't available.

Detail:

- Customers can now choose between using a dedicated or shared channel to deploy a Capacity Max system
- Previously, Capacity Max could only be deployed using a dedicated channel
- Great for Capacity Plus customers looking to migrate to Capacity Max
- Benefits customers who don't have FB8 channels available
- The roaming performance of a shared control channel is on par with a Capacity Plus system



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Direct Mode
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Capacity Plus
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Connect Plus

DEPLOYMENT HAS JUST GOTTEN EASIER

V 2.9



MOTOTRBO LINK



Summary:

- Enables over-the-air backhaul using repeaters in places where alternatives are too expensive, unavailable, or impractical.

Detail:

- New configuration within IPSC conventional system
 - Enables over-the-air backhaul using repeaters
- Useful in rural areas where no site link connectivity exists
 - Deserts, ski resorts, mines
- Eliminates need for microwave link which is traditionally more expensive
- Only SLR Repeaters can be used in both the IPSC network and backhaul chain









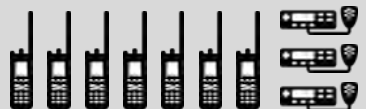
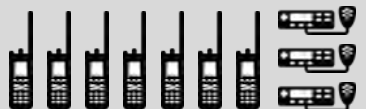
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LINK YOUR SITES, EVEN WHEN IP IS NOT AVAILABLE

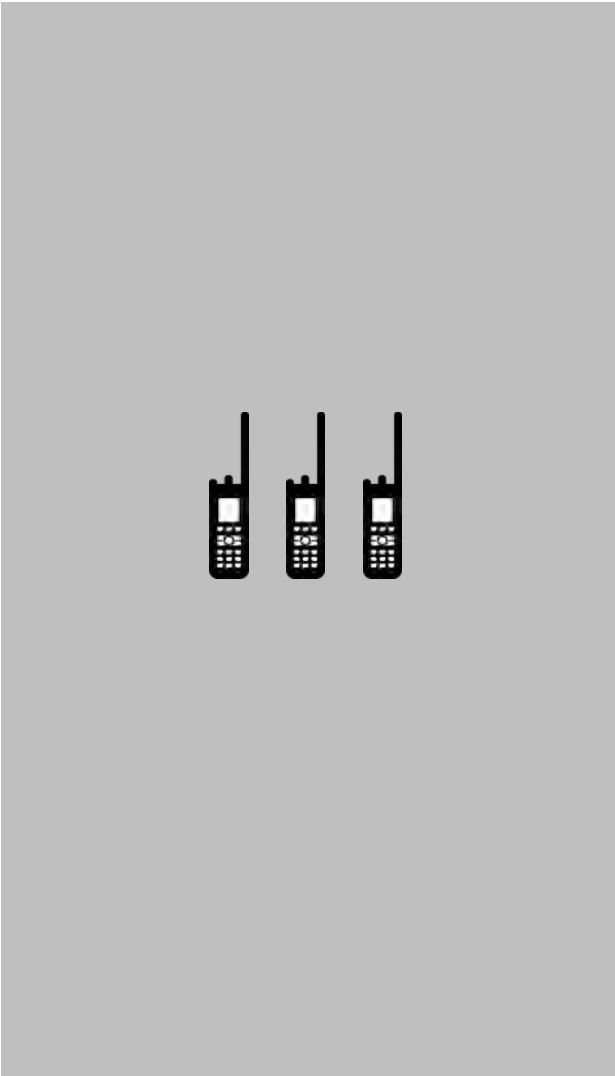
IP SITE CONNECT	CAPACITY PLUS	CONNECT PLUS	CAPACITY MAX
CONVENTIONAL	TRUNKING		
			
UP TO 15 SITES	UP TO 15 SITES	UP TO 250 SITES	UP TO 250 SITES
			
UP TO 200 USERS*	UP TO 1600 USERS/SITE*	UP TO 3000 USERS/SITE*	UP TO 3000 USERS/SITE*
BASELINE COVERAGE	COST-EFFECTIVE COVERAGE AND CAPACITY	COVERAGE AND CAPACITY	COVERAGE, CAPACITY AND CONTROL

Summary:

- Fallback connectivity, for local area communications or during power outages.

