

TN3270E Working Group

INTERNET DRAFT: <[draft-ietf-tn3270e-tn3270-mib-03.txt](#)>

Expiration Date: March, 1998

Kenneth White

IBM Corp.

September 1997

Base Definitions of Managed Objects for
TN3270E Using SMIV2

<[draft-ietf-tn3270e-tn3270-mib-03.txt](#)>

Status of this Memo

This document is an Internet Draft. Internet Drafts are working documents of the Internet Engineering Task Force (IETF), its Areas, and its Working Groups. Note that other groups may also distribute working documents as Internet Drafts.

Internet Drafts are draft documents valid for a maximum of six months. Internet Drafts may be updated, replaced, or obsoleted by other documents at any time. It is not appropriate to use Internet Drafts as reference material or to cite them other than as a "working draft" or "work in progress."

Please check the I-D abstract listing contained in each Internet Draft directory to learn the current status of this or any Internet Draft. Distribution of this document is unlimited.

Abstract

The purpose of this memo is to define a Management Information Base (MIB) for configuring and managing TN3270E Servers. The MIB defined by this memo is intended to provide generic support for both Host and Gateway TN3270E server implementations. It is the intent that the MIB defined herein be extended by subsequent memos to provide non-generic configuration support and to enable TN3270E Response Time Collection.

It is the intent of this MIB to fully adhere to all prerequisite MIBs unless explicitly stated. Deviations will be documented in corresponding conformance statements. The specification of this MIB will utilize the Structure of Management Information (SMI) for Version 2 of the Simple Network Management Protocol Version (refer to [RFC1902](#), reference [1]).

Table of Contents

1.0	Introduction.....	2
2.0	The SNMPv2 Network Management Framework.....	2
2.1	Object Definitions.....	3
3.0	Structure of the MIB.....	3
3.1	TN3270E Server Control.....	4
3.1.1	tn3270eSrvrConfTable.....	4
3.1.2	tn3270eSrvrPortTable.....	5
3.1.3	tn3270eSrvrStatsTable.....	5
3.2	TN3270E Server Resource Configuration.....	6
3.3	Resource/Client Address Mappings.....	6
3.3.1	tn3270eSnaMapTable.....	6
3.3.2	tn3270eResMapTable.....	6
3.3.3	TCP Connection Table Additions.....	6
4.0	Definitions.....	7
5.0	Security Considerations.....	36
6.0	Acknowledgments.....	36
7.0	References.....	37
8.0	Authors' Address.....	38

[1.](#) Introduction

This document is a product of the TN3270E Working Group. Its purpose is to define a MIB module for extending the traditional MIBs supported by a TCP/IP implementation for configuration and management of TN3270E servers.

[2.](#) The SNMPv2 Network Management Framework

The SNMP Network Management Framework presently consists of three major components. They are:

- o the SMI, described in [RFC 1902](#) [[1](#)], - the mechanisms used for describing and naming objects for the purpose of management.
- o the MIB-II, STD 17, [RFC 1213](#) [[5](#)], - the core set of managed objects for the Internet suite of protocols.
- o the protocol, [RFC 1157](#) [[9](#)] and/or [RFC 1905](#) [[7](#)] - the protocol for accessing managed information.

Textual conventions are defined in [RFC 1903](#) [6], and conformance statements are defined in [RFC 1904](#) [8].

The Framework permits new objects to be defined for the purpose of experimentation and evaluation.

Expires March 1998

[Page 2]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

This memo specifies a MIB module that is compliant to the SNMPv2 SMI. A semantically identical MIB conforming to the SNMPv1 SMI can be produced through the appropriate translation.

[2.1.](#) Object Definitions

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to refer to the object type.

[3.](#) Structure of the MIB

The TN3270E-MIB is split into the following components:

- o TN3270E Server Control
- o TN3270E Server Resource Configuration
- o Resource/Client Address Mappings

The TN3270E-MIB is defined primarily for TN3270E servers. This memo does not explicitly address use of the MIB by TN3270 servers that do not support the TN3270E protocol. Although a significant number of the objects do apply in the TN3270-only case, the case was not addressed since it is unlikely that a TN3270-only server would implement this MIB.

The SYSAPPL-MIB, reference [\[12\]](#), is a prerequisite for the TN3270E-

MIB, so that the Utf8String Textual Convention (TC) can be imported. This TC, which is used for some MIB objects containing textual information, enables internationalization of text strings, whereas the DisplayString TC does not.

The MIB defined by this memo handles both IPv4 and IPv6 addressing. Two Textual Conventions, Tn3270eAddrType and Tn3270eTAddress, are defined for this purpose. Tn3270eTAddress is essentially equivalent to TAddress, defined by [RFC 1903](#). The difference is that Tn3270eTAddress allows a null-length octet string, while TAddress doesn't. Allowing a null IP Address is important, since in places Tn3270eTAddress object values are used as a component of an object instance, and need not actually contain an IP Address. In general, use

Expires March 1998

[Page 3]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1

of Tn3270eTAddress replaces the prior use of IpAddress to represent IP Addresses.

Tn3270eAddrType is functionally equivalent to the TDomain TC, also defined by [RFC 1903](#). TDomain uses an OID to identify the contents of a TAddress object. Tn3270eAddrType was chosen over TDomain because, with a SYNTAX of Unsigned32 (enumeration type), it is much simpler than an OID to specify in an instance identifier.

[3.1.](#) TN3270E Server Control

This group of objects provides for TN3270E server configuration, and consists of:

- o tn3270eSrvrConfTable
- o tn3270eSrvrPortTable
- o tn3270eSrvrStatsTable

[3.1.1.](#) tn3270eSrvrConfTable

The tn3270eSrvrConfTable contains a set of objects primarily for configuring and managing a TN3270E server. As with most of the other tables in the TN3270E-MIB, this table is indexed by an unsigned integer, tn3270eSrvrConfIndex. This primary index element enables support of multiple TN3270E servers on the same host. Within a host, tn3270eSrvrConfIndex values must be unique, and need not be

contiguous; otherwise these values are implementation-dependent.

An earlier version of this memo had used the local IP Address associated with a TN3270E server along with `tn3270eSrvrConfIndex` as the primary indexes into most of its tables. Use of a local IP Address was thought to enable use of these tables by management applications. This approach was dropped, since it introduces a level of complexity into MIB table indexing for little actual benefit.

`tn3270eSrvrConfInactivityTimer` defines the inactivity period for TN3270 and TN3270E Sessions. `tn3270eSrvrConfSessionTermState` defines how a session should be terminated. The three objects:

- o `tn3270eSrvrConfActivityCheck`
- o `tn3270eSrvrConfActivityTimeout`
- o `tn3270eSrvrConfActivityInterval`

define the parameters for performing the "Telnet Timing Mark Option" as defined by [RFC 860](#) [3]. The object `tn3270eSrvrConfActivityCheck` is defined to enable selection of either a NOP command or a TIMEMARK

Expires March 1998

[Page 4]

White

TN3270E Management Information Base (TN3270E-MIB)

13 September 1

command. Sending a NOP command results in less overhead than a TIMEMARK command, since a client doesn't send a reply.

