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Definitions of Managed Objects for 4rd
draft-fu-softwire-4rd-mib-04

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Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it defines managed objects for 4rd.

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1. Introduction

4rd [I-D. [draft-ietf-software-4rd](#)] is a stateless mechanism for running IPv4 over IPv6-only infrastructure. It provides both IPv4 and IPv6 connectivity services simultaneously during the IPv4/IPv6 co-existing period.

This document defines a portion of the Management Information Base (MIB) for using with network management protocols in the Internet community. This MIB module may be used for monitoring the devices in the 4rd scenario.

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 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 [\[RFC2578\]](#), [\[RFC2579\]](#) and [\[RFC2580\]](#).

3. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

4. Structure of the MIB Module

The 4rd MIB provides a way to configure and manage the devices in 4rd

scenario through SNMP.

4rd MIB is configurable on a per-interface basis. It depends on several parts of the IF-MIB [[RFC2863](#)].

4.1. The fourRdRule Subtree

The fourRdRule subtree describes managed objects used for managing the multiple mapping rules in the 4rd scenario.

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4.2. The fourRdConformance Subtree

The Subtree provides conformance information of MIB objects.

[5](#). MIB modules required for IMPORTS

This MIB module IMPORTs objects from [[RFC2580](#)], [[RFC2578](#)], [[RFC2863](#)], [[RFC4001](#)], [[RFC3411](#)].

[6](#). Definitions

```
FourRd-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY, OBJECT-TYPE, mib-2, transmission,  
    Gauge32, Integer32, Counter64  
    FROM SNMPv2-SMI
```

```
    InetAddress,  
    InetPortNumber, InetAddressPrefixLength  
    FROM INET-ADDRESS-MIB
```

```
    OBJECT-GROUP, MODULE-COMPLIANCE  
    FROM SNMPv2-CONF;
```

```
fourRdMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "201308120000Z" -- February 14, 2014
```

```
    ORGANIZATION "IETF Softwire Working Group"
```

```
    CONTACT-INFO
```

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```

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DESCRIPTION

"The MIB module is defined for management of object in the
4rd scenario."

REVISION "201308120000Z"

DESCRIPTION

"Initial version. Published as RFC xxxx."

--RFC Ed.: RFC-editor pls fill in xxxx

::= { transmission xxx } --xxx to be replaced with correct
value

fourRdMIBObjects OBJECT IDENTIFIER

::= { fourRdMIB 1 }

fourRdRule OBJECT IDENTIFIER

::= { fourRdMIBObjects 1 }

--Conformance

fourRdMIBConformance OBJECT IDENTIFIER

::= { fourRdMIB 2 }

fourRdRuleTable OBJECT-TYPE

```

SYNTAX      SEQUENCE OF FourRdRuleEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The (conceptual) table containing rule information of
    specific mapping rule. It can also be used for row
    creation."
 ::= { fourRdRule 1 }

```

```

fourRdRuleEntry OBJECT-TYPE
    SYNTAX      FourRdRuleEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each entry in this table contains the information on a
        particular mapping rule."
    INDEX       { fourRdRuleID}
    ::= { fourRdRuleTable 1 }

```

```

FourRdRuleEntry ::=
    SEQUENCE {
        fourRdRuleID                Integer32,
        fourRdRuleIPv6Prefix         InetAddress,
        fourRdRuleIPv6PrefixLen      InetAddressPrefixLength,
        fourRdRuleIPv4Prefix         InetAddress,
        fourRdRuleIPv4PrefixLen      InetAddressPrefixLength,
        fourRdRuleStartPort          InetPortNumber,
        fourRdRuleEndPort            InetPortNumber,
        fourRdRuleEALen              Integer32
    }

```

```

fourRdRuleID OBJECT-TYPE
    SYNTAX Integer32 (1..2147483647)
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "An identifier used to distinguish the multiple mapping
        rule which is unique with each CE in the same BR."
    ::= { fourRdRuleEntry 1 }

