

Party MIB
for version 2 of the
Simple Network Management Protocol (SNMPv2)

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.

Table of Contents

1 Introduction	2
1.1 A Note on Terminology	2
2 Definitions	3
3.1 Textual Conventions	4
3.2 Administrative Assignments	7
3.2.1 Initial Party and Context Identifiers	8
3.3 Object Assignments	16
3.4 The SNMPv2 Party Database Group	16
3.5 The SNMPv2 Contexts Database Group	29
3.5 The SNMPv2 Access Privileges Database Group	36
3.6 The MIB View Database Group	40
3.7 Conformance Information	45
3.7.1 Compliance Statements	45
3.7.2 Units of Conformance	47
3 Acknowledgments	48
4 References	49
5 Security Considerations	50
6 Authors' Addresses	50

1. Introduction

A network management system contains: several (potentially many) nodes, each with a processing entity, termed an agent, which has access to management instrumentation; at least one management station; and, a management protocol, used to convey management information between the agents and management stations. Operations of the protocol are carried out under an administrative framework which defines both authentication and authorization policies.

Network management stations execute management applications which monitor and control network elements. Network elements are devices such as hosts, routers, terminal servers, etc., which are monitored and controlled through access to their management information.

Management information is viewed as a collection of managed objects, residing in a virtual information store, termed the Management Information Base (MIB). Collections of related objects are defined in MIB modules. These modules are written using a subset of OSI's Abstract Syntax Notation One (ASN.1) [1], termed the Structure of Management Information (SMI) [2].

The Administrative Model for SNMPv2 document [3] defines the properties associated with SNMPv2 parties, SNMPv2 contexts, and access control policies. It is the purpose of this document, the Party MIB for SNMPv2, to define managed objects which correspond to these properties.

1.1. A Note on Terminology

For the purpose of exposition, the original Internet-standard Network Management Framework, as described in RFCs 1155, 1157, and 1212, is termed the SNMP version 1 framework (SNMPv1). The current framework is termed the SNMP version 2 framework (SNMPv2).

2. Definitions

```
SNMPv2-PARTY-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY, OBJECT-TYPE, snmpModules,  
        UInteger32  
    FROM SNMPv2-SMI  
    TEXTUAL-CONVENTION, RowStatus, TruthValue  
    FROM SNMPv2-TC  
    MODULE-COMPLIANCE, OBJECT-GROUP  
    FROM SNMPv2-CONF;
```

```
partyMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "9304010000Z"
```

```
    ORGANIZATION "IETF SNMP Security Working Group"
```

```
    CONTACT-INFO
```

```
        "          Keith McCloghrie
```

```
        Postal: Hughes LAN Systems  
                1225 Charleston Road  
                Mountain View, CA 94043  
                US
```

```
        Tel: +1 415 966 7934
```

```
        Fax: +1 415 960 3738
```

```
        E-mail: kzm@hls.com"
```

```
DESCRIPTION
```

```
    "The MIB module describing SNMPv2 parties."
```

```
::= { snmpModules 3 }
```

-- textual conventions

Party ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Denotes a SNMPv2 party identifier.

Note that agents may impose implementation limitations on the length of OIDs used to identify Parties. As such, management stations creating new parties should be aware that using an excessively long OID may result in the agent refusing to perform the set operation and instead returning the appropriate error response, e.g., noCreation."

SYNTAX OBJECT IDENTIFIER

TAddress ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Denotes a transport service address.

For snmpUDPDomain, a TAddress is 6 octets long, the initial 4 octets containing the IP-address in network-byte order and the last 2 containing the UDP port in network-byte order. Consult [5] for further information on snmpUDPDomain."

SYNTAX OCTET STRING

Clock ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"A party's authentication clock - a non-negative integer which is incremented as specified/allowed by the party's Authentication Protocol.

For noAuth, a party's authentication clock is unused and its value is undefined.

For v2md5AuthProtocol, a party's authentication clock is a relative clock with 1-second granularity."

SYNTAX UInteger32

Context ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Denotes a SNMPv2 context identifier.

Note that agents may impose implementation limitations on the length of OIDs used to identify Contexts. As such, management stations creating new contexts should be aware that using an excessively long OID may result in the agent refusing to perform the set operation and instead returning the appropriate error response, e.g., noCreation."

SYNTAX OBJECT IDENTIFIER

StorageType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Describes the memory realization of a conceptual row. A row which is volatile(2) is lost upon reboot. A row which is nonVolatile(3) is backed up by stable storage. A row which is permanent(4) cannot be changed nor deleted."

