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User Datagram Protocol

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User Datagram Protocol

Introduction

This User Datagram Protocol is defined to make available a datagram mode of packet-switched computer communication in the environment of an interconnected set of computer networks. This protocol assumes that the Internet Protocol (IN) [1] is used as the underlying protocol.

This protocol provides a procedure for application programs to send messages to other programs with a minimum of protocol mechanism. The messages delivery is unordered and unreliable. Applications requiring ordered reliable delivery of streams of data should use the Transmission Control Protocol (TCP) [2].

Format

0		15 16	31
!	Source Port	! Destination ! Port	1
+ !	d od aang	stells swolls te	+
! +	Length	! Checksum	!
1	data oci	tets	
+			

User Datagram Header Format

Fields

Source Port is an optional field, when meaningful, it indicates the port of the sending process, and may be assumed to be the port to which a reply should be addressed in the absence of any other information. If not used, a value of zero is inserted.

Destination Port has a meaning within the context of a particular internet destination address.

[page 1]

Postel

User Datagram Protocol Fields

2 May 1979 IEN-88

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Length is the length in octets of this user datagram including this header and the data. (This means the minimum value of the length is four.)

Checksum is the 16-bit one's complement of the one's complement sum of the source address and destination address fields from the internet header, the fields above, and the data, padded with zero octets at the end to make a multiple of two octets.

If the computed checksum is zero, it is transmitted as all ones (the equivalent in one's complement arithmetic). An all zero transmitted checksum value means that the transmitter generated no checksum (for debugging or for higher level protocols that don't care).

User Interface

A user interface should allow

the creation of new receive ports,

receive operations on the receive ports that return the data octets and an indication of source port, if any,

and an operation that allows a datagram to be sent, specifying the data and source port to be sent.

Protocol Application

The major use of this protocol is the Internet Name Server [3].

Protocol Number

This is protocol 17 (21 octal) when used in the Internet Protocol. Other protocol numbers are listed in [4].

[page 2]

Postel

User Datagram Protocol References

References

- Postel, J., "Internet Datagram Protocol -- Version 4," IEN-80, USC-Information Sciences Institute, February 1979.
- [2] Postel, J., "Transmission Control Protocol -- Version 4," IEN-81, USC-Information Sciences Institute, February 1979.
- [3] Postel, J., "Internet Name Server," USC-Information Sciences Institute, IEN-89, May 1979.
- [4] Postel, J., "Assigned Numbers," USC-Information Sciences Institute, RFC-755, IEN-93, May 1979.