The objects `tn3270eSrvrConfAdminStatus` and `tn3270eSrvrConfOperStatus` enable remote starting and stopping of a TN3270E server. `tn3270eSrvrConfFunctionsSupported` indicates which of the TN3270 and TN3270E options a server supports. The object `tn3270eSrvrConfSessionTermState` defines as a global option the processing steps that a TN3270E server should perform when a TN3270E session terminates with respect to the associated TCP connection. The object `tn3270eSrvrConfSrvrType` indicates whether the TN3270E server represented by the `tn3270eSrvrConfEntry` is a host or a gateway server. The object `tn3270eSrvrConfContact` provides a scratch pad area for a TN3270E server administrator to store information for later retrieval. The object `tn3270eSrvrConfRowStatus` provides the capability to perform remote creation and deletion operations on this table.

[3.1.2.](#) `tn3270eSrvrPortTable`

The `tn3270eSrvrPortTable` exists in order to assign and retrieve the

local TCP ports associated with a TN3270E server, since some TN3270E server implementations support multiple local ports. A tn3270eSrvrPortEntry is indexed by:

- o tn3270eSrvrConfIndex
- o tn3270eSrvrConfPort
- o tn3270eSrvrConfPortAddrType
- o tn3270eSrvrConfPortAddress

Certain TN3270E server implementations restrict a local TCP port to a particular local IP Address, instead of allowing connections for any local IP Address to occur via the port. tn3270eSrvrConfPortAddrType and tn3270eSrvrConfPortAddress allow this restriction to be represented in the MIB. A TN3270E server that doesn't restrict connections over a port to a local IP Address should use the value 'unknown(0)' for tn3270eSrvrConfPortAddrType, and a null octet string for tn3270eSrvrConfPortAddress.

[3.1.3.](#) tn3270eSrvrStatsTable

The tn3270eSrvrStatsTable defines a series of objects used to provide general statistics on the use of a TN3270E server.

[3.2.](#) TN3270E Server Resource Configuration

The TN3270E Server Resource Configuration collection of objects consists of three tables:

- o tn3270eClientGroupTable
- o tn3270eResPoolTable
- o tn3270eClientResMapTable

tn3270eClientGroupTable and tn3270eResPoolTable enable implementations to define groupings of both client addresses and resource pools for mapping client addresses to resources. The mapping of a client group to a resource pool is enabled via the tn3270eClientResMapTable.

[3.3.](#) Resource/Client Address Mappings

Three tables are defined by this memo to enable mapping of resource names to client addresses, and client addresses to resource names:

- o tn3270eSnaMapTable
- o tn3270eResMapTable
- o TCP Connection Table Additions

[3.3.1.](#) tn3270eSnaMapTable

The tn3270eSnaMapTable is a read-only table that maps a secondary LU's SNA network name to the name by which it is known locally at the TN3270e server. An entry in this table is created when the Activate LU (ACTLU) request carrying the SNA network name of the SLU is received from the SSCP. The entry is deleted when the SLU is deactivated.

[3.3.2.](#) tn3270eResMapTable

The tn3270eResMapTable is a read-only table that maps a resource name to a client's address. An entry in this table is created when a TCP connection is received by a TN3270E server and mapped to a resource. The entry is deleted when the resource-to-address association is no longer valid.

[3.3.3.](#) TCP Connection Table Additions

The TCP Connection Table is defined by [RFC 2012](#) (Refer to reference 10,

TCP-MIB Definitions). Traditionally, the contents of the TCP Connection Table have been implementation-dependent. Its formal definition consists of the following objects:

- o tcpConnState (INTEGER)
- o tcpConnLocalAddress (IpAddress)
- o tcpConnLocalPort (INTEGER)

- o tcpConnRemAddress (IpAddress)
- o tcpConnRemPort (INTEGER)

It is indexed by: tcpConnLocalAddress, tcpConnLocalPort, tcpConnRemAddress, and tcpConnRemPort.

The tn3270eTcpConnTable contains objects for keeping a list of the current set of TN3270 and TN3270E sessions at a TN3270E server. The relationship between the tcpConnTable and the Tn3270eTcpConnTable is not one-to-one, since the tn3270eTcpConnTable contains information pertaining only to TN3270(E) sessions.

The tn3270eTcpConnTable has a different indexing structure from that of the tcpConnTable. Instead of using IpAddress objects, Tn3270eTAddress and Tn3270eAddrType object pairs are used to specify client addresses (both local and remote). This enables support of IPv6 addresses. In addition, the remote address pair precedes the local address pair in the index clause, in order to enable a GET-NEXT operation using only the remote address pair.

4. Definitions

```
TN3270E-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY, OBJECT-TYPE, BITS, Unsigned32,
    experimental, TimeTicks, IpAddress,
    Counter32, Gauge32, Counter64
        FROM SNMPv2-SMI
    TEXTUAL-CONVENTION, RowStatus
        FROM SNMPv2-TC
    MODULE-COMPLIANCE, OBJECT-GROUP
        FROM SNMPv2-CONF
    Utf8String
        FROM SYSAPPL-MIB;
```

```
tn3270eMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "9709130000Z" -- September 13, 1997
    ORGANIZATION "TN3270E Working Group"
    CONTACT-INFO
```

Expires March 1998

[Page 7]


```

        "Kenneth White (kennethw@vnet.ibm.com)
        IBM Corp."
DESCRIPTION
    "This module defines a portion of the management
    information base (MIB) for managing TN3270E servers"
 ::= { experimental 80 }

-- Textual Conventions

SnaResourceName ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The textual convention for defining an SNA resource
        name. A fully qualified SNA resource name, consisting of
        a 1 to 8 character network identifier (NetId), a
        period ('.'), and a 1 to 8 character resource name
        (ResName).

        The NetId and ResName are constructed from the uppercase
        letter 'A' - 'Z' and the numerics '0' - '9', all encoded
        in ASCII, with the restriction that the first character
        of each must be a letter. Trailing blanks are not allowed.

        Earlier versions of SNA permitted three additional
        characters in NetIds and ResNames: '#', '@', and '$'.
        While this use of these characters has been retired,
        a Management Station should still accept them for
        backward compatibility.

        Note: This Textual Convention is not subject to
        internationalization, and does not use the character
        encodings used by the Utf8String Textual Convention."
    SYNTAX      OCTET STRING (SIZE(0..17))

Tn3270eAddrType ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The textual convention for defining the type of an IP
        Address."
    SYNTAX      INTEGER {
                                unknown(0),
                                ipv4(1),
                                ipv6(2)
                            }

Tn3270ResourceType ::= TEXTUAL-CONVENTION
    STATUS      current

```

White

TN3270E Management Information Base (TN3270E-MIB)

13 September 1

DESCRIPTION

"The type of resource defined by a resource pool. Refer to tn3270eResPoolTable."

```
SYNTAX      INTEGER {
                other(0),
                lu(1),
                printer(2)
            }
```

Tn3270eTAddress ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Denotes an IP Address. The type of IP Address is determined by use of the Tn3270eAddrType Textual Convention. The length in octets of a Tn3270eTAddress object is:

Tn3270eAddrType ENUM	
unknown(0)	not known, must look at the actual length of the Tn3270eTAddress OCTET STRING.
ipv4(1)	4 OCTETS
ipv6(2)	16 OCTETS

This textual convention is similar to the TAddress TC defined by [RFC1903](#) except that it allows a zero length OCTET STRING and is not a full transport layer address."

```
SYNTAX      OCTET STRING (SIZE (0..255))
```

Tn3270Functions ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This textual convention is intended to reflect the current set of TN3270 and TN3270E functions that can be negotiated between a server and its client:

[RFC856](#)

transmitBinary The sender of this command REQUESTS permission to begin transmitting, or confirms that it will now begin transmitting characters which are to be interpreted as 8 bits of binary data by the receiver of the data.

