APX Portable and Mobile CPS/RM R21.20.XX Release

- Before upgrading to a new version of Radio Management, please make sure to backup your database. RM Server Utility -> Database Settings -> Database Backup

- Radio Management (RM) now supports HTTPS transport protocol. RM clients (RM Client, Device Programmer and Job Processor) are now required to connect to the server over HTTPS on port 443. Please ensure that 443 is added to the exception list on the Windows firewall and on any other firewall used within your organization.

IMPORTANT INSTALLATION NOTES FOR RM USERS:

- If you are upgrading from R14.01.00 or earlier, please be aware:
  - All Pending jobs will be cancelled.
  - Any pending modifications (radios with change flags) will get discarded and are not recoverable.
  - Additional database migration procedure will be needed. See the **Radio Management System Planner** available through Motorola's Learning Management System (https://learning.motorolasolutions.com/document/18714enus) for more details.
  - 'One-time password' for the different RM components will need to be reset
  - All authorized computers (including the server) will need to be re-added to the list of all authorized computers when using 'Enable Computer Authorization'
- If you have previously migrated to R15.00.01 from a previous release and NOT upgraded to R15.00.02, you MUST upgrade to R15.00.02 BEFORE upgrading to this version.
- User Authorization might need to be setup for RMC to communicate with the RM server. Additional information can be found in the Help under the Radio Management Server Utility.

IMPORTANT NOTES:

-Due to the Multi-System OTAR feature introduced in R20.00.xx, there will be a one-time prompt when selecting to close a codeplug regardless of whether changes were made. Be sure to click 'Save' at this prompt, thereby ensuring it is not presented thereafter.

-Due to the Multi-System OTAR feature introduced in R20.00.xx, OTAR users may see invalid fields when opening existing codeplugs. Be sure to correct these invalid fields before proceeding.

-After upgrading to a new version of RM, it is recommended to perform the 'Rebuild Indexes' operation in RM Server Utility to improve performance

- If changing radio's language outside Radio Management (with CPS), it is recommended to schedule a read job from Radio Management to update the template in the database.

-If moving the Radio Management database, please make sure that the target location is accessible by "NETWORK SERVICE".

- First time users of the APX CPS should watch the 'Getting Started' tutorials that ship with the CPS for an introduction to the APX CPS.

- Additional information about Radio Management deployment and installation can be found in the **Radio Management System Planner** available through Motorola's Learning Management System (https://learning.motorolasolutions.com/reference-guide/18714enus)

- Training on the APX CPS and Radio Management is available through Motorola's Learning Management System (https://learning.motorolasolutions.com), courses RDS2017 and AST2003.

The following customer reported issues have been fixed in this release:

- Fixed an issue where the codeplug comparator could not compare R20 codeplugs

What's New in the CPS/RM:

- PSU Conventional Scan DVRS
- APX 3-Position Switch Lock
- Enhancements for Personnel Accountability
- Enablement of WiFi Channels 12 and 13 on Radios for Australia

Help for these features can be found in a separate Online Help module located on Motorola On-Line

To configure RM to support the IMW Interface Improvements (Parallel OTAP programming)

- Upgrade to IMW 5.2 and install the ASTRO® POP25 RM Device Programmer in order to realize both the multiple programming sessions and improve efficiency of programming.
- To install the ASTRO® POP25 RM Device Programmer, double-click to launch MotorolaAstroPOP25RMDeviceProgrammer.exe from the installation media, or download and unzip the ASTRO POP25 Device Programmer for Radio Management file from Motorola On-Line
- Please review the Online Help topic titled "APX POP25 RM Device Programmer" for more information

IMPORTANT PROGRAMMING NOTE

Even though the radio may be disconnected from the PC when the CPS programming is done, DO NOT TURN THE RADIO OFF if the updating process on the radio is still in progress. If an update is in progress, the radio will present the words: "Updating..." on the front and/or top display.
This update can take up to 90 seconds after the CPS programming session has completed.

