RELEASE NOTES

RUCKUS LTE AP Release Notes SC 04.04.00

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Contents

About this Release **5**
Supported Hardware 5
New in this Release **7**
Resolved Issues **9**
Known Issues **11**

About this Release

- Supported Hardware..... 5

This document provides release information for Ruckus LTE AP Release SC 04.04.0000 including information on new features, resolved issues, and unresolved issues.

Supported Hardware

Ruckus LTE AP Release SC 04.04.0000 supports the following Access Point models:

P01-Q910-US02
P01-Q710-US02
P01-Q410-US01

NOTE

Legacy Access Points P01-Q910-US00 and P01-Q710-US00 are also supported, but without Carrier Aggregation (CA) capabilities.

New in this Release

List of features introduced in Ruckus LTE AP Release SC 04.04.00:

- **PAL Support:** This feature allows Auction 105 spectrum winners and our operator customers to use their allotted spectrum channels and gain the protections afforded to them under FCC Part 96 rules.

  The mechanism for PAL operators to use their allotted PAL channels is very straightforward. A newly installed CBSD can issue a Spectrum Inquiry Request to the Spectrum Controller. The Spectrum Inquiry response provides guidance on specific channels that CBSD can use as PAL channels and other GAA channels available to the CBSD. Based on this guidance, CBSD can issue Grant Requests for PAL and GAA channels. The CBSD must issue separate Grant Requests for PAL and GAA channels. The OEM vendor CBSD must be able to read PAL and GAA designators in the Spectrum Inquiry response and appropriately request grants on channels designated as PAL. If a CBSD is already operating on its assigned PAL channel in the county, Spectrum Controller automatically start protection of the CBSDs operation available on the PAL channel as the feature is already enabled for that county. The protection will apply post-CPAS on the day that the PAL feature is enabled for your county.

  Key Highlights of implementation are mentioned below:

  - AP will give preference to PAL over Bandwidth at initialization. Preference order as per channel type combinations is mentioned below. Below channel combinations are supported for PAL:
    - 10 PAL (PCC) +10 PAL(SCC)
    - 10 PAL (PCC Only)
    - 20 GAA (PCC) + 20 GAA (SCC)
    - 20 GAA (PCC Only)
    - 10 GAA (PCC Only)
  - PAL Channel provided in SI response is preferred over GAA Channel.
  - AP switches Bandwidth from 20 MHZ to 10 MHZ, if, PAL is present in SI response or Operational parameter channel provided with Error codes by SAS is PAL.
  - If none of the PAL channels are available in SI response, CBSD gives preference to 20 MHz GAA channels and work as per Smart channel.
  - After Bandwidth switch to 10 PAL, AP gives preference to PAL channel over GAA channel.
  - Handling of 20 MHZ new operational parameter Channel is not supported in case of AP operating on 10 MHZ BW in SmallCell current release (4.4.0).

- **CBSD Smart Channel Selection:** This feature allows CBSD to select a new pre-authorized channel at runtime if the grant on existing channel is suspended by SAS. In current implementation, when SAS suspends an active Grant without operational parameter, CBSD continues to send HB on suspended grant. If DPA is activated, then CBSD will not get Grant-Authorization for 3350-3650Mhz immediately as SAS needs some time for daytime grant evaluation procedure.

  Likewise, if CBSD is near to FSS, then, Grant-Authorization for 3650-3700Mhz is rejected. This forces CBSD to wait for CPAS cycle or wait until the grant is authorized again with DPA deactivated. Solution to such scenarios is CBSD should already have Pre-Authorized Grants from SAS. Hence, in case current active grant is suspended, the CBSD can immediately use one of the pre-authorized Grant and start operational without waiting for CPAS. This helps in achieving minimum downtime at AP.

  Key Highlights of implementation are mentioned below:

  - AP maintains pre-authorized grants only for 20MHz channels. Pre-Authorized database shall be provisioned and will persist across reboots.
  - Below are the operations performed by AP on the reception of successful Spectrum Inquiry response message:
    - Initiate Grant procedure on all the available channels received in spectrum inquiry response that are not already pre-authorized and then send cumulative HB for all successful channel for which AP received Grant response error code as 0.

  - Start periodic spectrum inquiry timer.
- AP expects cbsdId, grantId, grantExpireTime, heartbeatDuration, channelType in case of successful grant response message for all grant request sent.
  - In case any of the above-mentioned information is not received then AP shall not add the grant in pre-auth grant list.
- Pre-authorized grant DB shall maintain following fields for all pre- authorized grants:
  - Grant-id
  - transmitExpireTime
  - grantExpireTime
  - heartbeatInterval
  - Current Grant State
  - operationParam

    EIRP

    Frequency Range
- AP will do periodic HB at 10 mins interval for pre auth grants if PCC and SCC are authorized.
- The addition of new channels in pre-authorized DB shall only be done upon periodic SI response, SAS suggests new channel in operational parameter or if a new channel is switched (Based upon NL(MBB), Active Grant Suspended, etc....).
- The deletion of channels in pre-authorized DB shall only be done when received Error code 500 ,502 in HB. Pre-authorized grant state shall be updated to SUSPENDED if received error code 501.
- If the number of grants is less than the minimum required to operate (2 in case of CA, 1 in non-CA mode), a fast SI timer of 1 minute will be initiated. Upon its expiry, AP will initiate periodic SI.
- No statistics will be supported for pre-authorized grants.

- **AZ-5410:** Customer was unable to SSH into LTE AP. A new login has been added with username “aztec” and password “Aztec@123”. On Logging onto AP through this username, P-CLI prompt opens up.

Resolved Issues

Resolved Issues	Description
CBRSE-350	When a log bundle is created on an AP the CBRSSignallingLogs.pcap files are not included.
CBRSE-371	Charter: Customer unable to SSH into LTE AP.
CBRSE-407	Amazon: EPC Not Reachable when SEGW is on the same IP subnet as the AP.
CBRSE-414	Comcast-Bouncing alarm-Grant revoked due to failure code:103.
AZ-5171	CMP enrollment failure alarm not raised when CMP enrollment not happened due to network problem with CACertRepositoryURL.
AZ-5231	Alarm 111 and 122 not cleared even after tunnel was successfully re-established.
AZ-5242	AP not doing CMP enrollment when network changed from unsecure to PKI enabled secure network.

Known Issues

There are no known issues for release 04.04.00.

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