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**Deprecation of MIB Module NAT-MIB (Managed Objects for Network Address Translators (NAT))**  
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Abstract

This memo deprecates MIB module NAT-MIB, a portion of the Management Information Base (MIB) previously defined in [RFC 4008](#) for devices implementing Network Address Translator (NAT) function. A companion document defines a new version, NAT-MIB-V2, which responds to deficiencies found in module NAT-MIB and adds new capabilities.

This document obsoletes [RFC 4008](#).

Status of This Memo

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Table of Contents

- [1.](#) Introduction . . . . . [2](#)
- [2.](#) The Internet-Standard Management Framework . . . . . [3](#)
- [3.](#) Motivation For Deprecating NAT-MIB . . . . . [3](#)
  - [3.1.](#) Deprecated Features . . . . . [3](#)
  - [3.2.](#) Desirable New Features . . . . . [4](#)
- [4.](#) Definitions . . . . . [5](#)
- [5.](#) Security Considerations . . . . . [55](#)
- [6.](#) IANA Considerations . . . . . [57](#)
- [7.](#) References . . . . . [58](#)
  - [7.1.](#) Normative References . . . . . [58](#)
  - [7.2.](#) Informative References . . . . . [59](#)
- Authors' Addresses . . . . . [59](#)

**1. Introduction**

This memo deprecates a portion of the Management Information Base (MIB), MIB module NAT-MIB, for devices implementing the Network Address Translator (NAT) function. New implementations are encouraged to base themselves upon the second version of this MIB module, NAT-MIB-V2, defined in [[I-D.ietf-behave-nat-mib-v2](#)]. NAT types and their characteristics are defined in [[RFC2663](#)]. Traditional NAT function, in particular is defined in [[RFC3022](#)]. Neither NAT-MIB nor NAT-MIB-V2 addresses the firewall functions and neither can be used for configuring or monitoring them.

[Section 2](#) provides references to the SNMP management framework, which was used as the basis for the original MIB module definition and its deprecation. [Section 3](#) provides motivation for the deprecation of module NAT-MIB and its replacement by module NAT-MIB-V2. [Section 4](#) has the complete NAT-MIB module definition, with the STATUS of all objects changed to deprecated. [Section 5](#) describes security considerations relating to NAT-MIB, basically elaborating on the security considerations in [[RFC4008](#)].

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and



"OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

## **2. The Internet-Standard Management Framework**

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [Section 7 of \[RFC3410\]](#).

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, [\[RFC2578\]](#), STD 58, [\[RFC2579\]](#) and STD 58, [\[RFC2580\]](#).

## **3. Motivation For Deprecating NAT-MIB**

This section provides the motivation for deprecating the NAT-MIB module and its replacement by a new version.

### **3.1. Deprecated Features**

All objects defined in [\[RFC4008\]](#) have been marked with "STATUS deprecated" for the following reasons:

Writability: Experience with NAT has shown that implementations vary tremendously. The NAT algorithms and data structures have little in common across devices, and this results in wildly incompatible configuration parameters. Therefore, few implementations were ever able to claim full compliance.

Lesson learned: the MIB should be read-only as much as possible.

Exposing configuration parameters: Even in read-only mode, many configuration parameters were exposed by [\[RFC4008\]](#) (e.g. timeouts). Since implementations vary wildly in their sets of configuration parameters, few implementations could claim even basic compliance.

Lesson learned: the NAT MIB's purpose is not to expose configuration parameters.

Interfaces: Objects from [\[RFC4008\]](#) tie NAT state with interfaces (e.g. the interface table, the way map entries are grouped by interface). Many NAT implementations either never keep track of the interface or associate a mapping to a set of interfaces.



Since interfaces are at the core of [\[RFC4008\]](#), many NAT devices were unable to have a proper implementation.

Lesson learned: NAT is a logical function that may be independent of interfaces. Do not tie NAT state with interfaces.

NAT service types: [\[RFC4008\]](#) used four categories of NAT service: basicNat, napt, bidirectionalNat, twiceNat. These are ill-defined and many implementations either use different categories or do not use categories at all.

Lesson learned: do not try to categorize NAT types.

Limited transport protocol set: The set of transport protocols was defined as: other, icmp, udp, tcp. Furthermore, the numeric values corresponding to those labels were arbitrary, without relation to the actual standard protocol numbers. This meant that NAT implementations were limited to those protocols and were unable to expose information about DCCP, SCTP, etc.

Lesson learned: use standard transport protocol numbers.

### **3.2. Desirable New Features**

A number of desirable new features have been identified that are not present in NAT-MIB:

- o Additional protective limits on the quantity of state data stored by the NAT device.
- o As a result of the deployment of Carrier Grade NAT (CGN), support for retrieval of subscriber specific statistics and limits on subscriber activity.
- o Support for pools of external addresses and ports. These are often used in enterprise and ISP settings.
- o Efficient determination of the internal address that is mapped to a given external address and port, without having to iterate over all mappings.
- o Replacement of the arbitrary categories of napt, bidirectionalNat, twiceNat with explicit specification of the internal and external realm for each mapping, allowing the NAT to serve many realms.
- o [\[RFC4787\]](#) terminology: indication of the mapping behavior, the filtering behavior, and the address pooling behavior that were used to create a mapping.



- o Support for multiple NAT instances running on a single device.

#### 4. Definitions

This MIB module IMPORTs objects from [\[RFC2578\]](#), [\[RFC2579\]](#), and [\[RFC4001\]](#).

```
NAT-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY,
    OBJECT-TYPE,
    Integer32,
    Unsigned32,
    Gauge32,
    Counter64,
    TimeTicks,
    mib-2,
    NOTIFICATION-TYPE
        FROM SNMPv2-SMI
    TEXTUAL-CONVENTION,
    DisplayString,
    StorageType,
    RowStatus
        FROM SNMPv2-TC
    MODULE-COMPLIANCE,
    NOTIFICATION-GROUP,
    OBJECT-GROUP
        FROM SNMPv2-CONF
    ifIndex,
    ifCounterDiscontinuityGroup,
    InterfaceIndex
        FROM IF-MIB
    SnmpAdminString
        FROM SNMP-FRAMEWORK-MIB
    InetAddressType,
    InetAddress,
    InetAddressPrefixLength,
    InetPortNumber
        FROM INET-ADDRESS-MIB
    VPNIidOrZero
        FROM VPN-TC-STD-MIB;
```

```
natMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "201410180000Z"
```

```
-- RFC Ed.: set to publication date
```

```
    ORGANIZATION
```

```
        "IETF Behavior Engineering for Hindrance Avoidance"
```





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DESCRIPTION

"This MIB module defines the generic managed objects for NAT.

Copyright (C) The Internet Society (2014). This version of this MIB module is part of RFC yyyy; see the RFC itself for full legal notices."

-- RFC Ed.: replace yyyy with actual RFC number & remove this note"

REVISION "20141018000Z"

-- RFC Ed.: set to publication date

DESCRIPTION

"Deprecation, published as RFC yyyy."

-- RFC Ed.: replace yyyy with actual RFC number & set date"

REVISION "20050321000Z" -- 21th March 2005

DESCRIPTION



```
        "Initial version, published as RFC 4008."  
 ::= { mib-2 123 }
```

```
natMIBObjects OBJECT IDENTIFIER ::= { natMIB 1 }
```

```
NatProtocolType ::= TEXTUAL-CONVENTION
```

```
    STATUS      deprecated
```

```
    DESCRIPTION
```

```
        "A list of protocols that support the network  
        address translation. Inclusion of the values is  
        not intended to imply that those protocols  
        need to be supported. Any change in this  
        TEXTUAL-CONVENTION should also be reflected in  
        the definition of NatProtocolMap, which is a  
        BITS representation of this."
```

```
    SYNTAX      INTEGER {  
                none (1), -- not specified  
                other (2), -- none of the following  
                icmp (3),  
                udp (4),  
                tcp (5)  
            }
```

```
NatProtocolMap ::= TEXTUAL-CONVENTION
```

```
    STATUS      deprecated
```

```
    DESCRIPTION
```

```
        "A bitmap of protocol identifiers that support  
        the network address translation. Any change  
        in this TEXTUAL-CONVENTION should also be  
        reflected in the definition of NatProtocolType."
```

```
    SYNTAX      BITS {  
                other (0),  
                icmp (1),  
                udp (2),  
                tcp (3)  
            }
```

```
NatAddrMapId ::= TEXTUAL-CONVENTION
```

```
    DISPLAY-HINT "d"
```

```
    STATUS      deprecated
```

```
    DESCRIPTION
```

```
        "A unique id that is assigned to each address map  
        by a NAT enabled device."
```

```
    SYNTAX      Unsigned32 (1..4294967295)
```

```
NatBindIdOrZero ::= TEXTUAL-CONVENTION
```

```
    DISPLAY-HINT "d"
```

```
    STATUS      deprecated
```



## DESCRIPTION

"A unique id that is assigned to each bind by a NAT enabled device. The bind id will be zero in the case of a Symmetric NAT."

SYNTAX Unsigned32 (0..4294967295)

NatBindId ::= TEXTUAL-CONVENTION

DISPLAY-HINT "d"

STATUS deprecated

## DESCRIPTION

"A unique id that is assigned to each bind by a NAT enabled device."

