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IUTF8 Terminal Mode in Secure Shell (SSH)

Abstract

This document specifies a new opcode in the Secure Shell terminal modes encoding. The new opcode describes the widely used IUTF8 terminal mode bit, which indicates that terminal I/O uses UTF-8 character encoding.

Status of This Memo

This is an Internet Standards Track document.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on Internet Standards is available in Section 2 of RFC 7841.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc8160.

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1. Introduction

The Secure Shell (SSH) connection protocol [RFC4254] provides an encoding for terminal modes, used in the "pty-req" channel request type.

A commonly used terminal mode is IUTF8, which indicates that the terminal driver should assume that terminal I/O uses the UTF-8 character encoding [RFC3629]. This is typically used by the kernel's terminal driver on the server to decide how many bytes of input to treat as a single logical character during line editing.

SSH does not currently provide an encoding for IUTF8. This document specifies one.

2. Conventions Used in This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. New IUTF8 Opcode for Terminal Mode Encoding

The opcode value 42 is defined for the IUTF8 terminal mode.

As specified in Section 8 of [RFC4254], all opcodes in the range 1 to 159 have a single uint32 argument; therefore, the IUTF8 opcode is followed by a single uint32 argument. The value 0 indicates that the IUTF8 mode is disabled, and the value 1 indicates that it is enabled.

As with all other encoded terminal modes, the client SHOULD transmit a value for this mode if it knows about one, and the server MAY ignore it.

4. IANA Considerations

This document augments the list of "Pseudo-Terminal Encoded Terminal Modes" defined in Section 8 of [RFC4254].

IANA has added the following opcode to the "Pseudo-Terminal Encoded Terminal Modes" registry:

opcode	mnemonic	description
42	IUTF8	Terminal input and output is assumed to be encoded in UTF-8.

5. Security Considerations

The security considerations of [RFC4254] apply. This additional terminal mode encoding is believed to have no security implications differing from the existing set of encoded terminal modes.

Since the IUTF8 terminal mode is intended for use in conjunction with the UTF-8 character encoding, the security considerations of [RFC3629] also apply to systems in which this mode is enabled. In particular, terminal drivers that interpret this bit as enabling UTF-8-aware line-editing behavior should carefully consider how that behavior will treat illegal sequences, overlong encodings, and redundant representations of composed characters (see [UNICODE]).

6. References

6.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <http://www.rfc-editor.org/info/rfc2119>.

[RFC3629] Yergeau, F., "UTF-8, a transformation format of ISO 10646", STD 63, RFC 3629, DOI 10.17487/RFC3629, November 2003, <http://www.rfc-editor.org/info/rfc3629>.

[RFC4254] Ylonen, T. and C. Lonvick, Ed., "The Secure Shell (SSH) Connection Protocol", RFC 4254, DOI 10.17487/RFC4254, January 2006, <http://www.rfc-editor.org/info/rfc4254>.

6.2. Informative References

[UNICODE] The Unicode Consortium, "The Unicode Standard", <http://www.unicode.org/versions/latest/>.

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