

Superseded

CableHome CAP MIB Specification

CH-SP-MIB-CAP-I07-041216

Issued

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Document Status Sheet

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Key to Document Status Codes:

- Work in Progress** An incomplete document, designed to guide discussion and generate feedback, which may include several alternative requirements for consideration.
- Draft** A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
- Issued** A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
- Closed** A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

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1 SCOPE

This specification describes CableHome Addressing Portal (CAP) requirements.

2 REFERENCES

2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

- [1] CableHome 1.0 Specification, CH-SP-CH1.0-I05-030801, August 1, 2003.
- [2] CableHome 1.1 Specification, CH-SP-CH1.1-I06-041216, December 16, 2004
- [3] CableLabs® Definition MIB Specification, CL-SP-MIB-CLABDEF-I04-040804, August 4, 2004.

2.2 Reference Acquisition

CableLabs Specifications:

- Cable Television Laboratories, Inc., <http://www.cablelabs.com/>

3 ACRONYMS

This specification uses the following acronyms:

| | |
|-------------|--|
| CAP | CableHome Addressing Portal |
| CDC | CableHome DHCP Client (component of CDP) |
| CDP | CableHome DHCP Portal |
| CDS | CableHome DHCP Server (component of CDP) |
| CMP | CableHome Management Portal |
| CTP | CableHome Test Portal |
| DHCP | Dynamic Host Configuration Protocol |
| NAPT | Network Address and Port Translation |
| NAT | Network Address Translation |
| PS | Portal Services |

4 REQUIREMENTS

The CableHome™ CAP MIB MUST be implemented as defined below.

```

CABH-CAP-MIB DEFINITIONS ::= BEGIN
IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    Unsigned32,
    Integer32           FROM SNMPv2-SMI
    TimeStamp,
    TruthValue,
    RowStatus,
    DateAndTime,
    PhysAddress        FROM SNMPv2-TC
    OBJECT-GROUP,
    MODULE-COMPLIANCE FROM SNMPv2-CONF
    InetAddressType,
    InetAddress,
    InetPortNumber    FROM INET-ADDRESS-MIB
    clabProjCableHome FROM CLAB-DEF-MIB
    SntpAdminString   FROM SNMP-FRAMEWORK-MIB;

cabhCapMib MODULE-IDENTITY
    LAST-UPDATED   "200412160000Z" --December 16, 2004
    ORGANIZATION   "CableLabs Broadband Access Department"
    CONTACT-INFO
        "Kevin Luehrs
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        Phone:  +1 303-661-9100
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        E-mail: k.luehrs@cablelabs.com; mibs@cablelabs.com"
    DESCRIPTION
        "This MIB module supplies the basic management objects
        for the CableHome Addressing Portal (CAP) portion of
        the PS."
    ::= { clabProjCableHome 3 }

cabhCapObjects OBJECT IDENTIFIER ::= { cabhCapMib 1 }
cabhCapBase    OBJECT IDENTIFIER ::= { cabhCapObjects 1 }
cabhCapMap     OBJECT IDENTIFIER ::= { cabhCapObjects 2 }

-----
--
--   General CAP Parameters
--
-----

cabhCapTcpTimeWait OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is the maximum inactivity time to wait before

```

```

        assuming TCP session is terminated. It has no relation to
        the TCP session TIME_WAIT state referred to in [RFC793]."
```

REFERENCE
 "CableHome 1.1 Specification, Packet Handling & Address Translation section."

```

DEFVAL { 300 }
 ::= { cabhCapBase 1 }
```

cabhCapUdpTimeWait OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "seconds"
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "The inactivity time to wait before destroying
 CAP mappings for UDP."

REFERENCE
 "CableHome 1.1 Specification, Packet Handling & Address Translation section."

```

DEFVAL { 300 } -- 5 minutes
 ::= { cabhCapBase 2 }
```

cabhCapIcmpTimeWait OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "seconds"
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "The inactivity time to wait before destroying
 CAP mappings for ICMP."

REFERENCE
 "CableHome 1.1 Specification, Packet Handling & Address Translation section."

```

DEFVAL { 300 } -- 5 minutes
 ::= { cabhCapBase 3 }
```

cabhCapPrimaryMode OBJECT-TYPE
 SYNTAX INTEGER {
 napt(1), -- NAT with Port Translation Mode
 nat(2), -- Traditional NAT Mode
 passthrough(3) -- Passthrough/Bridging Mode
 }
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "The Primary Packet-handling Mode of the Portal Services
 logical element (PS) of a CableHome compliant residential
 gateway device. This object configures operation of the PS
 packet handling functions.