SYNTAX Unsigned32 (1..4294967295)

NatSessionId ::= TEXTUAL-CONVENTION

DISPLAY-HINT "d"

STATUS deprecated

## DESCRIPTION

"A unique id that is assigned to each session by a NAT enabled device."

SYNTAX Unsigned32 (1..4294967295)

NatBindMode ::= TEXTUAL-CONVENTION

STATUS deprecated

## DESCRIPTION

"An indication of whether the bind is an address bind or an address port bind."

SYNTAX INTEGER {  
    addressBind (1),  
    addressPortBind (2)  
}

NatAssociationType ::= TEXTUAL-CONVENTION

STATUS deprecated

## DESCRIPTION

"An indication of whether the association is static or dynamic."

SYNTAX INTEGER {  
    static (1),  
    dynamic (2)  
}

NatTranslationEntity ::= TEXTUAL-CONVENTION

STATUS deprecated

## DESCRIPTION

"An indication of a) the direction of a session for which an address map entry, address bind or port bind is applicable, and b) the entity (source or



```
destination) within the session that is subject to
translation."
SYNTAX BITS {
    inboundSrcEndPoint (0),
    outboundDstEndPoint(1),
    inboundDstEndPoint (2),
    outboundSrcEndPoint(3)
}

--
-- Default Values for the Bind and NAT Protocol Timers
--

natDefTimeouts OBJECT IDENTIFIER ::= { natMIBObjects 1 }

natNotifCtrl OBJECT IDENTIFIER ::= { natMIBObjects 2 }

--
-- Address Bind and Port Bind related NAT configuration
--

natBindDefIdleTimeout OBJECT-TYPE
    SYNTAX      Unsigned32 (0..4294967295)
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      deprecated
    DESCRIPTION
        "The default Bind (Address Bind or Port Bind) idle
        timeout parameter.

        If the agent is capable of storing non-volatile
        configuration, then the value of this object must be
        restored after a re-initialization of the management
        system."
    DEFVAL { 0 }
    ::= { natDefTimeouts 1 }

--
-- UDP related NAT configuration
--

natUdpDefIdleTimeout OBJECT-TYPE
    SYNTAX      Unsigned32 (1..4294967295)
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      deprecated
    DESCRIPTION
```





"The default UDP idle timeout parameter.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system."

DEFVAL { 300 }  
 ::= { natDefTimeouts 2 }

--  
-- ICMP related NAT configuration  
--

natIcmpDefIdleTimeout OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)  
UNITS "seconds"  
MAX-ACCESS read-write  
STATUS deprecated  
DESCRIPTION

"The default ICMP idle timeout parameter.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system."

DEFVAL { 300 }  
 ::= { natDefTimeouts 3 }

--  
-- Other protocol parameters  
--

natOtherDefIdleTimeout OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)  
UNITS "seconds"  
MAX-ACCESS read-write  
STATUS deprecated  
DESCRIPTION

"The default idle timeout parameter for protocols represented by the value other (2) in NatProtocolType.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system."

DEFVAL { 60 }  
 ::= { natDefTimeouts 4 }



--  
-- TCP related NAT Timers  
--

natTcpDefIdleTimeout OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

UNITS "seconds"

MAX-ACCESS read-write

STATUS deprecated

DESCRIPTION

"The default time interval that a NAT session for an established TCP connection is allowed to remain valid without any activity on the TCP connection.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system."

DEFVAL { 86400 }

::= { natDefTimeouts 5 }

natTcpDefNegTimeout OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

UNITS "seconds"

MAX-ACCESS read-write

STATUS deprecated

DESCRIPTION

"The default time interval that a NAT session for a TCP connection that is not in the established state is allowed to remain valid without any activity on the TCP connection.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system."

DEFVAL { 60 }

::= { natDefTimeouts 6 }

natNotifThrottlingInterval OBJECT-TYPE

SYNTAX Integer32 (0 | 5..3600)

UNITS "seconds"

MAX-ACCESS read-write

STATUS deprecated

DESCRIPTION

"This object controls the generation of the natPacketDiscard notification.



If this object has a value of zero, then no natPacketDiscard notifications will be transmitted by the agent.

If this object has a non-zero value, then the agent must not generate more than one natPacketDiscard 'notification-event' in the indicated period, where a 'notification-event' is the generation of a single notification PDU type to a list of notification destinations. If additional NAT packets are discarded within the throttling period, then notification-events for these changes must be suppressed by the agent until the current throttling period expires.

If natNotifThrottlingInterval notification generation is enabled, the suggested default throttling period is 60 seconds, but generation of the natPacketDiscard notification should be disabled by default.

If the agent is capable of storing non-volatile configuration, then the value of this object must be restored after a re-initialization of the management system.

The actual transmission of notifications is controlled via the MIB modules in [RFC 3413](#)."

```
DEFVAL { 0 }
```

```
::= { natNotifCtrl 1 }
```

```
--
```

```
-- The NAT Interface Table
```

```
--
```

```
natInterfaceTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF NatInterfaceEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS deprecated
```

```
DESCRIPTION
```

```
"This table specifies the attributes for interfaces on a device supporting NAT function."
```

```
::= { natMIBObjects 3 }
```

```
natInterfaceEntry OBJECT-TYPE
```

```
SYNTAX NatInterfaceEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS deprecated
```

```
DESCRIPTION
```



"Each entry in the natInterfaceTable holds a set of parameters for an interface, instantiated by ifIndex. Therefore, the interface index must have been assigned, according to the applicable procedures, before it can be meaningfully used. Generally, this means that the interface must exist.

When natStorageType is of type nonVolatile, however, this may reflect the configuration for an interface whose ifIndex has been assigned but for which the supporting implementation is not currently present."

```
INDEX { ifIndex }
 ::= { natInterfaceTable 1 }
```

```
NatInterfaceEntry ::= SEQUENCE {
  natInterfaceRealm      INTEGER,
  natInterfaceServiceType  BITS,
  natInterfaceInTranslates Counter64,
  natInterfaceOutTranslates Counter64,
  natInterfaceDiscards   Counter64,
  natInterfaceStorageType StorageType,
  natInterfaceRowStatus  RowStatus
}
```

```
natInterfaceRealm OBJECT-TYPE
  SYNTAX      INTEGER {
                private (1),
                public (2)
              }
  MAX-ACCESS  read-create
  STATUS      deprecated
  DESCRIPTION
    "This object identifies whether this interface is
     connected to the private or the public realm."
  DEFVAL     { public }
  ::= { natInterfaceEntry 1 }
```

```
natInterfaceServiceType OBJECT-TYPE
  SYNTAX  BITS {
            basicNat (0),
            napt (1),
            bidirectionalNat (2),
            twiceNat (3)
          }
  MAX-ACCESS  read-create
  STATUS      deprecated
  DESCRIPTION
    "An indication of the direction in which new sessions
```





are permitted and the extent of translation done within the IP and transport headers."  
 ::= { natInterfaceEntry 2 }

natInterfaceInTranslates OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"Number of packets received on this interface that were translated.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natInterfaceEntry 3 }

natInterfaceOutTranslates OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"Number of translated packets that were sent out this interface.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natInterfaceEntry 4 }

natInterfaceDiscards OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"Number of packets that had to be rejected/dropped due to a lack of resources for this interface.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natInterfaceEntry 5 }

natInterfaceStorageType OBJECT-TYPE

SYNTAX StorageType

MAX-ACCESS read-create



```
STATUS      deprecated
DESCRIPTION
    "The storage type for this conceptual row.
    Conceptual rows having the value 'permanent'
    need not allow write-access to any columnar objects
    in the row."
REFERENCE
    "Textual Conventions for SMIV2, Section 2."
DEFVAL { nonVolatile }
 ::= { natInterfaceEntry 6 }

natInterfaceRowStatus OBJECT-TYPE
SYNTAX      RowStatus
MAX-ACCESS  read-create
STATUS      deprecated
DESCRIPTION
    "The status of this conceptual row.

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

    In particular, a newly created row cannot be made
    active until the corresponding instance of
    natInterfaceServiceType has been set.

    None of the objects in this row may be modified
    while the value of this object is active(1)."
```

REFERENCE

```
    "Textual Conventions for SMIV2, Section 2."
 ::= { natInterfaceEntry 7 }
```

```
--
-- The Address Map Table
--

natAddrMapTable OBJECT-TYPE
SYNTAX      SEQUENCE OF NatAddrMapEntry
MAX-ACCESS  not-accessible
STATUS      deprecated
DESCRIPTION
    "This table lists address map parameters for NAT."
 ::= { natMIBObjects 4 }

natAddrMapEntry OBJECT-TYPE
SYNTAX      NatAddrMapEntry
```



```

MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
    "This entry represents an address map to be used for
    NAT and contributes to the dynamic and/or static
    address mapping tables of the NAT device."
INDEX { ifIndex, natAddrMapIndex }
 ::= { natAddrMapTable 1 }