[RFC820](#)

timeMark The sender of this command REQUESTS that the receiver of this command return a WILL TIMING-MARK in the data stream at the 'appropriate place' ...

[RFC885](#)

Expires March 1998

[Page 9]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

endOfRecord The sender of this command requests permission to begin transmission of the Telnet END-OF-RECORD (EOR) code when transmitting data characters, or the sender of this command confirms it will now begin transmission of EORs with transmitted data characters.

[RFC1091](#)

terminalType Sender is willing to send terminal type information in a subsequent sub-negotiation.

[RFC1041](#)

tn3270Regime Sender is willing to send list of supported 3270 Regimes in a subsequent sub-negotiation.

[RFC1647](#)

scsCtlCodes (Printer sessions only). Allows the use of the SNA Character Stream (SCS) and SCS control codes on the session. SCS is used with LU type 1 SNA sessions.

dataStreamCtl (Printer sessions only). Allows the use of the standard 3270 data stream. This corresponds to LU type 3 SNA sessions.

responses Provides support for positive and negative response handling. Allows the server to reflect to the client any and all definite, exception, and no response requests sent by the host application.

bindImage Allows the server to send the SNA Bind image and Unbind notification to the client.

sysreq Allows the client and server to emulate some (or all, depending on the server) of the functions of the SYSREQ key in an SNA environment."

SYNTAX BITS {

transmitBinary(0), -- [rfc856](#)
timemark(1), -- [rfc860](#)

```

        endOfRecord(2),    -- rfc885
        terminalType(3),  -- rfc1091
        tn3270Regime(4),  -- rfc1041
        scsCtlCodes(5),   -- rfc1647
        dataStreamCtl(6), -- rfc1647
        responses(7),     -- rfc1647
        bindImage(8),     -- rfc1647
        sysreq(9)         -- rfc1647
    }

```

```

Tn3270DeviceTypes ::= TEXTUAL-CONVENTION
    STATUS          current

```

Expires March 1998

[Page 10]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

DESCRIPTION

"This textual convention defines the list of device types that can be set as defined by [RFC 1647](#)."

```

SYNTAX          INTEGER { -- terminals
                    unknown(0),
                    ibm3278d2(1),    -- (24 row x 80 col display)
                    ibm3278d2E(2),   -- (24 row x 80 col display)
                    ibm3278d3(3),    -- (32 row x 80 col display)
                    ibm3278d3E(4),   -- (32 row x 80 col display)
                    ibm3278d4(5),    -- (43 row x 80 col display)
                    ibm3278d4E(6),   -- (43 row x 80 col display)
                    ibm3278d5(7),    -- (27 row x 132 col display)
                    ibm3278d5E(8),   -- (27 row x 132 col display)
                    ibmDynamic(9),   -- (no pre-defined display size)
                    ibm3287d1(10)    -- printers
                }

```

-- Top-level structure of the MIB

```

tn3270eNotifications OBJECT IDENTIFIER ::= { tn3270eMIB 0 }
tn3270eObjects       OBJECT IDENTIFIER ::= { tn3270eMIB 1 }
tn3270eConformance   OBJECT IDENTIFIER ::= { tn3270eMIB 3 }

```

-- MIB Objects

```

tn3270eSrvrConfTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF Tn3270eSrvrConfEntry
    MAX-ACCESS      not-accessible
    STATUS          current

```

DESCRIPTION

"This table defines the configuration elements for TN3270E Servers. The number of entries in this table is expected to vary depending on the location of the table. A particular TN3270E server is expected to have a single entry. Modeling of the configuration elements as a table allows multiple TN3270E Servers to exist at the same host."

::= { tn3270eObjects 1 }

tn3270eSrvrConfEntry OBJECT-TYPE

SYNTAX Tn3270eSrvrConfEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Definition of the configuration elements for a single TN3270E server."

INDEX { tn3270eSrvrConfIndex }

::= { tn3270eSrvrConfTable 1 }

Expires March 1998

[Page 11]

White

TN3270E Management Information Base (TN3270E-MIB)

13 September 1

```
Tn3270eSrvrConfEntry ::= SEQUENCE {
    tn3270eSrvrConfIndex          Unsigned32,
    tn3270eSrvrConfInactivityTimeout Unsigned32,
    tn3270eSrvrConfActivityCheck  INTEGER,
    tn3270eSrvrConfActivityTimeout Unsigned32,
    tn3270eSrvrConfActivityInterval Unsigned32,
    tn3270eSrvrFunctionsSupported Tn3270Functions,
    tn3270eSrvrConfAdminStatus    INTEGER,
    tn3270eSrvrConfOperStatus     INTEGER,
    tn3270eSrvrConfSessionTermState INTEGER,
    tn3270eSrvrConfSrvrType       INTEGER,
    tn3270eSrvrConfContact        Utf8String,
    tn3270eSrvrConfRowStatus      RowStatus
}
```

tn3270eSrvrConfIndex OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates the instance of a TN3270E server that exists at an IP Host. Assignments of tn3270eSrvrConfIndex

values need not be continuous and is implementation dependent. Within a host, assignment of tn3270eSrvrConfIndex values must be unique."
 ::= { tn3270eSrvrConfEntry 1 }

tn3270eSrvrConfInactivityTimeout OBJECT-TYPE

SYNTAX Unsigned32 (0..99999999)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The inactivity time-out specified in seconds. When a connection has been inactive for the number of seconds specified by this object it is closed. The default of 0 means no inactivity time-out."

DEFVAL { 0 }

::= { tn3270eSrvrConfEntry 2 }

tn3270eSrvrConfActivityCheck OBJECT-TYPE

SYNTAX INTEGER {
 noCheck(0),
 timeMark(1),
 nop(2)
 }

MAX-ACCESS read-create

STATUS current

Expires March 1998

[Page 12]

White TN3270E Management Information Base (TN3270E-MIB)

13 September 1

DESCRIPTION

"This object is intended to enable either timemark or nop processing."

DEFVAL { noCheck }

::= { tn3270eSrvrConfEntry 3 }

tn3270eSrvrConfActivityTimeout OBJECT-TYPE

SYNTAX Unsigned32 (1..99999999)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The TIMEMARK or NOP processing time-out specified in seconds. Note that a value of 0 is not allowed for this object since the function that uses this object relies on

```
tn3270eSrvrConfActivityCheck for function enablement."
DEFVAL { 600 } -- 10 minutes
::= { tn3270eSrvrConfEntry 4 }
```

tn3270eSrvrConfActivityInterval OBJECT-TYPE

```
SYNTAX      Unsigned32 (1..99999999)
```

```
UNITS "seconds"
```

```
MAX-ACCESS  read-create
```

```
STATUS      current
```

```
DESCRIPTION
```

"The scan interval to be used by a TN3270E server.

TIMEMARK or NOP processing scans the Telnet sessions on the interval provided by this object looking for sessions that have been idle for more than the value provided by tn3270eSrvrConfActivityTimeout.