SYNTAX

INTEGER {
 other(1), -- eh?
 volatile(2), -- e.g., in RAM
 nonVolatile(3), -- e.g., in NVRAM
 permanent(4) -- e.g., in ROM
}

```
-- administrative assignments

partyAdmin      OBJECT IDENTIFIER ::= { partyMIB 1 }

-- definitions of security protocols

partyProtocols OBJECT IDENTIFIER ::= { partyAdmin 1 }

-- the protocol without authentication
noAuth          OBJECT IDENTIFIER ::= { partyProtocols 1 }

-- the protocol without privacy
noPriv          OBJECT IDENTIFIER ::= { partyProtocols 2 }

-- the DES Privacy Protocol [4]
desPrivProtocol OBJECT IDENTIFIER ::= { partyProtocols 3 }

-- the MD5 Authentication Protocol [4]
v2md5AuthProtocol OBJECT IDENTIFIER ::= { partyProtocols 4 }

-- definitions of temporal domains

temporalDomains OBJECT IDENTIFIER ::= { partyAdmin 2 }

-- this temporal domain refers to management information
-- at the current time
currentTime     OBJECT IDENTIFIER ::= { temporalDomains 1 }

-- this temporal domain refers to management information
-- upon the next re-initialization of the managed device
restartTime     OBJECT IDENTIFIER ::= { temporalDomains 2 }

-- the temporal domain { cacheTime N } refers to management
-- information that is cached and guaranteed to be at most
-- N seconds old
cacheTime       OBJECT IDENTIFIER ::= { temporalDomains 3 }
```

```
-- Definition of Initial Party and Context Identifiers

-- When devices are installed, they need to be configured
-- with an initial set of SNMPv2 parties and contexts. The
-- configuration of SNMPv2 parties and contexts requires (among
-- other things) the assignment of several OBJECT IDENTIFIERS.
-- Any local network administration can obtain the delegated
-- authority necessary to assign its own OBJECT IDENTIFIERS.
-- However, to provide for those administrations who have not
-- obtained the necessary authority, this document allocates a
-- branch of the naming tree for use with the following
-- conventions.

initialPartyId OBJECT IDENTIFIER ::= { partyAdmin 3 }

initialContextId
    OBJECT IDENTIFIER ::= { partyAdmin 4 }

-- Note these are identified as "initial" party and context
-- identifiers since these allow secure SNMPv2 communication
-- to proceed, thereby allowing further SNMPv2 parties to be
-- configured through use of the SNMPv2 itself.

-- The following definitions identify a party identifier, and
-- specify the initial values of various object instances
-- indexed by that identifier. In addition, the SNMPv2
-- context, access control policy, and MIB view information
-- assigned, by convention, are identified.
```



```
-- Party Identifiers for use as initial SNMPv2 parties
--      at IP address  a.b.c.d

-- Note that for all OBJECT IDENTIFIERS assigned under
-- initialPartyId, the four sub-identifiers immediately
-- following initialPartyId represent the four octets of
-- an IP address.  Initial party identifiers for other address
-- families are assigned under a different OBJECT IDENTIFIER,
-- as defined elsewhere.

-- Devices which support SNMPv2 as entities acting in an
-- agent role, and accessed via the snmpUDPDomain transport
-- domain, are required to be configured with the appropriate
-- set of the following as implicit assignments as and when
-- they are configured with an IP address.  The appropriate
-- set is all those applicable to the authentication and
-- privacy protocols supported by the device.
```

```
--      a noAuth/noPriv party which executes at the agent
-- partyIdentity      = { initialPartyId a b c d 1 }
-- partyIndex         = 1
-- partyTDomain       = snmpUDPDomain
-- partyTAddress      = a.b.c.d, 161
-- partyLocal         = true (in agent's database)
-- partyAuthProtocol  = noAuth
-- partyAuthClock     = 0
-- partyAuthPrivate   = ''H      (the empty string)
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 0
-- partyPrivProtocol  = noPriv
-- partyPrivPrivate   = ''H      (the empty string)
-- partyPrivPublic    = ''H      (the empty string)

--      a noAuth/noPriv party which executes at a manager
-- partyIdentity      = { initialPartyId a b c d 2 }
-- partyIndex         = 2
-- partyTDomain       = snmpUDPDomain
-- partyTAddress      = assigned by local administration
-- partyLocal         = false (in agent's database)
-- partyAuthProtocol  = noAuth
-- partyAuthClock     = 0
-- partyAuthPrivate   = ''H      (the empty string)
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 0
-- partyPrivProtocol  = noPriv
-- partyPrivPrivate   = ''H      (the empty string)
-- partyPrivPublic    = ''H      (the empty string)
```

```
--      a md5Auth/noPriv party which executes at the agent
-- partyIdentity      = { initialPartyId a b c d 3 }
-- partyIndex         = 3
-- partyTDomain       = snmpUDPDomain
-- partyTAddress       = a.b.c.d, 161
-- partyLocal         = true (in agent's database)
-- partyAuthProtocol  = v2md5AuthProtocol
-- partyAuthClock     = 0
-- partyAuthPrivate   = assigned by local administration
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 300
-- partyPrivProtocol  = noPriv
-- partyPrivPrivate   = ''H      (the empty string)
-- partyPrivPublic    = ''H      (the empty string)

--      a md5Auth/noPriv party which executes at a manager
-- partyIdentity      = { initialPartyId a b c d 4 }
-- partyIndex         = 4
-- partyTDomain       = snmpUDPDomain
-- partyTAddress       = assigned by local administration
-- partyLocal         = false (in agent's database)
-- partyAuthProtocol  = v2md5AuthProtocol
-- partyAuthClock     = 0
-- partyAuthPrivate   = assigned by local administration
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 300
-- partyPrivProtocol  = noPriv
-- partyPrivPrivate   = ''H      (the empty string)
-- partyPrivPublic    = ''H      (the empty string)
```

```
--      a md5Auth/desPriv party which executes at the agent
-- partyIdentity      = { initialPartyId a b c d 5 }
-- partyIndex         = 5
-- partyTDomain       = snmpUDPDomain
-- partyTAddress       = a.b.c.d, 161
-- partyLocal         = true (in agent's database)
-- partyAuthProtocol  = v2md5AuthProtocol
-- partyAuthClock     = 0
-- partyAuthPrivate   = assigned by local administration
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 300
-- partyPrivProtocol  = desPrivProtocol
-- partyPrivPrivate   = assigned by local administration
-- partyPrivPublic    = ''H      (the empty string)

--      a md5Auth/desPriv party which executes at a manager
-- partyIdentity      = { initialPartyId a b c d 6 }
-- partyIndex         = 6
-- partyTDomain       = snmpUDPDomain
-- partyTAddress       = assigned by local administration
-- partyLocal         = false (in agent's database)
-- partyAuthProtocol  = v2md5AuthProtocol
-- partyAuthClock     = 0
-- partyAuthPrivate   = assigned by local administration
-- partyAuthPublic    = ''H      (the empty string)
-- partyAuthLifetime  = 300
-- partyPrivProtocol  = desPrivProtocol
-- partyPrivPrivate   = assigned by local administration
-- partyPrivPublic    = ''H      (the empty string)
```

