RFC 1323
(TCP Extensions for High Performance)
Revision
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Reasons for Updating

• Fix errors in RFC-1323
  • e.g., Step (2) in section 3.4
• Changes based on experience
  • e.g., allow Timestamps in some RST
• Add additional information
  • e.g., updating RTO
Timestamps

- Clarify when TSecr is valid (ACK is set)
- Clarify that once a Timestamps option is sent in non-SYN packets, it must be sent in all packets for the duration of the connection (including retransmissions).
- Add comments that you need to modify RTO estimator if you take multiple RTTMs per RTT.
Fix step (2) in section 3.4 to address retransmitted packets due to lost ACK and when SEG.LEN = 0. Change:

- If SEG.SEQ <= Last.ACK.sent < SEG.SEQ + SEG.LEN
- to:

  - If SEG.TSval >= SEG.SEQ and SEG.SEQ <= Last.ACK.sent
• Recommend including Timestamps option when generating a RST, if the packet causing the generation of the RST contained a Timestamps option.
Appendix A

• Add discussion on interaction between larger windows and the Urgent Pointer

• Use 65535 if offset > 65535

• Add discussion on the value to place in the TCP MSS option

• Effective MTU - fixed IP and TCP headers.

• Ignore IP & TCP options; sender must
Appendix C

- Added changes between RFC-1323 and current document
Appendix E

• “Event Processing Summary” is now Appendix F

• New Appendix E adds pseudo-code summary

• Added Snd.TSoffset and Snd.TSclock to allow the starting point for Timestamps to be randomized.
Appendix G

• A new appendix, to discuss edge cases in Timestamps processing
  • Known issues that are not being addressed
  • Most (all?) involve packet loss situations
Outstanding issues

• Should we allow enabling of Timestamps to be deferred? Timestamps use 12 bytes of option space.

• Should PAWS require the DF bit be set? PAWS only protects the first fragment.
Outstanding Issues (cont.)

- Is it worth allowing RTTM from DUP ACK?
- Scenario is when first data packet after a quite time gets lost
- Requires changes on the remote end for how it fills in TSecr, without changing TSrecent
- Others?
Miscellaneous

- Approve this as an official TCPM WG item
- Document: draft-borman-1323bis-00.txt
- Mailing list: tcpm@ietf.org