Real-Time Transport Protocol
Management Information Base
RFC 2959

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Abstract

- This demo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community.
- In particular, it defines objects for managing Real-Time Transport Protocol (RTP) systems.
Introduction

• The Network Management Framework
• Overview
• Definitions
• Security Considerations
The Network Management Framework

- An overview: five major components.
  - An overall architecture, described in [RFC 2571]
  - Structure of Management Information (SMI):
    * data definition language for MIB objects
  - SNMP message protocol
    * convey manager<->managed object info, commands
  - Protocol operations for accessing management information
  - Fundamental applications [RFC2573] and View-based Access Control Model (VACM) [RFC 2575]
MIB and SMI

- **MIB**
  - a virtual information store
  - Holds objects for management purpose.

- **SMI**
  - defines objects in the MIB

- **Compliance**
  - This memo specifies a MIB module that is compliant to the SMIv2.
  - A MIB conforming to the SMIv1 can be produced through appropriate translations.
MIB and SMI

MIB module specified via SMI

MODULE-IDENTITY
(100 standardized MIBs, more vendor-specific)

MODULE

OBJECT TYPE:

OBJECT TYPE:

OBJECT TYPE:

objects specified via SMI

OBJECT-TYPE construct
RTP systems

• A host end-system
  – Sends or receives RTP data packets.

• An intermediate-system
  – Forwards RTP data packets.

• RTCP Packets
  – Sent by senders and receivers to convey information about RTP packet transmission and reception.

• RTP monitors
  – Collect RTCP information on senders and receivers to and from an RTP host or intermediate-system.
Components

• Session
  – The association of participants communicating with RTP
  – For each participant, it is defined by one network address plus a port pair for RTP and RTCP.

• Sender
  – The source of a stream of RTP packets

• Receiver
  – Can be a unicast or multicast receiver.
Applicability of the MIB to RTP Implementations

- RTP Host Systems
- RTP Monitors
Applicability of the MIB to RTP Implementations

- **RTP Host Systems**
  - Collect RTP session and stream data the host is sending or receiving.
  - Used by a network Manager to detect and diagnose faults that occur in an RTP session.
Applicability of the MIB to RTP Implementations

- RTP Monitors
  - RTP Monitors of multicast RTP sessions may be third-party or located in the RTP host.
  - Collect RTP session and stream statistical data.
  - Collect data to permit a network manager to detect and diagnose faults in the session or to configure its operation.
  - Used by a network manager for capacity planning and other network-management purposes.
Applicability of the MIB to RTP Implementations
The Structure of the RTP MIB

- rtpSessionTable
- rtpSenderTable
- rtpRcvrTable
- rtpsessionInverseTable
- rtpSenderInverseTable
- rtpRcvrTinverseTable
RTP MIB

The Structure of the RTP MIB

rtpSenderInverseTable (rtpSessionDomain,
                       rtpSenderAddr,
                       rtpSessionIndex,
                       rtpSenderSSRC)

rtpSenderTable (rtpSessionIndex, rtpSenderSSRC)
  • rtpSenderAddr
  • rtpSenderSSRC
  • ...

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The Structure of the RTP MIB

- **rtpRcvrInverseTable** (rtpSessionDomain, rtpRcvrAddr, rtpSessionIndex, rtpRcvrSRCSSRC, rtpRcvrSSRC)

- **rtpRcvrTable**(rtpSessionIndex, rtpSenderSSRC)
  - rtpRcvrAddr
  - rtpRcvrSSRC
  - rtpRcvrSRCSSRC
  - ...

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The Structure of the RTP MIB

rtpSessionInverseTable (rtpSessionDomain,
                       rtpSessionRemAddr,
                       rtpSessionLocAddr,
                       rtpSessionIndex)

rtpSessionTable(rtpSessionIndex)
   • rtpSessionDomain
   • rtpSessionIndex
   • ...
Security Considerations

- MIBs are not themselves security risks
- SNMP access to objects in MIB should be restricted.
- Security features provided by SNMPv3 framework are recommended.
  - It is the user’s responsibility to properly configure the SNMP entry.
RTP MIB

Reference

• [RFC 2959]
• [RFC 1155]
• [RFC 1157]
• [RFC 1906]
• [RFC 2572]
• ....
The end

Thanks for listening ^_^