When the value of this object is napt(1), the PS is required to support the Network Address and Port Translation (NAPT) process in accordance with the NAPT requirements defined in IETF RFC 3022. When operating in NAPT Primary Packet Handling Mode, the PS supports the translation of multiple LAN-Trans IP addresses and their TCP/UDP ports into a single WAN-Data IP address and its TCP/UDP ports.

When the value of this object is nat(2), the PS is required to support the Network Address Translation (NAT) process in accordance with the NAT requirements defined in IETF RFC 3022. When operating in NAT Primary Packet Handling Mode,

the PS supports the translation of multiple LAN-Trans IP addresses into the same number of unique WAN-Data IP addresses.

When the value of this object is passthrough(3), the PS is required to act as a transparent bridge in accordance with IEEE 802.1D. When operating in Passthrough Primary Packet Handling Mode, the PS does not translate network addresses, and bridges all traffic between its LAN and WAN interfaces.

The PS MUST delete dynamically-created row entries from the cabhCapMappingTable, i.e. those with cabhCapMappingMethod = dynamic(2), when the value of cabhCapPrimaryMode changes. The PS MUST NOT delete statically-created row entries from the cabhCapMappingTable where cabhCapMappingMethod = static(1), when the value of cabhCapPrimaryMode changes."

REFERENCE

"CableHome 1.1 Specification, Packet Handling & Address Translation section."

DEFVAL { napt }

::= { cabhCapBase 4 }

cabhCapSetToFactory OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Reading this object always returns false(2). When the cabhCapSetToFactory object is set to true(1), the PS must take the following actions:

1. Clear all entries in the cabhCapMappingTable and cabhCapPassthroughTable.
2. Reset the following objects to their factory default values:
 - cabhCapTcpTimeWait,
 - cabhCapUdpTimeWait,
 - cabhCapIcmpTimeWait,
 - cabhCapPrimaryMode"

REFERENCE

"CableHome 1.1 Specification, Packet Handling & Address Translation section."

::= { cabhCapBase 5 }

cabhCapLastSetToFactory OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of sysUpTime when cabhCapSetToFactory was last set to true. Zero if never reset."

::= { cabhCapBase 6 }

```

=====
--
-- cabhCapMappingTable (CAP Mapping Table)
--
-- The cabhCapMappingTable contains information pertaining to all
-- NAPT and NAT mappings in a CableHome(TM) compliant residential
-- gateway device.
--
=====

```

```

cabhCapMappingTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF CabhCapMappingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains IP address mappings between private
        network addresses, or network addresses and port
        numbers/ICMP Identifiers, assigned to devices on the
        subscriber's home LAN, and network addresses, or network
        addresses and port numbers/ICMP Identifiers on the WAN,
        presumed to be on a separate subnetwork than the private
        IP addresses.  The CAP Mapping Table is used by the
        CableHome Address Portal (CAP) function of the PS to make
        packet forwarding decisions."
    REFERENCE
        "CableHome 1.1 Specification, Packet Handling & Address
        Translation section."
    ::= { cabhCapMap 1 }

cabhCapMappingEntry OBJECT-TYPE
    SYNTAX      CabhCapMappingEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of the private IP (LAN) address - to - cable
        operator assigned IP (WAN) address mappings stored
        in the PS and used by the PS to make packet
        forwarding decisions."
    INDEX { cabhCapMappingIndex }
    ::= { cabhCapMappingTable 1 }

CabhCapMappingEntry ::= SEQUENCE {
    cabhCapMappingIndex      INTEGER,
    cabhCapMappingWanAddrType  InetAddressType,
    cabhCapMappingWanAddr     InetAddress,
    cabhCapMappingWanPort     InetPortNumber,
    cabhCapMappingLanAddrType  InetAddressType,
    cabhCapMappingLanAddr     InetAddress,
    cabhCapMappingLanPort     InetPortNumber,
    cabhCapMappingMethod      INTEGER,
    cabhCapMappingProtocol    INTEGER,
    cabhCapMappingRowStatus   RowStatus,
    cabhCapMappingNumPorts    Unsigned32,
    cabhCapMappingRowDescr    SnmpAdminString,
    cabhCapMappingCreateTime  DateAndTime,
    cabhCapMappingLastUpdateTime DateAndTime,
    cabhCapMappingDuration    INTEGER
}

cabhCapMappingIndex OBJECT-TYPE
    SYNTAX      INTEGER (1..65535)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Index into the CAP Mapping Table."
    ::= { cabhCapMappingEntry 1 }

cabhCapMappingWanAddrType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  read-create