Supported APX Radios:

- ❑ APX8500HP
- ❑ APX 8500
- ❑ APX 8000
- ❑ APX 8000H
- ❑ APX 8000XE
- ❑ APX 8000HXE
- ❑ APX 7500
- ❑ APX 7000
- ❑ APX 7000XE
- ❑ APX 6500
- ❑ APX 6500Li
- ❑ APX 6000
- ❑ APX 6000XE
- ❑ APX 6000Li
- ❑ APX 4500
- ❑ APX 4500Li
- ❑ APX 4000

- ❑ APX 4000 (2 knob)
- ❑ APX 4000Li
- ❑ APX 4000XH
- ❑ APX 4000 900 MHz
- ❑ APX 4000 900 MHz (2 knob)
- ❑ APX 3000
- ❑ APX 2500
- ❑ SRX 2200
- ❑ APX 2000
- ❑ APX 2000 (2 knob)
- ❑ APX 1500
- ❑ APX 1000
- ❑ APX1000i
- ❑ APX 1000 900 MHz
- ❑ APX 1000 900 MHz (2 knob)
- ❑ APX 900
- ❑ TXM 2000 VHF
- ❑ VX-P949
- ❑ ATS 2500p

Special FCC Regulation Note:

- FCC NARROWBANDING MANDATE FOR ASTRO RADIOS

Per the FCC Rule Part 90 requirements on narrowbanding, VHF and UHF radios imported or manufactured after 12/31/2012 will no longer be authorized to operate on 25 kHz channel bandwidth. The exception to Rule Part 90 narrowbanding requirements are for radios operating only within 470-512 MHz frequencies (T-Band), which will continue to support 25 kHz channel bandwidth functionality. The FCC requires that a radio is authorized to operate within the specified bandwidth and that the user is required to have a FCC license to operate in that mode.

NOTE: After the FCC mandate takes effect, specific frequencies in VHF and UHF are still allowed to operate at 25 kHz. Examples of VHF and UHF services that are not subject to Part 90 narrowband include: Part 80 marine frequencies, Part 87 aviation frequencies, Part 95, FRS/GMRS and MURS, Part 97 amateur frequencies, and NOAA weather channels.

System Requirements:

- For System Requirements, to the **Radio Management System Planner** available through Motorola's Learning Management System (https://learning.motorolasolutions.com/document/18714enus)

Known Issues:

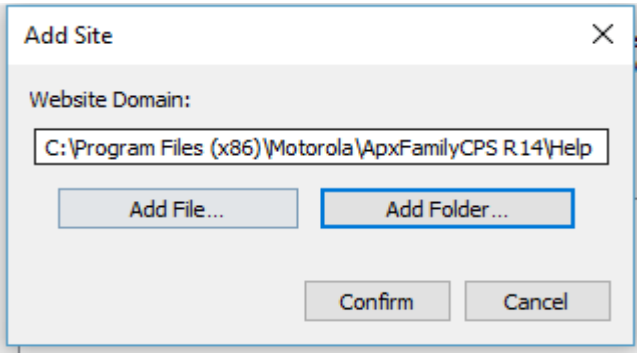
-There may be issues using USB 3.0 ports (marked as SS on the ports) where Read/Write operations may fail intermittently. To work around this issue, use a USB 2.0 port or USB 2.0 hub on USB 3.0 port.

-If your machine is configured to support only TLS 1.2 connections, there may be issues connecting the Radio Management Device Programmer to IMW. In this case, be sure to use the ASTRO® POP25 RM Device Programmer instead.

- Non-English language installations of the CPS will revert to English when updated using Auto Update.

