



## Release Notes for Cradlepoint Rev 6.5.0 Firmware

### Products supported/tested:

AER3100/AER3150

AER2200\*

AER2100

AER1600/AER1650

IBR1700\*

IBR1100/IBR1150

IBR900/IBR950\*

IBR600/IBR650

IBR600B/IBR650B\*

IBR600C/IBR650C\*

IBR350\*

IBR200\*

CBA850

AP22\*

MBR1200B

Note1: Before upgrading to new firmware, it is always a good idea to save the configuration file from your current version. This firmware version will remove a configuration for version 3.2 or lower and will not try to keep your settings.

Note2: \* Not all Products support External USB Modems: See <https://cradlepoint.com/modems> for detailed router/USB modem compatibility.

### New features added in this release (Not all features are in all products – see their respective Data Sheets):

- AP22 Connection note:
  - Install all your Cradlepoint AP22s on the same VLAN. This is the only supported installation for roaming.
  - Cradlepoint AP22s discover one another using a multicast protocol. Multicast packets are typically not bridged across VLANs (Cradlepoint routers do not

- support this; customer switch vendors may or may not). Since Cradlepoint is not deploying a controller or similar single point of configuration for roaming, this discovery protocol is the only means to support roaming between AP22s.
- Furthermore, if the APs are getting their IP addresses via DHCP from a router, the router (or APs) must be configured so that their primary LANs don't conflict.
  - Networking -> Local Networks -> AP Discovery. Added AP22 discovery to all AER products. If AP discovery is enabled, the AER router will be able to discover the AP22 and report back to NCM any AP22 that is attached. An AER2200 will also be able to participate in 802.11r Fast Roaming with the AP22.
  - (IBR1700) System -> Administration -> OBD. On-Board Diagnostics support. Using an accessory OBD-II cable (LD3IC-S from B&B Advantec) attached to a serial port, the router can provide Vehicle Diagnostics. Specific Parameter IDs can be selected and reported through the UI.
  - (IBR1700) System -> Administration -> OBD-II. On-Board Diagnostics support. Using an accessory OBD-II cable (LD3IC-S from B&B Advantec) attached to the serial port or USB port (with a supported FTDI USB to Serial adapter), the router can provide vehicle telemetry. While most vehicles since 2008 are supported, not all parameters are available on all vehicles. Parameters can be enabled and reported through the UI. Optionally, all enabled and supported parameters can be reported in a custom NMEA sentence (PCPTOBD) and sent with other NMEA sentences to destinations in GPS's "Send-to-Client" and "Send-To-Server".
  - (IBR1700) GPS with Dead Reckoning. With the optional OBD-II adapter connected and the vehicle speed PID enabled, Automotive Dead Reckoning (ADR) support is enabled when GPS signals are unavailable.
  - 600M, 10M, 10-B, 150M-B, 150M-C modems. Added support for multiple PDNs as supported by certain carrier operators and SIMs. With appropriately provisioned SIMs, multiple PDNs allow a single modem to simultaneously support multiple WAN interface/connections (PDNs) each with their own unique IP address. SIMs of this type are used for split billing, public/private network traffic, and other features.
  - Secure Threat Management Upgrade
    - Improved performance
    - Improved memory footprint
    - Bug fixes
    - No need to choose between Fast and Thorough modes
    - Added detection of Anomalies
  - Persistent Logging. Previously when the Service Manager would crash, logs would be lost. Now they can be retrieved after the router reboots and examined to find the cause of the crash.
  - When Application Analytics is entitled, the user can now use Application Sets with the Firewall and QoS.
  - StrongSwan upgraded to version 5.5.3

- Increased the number of Custom Categories in CP Secure Web Filter to 15 and the number of URLs per category to 64.
- Updated the Zscaler certificate. The old one expires in May.
- Removed support for Secure Threat Management from IBR600C and IBR650C.
- Added a packet capture feature to aid in troubleshooting network problems
  - System>Diagnostics
  - VTI now supports 'anonymous' mode allowing simpler Hub/Spoke configurations
- Added 'Peer List Name' to NHRP interface configuration pages as well as \IPSec VPN phase 2 configuration pages.
  - A Peer List Name can be used in BGP neighbor configuration to dynamically add BGP neighbors learned from NHRP or IPsec.
- MBR1200B. Removed WPS support from all products, this was the last remaining product with that feature.
- Basic Authentication support
  - Take care in parsing the WWW-Authenticate field as there is now both more than one WWW-Authenticate header field provided--Basic & Digest.
- WiFi-as-WAN and WiFi Client changes.
  - IBR series: WiFi-as-WAN and WiFi Client reliability and connect speed is greatly improved. The Cradlepoint router will connect to its targeted router/AP more quickly and more reliably.
  - IBR900. WiFi-as-WAN and WiFi Client roaming functionality greatly improved. The router will move between multiple BSS of same ESS (Extended Service Set) without disconnecting. (802.11r is not supported.)
  - IBR1100. WiFi Client roaming functionality greatly improved. The router will move between BSS of same ESS without disconnecting. Unfortunately, WiFi-as-WAN does not support seamless roaming. (802.11r is also not supported.)
    - Known issues. IBR1100 WiFi-as-WAN does not detect loss of connectivity if the IBR1100's connected router/AP is lost. The workaround is enabling WAN Verify in Connection Manager.

