

Network Working Group  
Request for Comments: 2484  
Category: Standards Track  
Updates: 2284, 1994, 1570

G. Zorn  
Microsoft Corporation  
January 1999

## PPP LCP Internationalization Configuration Option

### Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

### Copyright Notice

Copyright (C) The Internet Society (1999). All Rights Reserved.

### 1. Abstract

The Point-to-Point Protocol (PPP) [1] provides a standard method for transporting multi-protocol datagrams over point-to-point links. PPP also defines an extensible Link Control Protocol (LCP), which allows negotiation of an Authentication Protocol for authenticating its peer before allowing Network Layer protocols to transmit over the link.

Both LCP and Authentication Protocol packets may contain text which is intended to be human-readable [2,3,4]. This document defines an LCP configuration option for the negotiation of character set and language usage, as required by RFC 2277 [5].

### 2. Specification of Requirements

In this document, the key words "MAY", "MUST", "MUST NOT", "optional", "recommended", "SHOULD", and "SHOULD NOT" are to be interpreted as described in [6].

### 3. Additional LCP Configuration Option

The Configuration Option format and basic options are already defined for LCP [1].

Up-to-date values of the LCP Option Type field are specified in STD 2 [7]. This document concerns the following value:

## 28 Internationalization

The Internationalization option described here MAY be negotiated independently in each direction.

Only one instance of this option SHOULD be sent by an implementation, representing its preferred language and charset.

If Internationalization option is rejected by the peer, the default language and charset MUST be used to construct all human-readable messages sent to the peer.

### 4.1. Internationalization

#### Description

This Configuration Option provides a method for an implementation to indicate to the peer both the language in which human-readable messages it sends should be composed and the charset in which that language should be represented.

A summary of the Internationalization option format is shown below. The fields are transmitted from left to right.

0										1										2										3									
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1								
Type										Length										MIBenum																			
										MIBenum (cont)										Language-Tag...																			

#### Type

28

#### Length

>= 7

## MIBenum

The MIBenum field is four octets in length. It contains a unique integer value identifying a charset [5,11].

This value MUST represent one of the set of charsets listed in the IANA charset registry [7].

The charset registration procedure is described in RFC 2278 [9].

The default charset value is UTF-8 [10]. The MIBenum value for the UTF-8 charset is 106.

## Language-Tag

The Language-Tag field is an ASCII string which contains a language tag, as defined in RFC 1766 [8].

Language tags are in principle case-insensitive; however, since the capitalization of a tag does not carry any meaning, implementations SHOULD send only lower-case Tag fields.

The default Tag value is "i-default" [8].

## 4. References

- [1] Simpson, W., "The Point-to-Point Protocol (PPP)", STD 51, RFC 1661, July 1994.
- [2] Simpson, W., "PPP Challenge Handshake Authentication Protocol (CHAP)", RFC 1994, August 1996.
- [3] Simpson, W., "PPP LCP Extensions", RFC 1570, January 1994.
- [4] Blunk, L. and J. Vollbrecht, "PPP Extensible Authentication Protocol (EAP)", RFC 2284, March 1998.
- [5] Alvestrand, H., "IETF Policy on Character Sets and Languages", BCP 18, RFC 2277, January 1998.
- [6] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [7] Reynolds, J. and J. Postel, "Assigned Numbers", STD 2, RFC 1700, October 1994. See also: <http://www.iana.org/numbers.html>
- [8] Alvestrand, H., "Tags for the Identification of Languages", RFC 1766, March 1995.

- [9] Freed, N. and J. Postel, "IANA Charset Registration Procedures", BCP 19, RFC 2278, January 1998.
- [10] Yergeau, F., "UTF-8, a transformation format of ISO 10646", RFC 2279, January 1998.
- [11] Smith, R., Wright, F., Hastings, T., Zilles, S. and J. Gyllenskog, "Printer MIB", RFC 1759, March 1995.

## 5. Security Considerations

It is possible that an attacker might manipulate the option in such a way that displayable messages would be unintelligible to the reader.

## 6. Acknowledgements

Thanks to Craig Fox (fox@cisco.com), James Carlson (carlson@ironbridgenetworks.com), Harald Alvestrand (Harald.Alvestrand@maxware.no), Kevin Smith (kevin@ascend.com), Karl Fox (karl@ascend.com), Thomas Narten (narten@raleigh.ibm.com) and Narendra Gidwani (nareng@microsoft.com) for helpful suggestions and feedback.

## 7. Chair's Address

Karl Fox  
Ascend Communications  
3518 Riverside Drive  
Suite 101  
Columbus, OH 43221

Phone: +1 614 326 6841  
EMail: karl@ascend.com

## 8. Author's Address

Glen Zorn  
Microsoft Corporation  
One Microsoft Way  
Redmond, Washington 98052

Phone: +1 425 703 1559  
Fax: +1 425 936 7329  
EMail: glennz@microsoft.com

## 9. Full Copyright Statement

Copyright (C) The Internet Society (1999). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