-- the initial SNMPv2 contexts assigned, by convention, are:

```
-- contextIdentity      = { initialContextId a b c d 1 }
-- contextIndex         = 1
-- contextLocal         = true (in agent's database)
-- contextViewIndex     = 1
-- contextLocalEntity   = ''H      (the empty string)
-- contextLocalTime     = currentTime
-- contextProxyDstParty = { 0 0 }
-- contextProxySrcParty = { 0 0 }
-- contextProxyContext  = { 0 0 }
```

```
-- contextIdentity      = { initialContextId a b c d 2 }
-- contextIndex         = 2
-- contextLocal         = true (in agent's database)
-- contextViewIndex     = 2
-- contextLocalEntity   = ''H      (the empty string)
-- contextLocalTime     = currentTime
-- contextProxyDstParty = { 0 0 }
-- contextProxySrcParty = { 0 0 }
-- contextProxyContext  = { 0 0 }
```

```
-- The initial access control policy assigned, by
-- convention, is:

-- aclTarget          = 1
-- aclSubject         = 2
-- aclResources       = 1
-- aclPrivileges      = 35 (Get, Get-Next & Get-Bulk)

-- aclTarget          = 2
-- aclSubject         = 1
-- aclResources       = 1
-- aclPrivileges      = 132 (Response & SNMPv2-Trap)

-- aclTarget          = 3
-- aclSubject         = 4
-- aclResources       = 2
-- aclPrivileges      = 43 (Get, Get-Next, Set & Get-Bulk)

-- aclTarget          = 4
-- aclSubject         = 3
-- aclResources       = 2
-- aclPrivileges      = 4 (Response)

-- aclTarget          = 5
-- aclSubject         = 6
-- aclResources       = 2
-- aclPrivileges      = 43 (Get, Get-Next, Set & Get-Bulk)

-- aclTarget          = 6
-- aclSubject         = 5
-- aclResources       = 2
-- aclPrivileges      = 4 (Response)

-- Note that the initial context and access control
-- information assigned above, by default, to the
-- md5Auth/desPriv parties are identical to those assigned to
-- the md5Auth/noPriv parties. However, each administration
-- may choose to have different authorization policies,
-- depending on whether privacy is used.
```

```
-- The initial MIB views assigned, by convention, are:

-- viewIndex          = 1
-- viewSubtree         = system
-- viewMask            = ''H
-- viewType            = included

-- viewIndex          = 1
-- viewSubtree         = snmpStats
-- viewMask            = ''H
-- viewType            = included

-- viewIndex          = 1
-- viewSubtree         = snmpParties
-- viewMask            = ''H
-- viewType            = included

-- viewIndex          = 2
-- viewSubtree         = internet
-- viewMask            = ''H
-- viewType            = included

-- Note that full access to the partyTable, contextTable,
-- aclTable, and viewTable gives a manager the ability to
-- configure any parties with any/all capabilities (the
-- equivalent of "root" access). A lesser manager can be
-- given access only to the partyTable so that it can
-- maintain its own parties, but not increase/decrease
-- their capabilities. Such a lesser manager can also
-- create new parties but they are of no use to it.
```

```
-- object assignments

partyMIBObjects
    OBJECT IDENTIFIER ::= { partyMIB 2 }

-- the SNMPv2 party database group

snmpParties    OBJECT IDENTIFIER ::= { partyMIBObjects 1 }

partyTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF PartyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The SNMPv2 Party database."
    ::= { snmpParties 1 }

partyEntry OBJECT-TYPE
    SYNTAX      PartyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Locally held information about a particular
         SNMPv2 party."
    INDEX       { IMPLIED partyIdentity }
    ::= { partyTable 1 }
```



```

PartyEntry ::=
    SEQUENCE {
        partyIdentity          Party,
        partyIndex             INTEGER,
        partyTDomain           OBJECT IDENTIFIER,
        partyTAddress          TAddress,
        partyMaxMessageSize    INTEGER,
        partyLocal             TruthValue,
        partyAuthProtocol      OBJECT IDENTIFIER,
        partyAuthClock         Clock,
        partyAuthPrivate       OCTET STRING,
        partyAuthPublic        OCTET STRING,
        partyAuthLifetime      INTEGER,
        partyPrivProtocol      OBJECT IDENTIFIER,
        partyPrivPrivate       OCTET STRING,
        partyPrivPublic        OCTET STRING,
        partyCloneFrom         Party,
        partyStorageType       StorageType,
        partyStatus            RowStatus
    }

partyIdentity OBJECT-TYPE
    SYNTAX      Party
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A party identifier uniquely identifying a
        particular SNMPv2 party."
    ::= { partyEntry 1 }

partyIndex OBJECT-TYPE
    SYNTAX      INTEGER (1..65535)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A unique value for each SNMPv2 party. The value
        for each SNMPv2 party must remain constant at
        least from one re-initialization of the entity's
        network management system to the next re-
        initialization."
    ::= { partyEntry 2 }

```

partyTDomain OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Indicates the kind of transport service by which the party receives network management traffic."