Note that a value of 0 is not allowed for this object since the function that uses this object relies on

tn3270eSrvrConfActivityCheck for function enablement."

```
DEFVAL { 120 } -- 2 minutes
```

```
::= { tn3270eSrvrConfEntry 5 }
```

tn3270eSrvrFunctionsSupported OBJECT-TYPE

```
SYNTAX      Tn3270Functions
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"This object indicates the functions supported by a TN3270E server."

```
DEFVAL { { scsCtlCodes, dataStreamCtl,
           responses, bindImage, sysreq } }
```

```
::= { tn3270eSrvrConfEntry 6 }
```

tn3270eSrvrConfAdminStatus OBJECT-TYPE

Expires March 1998

[Page 13]

White TN3270E Management Information Base (TN3270E-MIB)

13 September 1

```
SYNTAX      INTEGER {
                up(1),
                down(2),
                stopImmediate(3)
            }
```

```
MAX-ACCESS  read-create
```

```
STATUS      current
```

```
DESCRIPTION
```

"The desired state of the TN3270E server:

- up(1) - Activate a TN3270E server.
- down(2) - Informs the associating TN3270E server to gracefully terminate its processing.
- stopImmediate(3) - Informs the associating TN3270E server to terminate immediately.

Implementation as to the exact semantics of either down(2) or stopImmediate(3) processing is left as implementation dependent. A TN3270E server that does not distinguish between down or stopImmediate transitions should not support stopImmediate."

::= { tn3270eSrvrConfEntry 7 }

tn3270eSrvrConfOperStatus OBJECT-TYPE

SYNTAX INTEGER {
 up(1),
 down(2)
 }

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The current operational state of a TN3270E server:

- up(1) - The corresponding TN3270E server is active.
- down(2) - The corresponding TN3270E server is inactive."

::= { tn3270eSrvrConfEntry 8 }

tn3270eSrvrConfSessionTermState OBJECT-TYPE

SYNTAX INTEGER {
 terminate(1),
 luSessionPend(2),
 queueSession(3)
 }

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The current state for determining what a TN3270E server should do when a TN3270 Session terminates:

terminate(1) => Terminate TCP connection.

luSessionPend(2) => Do not drop the TCP Connection associated with an IP client when their TN3270 Session ends. Processing should redrive session initialization as if the client was first connecting.

queueSession(3) => QUEUESESSION deals with CLSDST-Pass. An example is the easiest explanation. Assume APPL1 does a CLSDST-Pass to APPL2. Then the client logs off APPL. Without QUEUESESSION the connection would now be broken. With QUEUESESSION the TN3270E server keeps the LU around after getting the APPL2 unbind waiting for a bind from APPL1."

```
DEFVAL { terminate }
 ::= { tn3270eSrvrConfEntry 9 }
```

tn3270eSrvrConfSrvrType OBJECT-TYPE

```
SYNTAX      INTEGER {
                unknown(0),
                host(1),
                gateway(2)
            }
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object indicates the type of TN3270E server. The existence of MIB tables and objects that will be defined by follow-on MIBs may be predicated on whether the TN3270E server can be local to the same host as a Target Application (host(1)) or will always be remote (gateway(2))."

```
 ::= { tn3270eSrvrConfEntry 10 }
```

tn3270eSrvrConfContact OBJECT-TYPE

```
SYNTAX      Utf8String (SIZE(0..255))
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object provides a scratch pad for a TN3270E server administrator for storing information for later retrieval."

```
 ::= { tn3270eSrvrConfEntry 11 }
```

tn3270eSrvrConfRowStatus OBJECT-TYPE

```
SYNTAX      RowStatus
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object allows entries to be created and deleted in the tn3270eSrvrConfTable.

An entry in this table is deleted by setting this object to destroy(6)."

REFERENCE

"[RFC 1903](#), 'Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2).'"

::= { tn3270eSrvrConfEntry 12 }

tn3270eSrvrPortTable OBJECT-TYPE

SYNTAX SEQUENCE OF Tn3270eSrvrPortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table defines the TCP ports associated with TN3270E Servers."

::= { tn3270eObjects 2 }

tn3270eSrvrPortEntry OBJECT-TYPE

SYNTAX Tn3270eSrvrPortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Definition of a single TCP port assignment to a TN3270E server."

INDEX {
 tn3270eSrvrConfIndex,
 tn3270eSrvrPort,
 tn3270eSrvrPortAddrType,
 tn3270eSrvrPortAddress
}

::= { tn3270eSrvrPortTable 1 }

Tn3270eSrvrPortEntry ::= SEQUENCE {

tn3270eSrvrPort Unsigned32,

tn3270eSrvrPortAddrType Tn3270eAddrType,

tn3270eSrvrPortAddress Tn3270eTAddress,

tn3270eSrvrPortRowStatus RowStatus

}

tn3270eSrvrPort OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates a port assigned to a server."

Expires March 1998

[Page 16]

White TN3270E Management Information Base (TN3270E-MIB)

13 September 1

::= { tn3270eSrvrPortEntry 1 }

tn3270eSrvrPortAddrType OBJECT-TYPE

SYNTAX Tn3270eAddrType

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicates the type of the IP Address represented in
tn3270eSrvrPortAddress."

::= { tn3270eSrvrPortEntry 2 }

tn3270eSrvrPortAddress OBJECT-TYPE

SYNTAX Tn3270eTAddress

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The IP Address associated with a TN3270E server port.
tn3270eClientGroupAddrType indicates the address type
(ipv4 or ipv6 for example)."

::= { tn3270eSrvrPortEntry 3 }

tn3270eSrvrPortRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object allows entries to be created and deleted in the
tn3270eSrvrPortTable.

An entry in this table is deleted by setting this object
to destroy(6)."

REFERENCE

"[RFC 1903](#), 'Textual Conventions for version 2 of the Simple
Network Management Protocol (SNMPv2).'"

::= { tn3270eSrvrPortEntry 4 }

tn3270eSrvrStatsTable OBJECT-TYPE

SYNTAX SEQUENCE OF Tn3270eSrvrStatsEntry

MAX-ACCESS not-accessible

```
STATUS      current
DESCRIPTION
    "This table defines a set of statistics concerning
    global TN3270E server performance."
 ::= { tn3270eObjects 3 }
```

```
tn3270eSrvrStatsEntry OBJECT-TYPE
SYNTAX      Tn3270eSrvrStatsEntry
MAX-ACCESS  not-accessible
```

Expires March 1998

[Page 17]

White TN3270E Management Information Base (TN3270E-MIB)

13 September 1

```
STATUS      current
DESCRIPTION
    "Collection of a set of statistic objects for a single
    TN3270 server. An entry can be global with respect to
    a single TN3270E server or be specified at a port level.
    Refer to the text description for tn3270eSrvrStatsPort.
```