Detail:

- All MOTOTRBO radios are able to connect to each other directly, without the need for any infrastructure such as a repeater. Coverage and capacity are limited, but for a situation such as a power outage, a basic level of communications is still possible.
- Radios communicate on a single 12.5kHz channel. If Dual Capacity Direct Mode is configured, the radios can use both timeslots on the channel for independent conversations.
- Coverage (range) is limited, as the power of a radio is much less than that of a repeater.
- “Direct Mode” usually refers to a system that is solely capable of radio-to-radio communications. “Talkaround” is a fallback mode of operation for conventional or trunked systems.
- Direct Mode can be enhanced using [Extended Range Direct Mode](#).



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SINGLE SITE CONVENTIONAL

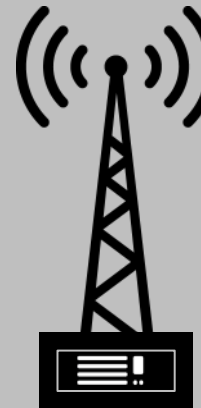
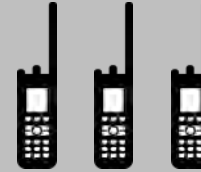


Summary:

- Baseline single site capacity and coverage.

Detail:

- The **Single Site Conventional** architecture consists of a single repeater supporting communications for up to 200 users. This configuration provides capacity and coverage over a wide area using a pair of 12.5kHz channels, one of which is used for radio transmissions, the other for repeater transmissions.
- Each channel is further divided into two independent timeslots. To the end user, this means they now have two voice or data channels that can be managed independently, instead of one.
- This configuration can also support **Dynamic Mixed Mode**, where the repeater dynamically switches between analog and digital based on the call it receives from the radio:
 - If an analog radio transmits, the repeater switches to analog mode to repeat the analog call (one call per channel).
 - If a digital radio transmits, the repeater switches to digital mode to repeat the digital call (up to 2 calls per channel).
- Single Site Conventional can be enhanced using [Extended Range Direct Mode](#).



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IP SITE CONNECT

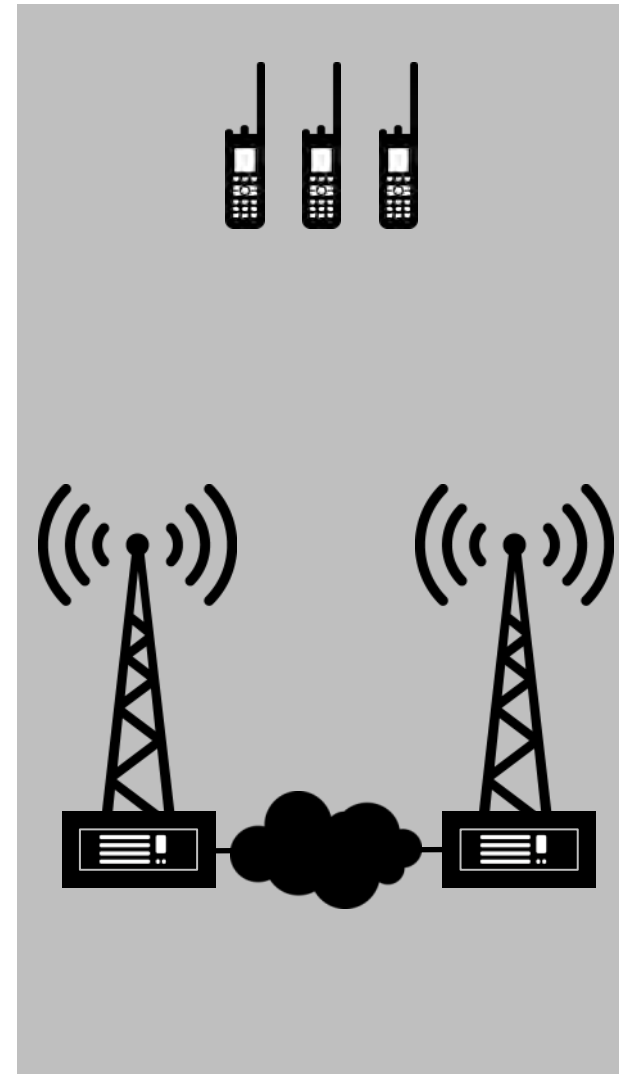


Summary:

- Multi-site interconnection, for better coverage.