```

```

NatAddrMapEntry ::= SEQUENCE {
    natAddrMapIndex          NatAddrMapId,
    natAddrMapName           SnmpAdminString,
    natAddrMapEntryType     NatAssociationType,
    natAddrMapTranslationEntity NatTranslationEntity,
    natAddrMapLocalAddrType InetAddressType,
    natAddrMapLocalAddrFrom InetAddress,
    natAddrMapLocalAddrTo   InetAddress,
    natAddrMapLocalPortFrom InetPortNumber,
    natAddrMapLocalPortTo   InetPortNumber,
    natAddrMapGlobalAddrType InetAddressType,
    natAddrMapGlobalAddrFrom InetAddress,
    natAddrMapGlobalAddrTo   InetAddress,
    natAddrMapGlobalPortFrom InetPortNumber,
    natAddrMapGlobalPortTo   InetPortNumber,
    natAddrMapProtocol       NatProtocolMap,
    natAddrMapInTranslates   Counter64,
    natAddrMapOutTranslates  Counter64,
    natAddrMapDiscards       Counter64,
    natAddrMapAddrUsed       Gauge32,
    natAddrMapStorageType    StorageType,
    natAddrMapRowStatus      RowStatus
}

```

```

natAddrMapIndex OBJECT-TYPE
    SYNTAX      NatAddrMapId
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "Along with ifIndex, this object uniquely
        identifies an entry in the natAddrMapTable.
        Address map entries are applied in the order
        specified by natAddrMapIndex."
    ::= { natAddrMapEntry 1 }

```

```

natAddrMapName OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  read-create
    STATUS      deprecated

```



## DESCRIPTION

"Name identifying all map entries in the table associated with the same interface. All map entries with the same ifIndex MUST have the same map name."

::= { natAddrMapEntry 2 }

## natAddrMapEntryType OBJECT-TYPE

SYNTAX NatAssociationType

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"This parameter can be used to set up static or dynamic address maps."

::= { natAddrMapEntry 3 }

## natAddrMapTranslationEntity OBJECT-TYPE

SYNTAX NatTranslationEntity

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"The end-point entity (source or destination) in inbound or outbound sessions (i.e., first packets) that may be translated by an address map entry.

Session direction (inbound or outbound) is derived from the direction of the first packet of a session traversing a NAT interface.

NAT address (and Transport-ID) maps may be defined to effect inbound or outbound sessions.

Traditionally, address maps for Basic NAT and NAPT are configured on a public interface for outbound sessions, effecting translation of source end-point. The value of this object must be set to outboundSrcEndPoint for those interfaces.

Alternately, if address maps for Basic NAT and NAPT were to be configured on a private interface, the desired value for this object for the map entries would be inboundSrcEndPoint (i.e., effecting translation of source end-point for inbound sessions).

If TwiceNAT were to be configured on a private interface, the desired value for this object for the map entries would be a bitmask of inboundSrcEndPoint and inboundDstEndPoint."

::= { natAddrMapEntry 4 }





**natAddrMapLocalAddrType OBJECT-TYPE**

SYNTAX InetAddressType

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"This object specifies the address type used for  
natAddrMapLocalAddrFrom and natAddrMapLocalAddrTo."

::= { natAddrMapEntry 5 }

**natAddrMapLocalAddrFrom OBJECT-TYPE**

SYNTAX InetAddress

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"This object specifies the first IP address of the range  
of IP addresses mapped by this translation entry. The  
value of this object must be less than or equal to the  
value of the natAddrMapLocalAddrTo object.

The type of this address is determined by the value of  
the natAddrMapLocalAddrType object."

::= { natAddrMapEntry 6 }

**natAddrMapLocalAddrTo OBJECT-TYPE**

SYNTAX InetAddress

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"This object specifies the last IP address of the range  
of IP addresses mapped by this translation entry. If  
only a single address is being mapped, the value of this  
object is equal to the value of natAddrMapLocalAddrFrom.  
For a static NAT, the number of addresses in the range  
defined by natAddrMapLocalAddrFrom and  
natAddrMapLocalAddrTo must be equal to the number of  
addresses in the range defined by  
natAddrMapGlobalAddrFrom and natAddrMapGlobalAddrTo.  
The value of this object must be greater than or equal  
to the value of the natAddrMapLocalAddrFrom object.

The type of this address is determined by the value of  
the natAddrMapLocalAddrType object."

::= { natAddrMapEntry 7 }

**natAddrMapLocalPortFrom OBJECT-TYPE**

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS deprecated



## DESCRIPTION

"If this conceptual row describes a Basic NAT address mapping, then the value of this object must be zero. If this conceptual row describes NAPT, then the value of this object specifies the first port number in the range of ports being mapped.

The value of this object must be less than or equal to the value of the natAddrMapLocalPortTo object. If the translation specifies a single port, then the value of this object is equal to the value of natAddrMapLocalPortTo."

DEFVAL { 0 }

::= { natAddrMapEntry 8 }

## natAddrMapLocalPortTo OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"If this conceptual row describes a Basic NAT address mapping, then the value of this object must be zero. If this conceptual row describes NAPT, then the value of this object specifies the last port number in the range of ports being mapped.

The value of this object must be greater than or equal to the value of the natAddrMapLocalPortFrom object. If the translation specifies a single port, then the value of this object is equal to the value of natAddrMapLocalPortFrom."

DEFVAL { 0 }

::= { natAddrMapEntry 9 }

## natAddrMapGlobalAddrType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION

"This object specifies the address type used for natAddrMapGlobalAddrFrom and natAddrMapGlobalAddrTo."

::= { natAddrMapEntry 10 }

## natAddrMapGlobalAddrFrom OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-create

STATUS deprecated

## DESCRIPTION



"This object specifies the first IP address of the range of IP addresses being mapped to. The value of this object must be less than or equal to the value of the natAddrMapGlobalAddrTo object.

The type of this address is determined by the value of the natAddrMapGlobalAddrType object."

::= { natAddrMapEntry 11 }

natAddrMapGlobalAddrTo OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-create

STATUS deprecated

DESCRIPTION

"This object specifies the last IP address of the range of IP addresses being mapped to. If only a single address is being mapped to, the value of this object is equal to the value of natAddrMapGlobalAddrFrom. For a static NAT, the number of addresses in the range defined by natAddrMapGlobalAddrFrom and natAddrMapGlobalAddrTo must be equal to the number of addresses in the range defined by natAddrMapLocalAddrFrom and natAddrMapLocalAddrTo. The value of this object must be greater than or equal to the value of the natAddrMapGlobalAddrFrom object.

The type of this address is determined by the value of the natAddrMapGlobalAddrType object."

::= { natAddrMapEntry 12 }

natAddrMapGlobalPortFrom OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-create

STATUS deprecated

DESCRIPTION

"If this conceptual row describes a Basic NAT address mapping, then the value of this object must be zero. If this conceptual row describes NAPT, then the value of this object specifies the first port number in the range of ports being mapped to.

The value of this object must be less than or equal to the value of the natAddrMapGlobalPortTo object. If the translation specifies a single port, then the value of this object is equal to the value natAddrMapGlobalPortTo."

DEFVAL { 0 }



```
::= { natAddrMapEntry 13 }
```

```
natAddrMapGlobalPortTo OBJECT-TYPE
```

```
SYNTAX      InetPortNumber
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"If this conceptual row describes a Basic NAT address mapping, then the value of this object must be zero. If this conceptual row describes NAPT, then the value of this object specifies the last port number in the range of ports being mapped to.
```

```
The value of this object must be greater than or equal to the value of the natAddrMapGlobalPortFrom object. If the translation specifies a single port, then the value of this object is equal to the value of natAddrMapGlobalPortFrom."
```

```
DEFVAL { 0 }
```

```
::= { natAddrMapEntry 14 }
```

```
natAddrMapProtocol OBJECT-TYPE
```

```
SYNTAX      NatProtocolMap
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"This object specifies a bitmap of protocol identifiers."
```

```
::= { natAddrMapEntry 15 }
```

```
natAddrMapInTranslates OBJECT-TYPE
```

```
SYNTAX      Counter64
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"The number of inbound packets pertaining to this address map entry that were translated.
```

```
Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."
```

```
::= { natAddrMapEntry 16 }
```

```
natAddrMapOutTranslates OBJECT-TYPE
```

```
SYNTAX      Counter64
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```





"The number of outbound packets pertaining to this address map entry that were translated.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natAddrMapEntry 17 }

natAddrMapDiscards OBJECT-TYPE

SYNTAX Counter64  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of packets pertaining to this address map entry that were dropped due to lack of addresses in the address pool identified by this address map. The value of this object must always be zero in case of static address map.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natAddrMapEntry 18 }

natAddrMapAddrUsed OBJECT-TYPE

SYNTAX Gauge32  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of addresses pertaining to this address map that are currently being used from the NAT pool. The value of this object must always be zero in the case of a static address map."

::= { natAddrMapEntry 19 }

natAddrMapStorageType OBJECT-TYPE

SYNTAX StorageType  
MAX-ACCESS read-create  
STATUS deprecated  
DESCRIPTION

"The storage type for this conceptual row. Conceptual rows having the value 'permanent' need not allow write-access to any columnar objects in the row."

REFERENCE

"Textual Conventions for SMIV2, [Section 2](#)."



