TARANA

BROADBAND REINVENTED

G1 Device Software Release Notes 1.400.009

vRN-G1-2024-1-v2

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Note: For the most up-to-date manuals, please download the latest version of this document on our customer portal: support.taranawireless.com

Intended Audience

This document is intended for use by system administrators and engineers interested in the design, daily management, operations, and troubleshooting of a Tarana G1 network including Base Nodes, Remote Nodes, and the Tarana Cloud Suite (TCS).

It is assumed that the reader has a good working knowledge of radio frequency (RF), wireless systems, and networking concepts.

The G1 products are designed for installation and use by trained professionals and require adherence to all relevant regulatory, safety, and telecom industry best practice guidelines for outdoor radios. It is assumed that the Tarana G1 Base Node and Remote Nodes have been installed onsite and are connected to the TCS.

Models Supported by Release 1.400.009

Frequency	Device Type	Part Number	Description
5 GHz	BN	30-0134-001	5 GHz Base Node
	RN	30-0128-001 30-0150-001 30-0160-001	5 GHz Residential Node
3.5 GHz	BN	30-0141-001	3.5 GHz CBRS Base Node
	RN	30-0142-001	3.5 GHz CBRS Residential Node
6 GHz	BN	30-0171-001	6 GHz Base Node
	RN	30-0170-001	6 GHz Residential Node

Backward Compatibility

BN ---> / RN	0.988	0.989	0.997	1.205	1.400
0.988	✅	✅	✅	✅	✅
0.989	✅	✅	✅	✅	✅
0.997	✅	✅	✅	✅	✅
1.205	✅	✅	✅	✅	✅
1.400	✅	✅	✅	✅	✅

- Any BN with current software revision 0.988 or higher can be directly upgraded to 1.400.009.
- Any RN with 0.989 or higher can be directly upgraded to 1.400.009. **If the RN is on 0.988 or below, please upgrade to 0.989 or 0.997 before upgrading to 1.400.009**.
- It is recommended that the RNs be upgraded first followed by the BNs.
- 1.205.007 is the minimum required software version for 6 GHz devices (30-0171-001 and 30-0170-001). For 6 GHz RNs with part number 30-0170-001-**2.x** the minimum software version is 1.400.009.
- Deprecated SW versions : Support / Defect fixes for the following versions will be deprecated:
    - 0.989 - March 31, 2024

Security Fixes

None

Key Features

This is a maintenance release to fix defects.

Defects Fixed

#	Description
G1-23818	For some SLA profiles, the measured user throughput was less than the SLA.
G1-23935	In rare situations, some of the BNs underwent a radio re-initialization at low temperatures.
G1-23689	In some cases, the RN Device UI was not accessible from TCS
G1-23680	Device UI had incorrect IP address validation. It has been updated to [1-223].[0-255].[0-255].[0-255].
G1-23454	The latency test on BN Device UI reported incorrect values.
G1-23225	Some of the BNs reported incorrect peak rates in 1.205 software.
G1-24058	In rare situations, the BNs with a large number of subscribers (>150) underwent a radio re-initialization.
G1-23840	RNs operating on 0.997 software experienced degraded performance when connected to BNs operating on 1.205.

Known Limitations

#	Description
G1-19650	Device UI does not load on browser refresh. Please login again.
G1-19069	While asymmetric grant allows RNs to have partial spectrum relative to the BN spectrum, in some cases there might be a brief (< 5 mins) link disruption.
G1-19700	The RFC2544 tests will report lower than expected throughput. This is a side effect of changing the buffer sizes for latency reduction. Deep/shallow buffer selection support will be added in a future release.
G1-22890	In some rare cases, upgrading the BN software could fail. Please reboot the BN and try again.
G1-22668	Running a Traffic Test on an RN will fail when another test is already in progress. Please wait for the earlier test to complete before trying again.
G1-21734	In heavy-interference environments, if a Speed test is executed to characterize link performance, the initial results might show lower than expected speeds. Please re-run the test multiple (4 to 5) times. The increased link utilization results in speeding up the link optimization.
G1-24110	In rare cases, some 6 GHz RNs might report incorrect location coordinates.