```

```

STATUS      current
DESCRIPTION
    "The IP address type assigned on the WAN side."
DEFVAL { ipv4 }
 ::= { cabhCapMappingEntry 2 }

cabhCapMappingWanAddr OBJECT-TYPE
SYNTAX      InetAddress
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The IP address assigned by the cable operator's address
    (DHCP) server, and comprising the WAN-side IP address
    of the CAP Mapping tuple. This object is populated
    either dynamically by LAN-to-WAN outbound traffic or
    statically by the cable operator."
 ::= { cabhCapMappingEntry 3 }

cabhCapMappingWanPort OBJECT-TYPE
SYNTAX      InetPortNumber
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The TCP/UDP port number or ICMP Identifier
    on the WAN side. A port number/Identifier of
    0 indicates either a NAT or a DMZ mapping.
    A non-zero port number/Identifier indicates
    a NAPT mapping. If the value of
    cabhCapMappingNumPorts MIB object is non-zero
    this MIB represents a starting TCP/UDP port
    number on the WAN side for which a mapping
    entry is created."
DEFVAL { 0 }
 ::= { cabhCapMappingEntry 4 }

cabhCapMappingLanAddrType OBJECT-TYPE
SYNTAX      InetAddressType
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The IP address type assigned on the LAN side."
DEFVAL { ipv4 }
 ::= { cabhCapMappingEntry 5 }

cabhCapMappingLanAddr OBJECT-TYPE
SYNTAX      InetAddress
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The IP address of the LAN-Trans IP Device. This object is
    populated either dynamically as a result of LAN-to-WAN
    outbound traffic or statically by the cable operator."
 ::= { cabhCapMappingEntry 6 }

cabhCapMappingLanPort OBJECT-TYPE
SYNTAX      InetPortNumber
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The TCP/UDP port number or ICMP Identifier
    on the LAN side. A port number/Identifier
    of 0 indicates either a DMZ mapping or a NAT
    mapping. A non-zero port number/Identifier

```

indicates a NATP mapping. If the value of cabhCapMappingNumPorts MIB object is non-zero then this MIB represents a starting TCP/UDP port number on the LAN side for which a mapping entry is created."

```
DEFVAL { 0 }
 ::= { cabhCapMappingEntry 7 }
```

cabhCapMappingMethod OBJECT-TYPE

```
SYNTAX      INTEGER {
                static(1),
                dynamic(2),
                upnp(3)
            }
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicates how this mapping was created. Static means that it was provisioned, and dynamic means that it was handled by the PS itself. upnp (3) means that the CAP mapping entry was created by some UPnP compliant application."

```
 ::= { cabhCapMappingEntry 8 }
```

cabhCapMappingProtocol OBJECT-TYPE

```
SYNTAX      INTEGER {
                other(1),    -- any other protocol; e.g. IGMP
                icmp(2),
                udp(3),
                tcp(4),
                all(255)    -- covers all the protocols
            }
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The protocol for this mapping entry. The value of other(1) represents a protocol other than ICMP, TCP, and UDP. Thus, when the value other(1) is specified for the cabhCapMappingProtocol value of a CAP Mapping Table entry, TCP, UDP or ICMP packets MUST NOT be forwarded even if the WAN and LAN IP address and port tuple of the packet matches with mapping entry. The value of all(255) represents all protocol types. Thus, when the cabhCapMappingProtocol value all(255) is specified for an entry in the CAP Mapping Table, traffic of all protocol types MUST be forwarded accordingly if the WAN and LAN IP address and port tuple in the packet matches the mapping entry."

```
 ::= { cabhCapMappingEntry 9 }
```

cabhCapMappingRowStatus OBJECT-TYPE

```
SYNTAX      RowStatus
```

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The RowStatus interlock for the creation and deletion of a cabhCapMappingTable entry. Changing the value of the IP address or port number columns of the CAP Mapping Table may have an effect on active traffic, so the PS will prevent modification of this table's columns and return an inconsistentValue error when cabhCapMappingRowStatus object is active(1).

