



GE MDS *PRODUCT RELEASE NOTE*

RELEASE NOTE: RCL220 AP Firmware Version 4.0.5
RELEASE DATE: February 15, 2019

FIRMWARE

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MDS RCL220 AP FIRMWARE – VERSION 4.0.5

Overview

This section describes Software/Firmware updates for the MDS RCL220 AP product.

Product: MDS RCL220 AP
Version: 4.0.5
Release Date: 15-FEB-2019

Package Element	Version
Bootloader	0.0.3
Kernel	0.0.5
RootFS	4.0.5*
APPs	4.1.4* APP1 4.1.4* APP2
MCU	3.5.2
DSP	4.1.3*

* = updated

Important Notes:

- This release note lists changes since release 4.0.0.
- Release file sln-kroombd-4_0_5.mpk SHA256 sum: 9498cd2cfee83231ad0df46575ef02f4ac4fac6faba93dd1aa941d267812ed3c
- Release 4.0.5 supports all RCL AP devices: HGW, LCU AP, and Repeater/RCS. Included radio release 4.1.4 supports all RCL radios: LCU, OCU, and Repeater/RCS.

New Features

1. Add TFTP Block Size setting to allow faster file transfers; the default block size changes from 512 to 1024 bytes. Replace TFTP Timeout setting with Transfer Options menu in the BSP Logging, Event Log, Reprogramming, and Configuration Scripts menus. Command line programs receivtftp and sendtftp also use TFTP Block Size.
2. Add BSP Logging, Send File menu item to export the current BSP flash log file (which includes payload). This closes the current file and opens a new one.
3. Add SSH support. Change the telnet event name to 'Telnet/SSH User'. Add the key create date and an item to generate new keys to the Security Configuration menu. This implementation is based on the security library available in the product and is not very recent. It may require adding key exchange and cipher algorithms to your client. For example, connecting from my Linux desktop computer requires a command like:

```
ssh -o KexAlgorithms+=diffie-hellman-group1-sha1 -o HostKeyAlgorithms+=ssh-dss
-o Ciphers+=aes256-cbc <radio IP address>
```

4. Add Network Configuration, SNTP Server and UTC Time Offset settings.

5. Change IP Configuration menu to buffer edits until committed. Starting an edit in any login session will lock out changes in any other sessions. Exiting the menu while Commit is displayed requires confirmation. The lock out is cleared if the login session times out or is quit.
6. After three consecutive login attempts fail there is five-minute lockout on both serial console and network logins. Add 'Console Access Locked for 5 minutes' and 'Login Attempt Failed' event log events. Add the source IP address for network logins to the event log.

Changes to Existing Features

1. HGW Statistics / Logging, HGW Route Associations screen Common Five Byte Protocol (CFBP) display now supports scramble seeds for two LCUs.
2. Migrate any RRID whitelist from release 3.4.5 if the tiered whitelist introduced in release 4.0.0 hasn't been set.
3. Alias Security Configuration, User Passwords as selection 'D' to maintain script compatibility with release 3.4.5.
4. Cleanup YC and RSSI screens.
5. Use end-of-second snapshot of LCU Group DB for Routing screen.
6. Allow Repeater Radios to use baud rate 230400. Initialize Diversity Receiver @ 230400.
7. The minimum length for user passwords increased to 8 characters.
8. Prevent user password change from accepting the default value.

Defect Fixes

1. Radio version changed to 4.1.4. Repeaters upgrade their radios at power-on with the new release but LCU and OCU radios will have to be upgraded manually. MDS Remote Upgrade Utility Version 4.3.0 includes changes to make radio upgrades more reliable. It is available in the GE MDS RCL220 Users Group on http://supportcentral.ge.com/products/sup_products.asp?prod_id=236425.
 - a. Correct tracking of whether channel supports HCO.
 - b. Allow the LCR to transmit in consecutive timeslots if it's the same frequency. This bug prevented the LCR using consecutive RCL and HCO timeslots.
2. Corrected RCS routing of HCU messages when LCU heard equally well by two or more Satellite Repeaters.
3. Corrected HGW and RCS assignment of Timeslot and Slot Group fields in messages.
4. RCS now drops an HCO SG if the LCU is borrowing.
5. HGW filters out bad LCU messages (source not LCU or destination not HCU or YC).
6. HGW now handles when LCU switches channel/RCS.
7. Restrict blank rows for disabled slot groups to the RCS (not Satellites) Statistics / Logging screens.
8. Correct the IP address information for Sequence Error Cleared events on Repeaters.
9. IP address changes update the address shown at the login prompt without having to reboot.
10. Prevent the Maintenance, Ping Utility showing 'WARNING: failed to install socket filter: Protocol not available'.

Known Errata

1. None

Operational Notes and Limitations

1. Compatibility with RCL220 AP releases before 4.0.0
 - This release is over-the-air compatible with releases prior to 4.0.0 for all flat operations.
 - The repeater coordination server (RCS) must be running release 4.0.0 or later for integrated hump control operations (HCO) with locomotives in the hump yard.

- Locomotives with an HCO release running in HUMP mode can pass hump messages only over satellite repeaters running release 4.0.0 or later.
2. For each RCS slot group (SG) configured for HCO traffic, there are 4 other SGs blocked for RCL traffic by HUMP locomotives. These SGs may still be used by flat locomotives. To minimize the impact of blocked SGs, flat locomotives will allocate their RCL SGs from the pool of blocked SGs first, leaving the unblocked SGs available for the HUMP locomotives. See documents **HCL-016_RCL_Hump_Control_Slot_Group_Usage_Rev1_0.pdf** and **HCL-017_RCL_Hump_Control_Slot_Group_Usage_Rev1_0.pdf** for details. The table below shows which SGs are blocked for RCL (in the columns) when a SG is configured for HCO (the rows).

Slot Groups (SGs) blocked for RCL allocation by HUMP locomotives

SG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	H						B	B	B	B					
1		H						B	B	B	B				
2			H						B	B	B	B			
3				H						B	B	B	B		
4					H						B	B	B	B	
5						H						B	B	B	B
6	B						H						B	B	B
7	B	B						H						B	B
8	B	B	B						H						B
9	B	B	B	B						H					
10		B	B	B	B						H				
11			B	B	B	B						H			
12				B	B	B	B						H		
13					B	B	B	B						H	
14						B	B	B	B						H

3. After upgrading, the Starting Information screen may show Device Status "Initializing" for up to five minutes.
4. The ethernet port operates in 10Mb half-duplex mode.