Appendix A: RN Installation Guidance (added in 1.205.007)

Operator ID	Unique operator ID assigned by Tarana. Please ensure that it is correctly configured (i.e. matches with the BN).
Primary BN (P-BN)	If primary BN (P-BN) is configured, this will be the BN preferred by the RN. If the P-BN is found, the RN will stop searching and connect to the P-BN. If the P-BN is not found by the end of search, the best BN with the highest search metric is selected, as shown in the BN Search History. [Diagnostics Page] Note: 1. Set the P-BN only if you know the exact BN that the RN should connect to. 2. Setting an incorrect P-BN will result in the RN waiting 15 minutes (default) to find the P-BN before moving on to alternate BNs. 3. Please delete the P-BN if you didn't intend to set it.
Priority Search List	RN's search time depends on the number of frequencies it has to scan. To shorten the search time, you can select specific frequencies that are used by the nearby BNs. If no BNs are found on the configured prioritized search list, the RN will continue doing the full search on the rest of the frequencies. Note: 1. The priority search list doesn't persist across reboots.
RN Search Process	1. The RN will only search for BNs matching the configured operator ID. 2. The RN will first search for its previously connected BN (any BN the RN was previously connected to for at least 6 minutes). 3. Next, the RN will start searching all the frequencies on the "Priority Search List" (if configured). If P-BN is found (if configured), it is selected. Otherwise, the BN with the highest search metric is selected. Note: 1. Clicking on 'Search for BNs' will skip step (2) above. 2. Tarana strongly recommends clicking on 'Search for BNs' once the RN is aligned with the intended BN.
Radio States	**Searching:** The RN will scan through all frequencies and select a BN to connect to. 5 GHz frequencies for full search: 36, Typical time: 3 minutes CBRS frequencies for full search : 29, Typical time: 2.5 minutes 6 GHz frequencies for full search : 55, Typical time 4.5 minutes Note: If the search takes more than 5 minutes, check if the RN is searching for the correct operator ID, is pointed in the right direction, and that the BN is transmitting. Then, click 'Search for BNs'. **Calibrating:** The RN will tune the transmit and receive radio chains. Typical time: 2 minutes **Spectrum Authorization:** For CBRS and AFC bands, the spectrum needs to be authorized before transmission. Typical Time: 1 minute Note: 1. If the CBRS SAS responds with IAP or ICP, the spectrum authorization might take longer. 2. If CBRS grants are not authorized, check if the install parameters and the CPI-ID are inputted correctly. **Connected:** The RN has successfully connected to the selected BN and a dedicated control

	channel is assigned. Note: 1. If the total time to connect takes more than 25 minutes or if the RN does not connect within this time, please contact Tarana Support.
Alignment	During the install, the RN should be aligned in the horizontal (azimuth) and vertical (tilt) direction to maximize the performance of the link. The 'Alignment Metric' gauges the optimal aiming of the RN towards the BN. Installers must aim to maximize this metric to the highest possible value. The minimum recommended value is “10” for the alignment metric. Range - 0 to 30. Note: 1. Changing the RN tilt during alignment may have more impact than azimuth. It is recommended to uptilt in steps of 1 degree, whereas the azimuth can be adjusted in steps of 10 degrees. 2. The alignment metric is a relative metric for aligning the RN at a given location and is not an absolute indicator of performance. The value of the alignment metric could be affected by interference. 3. The actual link quality should be estimated based on the Traffic Test results, which display DL/UL SINR, pathloss, and the DL/UL throughput with latency.
Configuration	All of the configurations can also be changed/updated from TCS. If any of the above configurations are changed from TCS, the configurations made at the device will be overwritten by the TCS configuration.