
Proposals for fixing the EoM issue in SSH transport

Ladislav Lhotka
<lhotka@cesnet.cz>

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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-#xFFFFD] | [#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.