```

```

fourRdRuleIPv6Prefix OBJECT-TYPE

```

SYNTAX InetAddress
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The IPv6 prefix defined in mapping rule which will be
 assigned to CE."
::= { fourRdRuleEntry 2 }

fourRdRuleIPv6PrefixLen OBJECT-TYPE
SYNTAX InetAddressPrefixLength
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The length of the IPv6 prefix defined in the mapping rule.
 As a parameter for mapping rule, it will be also assigned
 to CE."
::= { fourRdRuleEntry 3 }

fourRdRuleIPv4Prefix OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 " The IPv4 prefix defined in mapping rule which will be

 assigned to CE."
::= { fourRdRuleEntry 4 }

fourRdRuleIPv4PrefixLen OBJECT-TYPE
SYNTAX InetAddressPrefixLength
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The length of the IPv4 prefix defined in the mapping
 rule. As a parameter for mapping rule, it will be also
 assigned to CE."
::= { fourRdRuleEntry 5 }

fourRdRuleStartPort OBJECT-TYPE
SYNTAX InetPortNumber
MAX-ACCESS read-write
STATUS current

DESCRIPTION

"The start port number of the port range derived
from the mapping rule which will be assigned to CE."
::= { fourRdRuleEntry 6 }

fourRdRuleEndPort OBJECT-TYPE

SYNTAX InetPortNumber

MAX-ACCESS read-write

STATUS current

DESCRIPTION

" The end port number of the port range derived
from the mapping rule which will be assigned to CE."
::= { fourRdRuleEntry 7 }

fourRdRuleEALen OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The length of the Embedded-Address (EA) defined in
mapping rule which will be assigned to CE."
::= { fourRdRuleEntry 8 }

--Module Conformance statement

fourRdMIBCompliances OBJECT IDENTIFIER ::= { fourRdMIBConformance
1 }

fourRdMIBCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"Describes the minimal requirements for conformance
to the fourRd MIB."

MODULE -- this module

MANDATORY-GROUPS { fourRdRuleGroup }

::= { fourRdMIBCompliances 1 }

fourRdGroups OBJECT IDENTIFIER ::= { fourRdMIBConformance 2 }

fourRdRuleGroup OBJECT-GROUP

```

OBJECTS {
    fourRdRuleIPv6Prefix,
    fourRdRuleIPv6PrefixLen,
    fourRdRuleIPv4Prefix,
    fourRdRuleIPv4PrefixLen,
    fourRdRuleStartPort,
    fourRdRuleEndPort,
    fourRdRuleEALen,
}
STATUS current
DESCRIPTION
    " The collection of this objects are used to give the
      mapping rule information in 4rd."
 ::= { fourRdGroups 1 }

END

```

7. IANA Considerations

The MIB module in this document uses the following IANA-assigned OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

Descriptor -----	OBJECT IDENTIFIER value -----
FourRd-MIB	{ transmission XXX }

8. Security Considerations

The 4rd MIB module can be used for configuration of certain objects, and anything that can be configured can be incorrectly configured, with potentially disastrous results. Because this MIB module reuses the NAT MIB, the security considerations for these MIBs are also applicable to the 4rd MIB.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPsec), even then, 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.

It is RECOMMENDED that implementers consider the security features as

provided by the SNMPv3 framework (see [\[RFC3410\]](#), [section 8](#)), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

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 principles (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

[9](#). References

9.1. Normative References

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- [RFC2578] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIv2)", [RFC 2578](#), April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Textual Conventions for SMIv2", [RFC 2579](#), April 1999.
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9.2. Informative References

[RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002.

10. Change Log [RFC Editor please remove]

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[draft-fu-softwire-4rd-mib-01](#), 01 version, 2012-07-16
[draft-fu-softwire-4rd-mib-02](#), 02 version, 2013-01-17
[draft-fu-softwire-4rd-mib-03](#), 03 version, 2013-08-12

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