

How to work out a System Exclusive Message

The first 5 bytes of a system exclusive message are pretty much constant.....

F0	41	10	42	12
Start of Sys Ex	Roland I D	Device I D (VA7)	Model I D (GS)	Data

Next we look up the relevant address and data from the midi implementation booklet, in this case setting the Reverb to Hall 4. According the booklet the address and data would then be.....

40	01	30	04
(address)	Actual Data (Hall 2)

Now for the famous Roland Checksum. The checksum is used to protect your instrument from receiving corrupted data by ensuring that the address and data bytes follow a precise mathematical formula, this is calculated by first adding the address and data bytes. It may be an idea to convert the above hex bytes to decimal like so.....

$$64 + 01 + 48 + 04 = 117$$

This integer must then be subtracted by 128, and keep on being subtracted by 128 until you are left with a negative number.....

$$117 - 128 = -11$$

Ignore the minus sign and covert back into hex. Finally place the end message byte **F7** after your now calculated Checksum. So to change the Reverb Macro to Hall 4 on a VA7, would be.....

F0 41 10 42 12 40 01 30 04 0B F7