- Please note that when working with Voice Announcement for the APX portable radios, the 'Monitor On/Off' message will only be announced when changing to a switch programmed to 'PL Disable', not when the Monitor button is pressed.
- Please ensure the latest version of Adobe© Flash ©Player is enabled when running CPS/RM on Windows Server 2012 in order to ensure proper operation of the Online Help.
- In rare instances it is possible that a radio may fail to be detected by the Device Programmer. If this occurs, disconnect and power down the radio, then re-connect and power the radio on. If this does not correct the issue, re-start the Device Programmer PC.
- The 'In-Use (Radios)' count reflects the number of radios referencing a specific template, and also includes those radios that were previously referencing the template prior to being changed to a different template, where the changes are still pending. Once those pending changes have been written to the radio, the reference count will decrement.
-If a Read/Write job is imported into an online Device Programmer (DP) that has the radio connected and that DP was also used to export the same job through offline programming, a problem may be encountered where the job is not performed in the DP. In this scenario, the user should not use offline programming. Instead, the Read/Write job should be performed directly through updates from the RM Server, since the DP is now online. If this problem is encountered, restarting the DP Service will allow the job to be completed.
- In rare instances the radio may not be recognized as a USB device after it gets connected once the CPS is installed and this message gets displayed "Could not find a radio connected to a USB port ", please make sure that under Device Manager-> Network adapters, the radio is added as 'Motorola APX Series Radio', if not, please contact customer service for directions.
- In rare instances the ASK (Advanced System Key) cannot be accessed after installing the CPS/RM, please disable the driver from the Device Manager->1-Wire and re-install it again by inserting the key in the USB port.
- When migrating from R14.00.01 or earlier and enabling 'Enable Computer Authorization' in the RM server Utility -> Machine Authorization, please re-enter the list of all authorized computers including the server. After turning on "Enable computer authorization", please restart all the RM services listed in the RM Server Utility's Status screen as well as the Job Processor and Device Programmer services in each of the authorized computers in the list.
-When importing a .xls or .xlsx file into Radio Management, the header must be listed twice in order for the file to get imported correctly.
- The tutorials fail to run properly when launched from within the Online Help. This was caused by a security update to the Adobe FLASHplayer. To correct this:

1. Open the Control Panel application
2. Click to open the "Flash Player" applet
3. Click on the "Advanced" tab
3. Click the "Trusted Location Settings" button
4. Click 'Add' from the "Trusted Location Settings" window
5. Click the "Add Folder..." button from the "Add Site" window
6. From the "Browse for Folder" window, navigate to your CPS installation directory, and select the 'Help' folder within the installation directory. For example, if you chose the default installation folder, typically this location would be 'C:\Program Files (x86)\Motorola\ApxFamilyCPS Rxx\Help' and click 'Ok' (Please note that for Rxx, the xx will be the version of CPS installed. For instance, in the screenshot, the CPS version in use is R14)
7. Click 'Confirm'



8. At this point you can try to open up the CPS On-Line Help again and try to launch the tutorials.

-RM/CPS for Firmware Changes over LMR:
In order to configure POP25 via Radio Management to upgrade radio software (firmware) over the air, it is necessary for the Device Programmer host machine to have connectivity to the Group Data Gateway (GDG) and the Provisioning Manager (PM), in addition to the Presence Notifier (PN, aka UNS, aka, ARS, aka IMW) and the Packet Data Gateway (PDEG). In order for the Device Programmer to be able to communicate with the GDG and the PM, the source TCP port must be configured using the following command:
"netsh int ipv4 set dynamicport tcp start=[range1] num=[range2]"

where range1 is greater than 52152 and range2 is equal to (64510-range1)

For example: "netsh int ipv4 set dynamicport tcp start=52153 num=12357"

Important Notes:
- To view any system keys that are loaded during startup, click on the System Key Report window under the Windows menu.
- Touch screen functionality is not supported. If using the CPS/RM on a touch-screen monitor and are experiencing performance issues, disable the touch screen and/or touch-pen capability.

Installation:
Please refer to the **Radio Management System Planner** available through Motorola's Learning Management System (https://learning.motorolasolutions.com/document/18714enus) for Installation and Deployment information.

Connecting the PC to the Radio:
- Only use the following direct PC to radio cables:
  - PMKN4013C for the portable radios
  - HKN6184A for the mobile radios
- When using the USB cable, be sure to click 'Yes' on the Digital Signature window whenever it is displayed by the operating system. Wait until the radio enumerates on the PC before attempting to read or program the radio (5-7 seconds on Window 7). Not waiting for enumeration will cause the read or write to fail.
- Communication issues between the CPS and the radio might be encountered due to firewall settings. Certain aspects of Proventia Desktop, BlackICE, and any other software that affects networking capability may need to be disabled. These programs can interfere with the APX CPS's ability to read from

and write to the radio. If BlackICE is installed and required for the PC, the BlackICE service may need to be stopped in order to successfully communicate with the radio.