```
DEFVAL { nonVolatile }
 ::= { natAddrMapEntry 20 }

natAddrMapRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      deprecated
    DESCRIPTION
        "The status of this conceptual row.

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

        None of the objects in this row may be modified
        while the value of this object is active(1)."
```

REFERENCE

```
    "Textual Conventions for SMIV2, Section 2."
 ::= { natAddrMapEntry 21 }
```

```
--
-- Address Bind section
--

natAddrBindNumberOfEntries OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION
        "This object maintains a count of the number of entries
        that currently exist in the natAddrBindTable."
 ::= { natMIBObjects 5 }
```

```
--
-- The NAT Address BIND Table
--

natAddrBindTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF NatAddrBindEntry
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "This table holds information about the currently
        active NAT BINDs."
 ::= { natMIBObjects 6 }
```

```
natAddrBindEntry OBJECT-TYPE
```



SYNTAX NatAddrBindEntry

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Each entry in this table holds information about an active address BIND. These entries are lost upon agent restart.

This row has indexing which may create variables with more than 128 subidentifiers. Implementers of this table must be careful not to create entries that would result in OIDs which exceed the 128 subidentifier limit. Otherwise, the information cannot be accessed using SNMPv1, SNMPv2c or SNMPv3."

INDEX { ifIndex,  
natAddrBindLocalAddrType,  
natAddrBindLocalAddr }

::= { natAddrBindTable 1 }

```
NatAddrBindEntry ::= SEQUENCE {
    natAddrBindLocalAddrType      InetAddressType,
    natAddrBindLocalAddr         InetAddress,
    natAddrBindGlobalAddrType    InetAddressType,
    natAddrBindGlobalAddr       InetAddress,
    natAddrBindId                NatBindId,
    natAddrBindTranslationEntity NatTranslationEntity,
    natAddrBindType              NatAssociationType,
    natAddrBindMapIndex          NatAddrMapId,
    natAddrBindSessions          Gauge32,
    natAddrBindMaxIdleTime       TimeTicks,
    natAddrBindCurrentIdleTime   TimeTicks,
    natAddrBindInTranslates      Counter64,
    natAddrBindOutTranslates     Counter64
}
```

natAddrBindLocalAddrType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"This object specifies the address type used for natAddrBindLocalAddr."

::= { natAddrBindEntry 1 }

natAddrBindLocalAddr OBJECT-TYPE

SYNTAX InetAddress (SIZE (4|16))

MAX-ACCESS not-accessible



STATUS deprecated

DESCRIPTION

"This object represents the private-realm specific network layer address, which maps to the public-realm address represented by natAddrBindGlobalAddr.

The type of this address is determined by the value of the natAddrBindLocalAddrType object."

::= { natAddrBindEntry 2 }

natAddrBindGlobalAddrType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object specifies the address type used for natAddrBindGlobalAddr."

::= { natAddrBindEntry 3 }

natAddrBindGlobalAddr OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object represents the public-realm network layer address that maps to the private-realm network layer address represented by natAddrBindLocalAddr.

The type of this address is determined by the value of the natAddrBindGlobalAddrType object."

::= { natAddrBindEntry 4 }

natAddrBindId OBJECT-TYPE

SYNTAX NatBindId

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object represents a bind id that is dynamically assigned to each bind by a NAT enabled device. Each bind is represented by a bind id that is unique across both, the natAddrBindTable and the natAddrPortBindTable."

::= { natAddrBindEntry 5 }

natAddrBindTranslationEntity OBJECT-TYPE

SYNTAX NatTranslationEntity

MAX-ACCESS read-only

STATUS deprecated





## DESCRIPTION

"This object represents the direction of sessions for which this bind is applicable and the endpoint entity (source or destination) within the sessions that is subject to translation using the BIND.

Orientation of the bind can be a superset of translationEntity of the address map entry which forms the basis for this bind.

For example, if the translationEntity of an address map entry is outboundSrcEndPoint, the translationEntity of a bind derived from this map entry may either be outboundSrcEndPoint or it may be bidirectional (a bitmask of outboundSrcEndPoint and inboundDstEndPoint)."

::= { natAddrBindEntry 6 }

## natAddrBindType OBJECT-TYPE

SYNTAX NatAssociationType

MAX-ACCESS read-only

STATUS deprecated

## DESCRIPTION

"This object indicates whether the bind is static or dynamic."

::= { natAddrBindEntry 7 }

## natAddrBindMapIndex OBJECT-TYPE

SYNTAX NatAddrMapId

MAX-ACCESS read-only

STATUS deprecated

## DESCRIPTION

"This object is a pointer to the natAddrMapTable entry (and the parameters of that entry) which was used in creating this BIND. This object, in conjunction with the ifIndex (which identifies a unique addrMapName) points to a unique entry in the natAddrMapTable."

::= { natAddrBindEntry 8 }

## natAddrBindSessions OBJECT-TYPE

SYNTAX Gauge32

MAX-ACCESS read-only

STATUS deprecated

## DESCRIPTION

"Number of sessions currently using this BIND."

::= { natAddrBindEntry 9 }

## natAddrBindMaxIdleTime OBJECT-TYPE



SYNTAX TimeTicks  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"This object indicates the maximum time for which this bind can be idle with no sessions attached to it.

The value of this object is of relevance only for dynamic NAT."

::= { natAddrBindEntry 10 }

natAddrBindCurrentIdleTime OBJECT-TYPE

SYNTAX TimeTicks  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"At any given instance, this object indicates the time that this bind has been idle without any sessions attached to it.

The value of this object is of relevance only for dynamic NAT."

::= { natAddrBindEntry 11 }

natAddrBindInTranslates OBJECT-TYPE

SYNTAX Counter64  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of inbound packets that were successfully translated by using this bind entry.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natAddrBindEntry 12 }

natAddrBindOutTranslates OBJECT-TYPE

SYNTAX Counter64  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of outbound packets that were successfully translated using this bind entry.

Discontinuities in the value of this counter can occur



```
        at reinitialization of the management system and at
        other times as indicated by the value of
        ifCounterDiscontinuityTime on the relevant interface."
 ::= { natAddrBindEntry 13 }

--
-- Address Port Bind section
--

natAddrPortBindNumberOfEntries OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION
        "This object maintains a count of the number of entries
        that currently exist in the natAddrPortBindTable."
 ::= { natMIBObjects 7 }

--
-- The NAT Address Port Bind Table
--

natAddrPortBindTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF NatAddrPortBindEntry
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "This table holds information about the currently
        active NAPT BINDs."
 ::= { natMIBObjects 8 }

natAddrPortBindEntry OBJECT-TYPE
    SYNTAX      NatAddrPortBindEntry
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "Each entry in the this table holds information
        about a NAPT bind that is currently active.
        These entries are lost upon agent restart.

        This row has indexing which may create variables with
        more than 128 subidentifiers. Implementers of this
        table must be careful not to create entries which would
        result in OIDs that exceed the 128 subidentifier limit.
        Otherwise, the information cannot be accessed using
        SNMPv1, SNMPv2c or SNMPv3."
    INDEX      { ifIndex, natAddrPortBindLocalAddrType,
                natAddrPortBindLocalAddr, natAddrPortBindLocalPort,
```



```

        natAddrPortBindProtocol }
 ::= { natAddrPortBindTable 1 }

```

```

NatAddrPortBindEntry ::= SEQUENCE {
    natAddrPortBindLocalAddrType      InetAddressType,
    natAddrPortBindLocalAddr          InetAddress,
    natAddrPortBindLocalPort          InetPortNumber,
    natAddrPortBindProtocol           NatProtocolType,
    natAddrPortBindGlobalAddrType     InetAddressType,
    natAddrPortBindGlobalAddr        InetAddress,
    natAddrPortBindGlobalPort        InetPortNumber,
    natAddrPortBindId                 NatBindId,
    natAddrPortBindTranslationEntity  NatTranslationEntity,
    natAddrPortBindType               NatAssociationType,
    natAddrPortBindMapIndex           NatAddrMapId,
    natAddrPortBindSessions           Gauge32,
    natAddrPortBindMaxIdleTime        TimeTicks,
    natAddrPortBindCurrentIdleTime    TimeTicks,
    natAddrPortBindInTranslates       Counter64,
    natAddrPortBindOutTranslates      Counter64
}

```

```

natAddrPortBindLocalAddrType OBJECT-TYPE

```

```

    SYNTAX      InetAddressType

```

```

    MAX-ACCESS  not-accessible

```

```

    STATUS      deprecated

```

```

    DESCRIPTION

```

```

        "This object specifies the address type used for
        natAddrPortBindLocalAddr."

```

```

 ::= { natAddrPortBindEntry 1 }

```

```

natAddrPortBindLocalAddr OBJECT-TYPE

```

```

    SYNTAX      InetAddress (SIZE(4|16))

```

```

    MAX-ACCESS  not-accessible

```

```

    STATUS      deprecated

```

```

    DESCRIPTION

```

```

        "This object represents the private-realm specific
        network layer address which, in conjunction with
        natAddrPortBindLocalPort, maps to the public-realm
        network layer address and transport id represented by
        natAddrPortBindGlobalAddr and natAddrPortBindGlobalPort
        respectively."

```