DEFVAL { snmpUDPDomain }

::= { partyEntry 3 }

partyTAddress OBJECT-TYPE

SYNTAX TAddress

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The transport service address by which the party receives network management traffic, formatted according to the corresponding value of partyTDomain. For snmpUDPDomain, partyTAddress is formatted as a 4-octet IP Address concatenated with a 2-octet UDP port number."

DEFVAL { '000000000000'H }

::= { partyEntry 4 }

partyMaxMessageSize OBJECT-TYPE

SYNTAX INTEGER (484..65507)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The maximum length in octets of a SNMPv2 message which this party will accept. For parties which execute at an agent, the agent initializes this object to the maximum length supported by the agent, and does not let the object be set to any larger value. For parties which do not execute at the agent, the agent must allow the manager to set this object to any legal value, even if it is larger than the agent can generate."

DEFVAL { 484 }

::= { partyEntry 5 }

partyLocal OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"An indication of whether this party executes at this SNMPv2 entity. If this object has a value of true(1), then the SNMPv2 entity will listen for SNMPv2 messages on the partyTAddress associated with this party. If this object has the value false(2), then the SNMPv2 entity will not listen for SNMPv2 messages on the partyTAddress associated with this party."

DEFVAL { false }
::= { partyEntry 6 }

partyAuthProtocol OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The authentication protocol by which all messages generated by the party are authenticated as to origin and integrity. The value noAuth signifies that messages generated by the party are not authenticated.

Once an instance of this object is created, its value can not be changed."

DEFVAL { v2md5AuthProtocol }
::= { partyEntry 7 }

```
partyAuthClock OBJECT-TYPE
    SYNTAX      Clock
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "The authentication clock which represents the
         local notion of the current time specific to the
         party.  This value must not be decremented unless
         the party's private authentication key is changed
         simultaneously."
    DEFVAL      { 0 }
    ::= { partyEntry 8 }
```

partyAuthPrivate OBJECT-TYPE

SYNTAX OCTET STRING

-- for v2md5AuthProtocol: (SIZE (16))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"An encoding of the party's private authentication key which may be needed to support the authentication protocol. Although the value of this variable may be altered by a management operation (e.g., a SNMPv2 Set-Request), its value can never be retrieved by a management operation: when read, the value of this variable is the zero length OCTET STRING.

The private authentication key is NOT directly represented by the value of this variable, but rather it is represented according to an encoding. This encoding is the bitwise exclusive-OR of the old key with the new key, i.e., of the old private authentication key (prior to the alteration) with the new private authentication key (after the alteration). Thus, when processing a received protocol Set operation, the new private authentication key is obtained from the value of this variable as the result of a bitwise exclusive-OR of the variable's value and the old private authentication key. In calculating the exclusive-OR, if the old key is shorter than the new key, zero-valued padding is appended to the old key. If no value for the old key exists, a zero-length OCTET STRING is used in the calculation."

DEFVAL { ''H } -- the empty string
 ::= { partyEntry 9 }

```
partyAuthPublic OBJECT-TYPE
    SYNTAX      OCTET STRING
                -- for v2md5AuthProtocol: (SIZE (0..16))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
```

"A publically-readable value for the party.

Depending on the party's authentication protocol, this value may be needed to support the party's authentication protocol. Alternatively, it may be used by a manager during the procedure for altering secret information about a party. (For example, by altering the value of an instance of this object in the same SNMPv2 Set-Request used to update an instance of partyAuthPrivate, a subsequent Get-Request can determine if the Set-Request was successful in the event that no response to the Set-Request is received, see [4].)

The length of the value is dependent on the party's authentication protocol. If not used by the authentication protocol, it is recommended that agents support values of any length up to and including the length of the corresponding partyAuthPrivate object."

```
DEFVAL      { ''H }      -- the empty string
 ::= { partyEntry 10 }
```

partyAuthLifetime OBJECT-TYPE

SYNTAX INTEGER (0..2147483647)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The lifetime (in units of seconds) which represents an administrative upper bound on acceptable delivery delay for protocol messages generated by the party.

Once an instance of this object is created, its value can not be changed."

DEFVAL { 300 }

::= { partyEntry 11 }

partyPrivProtocol OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The privacy protocol by which all protocol messages received by the party are protected from disclosure. The value noPriv signifies that messages received by the party are not protected.

Once an instance of this object is created, its value can not be changed."

DEFVAL { noPriv }

::= { partyEntry 12 }

partyPrivPrivate OBJECT-TYPE

SYNTAX OCTET STRING

-- for desPrivProtocol: (SIZE (16))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"An encoding of the party's private encryption key which may be needed to support the privacy protocol. Although the value of this variable may be altered by a management operation (e.g., a SNMPv2 Set-Request), its value can never be retrieved by a management operation: when read, the value of this variable is the zero length OCTET STRING.

