

New MIDI protocol

As of January 2019, the draft specification of the new protocol supports all core messages that also exist in [MIDI 1.0](#), but extends their precision and resolution; it also defines many new high-precision controller messages.^[135]

Existing controllers extended from 7-bit to 32-bit precision:

- Channel Control Change messages #0–127
- Polyphonic (per-note) pressure message
- Channel Pitch Bend message
- Channel Pressure (aftertouch) message

Controllers that were modified to use a single-message format with 32-bit data:

- Program/Bank Change message, bank #0-16383 program #0–127
- Registered controller (RPN) message, bank #0–127 index #0–127 with 32-bit data
- Assignable controller (NRPN) message, bank #0–127 index #0–127 with 32-bit data

New per-note controllers with 32-bit resolution:

- Note On/Off #0–127 with 16-bit Velocity and Attribute type #0–255 with 16-bit Attribute data
- Per-note Registered Controller messages #0–255
- Per-note Assignable Controller messages #0–255
- Per-note Pitch Bend message
- Per-note Management message

Example MIDI 2.0 Channel Voice messages (64-bit)

Registered Controller message

Header	Type = 0x4	Group	Event = 0x2 = 0b0010	Channel	
# of bits	4	4	4	4	
Payload	Bank	Index	Data		
# of bits	8 ^R	8 ^R	32		

Assignable Controller message

Header	Type = 0x4	Group	Event = 0x3 = 0b0011	Channel	
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# of bits	4	4	4	4	
Payload	Bank	Index	Data		
# of bits	8 ^R	8 ^R	32		

Note On message

Header	Type = 0x4	Group	Event = 0x9 = 0b1001	Channel	
# of bits	4	4	4	4	
Payload	Note Number	Attribute type	Velocity	Attribute	
# of bits	8 ^R	8	16	16	

Program Change message

Header	Type = 0x4	Group	Event = 0xA = 0b1100	Channel		
# of bits	4	4	4	4		
Payload	reserved	Option flags ^B	Program	reserved	Bank MSB	Bank LSB
# of bits	8	8	8 ^R	8	8 ^R	8 ^R