- To prevent intermittent Blue Screen Windows crashes when attaching or detaching an APX radio to a PC using USB, verify that the Nortel Connectivity VPN Client Software is not installed on the PC. If it is installed and required for the PC, ensure that the EACFILT.sys driver is disabled on the 'Motorola APX Series Radio' connection by performing the following steps:
    1. Open Network connections (Start->Settings->Network Connections)
    2. Under LAN, right click on the 'Motorola APX Series Radio' connection and select properties
    3. Uncheck the Eacfilt check box.
- If the wireless Internet connection on the laptop/PC gets disabled when attaching the Motorola APX radio to the Laptop/PC or if OTAP fails during wired read/write/clone, follow these troubleshooting steps shown below to address the problem:

Windows 7:

1. Open Network and Sharing Center, Start->Control Panel->Network and Internet->Network and Sharing Center
2. Click on the Local Area Connection associated with the 'Motorola APX Series Radio' device (example: Local Area Connection 7)
3. Click on Properties
4. Select Internet Protocol Version 4, Click on Properties
5. Click on Advanced, uncheck Automatic metric and set Interface metric to be greater than any other network connection
6. Click on OK, OK, Close, and Close

Windows 8/8.1 and Windows 10:

1. Go to Control Panel->Network and Internet->Network and Sharing Center
2. Click on the Change Adapter settings in the left side of window.
3. Click on the Local Area Connection associated with the 'Motorola APX Series Radio' device (example: Local Area Connection 7)
4. Click on Properties
5. Select Internet Protocol Version 4, Click on Properties
6. Click on Advanced, uncheck Automatic metric and set Interface metric to be greater than any other network connection
7. Click on OK, OK, Close, and Close

NOTE: To check the metric used by other network connections

1. Click Start->All Programs->Accessories
2. Right click Command Prompt and select Run as administrator
3. In the cmd window type route print
4. Look for network destination 0.0.0.0 and Interface ip of the other network card(s)
5. The last column is Metric, set the radio metric higher than any other network connection

NOTE: This issue may also occur if the wireless driver utility is configured to disable Wi-Fi until all wired network connections are disconnected. Ensure that any such a setting is disabled, so that the wireless connection stays active even when a wired link is present.

- Disable 'Netbios over TCP/IP'. This will help reduce unnecessary traffic sent to the radio by the PC. Follow these steps:
    1. Open Network Connections explorer window: Start->Settings->Control Panel->Network Connections (right click and select Open)
    2. Right-click on the LAN connection associated with 'Motorola APX Series Radio' and select properties
    3. Select 'Internet Protocol (TCP/IP)' and click Properties

4. Click Advanced button on the General page (bottom right)
5. Select the WINS tab
6. Select 'Disable Netbios over TCP/IP'
7. Click OK on the pages opened for the setting to take effect

- On the Motorola APX Series Radio LAN connection, uncheck unused items. The LAN connection on the PC only requires the Internet Protocol to communicate with the Radio. This ensures the other unused items don't create any undesirable effects when communicating with the radio device. Follow these steps:

1. Open Network Connections explorer window: Start->Settings->Control Panel->Network Connections (right click and select Open)
2. Right-click on the LAN connection associated with 'Motorola APX Series Radio' and select properties
3. On the General Tab, under the section 'This Connection uses the following items' uncheck all items except for Internet Protocol (TCP/IP).
4. If the PC supports both IPv4 and IPv6, keep both IPv4 and IPv6 checked

- NetMotion wireless LAN software will interfere with radio programming. When the radio registers on the system with an IP Address, the NetMotion software detects it and tries to manage it as a network. Please disable this software in order to program radios with the CPS.