The private encryption key is NOT directly represented by the value of this variable, but rather it is represented according to an encoding. This encoding is the bitwise exclusive-OR of the old key with the new key, i.e., of the old private encryption key (prior to the alteration) with the new private encryption key (after the alteration). Thus, when processing a received protocol Set operation, the new private encryption key is obtained from the value of this variable as the result of a bitwise exclusive-OR of the variable's value and the old private encryption key. In calculating the exclusive-OR, if the old key is shorter than the new key, zero-valued padding is appended to the old key. If no value for the old key exists, a zero-length OCTET STRING is used in the calculation."

DEFVAL { ''H } -- the empty string
::= { partyEntry 13 }


```
partyPrivPublic OBJECT-TYPE
    SYNTAX      OCTET STRING
                -- for desPrivProtocol: (SIZE (0..16))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
```

"A publically-readable value for the party.

Depending on the party's privacy protocol, this value may be needed to support the party's privacy protocol. Alternatively, it may be used by a manager as a part of its procedure for altering secret information about a party. (For example, by altering the value of an instance of this object in the same SNMPv2 Set-Request used to update an instance of partyPrivPrivate, a subsequent Get-Request can determine if the Set-Request was successful in the event that no response to the Set-Request is received, see [4].)

The length of the value is dependent on the party's privacy protocol. If not used by the privacy protocol, it is recommended that agents support values of any length up to and including the length of the corresponding partyPrivPrivate object."

```
DEFVAL      { ''H }      -- the empty string
 ::= { partyEntry 14 }
```

partyCloneFrom OBJECT-TYPE
SYNTAX Party
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The identity of a party to clone authentication and privacy parameters from. When read, the value { 0 0 } is returned.

This value must be written exactly once, when the associated instance of partyStatus either does not exist or has the value 'notReady'. When written, the value identifies a party, the cloning party, whose status column has the value 'active'. The cloning party is used in two ways.

One, if instances of the following objects do not exist for the party being created, then they are created with values identical to those of the corresponding objects for the cloning party:

partyAuthProtocol
partyAuthPublic
partyAuthLifetime
partyPrivProtocol
partyPrivPublic

Two, instances of the following objects are updated using the corresponding values of the cloning party:

partyAuthPrivate
partyPrivPrivate

(e.g., the value of the cloning party's instance of the partyAuthPrivate object is XOR'd with the value of the partyAuthPrivate instances of the party being created.)"

::= { partyEntry 15 }

`partyStorageType OBJECT-TYPE``SYNTAX StorageType``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"The storage type for this conceptual row in the partyTable."

`DEFVAL { nonVolatile }``::= { partyEntry 16 }``partyStatus OBJECT-TYPE``SYNTAX RowStatus``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"The status of this conceptual row in the partyTable."

A party is not qualified for activation until instances of all columns of its partyEntry row have an appropriate value. In particular:

A value must be written to the Party's partyCloneFrom object.

If the Party's partyAuthProtocol object has the value md5AuthProtocol, then the corresponding instance of partyAuthPrivate must contain a secret of the appropriate length. Further, at least one management protocol set operation updating the value of the party's partyAuthPrivate object must be successfully processed, before the partyAuthPrivate column is considered appropriately configured.

If the Party's partyPrivProtocol object has the value desPrivProtocol, then the corresponding instance of partyPrivPrivate must contain a secret of the appropriate length. Further, at least one management protocol set operation updating the value of the party's partyPrivPrivate object must be successfully processed, before the partyPrivPrivate column is considered appropriately configured.

Until instances of all corresponding columns are appropriately configured, the value of the corresponding instance of the partyStatus column is 'notReady'."

```
::= { partyEntry 17 }
```

-- the SNMPv2 contexts database group

snmpContexts OBJECT IDENTIFIER ::= { partyMIBObjects 2 }

contextTable OBJECT-TYPE

SYNTAX SEQUENCE OF ContextEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The SNMPv2 Context database."

::= { snmpContexts 1 }

contextEntry OBJECT-TYPE

SYNTAX ContextEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Locally held information about a particular
SNMPv2 context."

INDEX { IMPLIED contextIdentity }

::= { contextTable 1 }

ContextEntry ::=

SEQUENCE {

contextIdentity	Context,
contextIndex	INTEGER,
contextLocal	TruthValue,
contextViewIndex	INTEGER,
contextLocalEntity	OCTET STRING,
contextLocalTime	OBJECT IDENTIFIER,
contextProxyDstParty	Party,
contextProxySrcParty	Party,
contextProxyContext	OBJECT IDENTIFIER,
contextStorageType	StorageType,
contextStatus	RowStatus

}

```
contextIdentity OBJECT-TYPE
    SYNTAX      Context
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "A context identifier uniquely identifying a
         particular SNMPv2 context."
    ::= { contextEntry 1 }

contextIndex OBJECT-TYPE
    SYNTAX      INTEGER (1..65535)
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "A unique value for each SNMPv2 context. The
         value for each SNMPv2 context must remain constant
         at least from one re-initialization of the
         entity's network management system to the next
         re-initialization."
    ::= { contextEntry 2 }

contextLocal OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "An indication of whether this context is realized
         by this SNMPv2 entity."
    DEFVAL      { true }
    ::= { contextEntry 3 }
```

contextViewIndex OBJECT-TYPE

SYNTAX INTEGER (0..65535)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"If the value of an instance of this object is zero, then this corresponding conceptual row in the contextTable refers to a SNMPv2 context which identifies a proxy relationship; the values of the corresponding instances of the contextProxyDstParty, contextProxySrcParty, and contextProxyContext objects provide further information on the proxy relationship.

