Proposals for fixing the EoM issue in SSH transport

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Proposals sent to ML

1. Keep the “]]>]]>” sequence as EoM marker but escape its occurrence inside NETCONF messages.
2. Replace “]]>]]>” with an ASCII control character that is illegal in XML.
3. Use frame delimiters with explicit frame length.

Each of the methods induces incompatible changes in SSH transport: new SSH subsystem and server port is needed in any case.
#1. Escaping the sequence

Per Hedeland
http://www.ietf.org/mail-archive/web/netconf/current/msg04231.html

1. Message transmission:
   a. Any occurrence of the sequence “]]>]]>” is rewritten to “]]>]]>]]>”.
   b. The sequence “]]>]]>” is appended to the message.

2. Message reception:
   a. The sequence “]]>]]>” indicates the end of the message.
   b. Any occurrence of the sequence “]]>]]>]]>” is rewritten to “]]>]]>]]>”.

**Advantage:** partial compatibility with the existing transport (as long as
the EoM doesn’t appear inside messages), cut-and-paste friendly.

**Disadvantage:** messages have to be scanned and manipulated on both
sides.
#2. ASCII control character

XML 1.0 (Fifth Edition), Sec. 2.2:

Char ::= #x9 | #xA | #xD | [#x20-%xD7FF] | [#xE000-%xFFFD] | [#x10000-%x10FFFF]

#x4 (ASCII “END OF TRANSMISSION”) would seem a logical choice.

4741bis requires that NETCONF messages be well-formed XML, so they must not contain this illegal character – any non-validating XML parser can perform this check.

**Advantage:** just replaces “]]>]]>” with the #x4 byte, the logic remains the same as in RFC 4742.

**Disadvantage:** less cut-and-paste friendly.
#3. Explicit frame length

Phil Shafer
http://www.ietf.org/mail-archive/web/netconf/current/msg06216.html

#Frame-length: 1024
... 1024 bytes of content
#Frame-length: 1024
... 1024 bytes of content
#Frame-length: 56
... 56 bytes of content
#End-of-frame

**Advantage:** very robust, easily implemented (no scanning of messages).

**Disadvantage:** cut-and-paste unfriendly.