The PS must not allow RowStatus to be set to notInService(2) by a manager.

A newly created row cannot be set to active(1) until the corresponding instances of cabhCapMappingWanAddr, cabhCapMappingLanAddr, and cabhCapMappingProtocol have been set.

If the manager attempts to populate a row entry in the table with a non-unique value for the combination of cabhCapMappingWanAddr and range of WAN port(s) (identified by cabhCapMappingWanPort to cabhCapMappingWanPort + cabhCapMappingNumPorts - 1), or a non-unique value for the combination of cabhCapMappingLanAddr and range of LAN port(s) (identified by cabhCapMappingLanPort to cabhCapMappingLanPort + cabhCapMappingNumPorts - 1), the PS MUST prevent the creation of this row and return an inconsistentValue error. This prevents creation of entries with overlapping port ranges in the CAP table.

If the manager attempts to populate a row entry with a zero value for cabhCapMappingWanPort and a non-zero value for cabhCapMappingLanPort or a row entry with a zero value for cabhCapMappingLanPort and a non-zero value for cabhCapMappingWanPort, the PS MUST prevent the creation of this row and return an inconsistentValue error. This prevents creation of invalid NAT or NAPT entries.

If the manager attempts to populate a row entry with non-zero values for both cabhCapMappingWanPort and cabhCapMappingLanPort, but a zero value for cabhCapMappingNumPorts, the PS MUST prevent the creation of this row and return an inconsistentValue error. This prevents creation of NAPT entries.

When Primary Packet-handling Mode is NAPT (cabhCapPrimaryMode is napt(1)), provisioned rows can be set to active(1) regardless of whether the value to which cabhCapMappingWanPort, cabhCapMappingLanPort, and cabhCapMappingNumPorts have been set is zero or nonzero.

When Primary Packet-handling Mode is NAT (cabhCapPrimaryMode is nat(2)), a newly created row can not be set to active(1) if a non-zero value have been set for cabhCapMappingWanPort, cabhCapMappingLanPort and cabhCapMappingNumPorts.

In NAPT Primary Packet-handling mode, a row entry with zero values for cabhCapMappingWanPort, cabhCapMappingLanPort, and cabhCapMappingNumPorts objects represents a DMZ entry."

```
::={ cabhCapMappingEntry 10 }
```

```
cabhCapMappingNumPorts OBJECT-TYPE
    SYNTAX      Unsigned32(1..65535)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object represents number of ports
        available for port translation
        on both LAN and WAN side.
```

When both cabhCapMappingWanPort and cabhCapMappingLanPort are set to zero, the PS MUST ignore this MIB object, and such a row entry represents either a DMZ entry (when primary packet handling mode is NAPT) or a NAT entry (when primary packet handling mode is NAT).

When a row entry is created with non-zero values for cabhCapMappingWanPort, cabhCapMappingLanPort, and cabhCapMappingNumPorts the PS MUST translate range of ports on the WAN side (identified by cabhCapMappingWanPort to cabhCapMappingWanPort + cabhCapMappingNumPorts-1) to range of ports on the LAN side (identified by cabhCapMappingLanPort to cabhCapMappingLanPort + cabhCapMappingNumPorts-1).

