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Hewlett Packard Corporation
Filton Road, Stoke Gifford
Stoke Gifford
Bristol BS34 8QZ
United Kingdom

Phone +44 117 979 9910
Web www.hp.com

ADT Proposal

Acknowledgement Frames

Introduction

ADT r01 contains some inconsistencies and ambiguous language regarding ACK and NAK frames. For example, sub-clause 6.5.2 ACK Frame states, 'An ACK frame shall be sent for every frame that is received without error, except ACK and NAK frames.' However, sub-clause 6.6.1.2.1 ACK Frame Time-out states, 'The sender of a frame, other than an ACK frame, shall time-out the resulting acknowledge' implying that the sender of a NAK frame should wait for an ACK frame ('the resulting acknowledge') in response. Other similar instances exist in the text.

This proposal seeks to remove the inconsistencies by using the term Acknowledgement Frames to include both ACK and NAK frames. It also contains some knock-on technical and editorial changes.

Current Text

6.5.2 ACK frame

ACK frames are sent by the transport layer to indicate that the port has received a frame without error. An ACK frame shall be sent for every frame that is received without error, except ACK and NAK frames.

6.5.3 NAK frame

NAK frames are sent by the transport layer to indicate that the port has detected an error during the reception of a frame. The Payload of a NAK frame contains 1 byte indicating the status. The FRAME NUMBER field in the ADT Header of the NAK frame shall be the next expected frame. Table 5 lists the status values:

[…]

6.6.1.2.1 ACK frame time-out

The sender of a frame, other than an ACK frame, shall time-out the resulting acknowledge. It shall be considered an error condition if a corresponding ACK frame is not received within the time-out period. The time-out period shall start after the EOF of the frame is sent. When operating with a ACK offset greater than 1, a port may start the time-out period for a frame that has completed transmission after the ACK frame for a previously sent frame has been received.

Ports shall not terminate transmission of a frame to acknowledge frames that it has received except in the case of receiving a Port Login or Port Logout frame. A port that receives a Port Login or Port

Logout frame may terminate a transmission in progress, or it may complete the transmission. Once a port completes transmission of a frame, it shall acknowledge all frames that it has received before starting transmission of any other frame type, except Port Login, Port Logout, or Pause frames. The minimum ACK time-out period shall be calculated using the formula in Figure 10-1.

Figure 3 — Minimum ACK time-out period

$Timeout_{ACK} = (Period * Size_{Max} * 2) + (Period * (Offset_{Max} * Size_{ACK} * 2)) + 0.1$ seconds […]

Detailed Changes to Draft Technical Standard[1]

6.5.2 ~~ACK frame~~ Acknowledgement frame

6.5.2.1 Introduction

An acknowledgement frame is an ACK frame or a NAK frame.

6.5.2.2 ACK frame

ACK frames are sent by the transport layer to indicate that the port has received a frame without error. Except for acknowledgement frames, a port shall send ~~A~~an ACK frame ~~shall be sent~~ for every frame that ~~is received~~ it receives without error~~, except ACK and NAK frames~~.

6.5.2.3 NAK frame

NAK frames are sent by the transport layer to indicate that the port has detected an error during the reception of a frame. Except for acknowledgement frames, a port shall send a NAK frame for every frame that it receives in error. The Payload of a NAK frame contains 1 byte indicating the status. The FRAME NUMBER field in the ADT Header of the NAK frame shall be the next expected frame. Table 5 lists the status values:

[…]

6.5.2.4 Interleaving acknowledgement and other frame types

A port shall not terminate transmission of a frame to send an acknowledgement frame except in the case of receiving a Port Login or Port Logout frame. A port that receives a Port Login or Port Logout frame may terminate transmission of a frame in progress, or it may complete the transmission. Once a port completes transmission of a frame, it shall acknowledge all frames that it has received before starting transmission of any other frame type, except Port Login, Port Logout, or Pause.

6.6.1.2.1 ~~ACK~~ Acknowledgement frame time-out

The sender of a frame, other than an ~~ACK~~ acknowledgement frame, shall time-out the resulting acknowledgement. It shall be considered an error condition if a corresponding ~~ACK~~ acknowledgement frame is not received within the time-out period. The time-out period shall start after the EOF of the frame is sent. When operating with a ACK offset greater than 1, a port may start the

[1] I have not included sub-clauses where only the sub-clause number changes.

time-out period for a frame that has completed transmission after the ACK frame for a previously sent frame has been received.

~~Ports shall not terminate transmission of a frame to acknowledge frames that it has received except in the case of receiving a Port Login or Port Logout frame. A port that receives a Port Login or Port Logout frame may terminate a transmission in progress, or it may complete the transmission. Once a port completes transmission of a frame, it shall acknowledge all frames that it has received before starting transmission of any other frame type, except Port Login, Port Logout, or Pause frames.~~ The minimum ~~ACK~~ acknowledgement time-out period shall be calculated using the formula in Figure ~~10-~~13.

Figure 3 — Minimum Acknowledgement time-out period

$$Timeout_{ACK} = (Period * Size_{Max} * 2) + (Period * (Offset_{Max} * Size_{ACK/NAK} * 2)) + 0.1 \text{ seconds}$$

[…]