Otherwise, if the value of an instance of this object is greater than zero, then this corresponding conceptual row in the contextTable refers to a SNMPv2 context which identifies a MIB view of a locally accessible entity; the value of the instance identifies the particular MIB view which has the same value of viewIndex; and the value of the corresponding instances of the contextLocalEntity and contextLocalTime objects provide further information on the local entity and its temporal domain."

::= { contextEntry 4 }

`contextLocalEntity OBJECT-TYPE``SYNTAX OCTET STRING``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"If the value of the corresponding instance of the `contextViewIndex` is greater than zero, then the value of an instance of this object identifies the local entity whose management information is in the SNMPv2 context's MIB view. The empty string indicates that the MIB view contains the SNMPv2 entity's own local management information; otherwise, a non-empty string indicates that the MIB view contains management information of some other local entity, e.g., 'Repeater1'."

`DEFVAL { ''H } -- the empty string``::= { contextEntry 5 }``contextLocalTime OBJECT-TYPE``SYNTAX OBJECT IDENTIFIER``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"If the value of the corresponding instance of the `contextViewIndex` is greater than zero, then the value of an instance of this object identifies the temporal context of the management information in the MIB view."

`DEFVAL { currentTime }``::= { contextEntry 6 }`

`contextProxyDstParty OBJECT-TYPE``SYNTAX Party``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"If the value of the corresponding instance of the `contextViewIndex` is equal to zero, then the value of an instance of this object identifies a SNMPv2 party which is the proxy destination of a proxy relationship.

If the value of the corresponding instance of the `contextViewIndex` is greater than zero, then the value of an instance of this object is { 0 0 }."

::= { contextEntry 7 }

`contextProxySrcParty OBJECT-TYPE``SYNTAX Party``MAX-ACCESS read-create``STATUS current``DESCRIPTION`

"If the value of the corresponding instance of the `contextViewIndex` is equal to zero, then the value of an instance of this object identifies a SNMPv2 party which is the proxy source of a proxy relationship.

Interpretation of an instance of this object depends upon the value of the transport domain associated with the SNMPv2 party used as the proxy destination in this proxy relationship.

If the value of the corresponding instance of the `contextViewIndex` is greater than zero, then the value of an instance of this object is { 0 0 }."

::= { contextEntry 8 }

```
contextProxyContext OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "If the value of the corresponding instance of the
        contextViewIndex is equal to zero, then the value
        of an instance of this object identifies the
        context of a proxy relationship.

        Interpretation of an instance of this object
        depends upon the value of the transport domain
        associated with the SNMPv2 party used as the proxy
        destination in this proxy relationship.

        If the value of the corresponding instance of the
        contextViewIndex is greater than zero, then the
        value of an instance of this object is { 0 0 }."
    ::= { contextEntry 9 }

contextStorageType OBJECT-TYPE
    SYNTAX      StorageType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The storage type for this conceptual row in the
        contextTable."
    DEFVAL      { nonVolatile }
    ::= { contextEntry 10 }
```

contextStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The status of this conceptual row in the
contextTable.

A context is not qualified for activation until
instances of all corresponding columns have the
appropriate value. In particular, if the
context's contextViewIndex is greater than zero,
then the viewStatus column of the associated
conceptual row(s) in the viewTable must have the
value 'active'. Until instances of all
corresponding columns are appropriately
configured, the value of the corresponding
instance of the contextStatus column is
'notReady'."

::= { contextEntry 11 }

-- the SNMPv2 access privileges database group

snmpAccess OBJECT IDENTIFIER ::= { partyMIBObjects 3 }

aclTable OBJECT-TYPE

SYNTAX SEQUENCE OF AclEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The access privileges database."

::= { snmpAccess 1 }

aclEntry OBJECT-TYPE

SYNTAX AclEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The access privileges for a particular subject
SNMPv2 party when asking a particular target
SNMPv2 party to access a particular SNMPv2
context."

INDEX { aclTarget, aclSubject, aclResources }

::= { aclTable 1 }

AclEntry ::=

SEQUENCE {

 aclTarget INTEGER,

 aclSubject INTEGER,

 aclResources INTEGER,

 aclPrivileges INTEGER,

 aclStorageType StorageType,

 aclStatus RowStatus

}

aclTarget OBJECT-TYPE

SYNTAX INTEGER (1..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The value of an instance of this object identifies a SNMPv2 party which is the target of an access control policy, and has the same value as the instance of the partyIndex object for that party."

::= { aclEntry 1 }

aclSubject OBJECT-TYPE

SYNTAX INTEGER (1..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The value of an instance of this object identifies a SNMPv2 party which is the subject of an access control policy, and has the same value as the instance of the partyIndex object for that SNMPv2 party."

::= { aclEntry 2 }

aclResources OBJECT-TYPE

SYNTAX INTEGER (1..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The value of an instance of this object identifies a SNMPv2 context in an access control policy, and has the same value as the instance of the contextIndex object for that SNMPv2 context."