Detail:

- **IP Site Connect** allows you to interconnect up to 15 MOTOTRBO repeaters to increase the coverage area of a system. The repeaters can be in adjacent locations, or geographically isolated.
- The interconnection is directly between repeaters, using an IPv4 network. No new hardware is required, besides backend network devices such as routers. Traffic on the IP network is authenticated and can be protected. VPNs are also supported.
- All calls are repeated by all repeaters, so the capacity of the system is approximately the same as the capacity of a single digital repeater. Roaming is supported, but not during an active call.
- The RDAC (Repeater Diagnostics and Control) tool is available to manage all repeaters from a single location.
- IP Site Connect can also be used to provide multi-band support on a single site – for example by interconnecting an 800 MHz repeater with a UHF repeater.
- You must purchase a license (HKVN4154) to use XPR 3000e, 3000 and 2500 radios on an IP Site Connect system.



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
XPR 5500e
XPR 5300e
XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300

XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



CAPACITY PLUS (SINGLE/MULTI-SITE)

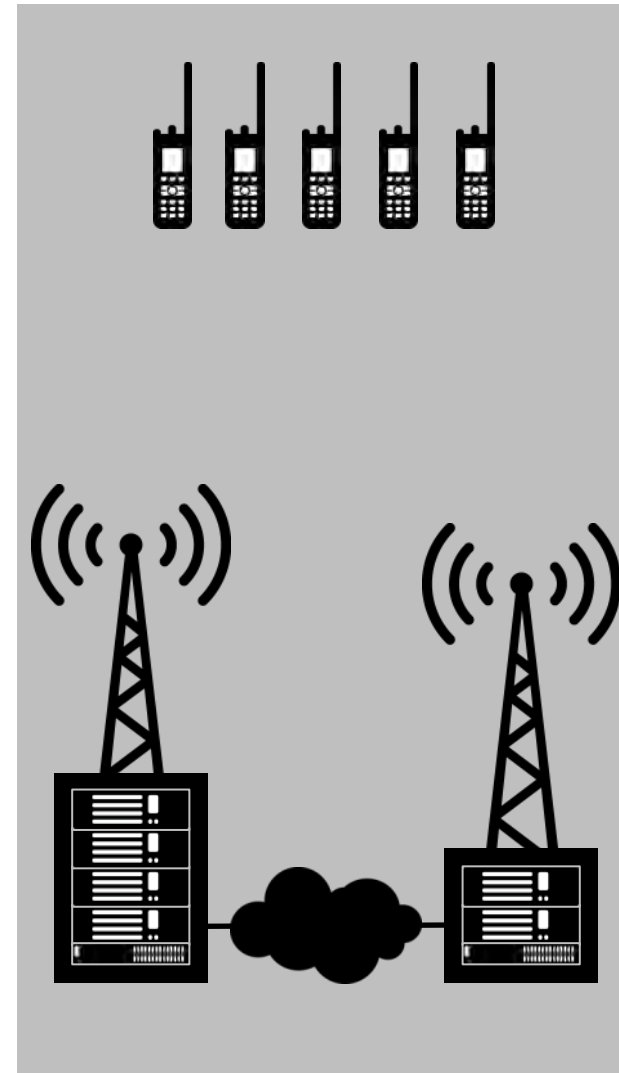


Summary:

- Single and multi-site dynamic trunking for better capacity and coverage.

Detail:

- Capacity Plus is an entry-level trunked system for single and multiple sites. Multi-site Capacity Plus was previously called **Linked Capacity Plus**.
- Up to 15 sites can be interconnected, with up to 8 trunked voice and data repeaters (16 channels) per site. You can also configure up to 12 “data revert” repeaters (24 channels) per site, but the total repeaters per site cannot exceed 12 for a multi-site system and 20 for a single-site system.
- The systems use “dynamic trunking”:
 - All radios start on a “rest channel”
 - When a radio requests a channel, the repeater turns the rest channel into a traffic channel, and initiates the call there.
 - The repeater then finds an unoccupied channel and directs all radios not participating in the call to adopt this as the new rest channel.
- Capacity Plus does not require the allocation of a dedicated control channel. It has no centralized controller and is therefore very fault-tolerant. It automatically detects most types of failures, reconfigures itself, and continues to operate (with reduced capacity).
- You must purchase a license per radio (HKVN4413 for single site, HVKN4414 for multi-site) to use XPR 3000e, 3000 and 2500 radios on a Capacity Plus system.
- An SL300 can be purchased that is compatible with a Single Site Capacity Plus system with up to 2 repeaters.
- You must purchase a license for each repeater:
 - HKVN4427 (single) or HVKN4099 (multi) for XPR 8400 and SLR 5000
 - HKVN4439 (single) or HVKN4110 (multi) for MTR 3000 and SLR 8000