```

        The type of this address is determined by the value of
        the natAddrPortBindLocalAddrType object."

```

```

 ::= { natAddrPortBindEntry 2 }

```





## natAddrPortBindLocalPort OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS not-accessible

STATUS deprecated

## DESCRIPTION

"For a protocol value TCP or UDP, this object represents the private-realm specific port number. On the other hand, for ICMP a bind is created only for query/response type ICMP messages such as ICMP echo, Timestamp, and Information request messages, and this object represents the private-realm specific identifier in the ICMP message, as defined in [RFC 792](#) for ICMPv4 and in [RFC 2463](#) for ICMPv6.

This object, together with natAddrPortBindProtocol, natAddrPortBindLocalAddrType, and natAddrPortBindLocalAddr, constitutes a session endpoint in the private realm. A bind entry binds a private realm specific endpoint to a public realm specific endpoint, as represented by the tuple of (natAddrPortBindGlobalPort, natAddrPortBindProtocol, natAddrPortBindGlobalAddrType, and natAddrPortBindGlobalAddr)."

::= { natAddrPortBindEntry 3 }

## natAddrPortBindProtocol OBJECT-TYPE

SYNTAX NatProtocolType

MAX-ACCESS not-accessible

STATUS deprecated

## DESCRIPTION

"This object specifies a protocol identifier. If the value of this object is none(1), then this bind entry applies to all IP traffic. Any other value of this object specifies the class of IP traffic to which this BIND applies."

::= { natAddrPortBindEntry 4 }

## natAddrPortBindGlobalAddrType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-only

STATUS deprecated

## DESCRIPTION

"This object specifies the address type used for natAddrPortBindGlobalAddr."

::= { natAddrPortBindEntry 5 }

## natAddrPortBindGlobalAddr OBJECT-TYPE

SYNTAX InetAddress



MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"This object represents the public-realm specific network layer address that, in conjunction with natAddrPortBindGlobalPort, maps to the private-realm

network layer address and transport id represented by natAddrPortBindLocalAddr and natAddrPortBindLocalPort, respectively.

The type of this address is determined by the value of the natAddrPortBindGlobalAddrType object."

::= { natAddrPortBindEntry 6 }

natAddrPortBindGlobalPort OBJECT-TYPE

SYNTAX InetPortNumber  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"For a protocol value TCP or UDP, this object represents the public-realm specific port number. On the other hand, for ICMP a bind is created only for query/response type ICMP messages such as ICMP echo, Timestamp, and Information request messages, and this object represents the public-realm specific identifier in the ICMP message, as defined in [RFC 792](#) for ICMPv4 and in [RFC 2463](#) for ICMPv6.

This object, together with natAddrPortBindProtocol, natAddrPortBindGlobalAddrType, and natAddrPortBindGlobalAddr, constitutes a session endpoint in the public realm. A bind entry binds a public realm specific endpoint to a private realm specific endpoint, as represented by the tuple of (natAddrPortBindLocalPort, natAddrPortBindProtocol, natAddrPortBindLocalAddrType, and natAddrPortBindLocalAddr)."

::= { natAddrPortBindEntry 7 }

natAddrPortBindId OBJECT-TYPE

SYNTAX NatBindId  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"This object represents a bind id that is dynamically assigned to each bind by a NAT enabled device. Each bind is represented by a unique bind id across both



```
        the natAddrBindTable and the natAddrPortBindTable."  
 ::= { natAddrPortBindEntry 8 }
```

```
natAddrPortBindTranslationEntity OBJECT-TYPE
```

```
SYNTAX      NatTranslationEntity
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"This object represents the direction of sessions  
for which this bind is applicable and the entity  
(source or destination) within the sessions that is  
subject to translation with the BIND.
```

```
Orientation of the bind can be a superset of the  
translationEntity of the address map entry that  
forms the basis for this bind.
```

```
For example, if the translationEntity of an  
address map entry is outboundSrcEndPoint, the  
translationEntity of a bind derived from this  
map entry may either be outboundSrcEndPoint or  
may be bidirectional (a bitmask of  
outboundSrcEndPoint and inboundDstEndPoint)."
```

```
 ::= { natAddrPortBindEntry 9 }
```

```
natAddrPortBindType OBJECT-TYPE
```

```
SYNTAX      NatAssociationType
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"This object indicates whether the bind is static or  
dynamic."
```

```
 ::= { natAddrPortBindEntry 10 }
```

```
natAddrPortBindMapIndex OBJECT-TYPE
```

```
SYNTAX      NatAddrMapId
```

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

```
STATUS      deprecated
```

```
DESCRIPTION
```

```
"This object is a pointer to the natAddrMapTable entry  
(and the parameters of that entry) used in  
creating this BIND. This object, in conjunction with  
the ifIndex (which identifies a unique addrMapName),  
points to a unique entry in the natAddrMapTable."
```

```
 ::= { natAddrPortBindEntry 11 }
```

```
natAddrPortBindSessions OBJECT-TYPE
```

```
SYNTAX      Gauge32
```



MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION  
    "Number of sessions currently using this BIND."  
 ::= { natAddrPortBindEntry 12 }

natAddrPortBindMaxIdleTime OBJECT-TYPE

SYNTAX TimeTicks  
MAX-ACCESS read-only  
STATUS deprecated

DESCRIPTION

    "This object indicates the maximum time for which this bind can be idle without any sessions attached to it.

    The value of this object is of relevance only for dynamic NAT."

::= { natAddrPortBindEntry 13 }

natAddrPortBindCurrentIdleTime OBJECT-TYPE

SYNTAX TimeTicks  
MAX-ACCESS read-only  
STATUS deprecated

DESCRIPTION

    "At any given instance, this object indicates the time that this bind has been idle without any sessions attached to it.

    The value of this object is of relevance only for dynamic NAT."

::= { natAddrPortBindEntry 14 }

natAddrPortBindInTranslates OBJECT-TYPE

SYNTAX Counter64  
MAX-ACCESS read-only  
STATUS deprecated

DESCRIPTION

    "The number of inbound packets that were translated as per this bind entry.

    Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natAddrPortBindEntry 15 }

natAddrPortBindOutTranslates OBJECT-TYPE

SYNTAX Counter64





```

MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
    "The number of outbound packets that were translated as
    per this bind entry.

    Discontinuities in the value of this counter can occur
    at reinitialization of the management system and at
    other times, as indicated by the value of
    ifCounterDiscontinuityTime on the relevant interface."
 ::= { natAddrPortBindEntry 16 }

--
-- The Session Table
--

natSessionTable OBJECT-TYPE
    SYNTAX SEQUENCE OF NatSessionEntry
    MAX-ACCESS not-accessible
    STATUS deprecated
    DESCRIPTION
        "The (conceptual) table containing one entry for each
        NAT session currently active on this NAT device."
    ::= { natMIBObjects 9 }

natSessionEntry OBJECT-TYPE
    SYNTAX NatSessionEntry
    MAX-ACCESS not-accessible
    STATUS deprecated
    DESCRIPTION
        "An entry (conceptual row) containing information
        about an active NAT session on this NAT device.
        These entries are lost upon agent restart."
    INDEX { ifIndex, natSessionIndex }
    ::= { natSessionTable 1 }

NatSessionEntry ::= SEQUENCE {
    natSessionIndex NatSessionId,
    natSessionPrivateSrcEPBindId NatBindIdOrZero,
    natSessionPrivateSrcEPBindMode NatBindMode,
    natSessionPrivateDstEPBindId NatBindIdOrZero,
    natSessionPrivateDstEPBindMode NatBindMode,
    natSessionDirection INTEGER,
    natSessionUpTime TimeTicks,
    natSessionAddrMapIndex NatAddrMapId,
    natSessionProtocolType NatProtocolType,
    natSessionPrivateAddrType InetAddressType,
    natSessionPrivateSrcAddr InetAddress,

```



```
    natSessionPrivateSrcPort      InetPortNumber,
    natSessionPrivateDstAddr      InetAddress,
    natSessionPrivateDstPort      InetPortNumber,
    natSessionPublicAddrType      InetAddressType,
    natSessionPublicSrcAddr       InetAddress,
    natSessionPublicSrcPort       InetPortNumber,
    natSessionPublicDstAddr       InetAddress,
    natSessionPublicDstPort       InetPortNumber,
    natSessionMaxIdleTime         TimeTicks,
    natSessionCurrentIdleTime     TimeTicks,
    natSessionInTranslates        Counter64,
    natSessionOutTranslates       Counter64
}

natSessionIndex OBJECT-TYPE
    SYNTAX      NatSessionId
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "The session ID for this NAT session."
    ::= { natSessionEntry 1 }

natSessionPrivateSrcEPBindId OBJECT-TYPE
    SYNTAX      NatBindIdOrZero
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION
        "The bind id associated between private and public
        source end points.  In the case of Symmetric-NAT,
        this should be set to zero."
    ::= { natSessionEntry 2 }

natSessionPrivateSrcEPBindMode OBJECT-TYPE
    SYNTAX      NatBindMode
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION
        "This object indicates whether the bind indicated
        by the object natSessionPrivateSrcEPBindId
        is an address bind or an address port bind."
    ::= { natSessionEntry 3 }

natSessionPrivateDstEPBindId OBJECT-TYPE
    SYNTAX      NatBindIdOrZero
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION
        "The bind id associated between private and public
```



```
        destination end points."  
 ::= { natSessionEntry 4 }
```

natSessionPrivateDstEPBindMode OBJECT-TYPE

SYNTAX NatBindMode

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object indicates whether the bind indicated  
by the object natSessionPrivateDstEPBindId  
is an address bind or an address port bind."

