

IP over InfiniBand

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Definitions of Managed Objects for InfiniBand Channel Adapters (CA)

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Abstract

InfiniBand Architecture (IBA) specifies a high speed, channel based, switched fabric architecture that delivers scalable performance in data centers.

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 objects for managing InfiniBand Channel Adapters (CA).

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[1. Introduction](#)

This document defines a MIB for InfiniBand Channel Adapters (CA).

The InfiniBand Architecture [[INFIV1](#)] (IBA) is defined by the InfiniBand Trade Association. InfiniBand is designed to provide low latency, high bandwidth interconnect in a computing environment. This document will define the objects related to managing a specific class of InfiniBand nodes called Channel Adapters.

A Channel Adapter (CA) is the end-point for IBA packets that are sent and received over the IBA switching fabric. There are two types of CAs: Host Channel Adapters (HCA) and Target Channel Adapters (TCA). Typically, HCAs are used by host processors and TCAs are used by I/O adapters to connect to the IBA switch fabric. The HCA supports the IBA Verbs layer as the transport layer interface, while the TCA often uses its own implementation-specific interface to the transport layer.

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 [RFC 2119](#) [[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 RFC 3410](#) [[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, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [RFC 2580](#) [[RFC2580](#)].

[3. Structure of the MIB](#)

This section describes the structure of the IPOIB CA MIB.

[3.1 Overview](#)

The SNMP management of the CA involves the monitoring of key channel adapter attributes.

[3.2 Discussion of MIB Groups](#)

The CA MIB is divided into two basic groups: MIB objects and the conformance group.

[3.3 The CA MIB Objects](#)

The CA MIB objects correlate to the set of Channel Adapter attributes. These attributes are organized into three major CA MIB groups.

These are: the General Channel Adapter Info Group, the Channel Adapter Attributes Info Group, and the Channel Adapter Port Attributes and Gid Info Group.

[3.3.1 The General Channel Adapter Info Group](#)

This group provides general information common to any InfiniBand network entity that contains CAs. This includes distinguishing

between the HCA and the TCA, displaying the node GUIDs, and showing the number of ports on each CA.

3.3.2 The Channel Adapter Attributes Info Group

This group provides more specific information about the CAs on a network entity. This includes various attribute flags, transport service support, and other CA characteristics.

3.3.3 The Channel Adapter Port Attributes and Gid Info Group

This group provides information about the CA ports. This includes the type of physical interfaces supported, other port attributes, and a table containing the port GIDs.

3.4 The CA Conformance Group

The CA Conformance Group lists the possible compliances for various types of InfiniBand nodes that contain channel adapters. Currently, two types of compliance are defined: basic and full. The units of conformance which define the constituent object groups are also listed.

3.4.1 CA Compliance Groups

The Compliance Groups list acceptable MIB implementation requirements.

4. IPOIB CA MIB Definitions

```
IB-CA-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY, OBJECT-TYPE,
    Unsigned32                FROM SNMPv2-SMI
    TruthValue                FROM SNMPv2-TC
```

```
    MODULE-COMPLIANCE, OBJECT-GROUP
    infinibandMIB, IbPhysPort FROM SNMPv2-CONF
                                FROM IB-TC-MIB;
```

```
ibCaMIB MODULE-IDENTITY
```

```
    LAST-UPDATED      "200610101200Z"  -- October 10, 2006 12:00:00 GMT
```

```
    ORGANIZATION      "IETF IP Over IB (IPOIB) Working Group"
```

```
    CONTACT-INFO
```

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```

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                200 Old Harvard Road
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                Boxboro MA 01719-1834
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United States
Email: hnrose@earthlink.net

Email comments to the IPOIB WG Mailing List at
ipoverib@ietf.org."

DESCRIPTION

"Copyright (C) The Internet Society (2006). The initial version of this MIB module was published in RFC XXXX; for full legal notices see the RFC itself. Supplementary information may be available on <http://www.ietf.org/copyrights/ianamib.html>.