SL 7500e
XPR 7500e
XPR 7300e
XPR 7580e IS
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XPR 3500e
XPR 3300e
SL3500e

SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6500
XPR 6300
XPR 6100
XPR 5500
XPR 5300
XPR 4500
XPR 4300
XPR 3500
XPR 3300
XPR 2500

SL300
CM300d
CM200d
CP200d

Direct Mode
Conventional
IP Site Connect
Capacity Plus
Capacity Max
Connect Plus



CONNECT PLUS **CANCELLED**

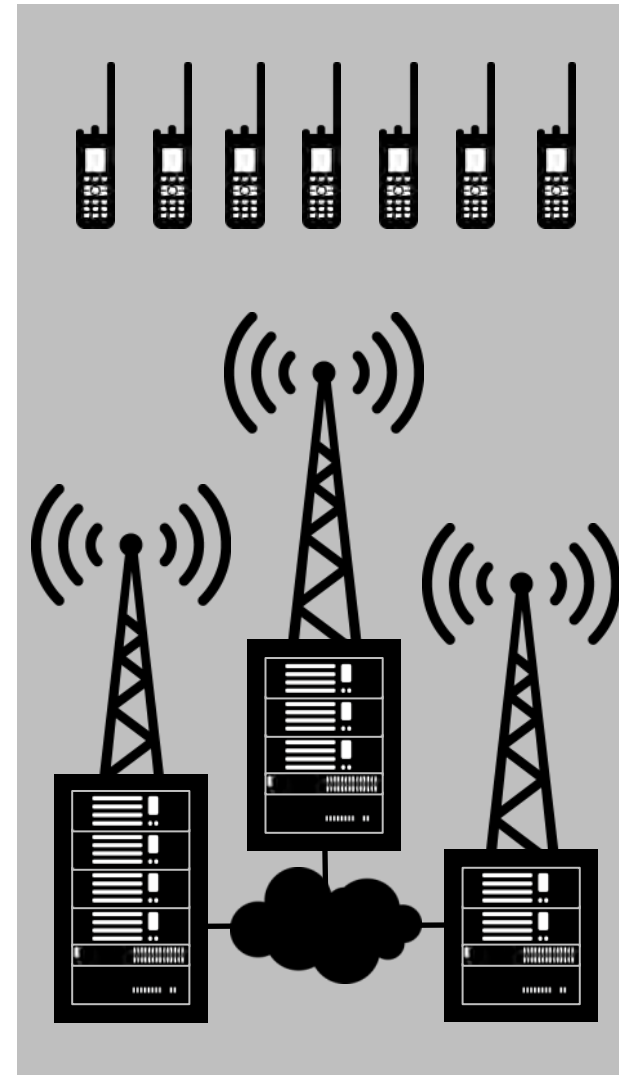


Summary:

- Full trunking for single and multi-site deployments, with enhanced control capabilities.

Detail:

- **New Connect Plus systems were discontinued at the end of 2017.**
- Connect Plus is a full trunking solution based on DMR technology. It uses a dedicated control channel for channel requests and allocations.
- Connect Plus can be deployed as a single or multi-site system, up to a maximum of 250 sites. A maximum of 15 repeaters can be trunked per site: maximum system total cannot exceed 420 repeaters.
- An XRC controller is located at each site. Voice and data consoles are connected to the system using the XRT Gateway, and the XRI Interconnect Gateway provides telephone interconnect capability.
- The system provides enhanced **security**. Registration is controlled by Unit ID, Serial number, Site ID and Talkgroup ID. Voice traffic is encrypted, and radios can be remotely deactivated in case of loss or theft.
- To enhance **resiliency**, there is periodic rollover of the control channel, and soft failover in response to IP connectivity failure. Redundant controllers and gateways can also be provisioned.
- The XRT gateway can also be used to interconnect a WAVE server, enabling PTT services over a cellular network.
- You must purchase a license (HKLN4457) per radio to use SL 7000, XPR 7500e, 7000, 6000, 5500e, 5000, 4000 radios on a Connect Plus system, except for "Enabled" radios, where it is pre-activated.