::= { aclEntry 3 }

aclPrivileges OBJECT-TYPE

SYNTAX INTEGER (0..255)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The access privileges which govern what management operations a particular target party may perform with respect to a particular SNMPv2 context when requested by a particular subject party. These privileges are specified as a sum of values, where each value specifies a SNMPv2 PDU type by which the subject party may request a permitted operation. The value for a particular PDU type is computed as 2 raised to the value of the ASN.1 context-specific tag for the appropriate SNMPv2 PDU type. The values (for the tags defined in [5]) are defined in [3] as:

Get	:	1
GetNext	:	2
Response	:	4
Set	:	8
unused	:	16
GetBulk	:	32
Inform	:	64
SNMPv2-Trap	:	128

The null set is represented by the value zero."

DEFVAL { 35 } -- Get, Get-Next & Get-Bulk
 ::= { aclEntry 4 }

aclStorageType OBJECT-TYPE

SYNTAX StorageType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The storage type for this conceptual row in the aclTable."

DEFVAL { nonVolatile }
 ::= { aclEntry 5 }

```
aclStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The status of this conceptual row in the
         aclTable."
    ::= { aclEntry 6 }
```

-- the MIB view database group

snmpViews OBJECT IDENTIFIER ::= { partyMIBObjects 4 }

viewTable OBJECT-TYPE

SYNTAX SEQUENCE OF ViewEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Locally held information about the MIB views known to this SNMPv2 entity.

Each SNMPv2 context which is locally accessible has a single MIB view which is defined by two collections of view subtrees: the included view subtrees, and the excluded view subtrees. Every such subtree, both included and excluded, is defined in this table.

To determine if a particular object instance is in a particular MIB view, compare the object instance's OBJECT IDENTIFIER with each of the MIB view's entries in this table. If none match, then the object instance is not in the MIB view. If one or more match, then the object instance is included in, or excluded from, the MIB view according to the value of viewType in the entry whose value of viewSubtree has the most sub-identifiers. If multiple entries match and have the same number of sub-identifiers, then the lexicographically greatest instance of viewType determines the inclusion or exclusion.

An object instance's OBJECT IDENTIFIER X matches an entry in this table when the number of sub-identifiers in X is at least as many as in the value of viewSubtree for the entry, and each sub-identifier in the value of viewSubtree matches its corresponding sub-identifier in X. Two sub-identifiers match either if the corresponding bit of viewMask is zero (the 'wild card' value), or if they are equal.

Due to this 'wild card' capability, we introduce

the term, a 'family' of view subtrees, to refer to the set of subtrees defined by a particular combination of values of viewSubtree and viewMask. In the case where no 'wild card' is defined in viewMask, the family of view subtrees reduces to a single view subtree."

::= { snmpViews 1 }

viewEntry OBJECT-TYPE

SYNTAX ViewEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information on a particular family of view subtrees included in or excluded from a particular SNMPv2 context's MIB view.

Implementations must not restrict the number of families of view subtrees for a given MIB view, except as dictated by resource constraints on the overall number of entries in the viewTable."

INDEX { viewIndex, IMPLIED viewSubtree }

::= { viewTable 1 }

ViewEntry ::=

```
SEQUENCE {
    viewIndex      INTEGER,
    viewSubtree    OBJECT IDENTIFIER,
    viewMask       OCTET STRING,
    viewType       INTEGER,
    viewStorageType StorageType,
    viewStatus     RowStatus
}
```

viewIndex OBJECT-TYPE

SYNTAX INTEGER (1..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A unique value for each MIB view. The value for each MIB view must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization."

::= { viewEntry 1 }

viewSubtree OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A MIB subtree."

::= { viewEntry 2 }

viewMask OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (0..16))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The bit mask which, in combination with the corresponding instance of viewSubtree, defines a family of view subtrees.

Each bit of this bit mask corresponds to a sub-identifier of viewSubtree, with the most significant bit of the i-th octet of this octet string value (extended if necessary, see below) corresponding to the (8*i - 7)-th sub-identifier, and the least significant bit of the i-th octet of this octet string corresponding to the (8*i)-th sub-identifier, where i is in the range 1 through 16.

Each bit of this bit mask specifies whether or not the corresponding sub-identifiers must match when determining if an OBJECT IDENTIFIER is in this family of view subtrees; a '1' indicates that an exact match must occur; a '0' indicates 'wild card', i.e., any sub-identifier value matches.

Thus, the OBJECT IDENTIFIER X of an object instance is contained in a family of view subtrees if the following criteria are met:

for each sub-identifier of the value of viewSubtree, either:

the i-th bit of viewMask is 0, or

the i-th sub-identifier of X is equal to the i-th sub-identifier of the value of viewSubtree.

If the value of this bit mask is M bits long and there are more than M sub-identifiers in the corresponding instance of viewSubtree, then the bit mask is extended with 1's to be the required length.