### **Additional UI/Usability changes:**

- (AER2200, IBR1700, IBR200) Added a visual (LED) alert as well as alerts in the UI and to NCM if the SIM door is left open and the modem is disabled.
- System -> SNMP Configuration. The requirement to have both Get and Set community strings was removed. Only a Get community string is mandatory.
- Networking -> Local Networks -> WiFi Radios. SSID Duplication convenience feature is available for SSIDs. Select the SSID that has settings that you want to duplicate, and then use the Duplicate Settings button and select the SSIDs you want the settings duplicated for. The dialog will also require you to set a new password for the new SSIDs.
- (IBR Series). Networking -> WiFi as WAN, or Client. For those products that support WiFi Enterprise authentication, the setting was removed from under the Extended Enterprise License. It is no longer a licensed feature.

- Accelerated router system time establishment.
- Present a warning notification on router platforms unable to support external USB modems due to insufficient USB port power.
- AER2200, IBR1700, IBR200. Added SIM door open warning message.
- Profile criteria filtering options not correct for type Ethernet.
- Embedded Modems. Extended SMS functionality to manage multiple APNs and PDNs.
- New tab in the Threat Management->Signature Settings page to configure Anomalies.
- New button in the Status->System Logs page to retrieve the saved log file after a crash.
- AP22. Enabled band steering by default. It can be disabled at the CLI.
- Packet Capture UI under System>Diagnostics.

### **Defects fixed:**

- IBR900 and AP22: WiFi Transmit power settings were not correct.
- Connection Manager>Dual SIM>Prefer Primary SIM no longer ignores the primary interface when Standby is enabled. Additionally, the Prefer Primary SIM selection now remains saved in the GUI.
- AP22: WAN connection information was left off the Dashboard UI page.
- LP5 Telstra. Restored multiple PDN support with Always On feature.
- 600M. Resolved carrier connection issues when a SIM requires a PIN in a dual SIM platform.
- LP6. Established a GNSS default so to obtain well-formed NMEA output.
- 600M. Fully enabled GLONASS NMEA sentences.
- Embedded Modems. Extend Connect operation extended for wider use cases.
- Fixed an issue where traffic bound for NetCloud was not routed correctly. This would cause devices to get stuck in the installing state.
- Fixed an issue with Webroot that would cause the router to reboot if it was not configured on one of the default LANs.
- Fixed an issue where remote telnet and http connections would be dropped.
- Fixed an issue affecting MAC Address Web Filter Defaults. Whitelisting should now work as expected.
- Upstream Proxy was failing randomly when trying to load https pages
- Tunnel Status shows a tunnel still exists after it is cleared from the NetCloud configuration.
- If the RADIUS server IP address is mistakenly set to a black hole route it would cause an exception in firmware.
- When Webroot and Threat Management were enabled, DNS traffic was mistakenly classified as a UDP Port scan attack.
- One category of website was left out of the CIPA profile in CP Secure Web Filter
- Configurations containing NHRP in firmware versions earlier than 6.3.0 were not properly being migrated.
- Improved the accuracy of the client usage statistics.
- Hot Spot terms of service page would appear blank in some cases.

- Changed the default Threat Tolerance value for CP Secure Web Filter to 42 from 80. This will improve page load times when this feature is enabled.
- Fixed a memory leak when application analytics was enabled that would cause the router to reboot periodically.
- AER2200. 10/100 Client devices are not getting an address from DHCP on Port 1.
- BSSID control was not visible on the Profile page for Wireless Client.
- DHCP doesn't work over Wireless Bridge. This is fixed, but please note the Security warning below.
- AP22. The dashboard showed LAN information instead of WAN information.

### Security issues:

- WPA2 security issues known as "KRACK" (Key Reinstallation Attacks). We updated client drivers and WPA supplicants to remove the security vulnerabilities documented at, <http://knowledgebase.cradlepoint.com/articles/Support/WPA-and-WPA2-Vulnerabilities-KRACK>
  - Additional changes for the IBR1100, IBR600, IBR600b, MBR1200b, and IBR200 were added based on chipset manufacturer recommendations.
    - NOTE: The KRACK fixes disable the ability for these products to support WiFi Bridge. If you need to use WiFi Bridge mode on these products, the KRACK fixes will be disabled and WiFi Bridge will continue to work but you will be vulnerable to a Key Reinstallation Attack. There is no fix for this as they are mutually exclusive.