It is possible that a TN3270E server implementation may not be structured to support resource usage on a port basis but provide statistics via an entry in this table for each port. The recommended approach for this is to provide a global entry (a value of 0 for tn3270eSrvrStatsPort) with:

```
tn3270eSrvrStatsMaxLus
tn3270eSrvrStatsMaxLus
tn3270eSrvrStatsLusInUse
tn3270eSrvrStatsSpareLus
tn3270eSrvrStatsMaxPtrs
tn3270eSrvrStatsPtrsInUse
tn3270eSrvrStatsSparePtrs
```

```
    set at this layer but set to zero at the port layer."
INDEX      { tn3270eSrvrConfIndex, tn3270eSrvrStatsPort }
 ::= { tn3270eSrvrStatsTable 1 }
```

```
Tn3270eSrvrStatsEntry ::= SEQUENCE {
tn3270eSrvrStatsPort      Unsigned32,
tn3270eSrvrStatsUpTime    TimeTicks,
tn3270eSrvrStatsMaxLus    Unsigned32,
tn3270eSrvrStatsLusInUse  Gauge32,
tn3270eSrvrStatsSpareLus  Gauge32,
```

```

tn3270eSrvrStatsMaxPtrs      Unsigned32,
tn3270eSrvrStatsPtrsInUse   Gauge32,
tn3270eSrvrStatsSparePtrs   Gauge32,
tn3270eSrvrStatsConnectsIn Counter32,
tn3270eSrvrStatsConnRejects Counter32,
tn3270eSrvrStatsDisconnects Counter32,
tn3270eSrvrStatsOctetsIn    Counter64,
tn3270eSrvrStatsOctetsInLow Counter32,
tn3270eSrvrStatsOctetsOut   Counter64,
tn3270eSrvrStatsOctetsOutLow Counter32
}

```

```

tn3270eSrvrStatsPort OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65535)
    MAX-ACCESS  not-accessible
    STATUS      current

```

Expires March 1998

[Page 18]

White

TN3270E Management Information Base (TN3270E-MIB)

13 September 1

DESCRIPTION

"Indicates the port that the corresponding statistics are for. Implementation of collection of these statistics on a port basis is not mandatory. An implementation may limit itself to keeping this data on a global basis by using a value of 0."

```
::= { tn3270eSrvrStatsEntry 1 }
```

```
tn3270eSrvrStatsUpTime OBJECT-TYPE
```

```

SYNTAX      TimeTicks
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"Indicates when either usage of a associating port becomes active (tn3270eSrvrStatsPort non-zero) or if the entry is being kept on a global basis the time that the TN3270E server becomes active. The value of this object does not get reset based on port usage status changes or changes to tn3270eSrvrConfOperStatus."

```
::= { tn3270eSrvrStatsEntry 2 }
```

```
tn3270eSrvrStatsMaxLus OBJECT-TYPE
```

```

SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"Indicates the maximum number of LUs for use by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 3 }

tn3270eSrvrStatsLusInUse OBJECT-TYPE

SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the current number of LUs in use by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 4 }

tn3270eSrvrStatsSpareLus OBJECT-TYPE

SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the number of free LUs for a particular TN3270E server. It is possible that the difference between tn3270eSrvrStatsMaxLus and tn3270eSrvrStatsLusInUse does not equal tn3270eSrvrStatsSpareLus. An LU may exist but not be useable by an IP client connection.

The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 5 }

tn3270eSrvrStatsMaxPtrs OBJECT-TYPE

SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the maximum number of Printer Resources for use by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort

index equal to 0) or on a port basis."
 ::= { tn3270eSrvrStatsEntry 6 }

tn3270eSrvrStatsPtrsInUse OBJECT-TYPE

SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the current number of Printer Resources in use by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 7 }

tn3270eSrvrStatsSparePtrs OBJECT-TYPE

SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the number of free Printer Resources for a particular TN3270E server. It is possible that the difference between tn3270eSrvrStatsMaxPtrs and tn3270eSrvrStatsPtrsInUse does not equal tn3270eSrvrStatsSparePtrs. A Printer resource may exist but not be useable by an IP client connection. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 8 }

tn3270eSrvrStatsConnectsIn OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"Indicates the number of client connections received by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 9 }

tn3270eSrvrStatsConnRejects OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the number of client connections rejected during connection setup. An example of this is when no LU or Printer resource is available to associate with the TCP Connection of an IP client. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 10 }

tn3270eSrvrStatsDisconnects OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the number of client connections disconnected by a TN3270E server. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 11 }

tn3270eSrvrStatsOctetsIn OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the number of octets received from TN3270 and TN3270E Clients. The granularity of this data can be either global (corresponding tn3270eSrvrStatsPort index equal to 0) or on a port basis."

::= { tn3270eSrvrStatsEntry 12 }

tn3270eSrvrStatsOctetsInLow OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Low order 32 bits of tn3270eSrvrStatsOctetsIn."


```

 ::= { tn3270eSrvrStatsEntry 13 }

tn3270eSrvrStatsOctetsOut OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Indicates the number of octets sent to TN3270
         and TN3270E Clients. The granularity
         of this data can be either global (corresponding
         tn3270eSrvrStatsPort index equal to 0) or on a port basis."
 ::= { tn3270eSrvrStatsEntry 14 }

tn3270eSrvrStatsOctetsOutLow OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Low order 32 bits of tn3270eSrvrStatsOctetsOut."
 ::= { tn3270eSrvrStatsEntry 15 }

tn3270eClientGroupTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Tn3270eClientGroupEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table defines client address groupings for use by a
         TN3270E server."
 ::= { tn3270eObjects 4 }

tn3270eClientGroupEntry OBJECT-TYPE
    SYNTAX      Tn3270eClientGroupEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Definition of a single client address entry. All entries with
         the same first two indexes, tn3270eSrvrConfIndex and
         tn3270eClientGroupName, are considered to be in the same
         client group."
    INDEX      { tn3270eSrvrConfIndex,
                 tn3270eClientGroupName,
                 tn3270eClientGroupAddrType,
                 tn3270eClientGroupAddress }
 ::= { tn3270eClientGroupTable 1 }

```

```
Tn3270eClientGroupEntry ::= SEQUENCE {
    tn3270eClientGroupName      Utf8String,
    tn3270eClientGroupAddrType  Tn3270eAddrType,
    tn3270eClientGroupAddress   Tn3270eTAddress,
    tn3270eClientGroupSubnetMask IpAddress,
    tn3270eClientGroupPfxLength Unsigned32,
    tn3270eClientGroupRowStatus RowStatus }

tn3270eClientGroupName OBJECT-TYPE
    SYNTAX      Utf8String (SIZE(1..24))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The name of a client group."
    ::= { tn3270eClientGroupEntry 1 }

tn3270eClientGroupAddrType OBJECT-TYPE
    SYNTAX      Tn3270eAddrType
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Indicates the type of the address represented in
         tn3270eClientGroupAddress."
    ::= { tn3270eClientGroupEntry 2 }

tn3270eClientGroupAddress OBJECT-TYPE
    SYNTAX      Tn3270eTAddress
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The client address of a member of a client group. The value
         of tn3270eClientGroupAddrType indicates the address
         type (ipv4 or ipv6 for example)."
    ::= { tn3270eClientGroupEntry 3 }

tn3270eClientGroupSubnetMask OBJECT-TYPE
    SYNTAX      IpAddress
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The corresponding subnet mask associated with
         tn3270eClientGroupAddress. A single IP Address is
         represented by having this object contain the value
         of 255.255.255.255. This object is valid only if
         tn3270eClientGroupAddrType has a value of ipv4(1)."
    DEFVAL { 'FFFFFFFF'H }
    ::= { tn3270eClientGroupEntry 4 }
```

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1

tn3270eClientGroupPfxLength OBJECT-TYPE

SYNTAX Unsigned32 (0..128)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

 "The corresponding IPv6 network prefix length. This object is valid only if tn3270eClientGroupAddrType has a value of ipv6(2)."