Note that when the value of this object is the zero-length string, this extension rule results in a mask of all-1's being used (i.e., no 'wild card'), and the family of view subtrees is the one view subtree uniquely identified by the corresponding instance of viewSubtree."

```
DEFVAL      { ''H }  
::= { viewEntry 3 }
```

```
viewType OBJECT-TYPE
    SYNTAX      INTEGER {
                        included(1),
                        excluded(2)
                    }
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The status of a particular family of view
        subtrees within the particular SNMPv2 context's
        MIB view. The value 'included(1)' indicates that
        the corresponding instances of viewSubtree and
        viewMask define a family of view subtrees included
        in the MIB view. The value 'excluded(2)'
        indicates that the corresponding instances of
        viewSubtree and viewMask define a family of view
        subtrees excluded from the MIB view."
    DEFVAL       { included }
    ::= { viewEntry 4 }

viewStorageType OBJECT-TYPE
    SYNTAX      StorageType
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The storage type for this conceptual row in the
        viewTable."
    DEFVAL       { nonVolatile }
    ::= { viewEntry 5 }

viewStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The status of this conceptual row in the
        viewTable."
    ::= { viewEntry 6 }
```

-- conformance information

partyMIBConformance

OBJECT IDENTIFIER ::= { partyMIB 3 }

partyMIBCompliances

OBJECT IDENTIFIER ::= { partyMIBConformance 1 }

partyMIBGroups

OBJECT IDENTIFIER ::= { partyMIBConformance 2 }

-- compliance statements

unSecurableCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"The compliance statement for SNMPv2 entities which implement the Party MIB, but do not support any authentication or privacy protocols (i.e., only the noAuth and noPriv protocols are supported)."

MODULE -- this module

MANDATORY-GROUPS { partyMIBGroup }

::= { partyMIBCompliances 1 }

partyNoPrivacyCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"The compliance statement for SNMPv2 entities which implement the Party MIB, and support an authentication protocol, but do not support any privacy protocols (i.e., only the noAuth, v2md5AuthProtocol, and noPriv protocols are supported)."

MODULE -- this module

MANDATORY-GROUPS { partyMIBGroup }

::= { partyMIBCompliances 2 }

partyPrivacyCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"The compliance statement for SNMPv2 entities which implement the Party MIB, support an authentication protocol, and support a privacy protocol ONLY for the purpose of accessing security parameters.

For all aclTable entries authorizing a subject and/or target SNMPv2 party whose privacy protocol is desPrivProtocol, to be used in accessing a SNMPv2 context, the MIB view for that SNMPv2 context shall include only those objects subordinate to partyMIBObjects, or a subset thereof, e.g.,

```
viewSubtree = { partyMIBObjects }
viewMask    = ''H
viewType     = { included }
```

Any attempt to configure an entry in the partyTable, the contextTable, the aclTable or the viewTable such that a party using the desPrivProtocol would be authorized for use in accessing objects outside of the partyMIBObjects subtree shall result in the appropriate error response (e.g., wrongValue or inconsistentValue)."

MODULE -- this module

MANDATORY-GROUPS { partyMIBGroup }

::= { partyMIBCompliances 3 }

```
fullPrivacyCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The compliance statement for SNMPv2 entities
        which implement the Party MIB, support an
        authentication protocol, and support a privacy
        protocol without restrictions on its use."
    MODULE -- this module
        MANDATORY-GROUPS { partyMIBGroup }
    ::= { partyMIBCompliances 4 }

-- units of conformance

partyMIBGroup OBJECT-GROUP
    OBJECTS { partyIndex, partyTDomain, partyTAddress,
        partyMaxMessageSize, partyLocal,
        partyAuthProtocol, partyAuthClock,
        partyAuthPrivate, partyAuthPublic,
        partyAuthLifetime, partyPrivProtocol,
        partyPrivPrivate, partyPrivPublic,
        partyStorageType, partyStatus,
        partyCloneFrom,
        contextIndex, contextLocal,
        contextViewIndex, contextLocalEntity,
        contextLocalTime, contextStorageType,
        contextStatus, aclTarget, aclSubject,
        aclPrivileges, aclStorageType, aclStatus,
        viewMask, viewType, viewStorageType, viewStatus }
    STATUS current
    DESCRIPTION
        "The collection of objects allowing the
        description and configuration of SNMPv2 parties.

        Note that objects which support proxy
        relationships are not included in this conformance
        group."
    ::= { partyMIBGroups 1 }

END
```

3. Acknowledgments

This document is based, almost entirely, on RFC 1353.

4. References

- [1] Information processing systems - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1), International Organization for Standardization. International Standard 8824, (December, 1987).
- [2] Case, J., McCloghrie, K., Rose, M., and Waldbusser, S., "Structure of Management Information for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1442, SNMP Research, Inc., Hughes LAN Systems, Dover Beach Consulting, Inc., Carnegie Mellon University, April 1993.
- [3] Galvin, J., and McCloghrie, K., "Administrative Model for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1445, Trusted Information Systems, Hughes LAN Systems, April 1993.
- [4] Galvin, J., and McCloghrie, K., "Security Protocols for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1446, Trusted Information Systems, Hughes LAN Systems, April 1993.
- [5] Case, J., McCloghrie, K., Rose, M., and Waldbusser, S., "Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1448, SNMP Research, Inc., Hughes LAN Systems, Dover Beach Consulting, Inc., Carnegie Mellon University, April 1993.
- [5] Case, J., McCloghrie, K., Rose, M., and Waldbusser, S., "Transport Mappings for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1449, SNMP Research, Inc., Hughes LAN Systems, Dover Beach Consulting, Inc., Carnegie Mellon University, April 1993.

5. Security Considerations

Security issues are not discussed in this memo.

6. Authors' Addresses

Keith McCloghrie
Hughes LAN Systems
1225 Charleston Road
Mountain View, CA 94043
US

Phone: +1 415 966 7934
Email: kzm@hls.com

James M. Galvin
Trusted Information Systems, Inc.
3060 Washington Road, Route 97
Glenwood, MD 21738

Phone: +1 301 854-6889
EMail: galvin@tis.com