```
 ::= { natSessionEntry 5 }
```

natSessionDirection OBJECT-TYPE

```
SYNTAX INTEGER {  
        inbound (1),  
        outbound (2)  
}
```

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The direction of this session with respect to the  
local network. 'inbound' indicates that this session  
was initiated from the public network into the private  
network. 'outbound' indicates that this session was  
initiated from the private network into the public  
network."

```
 ::= { natSessionEntry 6 }
```

natSessionUpTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The up time of this session in one-hundredths of a  
second."

```
 ::= { natSessionEntry 7 }
```

natSessionAddrMapIndex OBJECT-TYPE

SYNTAX NatAddrMapId

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object is a pointer to the natAddrMapTable entry  
(and the parameters of that entry) used in  
creating this session. This object, in conjunction with  
the ifIndex (which identifies a unique addrMapName),



points to a unique entry in the natAddrMapTable."  
 ::= { natSessionEntry 8 }

natSessionProtocolType OBJECT-TYPE  
 SYNTAX NatProtocolType  
 MAX-ACCESS read-only  
 STATUS deprecated  
 DESCRIPTION  
 "The protocol type of this session."  
 ::= { natSessionEntry 9 }

natSessionPrivateAddrType OBJECT-TYPE  
 SYNTAX InetAddressType  
 MAX-ACCESS read-only  
 STATUS deprecated  
 DESCRIPTION  
 "This object specifies the address type used for  
 natSessionPrivateSrcAddr and natSessionPrivateDstAddr."  
 ::= { natSessionEntry 10 }

natSessionPrivateSrcAddr OBJECT-TYPE  
 SYNTAX InetAddress  
 MAX-ACCESS read-only  
 STATUS deprecated  
 DESCRIPTION  
 "The source IP address of the session endpoint that  
 lies in the private network.  
  
 The value of this object must be zero only when the  
 natSessionPrivateSrcEPBindId object has a zero value.  
 When the value of this object is zero, the NAT session  
 lookup will match any IP address to this field.  
  
 The type of this address is determined by the value of  
 the natSessionPrivateAddrType object."  
 ::= { natSessionEntry 11 }

natSessionPrivateSrcPort OBJECT-TYPE  
 SYNTAX InetPortNumber  
 MAX-ACCESS read-only  
 STATUS deprecated  
 DESCRIPTION  
 "When the value of protocol is TCP or UDP, this object  
 represents the source port in the first packet of  
 session while in private-realm. On the other hand, when  
 the protocol is ICMP, a NAT session is created only for  
 query/response type ICMP messages such as ICMP echo,  
 Timestamp, and Information request messages, and this





object represents the private-realm specific identifier in the ICMP message, as defined in [RFC 792](#) for ICMPv4 and in [RFC 2463](#) for ICMPv6.

The value of this object must be zero when the natSessionPrivateSrcEPBindId object has zero value and value of natSessionPrivateSrcEPBindMode is addressPortBind(2). In such a case, the NAT session lookup will match any port number to this field.

The value of this object must be zero when the object is not a representative field (SrcPort, DstPort, or ICMP identifier) of the session tuple in either the public realm or the private realm."

```
::= { natSessionEntry 12 }
```

#### natSessionPrivateDstAddr OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-only

STATUS deprecated

#### DESCRIPTION

"The destination IP address of the session endpoint that lies in the private network.

The value of this object must be zero when the natSessionPrivateDstEPBindId object has a zero value. In such a scenario, the NAT session lookup will match any IP address to this field.

The type of this address is determined by the value of the natSessionPrivateAddrType object."

```
::= { natSessionEntry 13 }
```

#### natSessionPrivateDstPort OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-only

STATUS deprecated

#### DESCRIPTION

"When the value of protocol is TCP or UDP, this object represents the destination port in the first packet of session while in private-realm. On the other hand, when the protocol is ICMP, this object is not relevant and should be set to zero.

The value of this object must be zero when the natSessionPrivateDstEPBindId object has a zero value and natSessionPrivateDstEPBindMode is set to addressPortBind(2). In such a case, the NAT session



lookup will match any port number to this field.

The value of this object must be zero when the object is not a representative field (SrcPort, DstPort, or ICMP identifier) of the session tuple in either the public realm or the private realm."

```
::= { natSessionEntry 14 }
```

natSessionPublicAddrType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"This object specifies the address type used for natSessionPublicSrcAddr and natSessionPublicDstAddr."

```
::= { natSessionEntry 15 }
```

natSessionPublicSrcAddr OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The source IP address of the session endpoint that lies in the public network.

The value of this object must be zero when the natSessionPrivateSrcEPBindId object has a zero value. In such a scenario, the NAT session lookup will match any IP address to this field.

The type of this address is determined by the value of the natSessionPublicAddrType object."

```
::= { natSessionEntry 16 }
```

natSessionPublicSrcPort OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"When the value of protocol is TCP or UDP, this object represents the source port in the first packet of session while in public-realm. On the other hand, when protocol is ICMP, a NAT session is created only for query/response type ICMP messages such as ICMP echo, Timestamp, and Information request messages, and this object represents the public-realm specific identifier in the ICMP message, as defined in [RFC 792](#) for ICMPv4 and in [RFC 2463](#) for ICMPv6.



The value of this object must be zero when the natSessionPrivateSrcEPBindId object has a zero value and natSessionPrivateSrcEPBindMode is set to addressPortBind(2). In such a scenario, the NAT session lookup will match any port number to this field.

The value of this object must be zero when the object is not a representative field (SrcPort, DstPort or ICMP identifier) of the session tuple in either the public realm or the private realm."

::= { natSessionEntry 17 }

natSessionPublicDstAddr OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The destination IP address of the session endpoint that lies in the public network.

The value of this object must be non-zero when the natSessionPrivateDstEPBindId object has a non-zero value. If the value of this object and the corresponding natSessionPrivateDstEPBindId object value is zero, then the NAT session lookup will match any IP address to this field.

The type of this address is determined by the value of the natSessionPublicAddrType object."

::= { natSessionEntry 18 }

natSessionPublicDstPort OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"When the value of protocol is TCP or UDP, this object represents the destination port in the first packet of session while in public-realm. On the other hand, when the protocol is ICMP, this object is not relevant for translation and should be zero.

The value of this object must be zero when the natSessionPrivateDstEPBindId object has a zero value and natSessionPrivateDstEPBindMode is addressPortBind(2). In such a scenario, the NAT session lookup will match any port number to this



field.

The value of this object must be zero when the object is not a representative field (SrcPort, DstPort, or ICMP identifier) of the session tuple in either the public realm or the private realm."

::= { natSessionEntry 19 }

natSessionMaxIdleTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The max time for which this session can be idle without detecting a packet."

::= { natSessionEntry 20 }

natSessionCurrentIdleTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The time since a packet belonging to this session was last detected."

::= { natSessionEntry 21 }

natSessionInTranslates OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of inbound packets that were translated for this session.

Discontinuities in the value of this counter can occur at reinitialization of the management system and at other times, as indicated by the value of ifCounterDiscontinuityTime on the relevant interface."

::= { natSessionEntry 22 }

natSessionOutTranslates OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of outbound packets that were translated for this session.





```
        Discontinuities in the value of this counter can occur
        at reinitialization of the management system and at
        other times, as indicated by the value of
        ifCounterDiscontinuityTime on the relevant interface."
 ::= { natSessionEntry 23 }

--
-- The Protocol table
--

natProtocolTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF NatProtocolEntry
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "The (conceptual) table containing per protocol NAT
        statistics."
 ::= { natMIBObjects 10 }

natProtocolEntry OBJECT-TYPE
    SYNTAX      NatProtocolEntry
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "An entry (conceptual row) containing NAT statistics
        pertaining to a particular protocol."
    INDEX      { natProtocol }
 ::= { natProtocolTable 1 }

NatProtocolEntry ::= SEQUENCE {
    natProtocol          NatProtocolType,
    natProtocolInTranslates Counter64,
    natProtocolOutTranslates Counter64,
    natProtocolDiscards Counter64
}

natProtocol OBJECT-TYPE
    SYNTAX      NatProtocolType
    MAX-ACCESS  not-accessible
    STATUS      deprecated
    DESCRIPTION
        "This object represents the protocol pertaining to which
        parameters are reported."
 ::= { natProtocolEntry 1 }

natProtocolInTranslates OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
```



```
STATUS      deprecated
DESCRIPTION
    "The number of inbound packets pertaining to the protocol
    identified by natProtocol that underwent NAT.