The PS MUST ignore this MIB for a CAP mapping entry with the value of cabhCapMappingProtocol equal to icmp(2)."

```
DEFVAL { 1 }
 ::= { cabhCapMappingEntry 11 }
```

```
cabhCapMappingRowDescr OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(0..32))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "A string value that can be used to describe
         the purpose or attributes of the CAP Mapping
         entry."
    DEFVAL { "" }
    ::= { cabhCapMappingEntry 12 }
```

```
cabhCapMappingCreateTime OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "For dynamic(2) and upnp(3) CAP mapping entries the PS MUST
         set this MIB with date and time when the entry is created.
         The PS MUST set the value of this MIB to zero valued
         11-byte string for static CAP mapping entries. This MIB
         object MUST NOT persist across the PS reboot."
    ::= { cabhCapMappingEntry 13 }
```

```
cabhCapMappingLastUpdateTime OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The PS MUST set the value of this MIB
         to zero valued 11 byte string for static
         CAP mapping entries. For dynamic(2) CAP
         Mapping entries, the PS MUST set the value
         of this MIB to the value of cabhCapMappingCreateTime
         For upnp(3) CAP mapping entries the PS MUST
         set this MIB with date and time when the entry
         is last updated. When the upnp(3)entry is first
         created the PS MUST set this MIB with the value
         of cabhCapMappingCreateTime MIB. This MIB object
```

```

        MUST NOT persist across the PS reboot."
 ::= { cabhCapMappingEntry 14 }

cabhCapMappingDuration OBJECT-TYPE
    SYNTAX      Integer32 (-1|0..2147483647)
    UNITS       "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "When a value greater than zero
         is assigned to this object, the PS MUST
         remove the CAP entry after the time
         duration, represented by
         this object, elapses starting from
         cabhCapMappingLastUpdateTime.

         When a value of 0 is assigned to this object,
         the PS MUST retain the CAP mapping entry
         until reboot or reset. The PS MUST retain
         a CAP mapping entry with cabhCapMappingDuration
         MIB set to 0 and cabhCapMappingMethod set
         to static(1) across the reboots. The PS MUST
         NOT retain a CAP mapping entry with
         cabhCapMappingDuration MIB set to 0 and
         cabhCapMappingMethod set to upnp(3) across
         the reboots.

         When a value of -1 is assigned for this
         MIB the PS MUST ignore this MIB and
         MUST remove the CAP mapping entries
         based on TCP, UDP and ICMP inactivity
         time-wait depending upon their protocol
         type.

         When the cabhCapMappingMethod object is
         static(1), the default value for this object
         is 0.

         When the cabhCapMappingMethod object is
         dynamic(2), the PS MUST set the value of
         this object to -1.

         When the cabhCapMappingMethod object is
         upnp(3), the default value for this object
         is -1."

 ::= { cabhCapMappingEntry 15 }

-----
--
--      cabhCapPassthroughTable (CAP Passthrough Table)
--
--      The cabhCapPassthroughTable contains the hardware addresses
--      for all LAN IP Devices for which the PS will bridge traffic at
--      OSI Layer 2 when the PS's cabhCapPrimaryMode is set to forward
--      traffic at OSI Layer 3 (NAPT/NAT) for all other hardware
--      addresses.
--
-----

cabhCapPassthroughTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF CabhCapPassthroughEntry

```

```

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "This table contains hardware addresses of LAN IP Devices
    for which the PS will bridge traffic at OSI Layer 2."
REFERENCE
    "CableHome 1.1 Specification, Packet Handling & Address
    Translation section."
 ::= { cabhCapMap 2 }

cabhCapPassthroughEntry OBJECT-TYPE
SYNTAX CabhCapPassthroughEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "List of hardware addresses of LAN IP Devices for which
    the PS will bridge traffic at OSI Layer 2."
INDEX { cabhCapPassthroughIndex }
 ::= { cabhCapPassthroughTable 1 }

CabhCapPassthroughEntry ::= SEQUENCE {
    cabhCapPassthroughIndex INTEGER,
    cabhCapPassthroughMacAddr PhysAddress,
    cabhCapPassthroughRowStatus RowStatus
}

cabhCapPassthroughIndex OBJECT-TYPE
SYNTAX INTEGER (1..65535)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "The index into the CAP Passthrough Table."
 ::= { cabhCapPassthroughEntry 1 }

cabhCapPassthroughMacAddr OBJECT-TYPE
SYNTAX PhysAddress (SIZE(0..16))
MAX-ACCESS read-create
STATUS current
DESCRIPTION
    "Hardware address of the LAN IP Device for which the PS
    MUST bridge traffic at OSI Layer 2."
 ::= { cabhCapPassthroughEntry 2 }

cabhCapPassthroughRowStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
    "The RowStatus interlock for the creation and
    deletion of a cabhCapPassthroughTable entry.
    Any writable object in each row can be modified
    at any time while the row is active(1)."
 ::= { cabhCapPassthroughEntry 3 }
--
-- notification group is for future extension.
--

cabhCapNotification OBJECT IDENTIFIER ::= {
    cabhCapMib 2 0 }
cabhCapConformance OBJECT IDENTIFIER ::= {
    cabhCapMib 3 }
cabhCapCompliances OBJECT IDENTIFIER ::= {
    cabhCapConformance 1 }

