Syslog-international Protocol
draft-ietf-syslog-international-00.txt

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Abstract

This document describes syslog-international, a mechanism adding support for international character sets to syslog. Syslog-international provides these features in a way that has no requirements and no impact on existing syslog implementations. It is possible to support syslog-international and gain some of its functionality by only changing the behavior of the devices generating syslog messages. Some additional processing of the received syslog messages may realize additional benefits. There is no need to change syslog relays in order to support syslog-international. Existing syslog implementations will benefit from the fact that syslog-international supporting devices emit proper syslog messages in all cases. It is common practice for many non-syslog-international clients to accidently emit 8 bit characters if used in e.g. European...
language environments. Syslog-international just adds a protocol layer to the MSG part of the syslog message. As such, it is compatible with all existing and future implementations of syslog.

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1. Introduction

Syslog-international is an enhancement to syslog as described in draft-ietf-syslog-sign-11.txt that adds support for international character sets to syslog.

This is the first draft on syslog-international. Its main purpose is to stimulate discussion on this topic. The content of this ID outlines some rough ideas but needs definitely some more refinement. The author didn’t try to do a full specification with this first draft, so some of the information is incomplete.

Syslog-international does not change the syslog packet format but rather just the payload part of the syslog message. This part is referred to as the MSG part. As such, syslog-international is one layer on top of the other syslog specifications.

Being just another layer, syslog-international message content can be embedded into current and future syslog messages. Relays do not need to be aware that a message is syslog-international enabled— they simply pass the packet unaltered on. Syslog collectors do not necessarily be modified. They may need to be modified to encode international characters correctly. Obviously, syslog clients need to be modified in order to emit syslog-international message content.

One goal of syslog-international is to allow international characters inside the syslog message but retain the simplicity and human readability of original syslog. If there is an alternative that can either make the syslog-international easier to implement OR retain human readability, the design decision should favor human readability. Similarly, implementors have several choices on how to encode messages SHOULD always select the choice that provides the best human readability.

The need for syslog-international arises primarily for two reasons: observed behaviour of current syslog clients is that they may emit non US-ASCII characters inside syslog messages. This is for example commonly found in European installations, which extend the US-ASCII pane by an additional pane of characters in the ABNF %d128-255 range. With some operating systems, these characters can even be embedded in computer names, so there is a high probability that they make it into actual syslog messages. Typically, this causes no problems and thus is seldomly noticed. So the first argument is that some implementations are accidently broken by 256 character alphabets and these chracters appear as result of normal operations.

There are more often issues when running syslog in an Asian environment, especially as there are different character encodings
used between different operating systems. Also Asian languages must
be encoded in multi byte character sets where a single character may
be spread over multiple bytes. Truncation of single characters (or the
high-order bit) do not necessarily pose a big problem to western
scripts but can totally destroy an Asian script. In any case, it is
observed behaviour of at least some syslog implementation to emit
DBCS character encodings. So the second argument pro
syslog-international is that it is needed to properly transmit multi
byte character sets (for example as used in Asian languages).
2. Required syslog Format

The essential format of syslog messages is defined in 2. of
\cite{draft-ietf-syslog-sign-11}. We do not intend to duplicate the
format description here. This prevents inconsistencies and leaves
room for other syslog protocol specifications to evolve. The basic
fact that we build on is that within the syslog packet format, there
is a field containing the actual payload, the message to be
transmitted. This is the MSG part of a syslog packet. As this is the
payload of the message, we do not expect any new syslog protocol
specification to change it.

The important fact about MSG is that it MUST consist of printable
US-ASCII characters only.

A specific character set is not required and the absence of this
information can cause misinterpretation. For example, in European
languages some of the least-frequently used US-ASCII characters (like
"~" and "^") are re-assigned to represent frequently-used local
caracters not included in the basic US-ASCII set. The German Umlaut
caracters are a good example for this. Other examples can be found
in almost all European languages like French or Spanish. So if an
administrator receives syslog messages from e.g. spanish, french and
german systems on his central syslog collector in the UK, there may
be some strange looking characters in them. Humans are typically
clever enough to get the right meaning out of these words, but
automated processes may have some issues. In the real world, these
issues are typically only cosmetic, but at least there is some
ambiguity that should be solved. As such, we recommend that even
"plain" US-ASCII text messages SHOULD use syslog-international if
they emit data not exclusively relying on the US-ASCII character
tables as defined in ANSI.X3-4.1968 [1].

