Checking the OpenLCB Datagram Transport Protocol

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1 Introduction

This note documents the procedure for checking an OpenLCB implementation against the Datagram Transport Standard.

The checks are traceable to specific sections of the Standard.

The checking assumes that the Device Being Checked (DBC) is being exercised by other nodes on the message network, e.g. is responding to enquiries from other parts of the message network. .

2 Datagram Transport Procedure

Note that this process is unable to check datagrams from the DBC to the checker. There is no standard way to elicit those. They will be checked as part of the Memory Configuration Protocol checking, if applicable.

A node which does not self-identify in PIP that it supports datagram transfer will be considered to have passed these checks.

2.1 Datagram Reception

This checks the messages in Standard sections 4.1 and 4.2 or 4.3, including the error code constraints in Standard section 4.3.1 [1] and the interactions in sections 6.1 or 6.2.

The checker will send a datagram to the DBC. The DBC in turn will either accept the datagram (sections 4.2 and 6.1) or reject it (sections 4.3 and 6.2). Either response is acceptable.

This section's checks cover:

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[1] This section references the Message Transport Standard, section 3.5.5

1. If the datagram is accepted,
    (a) That the Datagram OK message is received,
    (b) That the Datagram OK message has proper source and destination node IDs,
    (c) that the Datagram OK message contains exactly 1 byte of flags,
    (d) that the 0x70 bits of the flags are zeros.

2. if the datagram is rejected,
    (a) That the Datagram Rejected message is received,
    (b) That the Datagram Rejected message has proper source and destination node IDs,
    (c) that the Datagram Rejected message contains at least two bytes of error code,
    (d) that the 0xF000 bits of the error code are either 0x1000 or 0x2000,
    (e) that the 0x0F00 bits of the error code are zeros.

This process is repeated for datagrams of length 1, 10 and 72 bytes to exercise the full range of datagram framing.