POP25 Operations:

- TCP Retransmissions values on the PC needs to be set higher in order for POP25 programming to work effectively. Motorola recommends that the following registry keys are created if they do not already exist on the PC and set to the following values:

- HKEY_LOCAL_MACHINE
\SYSTEM
\CurrentControlSet
\Services
\Tcpip
\Parameters
\TcpMaxDataRetransmissions - 5 or more

- HKEY_LOCAL_MACHINE
\SYSTEM
\CurrentControlSet
\Services
\Tcpip
\Parameters
\TcpMaxConnectRetransmissions - 3 or more

These values should be created as DWORD (32-bit) Values.
Navigate to the registry path (using Regedit application), right mouse-click and select New -> DWORD (32-bit) Value.
Type the correct entry name as shown above
Right mouse-click on the entry and select Modify... and type the value in the Value data field
For help on editing registry values, read Microsoft online support:

http://support.microsoft.com/kb/256986.

- While the POP25 operation is in progress, do NOT attempt to start a second session until the first session is done.
- It is recommended to use batch programming if more than 16 radios need to be programmed in a single session.
-If using Windows Firewall, it may prevent the CPS to connect to the ARS (PN Server). In order to allow the CPS to work through Windows Firewall if it is turned on, follow these steps:

1. Go to the Control Panel -> System and Security
2. Select “Allow a program through Windows Firewall” under Windows Firewall selection
3. Select Change Settings to enable “Allow another program” button
4. Click “Allow another program” button and add the CPS

Conventional POP25 Operations:

Please note that Conventional POP25 requires the MTU size to be set to 512 bytes. The Maximum Transfer Unit (MTU) size of an over-the-air datagram is 512 bytes plus a 13 byte encryption header if secure messaging is being used, resulting in an overall total datagram size of 525 bytes.
If excessive failures occur when doing Conventional POP25 on Windows Vista and Windows 7 Operating Systems please do the following:

1. Open a command line window as an Administrator (ie. right click on **All Programs > Accessories > Command Prompt** and select **Run as administrator**) ...
2. Type the command **netsh** and wait for prompt
3. Type the command **interface** and wait for prompt
4. Type the command **ipv4** and wait for prompt
5. Type the command **show subinterfaces** from the ipv4 prompt and <Enter> to see list of interfaces.
6. The connection interface being used should be listed under the Interface heading in the result list:
7. Type the command **set subinterface "<name of the network connection being used>" mtu=512 store=persistent**

For example, **set subinterface "Local Area Connection 3" mtu=512 store=persistent from** the ipv4 prompt and <Enter> to set the MTU size.

Long Cable Configuration:

The following steps will need to be completed to change to a Long Cable Configuration.

1. A Flash Upgrade with the existing radio configuration will need to be completed using the standard cable.
2. Within the CPS, set the field 'Aggregate Cable Length' to 'Greater than 40 m'.
3. Program the radio (use standard cable).
4. On the Control Head, change the control head ID to A or B:
   Cycle power on the control head and immediately hold down the following keys Orange Button (Emergency) and the left-most menu button. A number (example: "1") will be displayed, indicating the control head ID. Change the control head ID by rotating the Mode Button from number 1 to A or B.
5. Cycle power on the radio and ensure that it restarts without errors.
6. Remove power from the radio.

7. Exchange the standard cable for the long cable.
8. Apply power to the radio and ensure that it restarts without errors.

FLASHport Upgrades using a BBF file:

The new .BBF file format is meant to replace the legacy .CVN file format used to upgrade the radio firmware. Additionally, it simplifies the upgrade process by including firmware upgrade components for both portable and mobile radios into one combined .BBF file. It also includes the firmware upgrade file for the APX 8000 and the APX 8500 All-Band radios.

In order to use the new .BBF file format, be sure to select the .BBF file when browsing for a FLASHport file. Please note that .CVN files are still supported.

Programming Hints:

- To get help on a field, open the Field Information window (on the right of the CPS screen) while focus is on the field. Pin the Field Information window by clicking on the thumbtack icon at the top right of the Field Information window.
- View the 'What's New' information on the Home Mode screen and view the Help Tutorials to learn about productivity enhancing features, such as Codeplug Comparison, Undo/Redo, and Restore to Default.
- The APX CPS does not support Federal Information Processing Standards (FIPS).
- Do not remove the ASK while the computer is in sleep mode.
- When using concurrent programming via RM, each radio must have a unique IP address.

Legal Notices:

For Customer service support, please call 1-800-927-2744.