    Discontinuities in the value of this counter can occur
    at reinitialization of the management system and at
    other times, as indicated by the value of
    ifCounterDiscontinuityTime on the relevant interface."
 ::= { natProtocolEntry 2 }

natProtocolOutTranslates OBJECT-TYPE
SYNTAX      Counter64
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
    "The number of outbound packets pertaining to the
    protocol identified by natProtocol that underwent NAT.

    Discontinuities in the value of this counter can occur
    at reinitialization of the management system and at
    other times, as indicated by the value of
    ifCounterDiscontinuityTime on the relevant interface."
 ::= { natProtocolEntry 3 }

natProtocolDiscards OBJECT-TYPE
SYNTAX      Counter64
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
    "The number of packets pertaining to the protocol
    identified by natProtocol that had to be
    rejected/dropped due to lack of resources.  These
    rejections could be due to session timeout, resource
    unavailability, lack of address space, etc.

    Discontinuities in the value of this counter can occur
    at reinitialization of the management system and at
    other times, as indicated by the value of
    ifCounterDiscontinuityTime on the relevant interface."
 ::= { natProtocolEntry 4 }

--
-- Notifications section
--

natMIBNotifications OBJECT IDENTIFIER ::= { natMIB 0 }
```



```
--
-- Notifications
--

natPacketDiscard NOTIFICATION-TYPE
  OBJECTS { ifIndex }
  STATUS deprecated
  DESCRIPTION
    "This notification is generated when IP packets are
    discarded by the NAT function; e.g., due to lack of
    mapping space when NAT is out of addresses or ports.

    Note that the generation of natPacketDiscard
    notifications is throttled by the agent, as specified
    by the 'natNotifThrottlingInterval' object."
  ::= { natMIBNotifications 1 }

--
-- Conformance information.
--

natMIBConformance OBJECT IDENTIFIER ::= { natMIB 2 }

natMIBGroups      OBJECT IDENTIFIER ::= { natMIBConformance 1 }
natMIBCompliances OBJECT IDENTIFIER ::= { natMIBConformance 2 }

--
-- Units of conformance
--

natConfigGroup OBJECT-GROUP
  OBJECTS { natInterfaceRealm,
            natInterfaceServiceType,
            natInterfaceStorageType,
            natInterfaceRowStatus,
            natAddrMapName,
            natAddrMapEntryType,
            natAddrMapTranslationEntity,
            natAddrMapLocalAddrType,
            natAddrMapLocalAddrFrom,
            natAddrMapLocalAddrTo,
            natAddrMapLocalPortFrom,
            natAddrMapLocalPortTo,
            natAddrMapGlobalAddrType,
            natAddrMapGlobalAddrFrom,
            natAddrMapGlobalAddrTo,
```



```
natAddrMapGlobalPortFrom,  
natAddrMapGlobalPortTo,  
natAddrMapProtocol,  
natAddrMapStorageType,  
natAddrMapRowStatus,  
natBindDefIdleTimeout,  
natUdpDefIdleTimeout,  
natIcmpDefIdleTimeout,  
natOtherDefIdleTimeout,  
natTcpDefIdleTimeout,  
natTcpDefNegTimeout,  
natNotifThrottlingInterval }
```

STATUS deprecated

DESCRIPTION

"A collection of configuration-related information required to support management of devices supporting NAT."

::= { natMIBGroups 1 }

natTranslationGroup OBJECT-GROUP

```
OBJECTS { natAddrBindNumberOfEntries,  
natAddrBindGlobalAddrType,  
natAddrBindGlobalAddr,  
natAddrBindId,  
natAddrBindTranslationEntity,  
natAddrBindType,  
natAddrBindMapIndex,  
natAddrBindSessions,  
natAddrBindMaxIdleTime,  
natAddrBindCurrentIdleTime,  
natAddrBindInTranslates,  
natAddrBindOutTranslates,  
natAddrPortBindNumberOfEntries,  
natAddrPortBindGlobalAddrType,  
natAddrPortBindGlobalAddr,  
natAddrPortBindGlobalPort,  
natAddrPortBindId,  
natAddrPortBindTranslationEntity,  
natAddrPortBindType,  
natAddrPortBindMapIndex,  
natAddrPortBindSessions,  
natAddrPortBindMaxIdleTime,  
natAddrPortBindCurrentIdleTime,  
natAddrPortBindInTranslates,  
natAddrPortBindOutTranslates,  
natSessionPrivateSrcEPBindId,  
natSessionPrivateSrcEPBindMode,  
natSessionPrivateDstEPBindId,
```





```
natSessionPrivateDstEPBindMode,  
natSessionDirection,  
natSessionUpTime,  
natSessionAddrMapIndex,  
natSessionProtocolType,  
natSessionPrivateAddrType,  
natSessionPrivateSrcAddr,  
natSessionPrivateSrcPort,  
natSessionPrivateDstAddr,  
natSessionPrivateDstPort,  
natSessionPublicAddrType,  
natSessionPublicSrcAddr,  
natSessionPublicSrcPort,  
natSessionPublicDstAddr,  
natSessionPublicDstPort,  
natSessionMaxIdleTime,  
natSessionCurrentIdleTime,  
natSessionInTranslates,  
natSessionOutTranslates }
```

STATUS deprecated

DESCRIPTION

"A collection of BIND-related objects required to support management of devices supporting NAT."

::= { natMIBGroups 2 }

natStatsInterfaceGroup OBJECT-GROUP

```
OBJECTS { natInterfaceInTranslates,  
          natInterfaceOutTranslates,  
          natInterfaceDiscards }
```

STATUS deprecated

DESCRIPTION

"A collection of NAT statistics associated with the interface on which NAT is configured, to aid troubleshooting/monitoring of the NAT operation."

::= { natMIBGroups 3 }

natStatsProtocolGroup OBJECT-GROUP

```
OBJECTS { natProtocolInTranslates,  
          natProtocolOutTranslates,  
          natProtocolDiscards }
```

STATUS deprecated

DESCRIPTION

"A collection of protocol specific NAT statistics, to aid troubleshooting/monitoring of NAT operation."

::= { natMIBGroups 4 }

natStatsAddrMapGroup OBJECT-GROUP



```
OBJECTS { natAddrMapInTranslates,
          natAddrMapOutTranslates,
          natAddrMapDiscards,
          natAddrMapAddrUsed }
STATUS deprecated
DESCRIPTION
    "A collection of address map specific NAT statistics,
     to aid troubleshooting/monitoring of NAT operation."
 ::= { natMIBGroups 5 }

natMIBNotificationGroup NOTIFICATION-GROUP
NOTIFICATIONS { natPacketDiscard }
STATUS deprecated
DESCRIPTION
    "A collection of notifications generated by
     devices supporting this MIB."
 ::= { natMIBGroups 6 }

--
-- Compliance statements
--

natMIBFullCompliance MODULE-COMPLIANCE
STATUS deprecated
DESCRIPTION
    "When this MIB is implemented with support for
     read-create, then such an implementation can claim
     full compliance. Such devices can then be both
     monitored and configured with this MIB.

     The following index objects cannot be added as OBJECT
     clauses but nevertheless have the compliance
     requirements:
     "
    -- OBJECT natAddrBindLocalAddrType
    -- SYNTAX InetAddressType { ipv4(1), ipv6(2) }
    -- DESCRIPTION
    --     "An implementation is required to support
    --     global IPv4 and/or IPv6 addresses, depending
    --     on its support for IPv4 and IPv6."

    -- OBJECT natAddrBindLocalAddr
    -- SYNTAX InetAddress (SIZE(4|16))
    -- DESCRIPTION
    --     "An implementation is required to support
    --     global IPv4 and/or IPv6 addresses, depending
    --     on its support for IPv4 and IPv6."
```



```
-- OBJECT  natAddrPortBindLocalAddrType
-- SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
-- DESCRIPTION
--      "An implementation is required to support
--      global IPv4 and/or IPv6 addresses, depending
--      on its support for IPv4 and IPv6."

-- OBJECT  natAddrPortBindLocalAddr
-- SYNTAX  InetAddress (SIZE(4|16))
-- DESCRIPTION
--      "An implementation is required to support
--      global IPv4 and/or IPv6 addresses, depending
--      on its support for IPv4 and IPv6."

MODULE IF-MIB -- The interfaces MIB, RFC2863
  MANDATORY-GROUPS {
    ifCounterDiscontinuityGroup
  }

MODULE -- this module
  MANDATORY-GROUPS { natConfigGroup, natTranslationGroup,
                    natStatsInterfaceGroup }

GROUP      natStatsProtocolGroup
DESCRIPTION
  "This group is optional."
GROUP      natStatsAddrMapGroup
DESCRIPTION
  "This group is optional."
GROUP      natMIBNotificationGroup
DESCRIPTION
  "This group is optional."

OBJECT  natAddrMapLocalAddrType
SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
  "An implementation is required to support global IPv4
  and/or IPv6 addresses, depending on its support
  for IPv4 and IPv6."

OBJECT  natAddrMapLocalAddrFrom
SYNTAX  InetAddress (SIZE(4|16))
DESCRIPTION
  "An implementation is required to support global IPv4
  and/or IPv6 addresses, depending on its support
  for IPv4 and IPv6."