```

```
cabhCapGroups          OBJECT IDENTIFIER ::= {
    cabhCapConformance 2 }

--
--   Notification Group
--

-- compliance statements

cabhCapBasicCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for devices that implement
        the CableHome Portal Services functionality."
    MODULE          --cabhCapMib

-- unconditionally mandatory groups

MANDATORY-GROUPS {
    cabhCapGroup
}

OBJECT cabhCapMappingProtocol
    SYNTAX          INTEGER { icmp(2) }
    WRITE-SYNTAX    INTEGER { other(1), udp(3), tcp(4), all(255) }
    DESCRIPTION
        "icmp(2) applies only to dynamic entries."

    ::= { cabhCapCompliances 1 }

cabhCapGroup OBJECT-GROUP
    OBJECTS {
        cabhCapTcpTimeWait,
        cabhCapUdpTimeWait,
        cabhCapIcmpTimeWait,
        cabhCapPrimaryMode,
        cabhCapSetToFactory,
        cabhCapLastSetToFactory,
        cabhCapMappingWanAddrType,
        cabhCapMappingWanAddr,
        cabhCapMappingWanPort,
        cabhCapMappingLanAddrType,
        cabhCapMappingLanAddr,
        cabhCapMappingLanPort,
        cabhCapMappingMethod,
        cabhCapMappingProtocol,
        cabhCapMappingRowStatus,
        cabhCapPassthroughMacAddr,
        cabhCapPassthroughRowStatus,
        cabhCapMappingNumPorts,
        cabhCapMappingRowDescr,
        cabhCapMappingCreateTime,
        cabhCapMappingLastUpdateTime,
        cabhCapMappingDuration
    }
    STATUS          current
    DESCRIPTION
        "Group of objects for CableHome CAP MIB."
    ::= { cabhCapGroups 1 }
END
```

5 ACKNOWLEDGEMENTS

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Appendix I Revision History

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I02-020920:

| ECN Number | ECN Date | Summary |
|-------------|----------|---|
| CH1-N-02007 | 6/20/02 | Modify the default values of the CAP Mapping Table timeout values for UDP, TCP, and ICMP protocols. |
| CH1-N-02011 | 6/20/02 | Eight technical/editorial changes. |
| CH1-N-02017 | 8/15/02 | Four technical/editorial changes. |
| CH1-N-02019 | 8/15/02 | Four technical/editorial changes. |

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I03-030411:

| ECN Number | ECN Date | Summary |
|-------------|----------|---|
| CH1-N-02054 | 1/23/03 | Provide more descriptive text in the CAP MIB for various tables and for Row Status of various tables. |
| CH1-N-03014 | 3/13/03 | Clarify description of the cabhCapSetToFactory mib object. |

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I04-030801:

| ECN Number | ECN Date | Summary |
|----------------|----------|---|
| CH1-N-03026 | 6/5/03 | Define a Cap2MappingTable for CableHome 1.1, to support the static port forwarding feature. |
| CH-MIB-N-03052 | 7/3/03 | Update CAP MIB to incorporate changes needed to align the CableLabs version with the version submitted to the IETF. |

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I05-040129:

| ECN Number | ECN Date | Summary |
|---------------------|----------|--|
| CH-MIB-N-03062 | 10/02/03 | Update description related with change to ICMP sequence number. |
| MIB-CAP-N-03.0084-3 | 11/26/03 | Removal of textual convention, CAP mapping table clarifications, and passthrough table clarifications. |
| MIB-CAP-N-03.0095-4 | 12/4/03 | Add value of "all" for the protocol MIB in the CAP table. |

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I06-040806:

| ECN Number | ECN Date | Summary |
|---------------------|-----------------|---|
| MIB-CAP-N-04.0130-2 | 5/13/04 | Define new Primary Packet Handling Mode option for CAP MIB: Disabled Mode |
| MIB-CAP-N-04.0136-3 | 5/20/04 | CAP MIB changes to enable ports ranges and addition of other useful MIBs |

The following Engineering Change Notices were incorporated into CH-SP-MIB-CAP-I07-041216

| ECN Number | ECN Date | Summary |
|---------------------|-----------------|---|
| MIB-CAP-N-04.0191-2 | 11/11/04 | CAP MIB changes to support corrections to CAP Mapping Table |
| MIB-CAP-N-04.0173-1 | 9/30/04 | Remove 'disabled' option from cabhCapPrimaryMode object |