DEFVAL { 0 }

::= { tn3270eClientGroupEntry 5 }

tn3270eClientGroupRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

 "This object allows entries to be created and deleted in the tn3270eClientGroupTable.

 An entry in this table is deleted by setting this object to destroy(6)."

REFERENCE

 "[RFC 1903](#), 'Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2).'"

::= { tn3270eClientGroupEntry 6 }

tn3270eResPoolTable OBJECT-TYPE

SYNTAX SEQUENCE OF Tn3270eResPoolEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

 "This table defines resource groupings; the term 'pool' is used as it is defined by [RFC 1647](#)."

::= { tn3270eObjects 5 }

tn3270eResPoolEntry OBJECT-TYPE

SYNTAX Tn3270eResPoolEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Definition of a single resource pool member. All entries with the same first two indexes, tn3270eSrvrConfIndex and tn3270eResPoolName, are considered to be in the same pool."
INDEX { tn3270eSrvrConfIndex,
 tn3270eResPoolName,
 tn3270eResPoolElementName }
 ::= { tn3270eResPoolTable 1 }

Expires March 1998

[Page 24]

White TN3270E Management Information Base (TN3270E-MIB)

13 September 1

Tn3270eResPoolEntry ::= SEQUENCE {
 tn3270eResPoolName Utf8String,
 tn3270eResPoolElementName SnaResourceName,
 tn3270eResPoolElementType Tn3270ResourceType,
 tn3270eResPoolRowStatus RowStatus }

tn3270eResPoolName OBJECT-TYPE
SYNTAX Utf8String (SIZE(1..24))
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "The name of a resource pool.."
 ::= { tn3270eResPoolEntry 1 }

tn3270eResPoolElementName OBJECT-TYPE
SYNTAX SnaResourceName
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "The name of a member of a resource pool."
 ::= { tn3270eResPoolEntry 2 }

tn3270eResPoolElementType OBJECT-TYPE
SYNTAX Tn3270ResourceType
MAX-ACCESS read-create
STATUS current
DESCRIPTION
 "The type of the entity in a resource pool."
 ::= { tn3270eResPoolEntry 3 }

tn3270eResPoolRowStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create

STATUS current
DESCRIPTION
"This object allows entries to be created and deleted in the tn3270eResPoolTable.

An entry in this table is deleted by setting this object to destroy(6)."

REFERENCE
"RFC 1903, 'Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2).'"
 ::= { tn3270eResPoolEntry 4 }

tn3270eSnaMapTable OBJECT-TYPE
SYNTAX SEQUENCE OF Tn3270eSnaMapEntry
MAX-ACCESS not-accessible

Expires March 1998

[Page 25]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

STATUS current
DESCRIPTION
"This table provide a mapping from the name by which a secondary LU is known in the SNA network to the name by which it is known locally at the TN3270e server. This latter name serves as an index into the tn3270eResPoolTable and the tn3270eResMapTable."
 ::= { tn3270eObjects 6 }

tn3270eSnaMapEntry OBJECT-TYPE
SYNTAX Tn3270eSnaMapEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Definition of a single mapping from an SSCP-supplied SLU name to a local SLU name."
INDEX { tn3270eSrvrConfIndex,
 tn3270eSnaMapSscpSuppliedName }
 ::= { tn3270eSnaMapTable 1 }

Tn3270eSnaMapEntry ::= SEQUENCE {
 tn3270eSnaMapSscpSuppliedName SnaResourceName,
 tn3270eSnaMapLocalName SnaResourceName }

tn3270eSnaMapSscpSuppliedName OBJECT-TYPE
SYNTAX SnaResourceName

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "The name of the secondary LU (SLU) as it is known in the
 SNA network. This name is sent by the SSCP on the
 Activate Logical Unit (ACTLU) request."
 ::= { tn3270eSnaMapEntry 1 }

tn3270eSnaMapLocalName OBJECT-TYPE
SYNTAX SnaResourceName
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The local name of the secondary LU (SLU)."
 ::= { tn3270eSnaMapEntry 2 }

tn3270eClientResMapTable OBJECT-TYPE
SYNTAX SEQUENCE OF Tn3270eClientResMapEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "This table defines resource pool to client group mappings.

Expires March 1998

[Page 26]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

Since both the resource pool name and client group name are included in the index clause of this table, multiple resource pools can be assigned to the same client group. This enables use of multiple resource pools for use in client to resource mapping. Assigning multiple client Groups to the same resource pool is also allowed, but is not the primary purpose for how the indexing is structured.

Assignment of a resource pool to client group can be restricted based on TCP port. An index value of 0 for tn3270eClientResMapClientPort disables restriction of resource assignment based on client target port selection."
 ::= { tn3270eObjects 7 }

tn3270eClientResMapEntry OBJECT-TYPE
SYNTAX Tn3270eClientResMapEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Definition of a single resource pool to client group mapping."

```
INDEX { tn3270eSrvrConfIndex,
        tn3270eClientResMapPoolName,
        tn3270eClientResMapClientGroupName,
        tn3270eClientResMapClientPort }
 ::= { tn3270eClientResMapTable 1 }
```

```
Tn3270eClientResMapEntry ::= SEQUENCE {
    tn3270eClientResMapPoolName      Utf8String,
    tn3270eClientResMapClientGroupName  Utf8String,
    tn3270eClientResMapClientPort     Unsigned32,
    tn3270eClientResMapRowStatus     RowStatus }
```

```
tn3270eClientResMapPoolName OBJECT-TYPE
SYNTAX      Utf8String (SIZE(1..24))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The name of a resource pool."
 ::= { tn3270eClientResMapEntry 1 }
```

```
tn3270eClientResMapClientGroupName OBJECT-TYPE
SYNTAX      Utf8String (SIZE(1..24))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The name of the client group that is mapped to a
    resource pool."
```

```
 ::= { tn3270eClientResMapEntry 2 }
```

```
tn3270eClientResMapClientPort OBJECT-TYPE
SYNTAX      Unsigned32 (0..65535)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The port to restrict a resource pool to a client group
    mapping. A value of 0 for this objects implies that
    the mapping is not restricted."
 ::= { tn3270eClientResMapEntry 3 }
```

tn3270eClientResMapRowStatus OBJECT-TYPE

SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current

DESCRIPTION

"This object allows entries to be created and deleted in the tn3270eClientResMapTable.

An entry in this table is deleted by setting this object to destroy(6)."

REFERENCE

"[RFC 1903](#), 'Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2).'"

::= { tn3270eClientResMapEntry 4 }

tn3270eResMapTable OBJECT-TYPE

SYNTAX SEQUENCE OF Tn3270eResMapEntry
MAX-ACCESS not-accessible
STATUS current

DESCRIPTION

"This table defines the actual mapping of a resource to a client Address."

::= { tn3270eObjects 8 }

tn3270eResMapEntry OBJECT-TYPE

SYNTAX Tn3270eResMapEntry
MAX-ACCESS not-accessible
STATUS current

DESCRIPTION

"Definition of the mapping of a Resource Element to a client Address."

INDEX { tn3270eSrvrConfIndex,
tn3270eResMapElementName }

::= { tn3270eResMapTable 1 }

Tn3270eResMapEntry ::= SEQUENCE {

tn3270eResMapElementName	SnaResourceName,
tn3270eResMapAddrType	Tn3270eAddrType,
tn3270eResMapAddress	Tn3270eTAddress,
tn3270eResMapPort	Unsigned32,
tn3270eResMapElementType	Tn3270ResourceType }

tn3270eResMapElementName OBJECT-TYPE

SYNTAX SnaResourceName

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The name of a resource element."