SL 7500e
XPR 7500e
XPR 7300e
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XPR 5500e
XPR 5300e
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XPR 7550 IS
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XPR 7300
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XPR 4300
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XPR 3300
XPR 2500
SL300
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Direct Mode
Conventional
IP Site Connect
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Capacity Max
Connect Plus



CAPACITY MAX

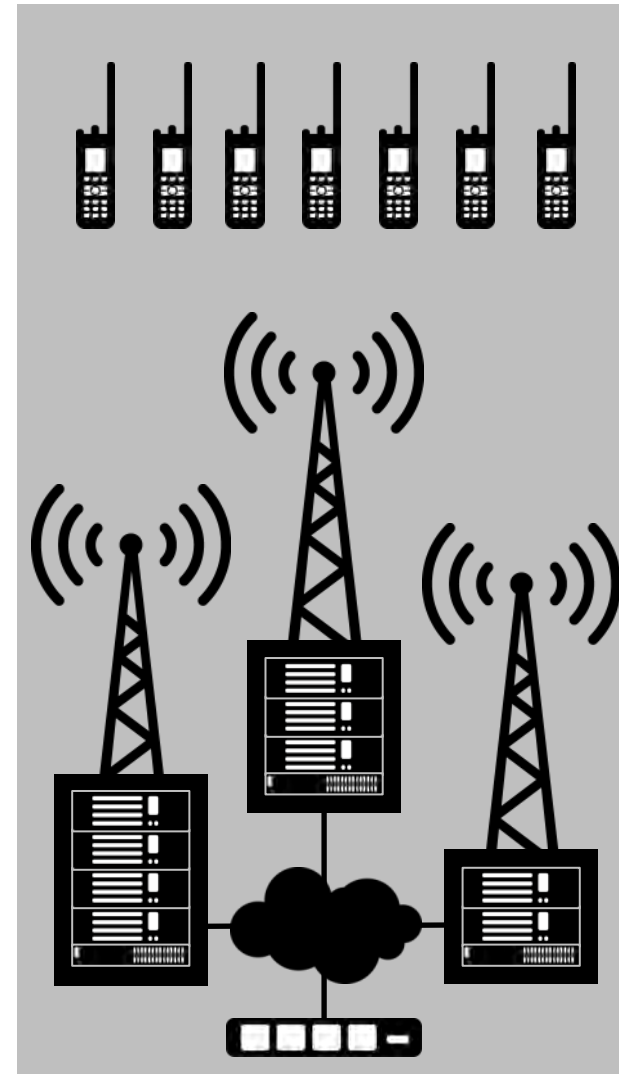


Summary:

- Full trunking for single and multi-site deployments, with enhanced control capabilities.

Detail:

- Capacity Max is a next generation trunking solution, built on our extensive real-world experience in DMR radio systems.
- It uses a dedicated control channel on each site. A single centralized server (redundancy optional) controls the system. All signaling and traffic is routed over a standard IP network. Data flow is optimized to reduce network load and improve scalability.
- High coverage and capacity:
 - Up to 250 sites
 - Up to 15 voice and data repeaters per site
 - Up to 6 data revert repeaters per site
 - Redundancy for any repeater is supported
- Capacity Max is integrated into the standard MOTOTRBO software release, and has a full feature set. System Advisor and Radio Management applications simplify maintenance and monitoring.
- Radios can be operated in 2 modes:
 - **Advantage Mode:** MOTOTRBO radios and infrastructure. Performance-optimized. Full feature set.
 - **Open Radio Mode:** MOTOTRBO radios, another vendor's infrastructure. DMR Tier III Mode of Operation. Limited feature-set.
- You must purchase a license (HKVN4324) per radio for XPR 7500e, 7000, 5500e, 5000 and SL 7000 radios, except for "Enabled" models, where it is pre-activated.
- You must purchase an "Advantage" license (HVKN4324) per repeater, which allows system operation in Advantage Mode only.
- This system type was introduced in software release 2.6, but updated in 2.7.



SL 7500e
XPR 7500e
XPR 7300e
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XPR 3300e
SL3500e
SL 7500
XPR 7550 IS
XPR 7500
XPR 7300
XPR 6580 IS
XPR 6300
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XPR 6100
XPR 5500
XPR 5300
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XPR 4300
XPR 3500
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DIGITAL VOTING

