

CBUS - A universal layout control system

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Introduction

CBUS is a Layout Control System running on the [W](#)CAN (Controller Area Network). A description of the system can be found on our public webpages. [cbus.php](#) and [cbus2.php](#)



Tools:

- **FCU**: Windows based FLiM Configuration Utility for configuration of nodes and events.
- **JMRI**: Java Model Railroad Interface for configuration, monitoring and operating.
- **ROCRAIL**: A complete package for layout and loco operation.
- **SSI** (Solid State Interlocker) from [GPPSOFT](#): A complete layout control system following British signalling and control practice.

Implementation Notes

- CBUS operates over CAN at 125kbps.
 - CAN is bidirectional and has built-in error correction and message re-send.
 - CBUS CAN frames have an 11-bit header and an 8-byte data-part.
 - The data-part carries the CBUS message.
 - The header must be unique, and this is ensured by including the 1 byte CAN-ID assigned to the sending node.
 - The CAN-ID is retained by the node, moving it to a new layout may cause a CAN-ID conflict.
 - In SLiM mode, the node-id is set by switches, and the CAN-ID is set equal to the low-byte of the node-id.
 - In FLiM mode, if the node does not have a CAN-ID, one is automatically obtained by self-enumeration: the node asks all other active nodes for their CAN-ID, and then assigns itself one that is not in use.
 - NB: New modules *must* be introduced to the bus one at a time.
 - The CAN-ID may be re-assigned: manually by a double push of the node's pushbutton; or by using the FCU.
 - CBUS uses 29-bit header CAN messages for bootloading.
 - A complete description of CBUS including the full specification and implementation notes is contained in the 'Developer's Guide' which can be downloaded from [developer_6b.pdf](#)
- See also the 'documentation' link at the top of this page.

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