::= { tn3270eResMapEntry 1 }

tn3270eResMapAddrType OBJECT-TYPE

SYNTAX Tn3270eAddrType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates the type of the client Address represented in
tn3270eResMapAddress."

::= { tn3270eResMapEntry 2 }

tn3270eResMapAddress OBJECT-TYPE

SYNTAX Tn3270eTAddress

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A client address."

::= { tn3270eResMapEntry 3 }

tn3270eResMapPort OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A client Port."

::= { tn3270eResMapEntry 4 }

tn3270eResMapElementType OBJECT-TYPE

SYNTAX Tn3270ResourceType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The type of the associating resource element."

::= { tn3270eResMapEntry 5 }

-- Define the set of objects to add to the Tcp Connection Table

tn3270eTcpConnTable OBJECT-TYPE

SYNTAX SEQUENCE OF Tn3270eTcpConnEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Provides a table that has an entry for each TN3270(E) client connection that is active at a TN3270E server. The table was originally modeled after the tcpConnTable but was changed to support different client Address types and to be indexed first by the remote address and port as oppose to local address and port. This is to enable use of a SNMP GET-NEXT operation using only the remote address and port."

::= { tn3270eObjects 9 }

tn3270eTcpConnEntry OBJECT-TYPE

SYNTAX Tn3270eTcpConnEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Provides in formation about a single TN3270/TN3270E session. Note: a tn3270eSrvrConfIndex is not needed in this table since the combination of both remote local addresses and ports is sufficient to guarantee uniqueness between TN3270E Servers on the same or actually different hosts."

INDEX { tn3270eTcpConnRemAddress,
tn3270eTcpConnRemPort,
tn3270eTcpConnRemAddrType,
tn3270eTcpConnLocalAddress,
tn3270eTcpConnLocalPort,
tn3270eTcpConnLocalAddrType
}

::= { tn3270eTcpConnTable 1 }

Tn3270eTcpConnEntry ::=

SEQUENCE

{

tn3270eTcpConnRemAddress	Tn3270eTAddress,
tn3270eTcpConnRemPort	Unsigned32,
tn3270eTcpConnRemAddrType	Tn3270eAddrType,
tn3270eTcpConnLocalAddress	Tn3270eTAddress,
tn3270eTcpConnLocalPort	Unsigned32,
tn3270eTcpConnLocalAddrType	Tn3270eAddrType,
tn3270eTcpConnLastActivity	TimeTicks,
tn3270eTcpConnBytesIn	Counter32,
tn3270eTcpConnBytesOut	Counter32,
tn3270eTcpConnResourceElement	SnaResourceName,

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

```

    tn3270eTcpConnResourceType            Tn3270ResourceType,
    tn3270eTcpConnDeviceType            Tn3270DeviceTypes,
    tn3270eTcpConnFunctions            Tn3270Functions
}

```

tn3270eTcpConnRemAddress OBJECT-TYPE

```

SYNTAX            Tn3270eTAddress
MAX-ACCESS       not-accessible
STATUS            current

```

DESCRIPTION

"The remote address associated with a TN3270E client.
tn3270eTcpConnRemAddrType indicates the address type
(ipv4 or ipv6 for example)."

```
::= { tn3270eTcpConnEntry 1 }
```

tn3270eTcpConnRemPort OBJECT-TYPE

```

SYNTAX            Unsigned32 (0..65535)
MAX-ACCESS       not-accessible
STATUS            current

```

DESCRIPTION

"The remote port associated with a TN3270E client."

```
::= { tn3270eTcpConnEntry 2 }
```

tn3270eTcpConnRemAddrType OBJECT-TYPE

```

SYNTAX            Tn3270eAddrType
MAX-ACCESS       not-accessible
STATUS            current

```

DESCRIPTION

"Indicates whether the index element tcpConnRemAddress
is a ipv4(1) or a ipv6(2) address."

```
::= { tn3270eTcpConnEntry 3 }
```

tn3270eTcpConnLocalAddress OBJECT-TYPE

```

SYNTAX            Tn3270eTAddress
MAX-ACCESS       not-accessible
STATUS            current

```

DESCRIPTION

"The local address associated with a TN3270E client.
tn3270eTcpConnRemAddrType indicates the address type
(ipv4 or ipv6 for example)."

```
::= { tn3270eTcpConnEntry 4 }
```

tn3270eTcpConnLocalPort OBJECT-TYPE
SYNTAX Unsigned32 (0..65535)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The remote port associated with a TN3270E client."

Expires March 1998

[Page 31]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1

::= { tn3270eTcpConnEntry 5 }

tn3270eTcpConnLocalAddrType OBJECT-TYPE
SYNTAX Tn3270eAddrType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Indicates whether the index element tcpConnLocalAddress
is a ipv4(1) or a ipv6(2) address."
::= { tn3270eTcpConnEntry 6 }

tn3270eTcpConnLastActivity OBJECT-TYPE
SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of 100ths of seconds since any data was
transferred for the associating TCP Connection."
DEFVAL { 0 }
::= { tn3270eTcpConnEntry 7 }

tn3270eTcpConnBytesIn OBJECT-TYPE
SYNTAX Counter32
UNITS "octets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of bytes received by the server from TCP
for this connection."
::= { tn3270eTcpConnEntry 8 }

tn3270eTcpConnBytesOut OBJECT-TYPE
SYNTAX Counter32
UNITS "octets"
MAX-ACCESS read-only

STATUS current
DESCRIPTION
"The number of bytes sent to TCP for this connection."
 ::= { tn3270eTcpConnEntry 9 }

tn3270eTcpConnResourceElement OBJECT-TYPE
SYNTAX SnaResourceName
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"LU/Print secondary name for connecting an IP client
into an SNA network."
 ::= { tn3270eTcpConnEntry 10 }

Expires March 1998

[Page 32]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1998

tn3270eTcpConnResourceType OBJECT-TYPE
SYNTAX Tn3270ResourceType
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the type of resource identified by
tn3270eTcpConnResourceElement."
 ::= { tn3270eTcpConnEntry 11 }

tn3270eTcpConnDeviceType OBJECT-TYPE
SYNTAX Tn3270DeviceTypes
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicates the device type if negotiated with client.
This object is also known as logmode."
 ::= { tn3270eTcpConnEntry 12 }

tn3270eTcpConnFunctions OBJECT-TYPE
SYNTAX Tn3270Functions
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object will indicates which of the TN3270 and TN3270E
functions that are supported by the server was negotiated
with a client. Refer to tn3270eSrvrFunctionsSupported."
 ::= { tn3270eTcpConnEntry 13 }

-- Conformance Definitions

```
tn3270eGroups      OBJECT IDENTIFIER ::= { tn3270eConformance 1 }
tn3270eCompliances OBJECT IDENTIFIER ::= { tn3270eConformance 2 }
```

-- compliance statements

```
tn3270eCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION
    "The compliance statement for agents that support the
    TN3270E-MIB."
  MODULE -- this module
  MANDATORY-GROUPS { tn3270eBasicGroup,
                     tn3270eSessionGroup
                   }
  GROUP          tn3270eResMapGroup
  DESCRIPTION
    "This group is optional and provides a method of
```