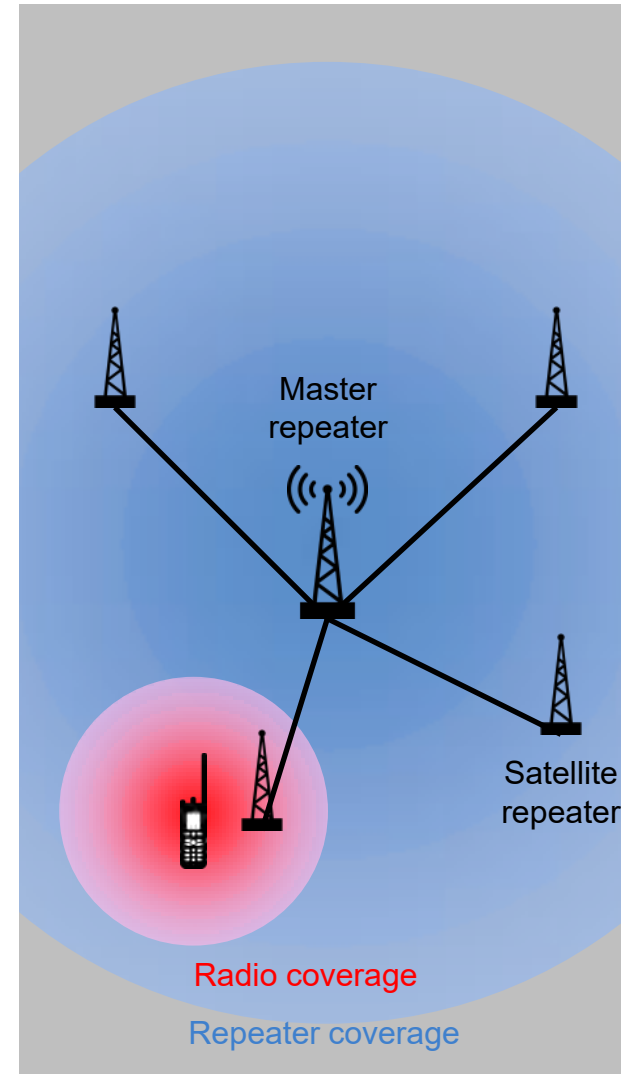


Summary:

- Cover a wider area with your MOTOTRBO system, without the cost of adding transmitters

Detail:

- Because of its better transmitter power and antenna height, a repeater can transmit a signal much further than a user's radio can. This means that system coverage is usually limited by "talk-back" range rather than "talk-out" range.
- The Digital Voting solution introduces extra repeater sites, configured in receive-only mode. The "Master Repeater" analyzes the signals received from the "Satellite Repeaters" and selects (votes) on which one to repeat.
- This feature improves coverage without the need to invest in extra transmitter frequencies. The satellite sites are also lower cost to implement, as they need less power, fewer antennas and lower bandwidth connections.
- This feature was first introduced in software release 2.3
- You must purchase a license per repeater
 - HKVN4243 for MTR 3000 and SLR 8000
 - HKVN4242 for XPR 8400 and SLR 5000



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REACH FURTHER AT LOWER COST

**THANK
YOU**



VERSION HISTORY



2.5	Update	Added features for release 2.5 and 2.6.0 Added next-generation radios and Capacity Max Combined Capacity Plus and Linked Capacity Plus Added system compatibility per feature Added license numbers	29-Feb-2016
2.51	Correction	High-speed data removed from Bluetooth 4.0 description	2-Mar-2016
2.52	Correction	Capacity Max does not support Digital Voting	9-Mar-2016
2.6	Updated	Added 4 new features for Capacity Max and 1 for Connect Plus Updated Capable vs. Enabled licensing content for Next-Gen radios Removed Bluetooth references for XPR 3000e Series	25-May-2016
2.6.5	Updated	Added AF Suppressor to include Commercial Tier Radios	16-Aug-2016
2.7.0	Updated	Added features for 2.7 Release and significant updates to Capacity Max.	6-January-2017
2.8.0	Updated	Added features for 2.8 Release and new SL3500e radio	7-August-2017
2.9.0	Updated	Added features for 2.9 release, and added cancellation notice about Connect Plus.	29-May-2018

Please send feedback to Liam King liam.king@motorolasolutions.com



ADDITIONAL INFORMATION



NEW PROFESSIONAL & COMMERCIAL RADIO VIDEOS

**CONFIGURE, ENABLE
AND OPTIMIZE YOUR
RADIO FEATURES**

WATCH THE TRAINING VIDEOS



A selection of training videos have been produced to show you how to configure these features.

They are available on the Motorola Solutions YouTube channel:

http://www.youtube.com/playlist?list=PL-qcM_OQqRgggcuaNUDp68piyNla8HFTV

DETAILED TRAINING VIDEOS ARE AVAILABLE

V 2.9



PRODUCT TRAINING



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TRAINING**

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V 2.9