OBJECT  natAddrMapLocalAddrTo
```



SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapGlobalAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapGlobalAddrFrom

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapGlobalAddrTo

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrBindGlobalAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrBindGlobalAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrPortBindGlobalAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."





OBJECT natAddrPortBindGlobalAddr  
SYNTAX InetAddress (SIZE(4|16))  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateAddrType  
SYNTAX InetAddressType { ipv4(1), ipv6(2) }  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateSrcAddr  
SYNTAX InetAddress (SIZE(4|16))  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateDstAddr  
SYNTAX InetAddress (SIZE(4|16))  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicAddrType  
SYNTAX InetAddressType { ipv4(1), ipv6(2) }  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicSrcAddr  
SYNTAX InetAddress (SIZE(4|16))  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicDstAddr  
SYNTAX InetAddress (SIZE(4|16))  
DESCRIPTION  
"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."



for IPv4 and IPv6."

::= { natMIBCompliances 1 }

natMIBReadOnlyCompliance MODULE-COMPLIANCE

STATUS deprecated

DESCRIPTION

"When this MIB is implemented without support for read-create (i.e., in read-only mode), then such an implementation can claim read-only compliance. Such a device can then be monitored but cannot be configured with this MIB.

The following index objects cannot be added as OBJECT clauses but nevertheless have the compliance requirements:

"

```
-- OBJECT  natAddrBindLocalAddrType
-- SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
-- DESCRIPTION
--          "An implementation is required to support
--          global IPv4 and/or IPv6 addresses, depending
--          on its support for IPv4 and IPv6."

-- OBJECT  natAddrBindLocalAddr
-- SYNTAX  InetAddress (SIZE(4|16))

-- DESCRIPTION
--          "An implementation is required to support
--          global IPv4 and/or IPv6 addresses, depending
--          on its support for IPv4 and IPv6."

-- OBJECT  natAddrPortBindLocalAddrType
-- SYNTAX  InetAddressType { ipv4(1), ipv6(2) }
-- DESCRIPTION
--          "An implementation is required to support
--          global IPv4 and/or IPv6 addresses, depending
--          on its support for IPv4 and IPv6."
-- OBJECT  natAddrPortBindLocalAddr
-- SYNTAX  InetAddress (SIZE(4|16))
-- DESCRIPTION
--          "An implementation is required to support
--          global IPv4 and/or IPv6 addresses, depending
--          on its support for IPv4 and IPv6."
```

MODULE IF-MIB -- The interfaces MIB, [RFC2863](#)

MANDATORY-GROUPS {

ifCounterDiscontinuityGroup



```
}  
  
MODULE -- this module  
  MANDATORY-GROUPS { natConfigGroup, natTranslationGroup,  
                      natStatsInterfaceGroup }  
  
  GROUP          natStatsProtocolGroup  
  DESCRIPTION  
    "This group is optional."  
  
  GROUP          natStatsAddrMapGroup  
  DESCRIPTION  
    "This group is optional."  
  
  GROUP          natMIBNotificationGroup  
  DESCRIPTION  
    "This group is optional."  
  
  OBJECT natInterfaceRowStatus  
  SYNTAX RowStatus { active(1) }  
  MIN-ACCESS    read-only  
  DESCRIPTION  
    "Write access is not required, and active is the only  
    status that needs to be supported."  
  
  OBJECT natAddrMapLocalAddrType  
  SYNTAX InetAddressType { ipv4(1), ipv6(2) }  
  MIN-ACCESS    read-only  
  DESCRIPTION  
    "Write access is not required. An implementation is  
    required to support global IPv4 and/or IPv6 addresses,  
    depending on its support for IPv4 and IPv6."  
  
  OBJECT natAddrMapLocalAddrFrom  
  SYNTAX InetAddress (SIZE(4|16))  
  MIN-ACCESS    read-only  
  DESCRIPTION  
    "Write access is not required. An implementation is  
    required to support global IPv4 and/or IPv6 addresses,  
    depending on its support for IPv4 and IPv6."  
  
  OBJECT natAddrMapLocalAddrTo  
  SYNTAX InetAddress (SIZE(4|16))  
  MIN-ACCESS    read-only  
  DESCRIPTION  
    "Write access is not required. An implementation is  
    required to support global IPv4 and/or IPv6 addresses,  
    depending on its support for IPv4 and IPv6."  
  
  OBJECT natAddrMapGlobalAddrType  
  SYNTAX InetAddressType { ipv4(1), ipv6(2) }
```



MIN-ACCESS read-only

DESCRIPTION

"Write access is not required. An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapGlobalAddrFrom

SYNTAX InetAddress (SIZE(4|16))

MIN-ACCESS read-only

DESCRIPTION

"Write access is not required. An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapGlobalAddrTo

SYNTAX InetAddress (SIZE(4|16))

MIN-ACCESS read-only

DESCRIPTION

"Write access is not required. An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrMapRowStatus

SYNTAX RowStatus { active(1) }

MIN-ACCESS read-only

DESCRIPTION

"Write access is not required, and active is the only status that needs to be supported."

OBJECT natAddrBindGlobalAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrBindGlobalAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natAddrPortBindGlobalAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for





IPv4 and IPv6."

OBJECT natAddrPortBindGlobalAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateSrcAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPrivateDstAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicAddrType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicSrcAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4 and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

OBJECT natSessionPublicDstAddr

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is required to support global IPv4



and/or IPv6 addresses, depending on its support for IPv4 and IPv6."

::= { natMIBCompliances 2 }

END

## 5. Security Considerations

The threats that need to be addressed are described in [Section 1.4 of \[RFC3411\]](#). They include modification of information, masquerade, message stream modification and disclosure. No protection is needed against denial of service and traffic analysis.

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write and/or read-create. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations. These are the tables and objects and their sensitivity/vulnerability:

Timers: An attacker setting very low timer values can easily cause a denial-of-service situation. NAT-MIB has the following read-write timers:

- \* natBindDefIdleTimeout
- \* natUdpDefIdleTimeout
- \* natIcmpDefIdleTimeout
- \* natOtherDefIdleTimeout
- \* natTcpDefIdleTimeout
- \* natTcpDefNegTimeout

Notification throttling: An attacker setting a very low throttling interval can cause many useless notifications to be generated. Disabling notifications could be used to hide another attack. Notification throttling is controlled by the object natNotifThrottlingInterval.

Other configuration: The following tables provide write access, at least in part:



- \* Rows of the natInterfaceTable are read-create, and the columnar objects indicating realm and service type are read-write. An attacker could deny service by modifying interface configuration, for instance by changing the realm from public to private where the interface is actually on the public side of the NAT.
- \* Similarly (to support static mapping), rows of the natAddrMapTable are read-create and thus potentially modifiable by an attacker.

Some of the readable objects in this MIB module (i.e., objects with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to control even GET and/or NOTIFY access to these objects and possibly to even encrypt the values of these objects when sending them over the network via SNMP. These are the tables and objects and their sensitivity/vulnerability:

Objects that reveal host identities: Various objects can reveal the identity of private hosts that are engaged in a session with external end nodes. A curious outsider could monitor these to assess the number of private hosts being supported by the NAT device. The outsider could use the information to break into specific private hosts by intercepting the existing sessions or originating new sessions into the host. This applies to the address and port related objects within the following tables:

- \* natAddrMapTable
- \* natAddrBindTable
- \* natAddrPortBindTable
- \* natSessionTable

Other objects that reveal NAT state: Other managed objects in this MIB may contain information that may be sensitive from a business perspective, in that they may represent NAT state information. This applies to the following counters:

- \* natAddrBindNumberOfEntries
- \* natAddrPortBindNumberOfEntries
- \* natInterfaceTable: natInterfaceInTranslates, natInterfaceOutTranslates, and natInterfaceDiscards



- \* natAddrMapTable: natAddrMapInTranslates, natAddrMapOutTranslates, natAddrMapDiscards, and natAddrMapAddrUsed
- \* natAddrBindTable: natAddrBindSessions, natAddrBindInTranslates, natAddrBindOutTranslates
- \* natAddrPortBindTable: natAddrPortBindSessions, natAddrPortBindInTranslates, natAddrPortBindOutTranslates
- \* natSessionTable: natSessionInTranslates, natSessionOutTranslates
- \* natProtocolTable: natProtocolInTranslates, natProtocolOutTranslates, natProtocolDiscards

There are no objects that are sensitive in their own right, such as passwords or monetary amounts.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPsec), there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

Implementations SHOULD provide the security features described by the SNMPv3 framework (see [[RFC3410](#)]), and implementations claiming compliance to the SNMPv3 standard MUST include full support for authentication and privacy via the User-based Security Model (USM) [[RFC3414](#)] with the AES cipher algorithm [[RFC3826](#)]. Implementations MAY also provide support for the Transport Security Model (TSM) [[RFC5591](#)] in combination with a secure transport such as SSH [[RFC5592](#)] or TLS/DTLS [[RFC6353](#)].

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

## 6. IANA Considerations

IANA has assigned object identifier 123 to the natMIB module, with prefix iso.org.dod.internet.mgmt.mib-2 in the Network Management Parameters registry [[SMI-NUMBERS](#)].





No IANA actions are required by this document.

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