The MSG part of an syslog-international message has the following
ABNF [4] definition:

\begin{verbatim}
MSG = HDR-i18n SP MSG-i18n
HDR-i18n = COOKIE SP ENCODING SP CHARSET SP LANGUAGE SP MORE SEQNO
COOKIE = "@# %d73 "18" %d110 ; that is: "@!18n"
        ; note the capital "I" and lower case "n"
ENCODING = "UTF-7"/"quoted-printable"/"base64"/"plain"
CHARSET = 1.40*({%d33-%d126}) ;IANA registered charset name
LANGUAGE = RFC1766 Language-Tag
MORE = "."/"*"
SEQNO = 0..4294967295
\end{verbatim}
MSG-i18n = 1*($(d33-126) / SP)
SP = $d32

Note well: this definition is not yet complete and needs more
discussion. It is provided as a starting point for the discussion.

As can be seen, an international content message is embedded into a
syslog-sign [6] MSG field. The international content is distinguished
from plain syslog-sign content by the presence of a HDR-i18n COOKIE.
If the COOKIE is present, the ENCODING part of the HDR-i18n tells
which encoding is used, the CHARSET tells the IANA assigned charset
it is represented in and the LANGUAGE tag specifies the language.
Later revisions of this draft will provide proper links to the
relevant RFCs (e.g. RFC 2277 and RFC 1766) and more details.

MORE and SEQNO provide support for syslog messages larger than the
allowed syslog packet size. This is introduced to allow transmittal
of "oversized" message, which may be the result of some character
sets and encodings. These messages will be fragmented by the syslog
client and reconstructed by the collector. Relays will pass them
through unmodified.

Message fragmentation MAY be used if the underlying transport
provides reliable and in-order delivery (for example RFC 3195 [8]).
It the underlying transport is unreliable or its reliability is not
known, fragmentation MUST NOT be used.

More specifies whether this is the final fragment of the message or
not. An asterisk ("*") means that at least one more fragment will
follow. A period ("." ) means that this is the final (or only)
fragment.

SEQNO specifies the sequence number of fragments. It MUST start by 0
for the first fragment and MUST be incremented by 1 for each
following fragment. SEQNO MUST restart at 0 for each new full
message. A new full message begins after the last message that had
"." in MORE.

If fragmentation is not used, all messages contain ". 0" as the MORE
SEQNO sequence.

The actual content appears after a space.

The following examples are given.

Example 1

In this example, as it was originally described in RFC 3164 [7], the message MSG actually is in US-ASCII so it could also be sent in a plain syslog-sign message. To remove uncertainty, it was specifically flagged as being US-ASCII. Please note the encoding of type "plain".

Example 2

<165>Aug 24 05:34:00 10.1.1.1 myproc[10]:
@#i18n:QUOTED-PRINTABLE:ISO-8859-1:de Gr=FC=DF Gott

In this example, we have non US-ASCII characters. The MSG part contains "Gruess Gott" which is the Bavarian way of saying hello. I am using a replacement writing method to make this readable in US-ASCII. The actual string in ABNF is %x47.72.fc.fd.20.47.6f.74.74. The encoding is QUOTED-PRINTABLE in this sample.
3. Security Considerations

The security considerations section requires considerate review once the details of the spec are clear. While doing so, keep the potential of complex encoding and decoding processes in mind. They may provide the breeding bed for all kinds of security weaknesses. It may be a good idea to recommend implementors to test their implementation against MBCS character sets - it is forseeable that some implementors will just take care of western scripts. In this regard, it may also be a good idea to include some sample data in Japanese or some other MBCS. The current security considerations just contain some thoughts that came up while drafting the initial revision.

Syslog-international messages are only as secure as the underlying syslog transport protocol. Be sure to check the security considerations sections of underlying transport RFC or ID.

Invalid character set information may be used to render messages unreadable.

Invalid MBCS encodings may be used to attack decoding processes and freeze them.

Note well to implementors: syslog-international adds some size to the message, effectively shrinking the maximum usable message size. If an implementor simply implements syslog-international and does not check this implication, important message parts may be truncated due to the maximum specified syslog message size in the syslog transport RFCs/IDs.
4. Authors and Working Group Chair

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5. Acknowledgements

The authors wish to thank Chris Lonvick, Andrew Ross, Albert Mietus, Eric Fitzgerald, Glen Zorn who commented on various versions of this proposal.
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Acknowledgment

Funding for the RFC Editor function is currently provided by the
Internet Society.