



## RN52 Firmware v1.16 Release Notes

### **Description**

Firmware v1.16 is a major firmware revision for the RN52 (A2DP sink) Bluetooth Audio module. Firmware v1.16 provides many new features such as DFU over UART, advanced CODEC support, DAC/ADC mode, and an updated event handling mechanism.

### **Fixes**

- Resolved issue with pin code legacy pairing
- Fixed issues with set absolute volume command

### **New Features**

- Bluetooth QDID **58578**
- Default DFU is over UART. New designs should use UART.
- Support for AAC, aptX premium A2DP codecs
- Support for cVc HFP block set
- HFP 1.6 WBS support (RN52CVC part)
- GPIO3 available for Soft Reset function after module boots up
- Display remote device MAC and active codec when A2DP device is connected
- Intercom feature: two way audio is routed between on board I2S and ADC/DAC
- Optional codec indicators PIO7 (AAC) and PIO6 (aptX) for LED indicators
- Option to reboot after disconnect
- Option to mute volume up/down tones
- Option to enable AG voice command on PIO4
- Option to disable system tones
- Option to power off after pairing timeout
- Option to reset after power off
- Option to enable list reconnect after panic
- Option to enable track change event
- Option to auto-acknowledge KEYBOARD I/O pass key requests for legacy designs
- Option to enable PDL scanning and connection
- Option to set GPIO2 Event Notification to default 100ms pulse or falling edge latched
- Command to enter DFU over UART and GPIO3 to enter DFU at boot time
- Command to change system tone volume level
- Command to acknowledge KEYBOARD I/O pass key
- Command to set Microphone/LINEIN gain configuration (analog route only)
- Command to set Speaker gain Level (analog route only)
- Command to read Battery Level from AG
- Command to set connection Delay used for PDL scanning
- Command to set Pairing Timeout
- Command to change UART baud rate
- Command to initiate AG voice command
- Commands for enhanced 3-way calling support (merge, drop, hold)

- Command to retrieve caller ID
- Command for redial
- Command to retrieve AVRCP track meta data
- Command to clear PDL
- Command to switch voice call to HF or AG

### Device Firmware Upgrade (DFU) Enhancements

Starting with RN52-I/RM116, the default method for DFU firmware update will be over the UART instead of the USB port used in previous versions. The DFU over UART method is simpler and more suitable to embedded environments. No USB device driver is needed for DFU over UART, unlike the previous DFU over USB. Customers with existing designs that rely on DFU over USB should order RN52UDF-I/RM116.

### Firmware Upgrades Available on RN52

For the first time, the RN52 firmware will be field upgradable. The Microchip will have DFU images, DFU loader utility, and instructions will be posted on the RN52 product page.

Existing RN52 users who have implemented the USB DFU capability can update their firmware to v1.16 using DFU over USB. For example if upgrading from firmware v1.10 to v1.16 then perform DFU over USB.

If the RN52 users wish to use UART transport for subsequent DFU firmware upgrades, then the standard firmware v1.16 DFU image (rn52-i\_rm116.dfu) should be loaded. If they wish to keep DFU over USB then the UDF firmware v1.16 DFU image (rn52udf-i\_rm116.dfu) should be loaded. To revert back to v1.10 use firmware v1.10 DFU image (rn52-i\_rm110.dfu).

For more information on the RN52 and available documentation and downloads please visit [www.microchip.com/rn52](http://www.microchip.com/rn52).

### Product Ordering Guide

The RN52 has the following variants as listed in the product guide table below.

Part Number	Description	DFU*
RN52-I/RM116	1.16 firmware with SBC codec and DFU over UART. This load does not have NR/EC for voice calls.	Y
RN52UDF-I/RM116	1.16 firmware with USB over DFU enabled. This is for existing designs that use USB for DFU.	Y
RN52AAC-I/RM116	1.16 with default SBC and AAC codec activated for A2DP streams. <b>This part is subject to patent license fees from vialicensing.com for AAC.</b>	N
RN52APT-I/RM116	1.16 with default SBC and <b>aptX codec installed but not activated</b> . Customer must obtain a license from CSR PLC. <b>This part is subject to fees from CSR PLC for aptX.</b>	N
RN52CVC-I/RM116	1.16 with default SBC codec for A2DP, and HFP WBS CVC codec to provide NR/EC for voice calls.	N
RN52ACV-I/RM116	1.16 with default SBC, aptX and HFP WBS CVC codecs enabled. Customer must obtain a license from CSR PLC for aptX. <b>This part is subject to fees from CSR PLC for aptX.</b>	N
RN52APC-I/RM116	1.16 with default SBC, AAC codecs enabled and <b>aptX codec installed but not activated</b> . Customer must obtain a license from CSR PLC for aptX. <b>This part is subject to fees from CSR PLC for aptX. Patent license fees from vialicensing.com applies for AAC.</b>	N
RN52ALL-I/RM116	1.16 with default SBC and the following codecs enabled: AAC, aptX, and CVC/WBS. <b>This part is restricted to RN52-EK dev tool.</b>	N
RN52-I/RM RN52-I/RM110	Standard 1.10 firmware with SBC codec and DFU over USB.	Y

\* Indicates whether a DFU image is available or not based on licensing requirements for aptX and CVC codecs