

SNMP over IPX

Status of this Memo

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

Abstract

This document defines a convention for encapsulating Simple Network Management Protocol (SNMP) [1] packets over the transport mechanism provided via the Internetwork Packet Exchange (IPX) protocol [2].

1. Introduction

The Simple Network Management Protocol (SNMP) as defined in [1] is now used as an integral part of the network management framework for TCP/IP-based internets. Together with its companion standards, which define the Structure of Management Information (SMI) [3,4], and the Management Information Base (MIB) [5], the SNMP has received widespread deployment in many operational networks running the Internet suite of protocols.

The success of SNMP in the TCP/IP environment has led to its deployment in non TCP/IP-based internets. This specification describes the mapping of SNMP onto the Internetwork Packet Exchange (IPX) protocol [2] used in Novell NetWare environments.

As noted in [6], the preferred mapping for SNMP is onto UDP [7]. As such, this specification is intended for use in environments where UDP transport is not available. No aspect of this specification should be construed as a suggestion that, in a heterogeneous transport environment, a managed agent should support more than one mapping. Conversely, management stations are strongly encouraged to support mappings of SNMP onto all popular transports.

2. Mapping SNMP onto IPX

Mapping SNMP onto IPX is straight-forward since IPX provides a datagram service very similar to that provided by IP/UDP.

Although modifications have been made elsewhere in the NetWare protocol suite, IPX is identical to the Xerox Internet Datagram Protocol (IDP) [8]. The socket address space authority is administered by Novell.

SNMP packets will always set the Packet Type field in the IPX header to 4 (i.e., Packet Exchange Packet).

2.1 Socket Assignments

SNMP protocol entities will receive GetRequest-PDU, GetNextRequest-PDU, and SetRequest-PDU messages on socket 36879 (Destination Socket field set to hexadecimal 900F), and Trap-PDU messages on socket 36880 (Destination Socket field set to hexadecimal 9010).

GetResponse-PDU messages will be addressed to the IPX address and socket from which the corresponding GetRequest-PDU, GetNextRequest-PDU, or SetRequest-PDU originated.

2.2 Traps

When SNMP traps are sent over IPX, the agent-addr field in the Trap-PDU contains the IP-address "0.0.0.0". An SNMP manager may ascertain the source of the trap based on information provided by the transport service

2.3 Maximum Message Size

Although SNMP does not require conformant implementations to accept messages whose length exceeds 484 bytes, it is recommended that implementations support a maximum SNMP message size of 546 bytes (the maximum size allowed under IPX). Furthermore, this limit is the maximum packet length guaranteed to traverse IPX routers which do not provide fragmentation. Implementors may choose to use longer packet lengths if the maximum is known, which depends on the intermediate routers and/or intermediate datalink layer protocols.

3. Document Procurement

This section provides contact points for procurement of selected documents.

A complete description of IPX may be secured at the following address:

Novell, Inc.
122 East 1700 South
P. O. Box 5900
Provo, Utah 84601 USA
800 526 5463

Novell Part # 883-000780-001

The specification for IDP (part of XNS) may be ordered from:

Xerox System Institute
475 Oakmead Parkway
Sunnyvale, CA 94086
Attn.: Fonda Pallone
(415) 813-7164

4. Acknowledgments

This specification was derived from RFC 1298, based on discussions in the IETF's "SNMP over a Multiprotocol Internet" Working Group.

5. References

- [1] Case, J., Fedor, M., Schoffstall, M., and J. Davin, "Simple Network Management Protocol", STD 15, RFC 1157, SNMP Research, Performance Systems International, Performance Systems International, MIT Laboratory for Computer Science, May 1990.
- [2] Novell, Inc., "NetWare System Technical Interface Overview", part number 883-000780-001, June 1989.
- [3] Rose M., and K. McCloghrie, "Structure and Identification of Management Information for TCP/IP-based internets", STD 16, RFC 1155, Performance Systems International, Hughes LAN Systems, May 1990.
- [4] Rose, M., and K. McCloghrie, Editors, "Concise MIB Definitions", STD 16, RFC 1212, Performance Systems International, Hughes LAN Systems, March 1991.
- [5] Rose M., and K. McCloghrie, Editors, "Management Information Base for Network Management of TCP/IP-based Internets", STD 17, RFC 1213, Hughes LAN Systems, Inc., Performance Systems International, March 1991.
- [6] Kastenholz, F., "SNMP Communications Services", RFC 1270, Clearpoint Research Corporation, October 1991.

[7] Postel J., "User Datagram Protocol", STD 6, RFC 768,
USC/Information Sciences Institute, August 1980.

[8] Xerox System Integration Standard, "Internet Transport
Protocols", XSI 028112, Xerox Corporation, December 1981.

6. Security Considerations

Security issues are not discussed in this memo.

7. Author's Address

Steve Bostock
Novell, Inc.
2180 Fortune Drive
San Jose, CA 95131

Phone: 408 473 8203
Fax: 408 435 1706
Email: steveb@novell.com