Expires March 1998

[Page 33]

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1

```
    performing tn3270eClientGroup to tn3270eResPool
    mapping."
OBJECT tn3270eSrvrConfActivityCheck
  MIN-ACCESS read-only
  DESCRIPTION
    "The agent is not required to support a set to this
    object if the associating TN3270E server doesn't
    support either TIMEMARK or NOP processing. In
    this case an agent should return noCheck on
    retrieval."
OBJECT tn3270eSrvrConfActivityTimeout
  MIN-ACCESS read-only
  DESCRIPTION
    "The agent is not required to support a set to this
    object if the functions enabled by
    tn3270eSrvrConfActivityCheck are not supported.
    An agent in this case should return a value of 0."
OBJECT tn3270eSrvrConfActivityInterval
  MIN-ACCESS read-only
  DESCRIPTION
    "The agent is not required to support a set to this
```

```
        object if the functions enabled by
        tn3270eSrvrConfActivityCheck are not supported.
        An agent in this case should return a value of 0."
OBJECT tn3270eSrvrConfAdminStatus
DESCRIPTION
    "A TN3270E server is not required to support a
    stopImmediate state transition."
 ::= { tn3270eCompliances 1 }
```

-- units of conformance

```
tn3270eBasicGroup OBJECT-GROUP
OBJECTS {
    tn3270eSrvrConfInactivityTimeout,
    tn3270eSrvrConfActivityCheck,
    tn3270eSrvrConfActivityTimeout,
    tn3270eSrvrConfActivityInterval,
    tn3270eSrvrFunctionsSupported,
    tn3270eSrvrConfAdminStatus,
    tn3270eSrvrConfOperStatus,
    tn3270eSrvrConfSessionTermState,
    tn3270eSrvrConfSrvrType,
    tn3270eSrvrConfContact,
    tn3270eSrvrConfRowStatus,
    tn3270eSrvrPortRowStatus,
    tn3270eSrvrStatsUpTime,
    tn3270eSrvrStatsMaxLus,
```

Expires March 1998

[Page 34]

White

TN3270E Management Information Base (TN3270E-MIB)

13 September 1

```
tn3270eSrvrStatsLusInUse,
tn3270eSrvrStatsSpareLus,
tn3270eSrvrStatsMaxPtrs,
tn3270eSrvrStatsPtrsInUse,
tn3270eSrvrStatsSparePtrs,
tn3270eSrvrStatsConnectsIn,
tn3270eSrvrStatsConnRejects,
tn3270eSrvrStatsDisconnects,
tn3270eSrvrStatsOctetsIn,
tn3270eSrvrStatsOctetsInLow,
tn3270eSrvrStatsOctetsOut,
tn3270eSrvrStatsOctetsOutLow,
tn3270eClientGroupSubnetMask,
tn3270eClientGroupPfxLength,
```

```

        tn3270eClientGroupRowStatus,
        tn3270eSnaMapLocalName
    }
    STATUS current
    DESCRIPTION
        "This group is mandatory for all hosts supporting the
        TN3270E-MIB."
    ::= { tn3270eGroups 1 }

tn3270eSessionGroup OBJECT-GROUP
    OBJECTS {
        tn3270eResMapAddrType,
        tn3270eResMapAddress,
        tn3270eResMapPort,
        tn3270eResMapElementType,
        tn3270eTcpConnLastActivity,
        tn3270eTcpConnBytesIn,
        tn3270eTcpConnBytesOut,
        tn3270eTcpConnResourceElement,
        tn3270eTcpConnResourceType,
        tn3270eTcpConnDeviceType,
        tn3270eTcpConnFunctions
    }
    STATUS current
    DESCRIPTION
        "This group is mandatory for all hosts supporting the
        TN3270E-MIB."
    ::= { tn3270eGroups 2 }

tn3270eResMapGroup OBJECT-GROUP
    OBJECTS {
        tn3270eResPoolElementType,
        tn3270eResPoolRowStatus,
        tn3270eClientResMapRowStatus

```

```

    }
    STATUS current
    DESCRIPTION
        "This group is optional for all hosts supporting the
        TN3270E-MIB."
    ::= { tn3270eGroups 3 } END

```


5. Security Considerations

Certain management information defined in this MIB may be considered sensitive in some network environments. Therefore, authentication of received SNMP requests and controlled access to management information should be employed in such environments. The method for this authentication is a function of the SNMP Administrative Framework, and has not been expanded by this MIB.

Several objects in this MIB allow write access or provide for remote creation. Allowing this support in a non-secure environment can have a negative effect on network operations. It is recommended that implementers seriously consider whether set operations should be allowed without providing, at a minimum, authentication of request origin. It is recommended that without such support that the following objects be implemented as read-only:

- o tn3270eSrvrConfInactivityTimeout
- o tn3270eSrvrConfActivityCheck
- o tn3270eSrvrConfActivityTimeout
- o tn3270eSrvrConfActivityInterval
- o tn3270eSrvrConfAdminStatus
- o tn3270eSrvrConfSessionTermState
- o tn3270eSrvrConfContact
- o tn3270eClientGroupSubnetMask
- o tn3270eResPoolElementType

The following objects should either be implemented as read-only or not implemented when security is an issue as previously discussed:

- o tn3270eSrvrConfRowStatus
- o tn3270eSrvrPortRowStatus
- o tn3270eClientGroupRowStatus
- o tn3270eResPoolRowStatus
- o tn3270eResMapRowStatus

6. Acknowledgments

This document is a product of the TN3270E Working Group.

7. References

- [1] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and Waldbusser S., "Structure of Management Information for version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1902](#), January 1996.
- [2] Network Working Group, Postel, J., and Reynolds, J., "Telnet Protocol Specification", [RFC 854](#), May 1983.
- [3] Network Working Group, Postel, J., and Reynolds, J., "Telnet Timing Mark Option", [RFC 860](#), May 1983.
- [4] Network Working Group and Rekhter J., "Telnet 3270 Regime Option", [RFC 1041](#), January 1988.
- [5] McCloghrie, K., and M. Rose, Editors, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, [RFC 1213](#), Hughes LAN Systems, Performance Systems International, March 1991.
- [6] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1903](#), January 1996.
- [7] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1905](#), January 1996.
- [8] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Conformance Statements for version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1904](#), January 1996.
- [9] Case, J., M. Fedor, M. Schoffstall, J. Davin, "Simple Network Management Protocol", [RFC 1157](#), SNMP Research, Performance Systems International, MIT Laboratory for Computer Science, May 1990.
- [10] IETF SNMPv2 Working Group and McCloghrie, K., "TCP-MIB

White TN3270E Management Information Base (TN3270E-MIB) 13 September 1997

Definitions", November 1994.

[11] Hinden, R., Deering, S., "IP Version 6 Addressing Architecture",
<[draft-ietf-ipngwg-addr-arch-v2-02.txt](#)>, July 16, 1997

[12] Krupczak, Cheryl, Saperia, Jonathan, "Definitions of System-Level
Managed Objects for Applications", April 15, 1997.

8. Authors' Address

Kenneth D. White
Dept. G80/Bldg 503
IBM Corporation
Research Triangle Park, NC 27709, USA
E-mail: kennethw@vnet.ibm.com

Expires March 1998

[Page 38]