This document is under formal review by the DCC Working Group under topic 0504022. It has not been approved by the WG, nor reviewed & approved by the Technical Department. Send comments to reinhard@dcc-mueller.de.

This Technical Note describes background information for the Binary State Control instruction documented in Recommended Practice RP-9.2.1.

5 The Binary State Control instruction is intended to increase the amount of "functions" significantly beyond the possibilities of the functions in Function Group One (F0 to F4), Function Group Two (F5 to F12) and in the Future Expansion Instruction (110) range (F13 to F28). There are up to 32767 Binary States. To avoid incompatibilities due to this second method of feature control this TN defines classes of applications to be controlled by Binary States. Other functions should use Functions F0 to F28.

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Applications to be controlled by Binary States:
- Functions within rolling stock other then the unit with the DCC packet decoding electronic. This includes lights in passenger cars and remote controlled couplers on cars controlled via a train bus.
- Functions with a fixed Binary State Number. This may be e.g. a special type of sound to be
15 started. Fixed Binary States should not use the numbers 1 to 127 as this would block the short form to be used for the previous category.
- Functions needing an index.

Binary States Controls should **not** be used for Decoder configuration. They belong to the group of
20 instructions for instant control of a feature as any other instruction in RP-9.2.1. The fact that they are not refreshed is simply given by the limited DCC bandwidth. As a clarification a list of different instruction types follows:
1) Instructions controlling the **state** of a decoder. In this group are the baseline packet in S-9.2 and all packets in RP-9.2.1.
25 2) Instructions changing the **configuration** of a decoder. These are the packets defined in RP-9.2.3.
3) Instructions changing the **software** of a decoder or large **sound files**. Currently there is no RP dealing with software or sound upload while there are several proprietary solutions to do so.

Binary State Controls belong to the first group of instructions.