Network Working Group
Request for Comments: 1418
Obsoletes: 1161, 1283

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March 1993

SNMP over OSI

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.

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1. Background

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 companions standards, which define the Structure of Management Information (SMI) [2,3], and the Management Information Base (MIB) [4], the SNMP has received widespread deployment in many operational networks running the Internet suite of protocols.

It should not be surprising that many of these sites might acquire OSI capabilities and may wish to leverage their investment in SNMP technology towards managing those OSI components. This memo addresses these concerns by defining a framework for running the SNMP in an environment which supports the OSI connectionless-mode transport service.

However, as noted in [5], the preferred mapping for SNMP is onto the UDP [6]. 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.

2. Mapping onto the CLTS

Mapping the SNMP onto the CLTS [7,8] is straight-forward. The elements of procedure are identical to that of using the UDP. Note that the CLTS and the service offered by the UDP both transmit packets of information which contain full addressing information. Thus, mapping the SNMP onto the CLTS, a "transport address" in the context of [1], is simply a transport-selector and network address.

It should be noted that the mapping of SNMP onto a connectionless-mode transport service is wholly consistent with SNMP's architectural principles, as described in [1,5]. However, the CLTS itself can be realized using either a connectionless-mode or a connection-oriented network service. The mapping described in this mapping allows for either realization. (When both network services are available, the CLNS should be used as the basis of realization.)

2.1. Well-known Addresses

Unlike the Internet suite of protocols, OSI does not use well-known ports. Rather,
demultiplexing occurs on the basis of "selectors", opaque strings of octets which have local significance. In order to foster interoperable implementations of the SNMP over the CLTS, it is necessary define four selectors for this purpose.

When the CLTS is used to provide the transport backing for the SNMP, and the CLTS uses a connectionless-mode network service, then transport selector used shall be "snmp-l" which consists of six ASCII characters; and, SNMP traps are, by convention, sent to an SNMP manager listening on the transport selector "snmpt-l" which consists of seven ASCII characters.

When the CLTS is used to provide the transport backing for the SNMP, and the CLTS uses a connection-oriented network service, then transport selector used shall be "snmp-o" which consists of six ASCII characters; and, SNMP traps are, by convention, sent to an SNMP manager listening on the transport selector "snmpt-o" which consists of seven ASCII characters.

2.2. Traps

When SNMP traps are sent over the CLTS, 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 (i.e., from the T-UNIT-DATA.INDICATION primitive).

2.3. Maximum Message Size

An entity implementing SNMP over OSI must be prepared to accept messages whose size is at least 484 octets. Implementation of larger values is encouraged whenever possible.

3. Acknowledgements

This specification was derived from RFC 1283, based on discussions in the IETF's "SNMP in a Multi-Protocol Internet" working group.

4. 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] 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.

[3] Rose, M., and K. McCloghrie, Editors, "Concise MIB Definitions", STD 16, RFC 1212, Performance Systems International, Hughes LAN Systems, March 1991.

[4] 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.

[5] Kastenholz, F., "SNMP Communications Services", RFC 1270, Clearpoint Research Corporation, October 1991.

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

[7] Information processing systems - Open Systems Interconnection - Transport Service Definition - Addendum 1: Connectionless-mode Transmission, International Organization for Standardization. International Standard 8072/AD 1, June 1986.

[8] Information processing systems - Open Systems Interconnection - Protocol Specification for Providing the Connectionless-mode Transport Service, International Organization for Standardization. International Standard 8602, December 1987.

5. Security Considerations

Security issues are not discussed in this memo.

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