### Modems tested: (new 6.4.3 modems / modem platforms are in blue text)

### Cradlepoint Cellular Devices: (Embedded & USB Modems)

Cradlepoint AER16x0LPE-AT / AT&T (USA)

Cradlepoint AER16x0LPE-GN / T-Mobile, US Cellular (USA); Generic (North America)

Cradlepoint AER16x0LPE-SP / Sprint (USA)

Cradlepoint AER16x0LPE-VZ / Verizon (USA)

Cradlepoint AER16x0LP4 / AT&T, T-Mobile, Verizon (USA)

Cradlepoint AER2200-600M / AT&T (USA, Canada); T-Mobile, Verizon (USA); Generic (Europe, Australia, NZ)

Cradlepoint IBR200-10M-VZ / Verizon (USA)

Cradlepoint IBR200-10M-B-AT / AT&T (USA)

Cradlepoint IBR350L / Verizon (USA)



Cradlepoint IBR350LPE-AT / AT&T (USA)

Cradlepoint IBR350LPE-GN / T-Mobile (USA); Generic (North America)

Cradlepoint IBR350LPE-SP/ Sprint (USA)

Cradlepoint IBR350LPE-VZ / Verizon (USA)

Cradlepoint IBR350P2 / AT&T (USA); Generic GSM-compatible locations (World)

Cradlepoint IBR6x0B-LP4 / AT&T, T-Mobile, Verizon (USA)

Cradlepoint IBR6x0C-LPE-AT / AT&T (USA)

Cradlepoint IBR6x0C-LPE-GN / T-Mobile (USA); Generic (North America)

Cradlepoint IBR6x0C-LPE-SP/ Sprint (USA)

Cradlepoint IBR6x0C-LPE-VZ / Verizon (USA)

[Cradlepoint IBR6x0C-150M-B-EU / Generic operators \(Europe\)](#)

[Cradlepoint IBR6x0C-150M-C-AU / Generic operators \(Australia\)](#)

Cradlepoint IBR6x0LPE-AT / AT&T (USA)

Cradlepoint IBR6x0LPE-GN / T-Mobile, US Cellular (USA); Bell Mobility, Rogers, Telus (Canada); Generic (North America)

Cradlepoint IBR6x0LPE-SP/ Sprint (USA)

Cradlepoint IBR6x0LPE-VZ / Verizon (USA)

Cradlepoint IBR6x0LP3-EU / Generic (Europe)

Cradlepoint IBR900LPE-VZ / Verizon (USA)

*Note: Also certified on AT&T (USA), Sprint (USA), and Generic (North America)*

Cradlepoint IBR9x0LP5 / Generic (APAC)

Cradlepoint IBR9x0LP6 / AT&T, Sprint, T-Mobile, Verizon (USA); Generic (North America, Europe)

Cradlepoint IBR9x0-600M / AT&T (USA, Canada); T-Mobile, Verizon (USA); Generic (Europe, Australia, NZ)

Cradlepoint IBR11x0LPE-AT / AT&T (USA)

Cradlepoint IBR11x0LPE-GN / C-Spire, T-Mobile, US Cellular (USA); Bell Mobility, Rogers, Telus (Canada); Generic (North America)

Cradlepoint IBR11x0LPE-SP / Sprint (USA)

Cradlepoint IBR11x0LPE-VZ / Verizon (USA)

Cradlepoint IBR11x0LP3-EU / Generic (Europe), Telstra (Australia)

Cradlepoint IBR11x0LP6 / AT&T, Sprint, T-Mobile, Verizon (USA); Generic (North



*America, Europe)*

*Cradlepoint IBR1700-600M / AT&T (USA, Canada); T-Mobile, Verizon (USA); Generic (Europe, Australia, NZ)*

*Cradlepoint MC400L2 / Public Safety Band 14 only (USA)*

*Cradlepoint MC400LPE-AT / AT&T (USA)*

*Cradlepoint MC400LPE-GN / T-Mobile, US Cellular (USA); Bell Mobility, Rogers, Telus (Canada); Generic (North America)*

*Cradlepoint MC400LPE-SP / Sprint (USA)*

*Cradlepoint MC400LPE-VZ / Verizon (USA)*

*Cradlepoint MC400LP3-EU / Generic (Europe)*

*Cradlepoint MC400LP4 / AT&T, T-Mobile, Verizon (USA)*

*Cradlepoint MC400LP5 / Generic (APAC)*

*Cradlepoint MC400LP6 / AT&T, Sprint, T-Mobile, Verizon (USA); Vodafone (Worldwide), Generic (North America, Europe)*

### **3<sup>rd</sup> Party USB Cellular Modems:**

*Franklin U770 ("Sprint Plug-In-Connect Tri-Mode USB Modem") / Sprint (USA)*

*Franklin U772 ("Franklin U772 USB Modem") / Sprint (USA)*

*Huawei E3276 / Telus (Canada)*

*Huawei E368 ("AT&T USBConnect Force 4G") / AT&T (USA)*

*Netgear AC340U ("AT&T Beam") / AT&T (USA)*

*Netgear AC341U ("NETGEAR® 341U USB Modem") / Sprint (USA)*

*\*supports Netgear firmware 4.07.01.11 and MR2 firmware 45.04.20.00*

*Novatel 551L LTE ("Verizon USB551L") / Verizon (USA)*

*Novatel U620L ("Verizon MiFi® 4G LTE Global USB Modem U620L") / Verizon (USA)*

*Novatel U679 ("4G LTE Novatel Wireless U679 Turbo Stick") / Bell Mobility (Canada)*

*Novatel USB730L ("Verizon Global Modem USB730L") / Verizon (USA)*

*Pantech UML295VW ("Verizon 4G LTE USB Modem UML2954G LTE") / Verizon (USA)*

*\*requires Pantech firmware version L0295VWD821F.B4 or later*

*Portsmith PSA1U1M ("Portsmith USB Client to Analog Modem Adapter") / POTS phone providers*

*Sierra Wireless 308 USB ("AT&T USBConnect Shockwave") / AT&T (USA)*

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- Sierra Wireless 313U ("AT&T USBConnect Momentum 4G") / *AT&T (USA)*
- Sierra Wireless 320U ("Telstra USB 4G (Sierra AirCard 320U)") / *Telstra (Australia)*
- Sierra Wireless 330U ("4G LTE Sierra Wireless U330 - Turbo Stick") / *Bell Mobility (Canada)*
- Sierra Wireless 330U ("LTE Rocket Stick – Sierra Wireless AirCard 330U") / *Rogers (Canada)*
- ZTE MF683 ("T-Mobile Rocket 3.0 4G Laptop Stick") / *T-Mobile (USA)*

### **Analog Modems:**

- Portsmith PSA1U1M ("Portsmith USB Client to Analog Modem Adapter") / *POTS phone providers*
- Portsmith PS6EX1M ("Portsmith ExCard to Analog Modem Adapter") / *POTS phone providers (ExpressCard format, compatible with MBR1400s, MBR1200B, & CBA750B only)*

### **Known issues:**

#### **CP Secure Web Filter**

- Previous versions of firmware had a defect that improperly allowed customers to enter more than 5 items per category in a custom category. Custom categories with more than 5 items need to be removed before upgrading to 6.5.0 firmware. Failure to do this will lead to unpredictable results. See Cradlepoint knowledge base for more detailed instructions.

#### **HOTSPOT:**

- Do not upgrade to this version of firmware if you require HotSpot functionality in conjunction with either CP Secure Web Filter or Zscaler Internet Security. This limitation will be addressed in an upcoming release.
- The Bandwidth (upload/download) settings in the Networking>Local Networks>Hotspot Services page do not function correctly on IBR900, IBR1700, IBR2200 routers. Set these to 0 when configuring hotspot.

#### **GPS:**

- IBR1700, Due to a 20-30ms delay in sampling, setting a configured reporting time to the minimum of one second will give samples at 1.02-1.03 seconds apart.

#### **LTE:**

- Unless you have a specific service from your carrier, LTE modems will not generally provide an externally-available IP address. Services, such as Remote Management, will

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not work.

## Modem:

- Franklin U770. The Modem's Ethernet address conflicts with the default address of the Guest LAN. A warning message is placed in the log and the Guest LAN is disabled. If you change the address of the Guest LAN to a non-conflicting address, this restriction will not occur.
- Sierra Wireless 313U and 330U, When these modems connect on 2G or 3G bands, specifically on GSM 850, they will sometimes cause interference on the USB bus, resulting in the modem not plugging properly. If this occurs, attaching the modem to a USB extension cable will generally fix the problem.
- The following USB modems contain an embedded web server through which many modem settings are configured. To access the modem's web pages, you must be logged in as the router administrator. Once logged in, you can then access the modem web pages at these given IP addresses:
  - Franklin U770, U772 / *Sprint (USA)* -> 192.168.10.1
  - Netgear AC341U \* / *Sprint (USA)* -> 192.168.1.1 (address is configurable)
  - Pantech UML295VW \* / *Verizon (USA)* -> 192.168.32.2

\* The modem web pages are available only when the modem is operating in NAT mode.