This module contains managed object definitions for the instrumentation for an InfiniBand Channel Adapter (CA)."

REVISION

"200610101200Z" -- 10 October 2006 12:00:00 GMT

DESCRIPTION

"Initial version published as part of RFC XXXX."

::= { infinibandMIB 4 }

```
-- *****
-- Object Identifiers for the IPOIB CA MIB
-- *****
```

```
ibCaObjects          OBJECT IDENTIFIER ::= { ibCaMIB 1 }
ibCaConformance      OBJECT IDENTIFIER ::= { ibCaMIB 2 }
```

```
-- *****
-- General Channel Adapter Info Group
--
-- DESCRIPTION: This group contains a table that describes
-- general information about the Channel Adapters present in
-- this Managed System Element.
-- *****
```

```
ibCaGeneralInfo OBJECT IDENTIFIER ::= { ibCaObjects 1 }
```

```
-- *****
-- Channel Adapters General Information Table
-- *****
```

ibCaGeneralInfoTable OBJECT-TYPE

SYNTAX SEQUENCE OF IbCaGeneralInfoEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing general information about the Channel Adapters on this network entity."

::= { ibCaGeneralInfo 1 }

ibCaGeneralInfoEntry OBJECT-TYPE

SYNTAX IbCaGeneralInfoEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row of the ibCaGeneralInfoTable containing information about the general characteristics of each Channel Adapter on this network entity."

INDEX { ibCaIndex }

::= { ibCaGeneralInfoTable 1 }

IbCaGeneralInfoEntry ::= SEQUENCE {

ibCaIndex Unsigned32,

ibCaType INTEGER,

ibCaNodeGuid OCTET STRING,

ibCaNumPorts Unsigned32

}

ibCaIndex OBJECT-TYPE

SYNTAX Unsigned32(1..254)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Index that identifies the specific CA on this network entity. The index is defined for a range of CAs from 1 to N, where N can have a maximum value of 254."

::= { ibCaGeneralInfoEntry 1 }

ibCaType OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

hca(2), -- host CA

tca(3) -- target CA

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Type of Channel Adapter: either a Host Channel Adapter (HCA), or a Target Channel Adapter (TCA). The key difference between an HCA and a TCA is that the HCA supports the IBA Verbs layer, while the TCA uses an implementation dependent interface to the transport layer. If the type of CA cannot be determined, the unknown(1) value is returned."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1. [Section 17.1](#)."

::= { ibCaGeneralInfoEntry 2 }

ibCaNodeGuid OBJECT-TYPE

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SYNTAX OCTET STRING (SIZE(8))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The GUID of this CA. All ports on the same node shall report the same CA node GUID value. This provides a means for uniquely identifying a CA node within a subnet and helps to determine the co-location of the ports."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1. [Section 17.2.5](#)."
::= { ibCaGeneralInfoEntry 3 }

ibCaNumPorts OBJECT-TYPE

SYNTAX Unsigned32(1..254)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of physical IB data ports on this Channel Adapter.

Ports

are numbered starting from 1. If there is more than one port, the ports are numbered sequentially."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.1.3](#); Table 313 Port Attributes & Functions."
::= { ibCaGeneralInfoEntry 4 }

```
-- *****
-- Channel Adapter Attributes Info Group
--
-- DESCRIPTION: This group contains a table that describes more
-- specific attributes about each CA on the network entity.
-- *****
```

ibCaAttrInfo OBJECT IDENTIFIER ::= { ibCaObjects 2 }

```
-- *****
-- Channel Adapter Attributes Table
-- *****
```

ibCaAttributeTable OBJECT-TYPE

SYNTAX SEQUENCE OF IbCaAttributeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing information about the Channel Adapter attributes on this network entity."

::= { ibCaAttrInfo 1 }

ibCaAttributeEntry OBJECT-TYPE

SYNTAX IbCaAttributeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row of the ibCaAttributeTable containing information about the general characteristics of each Channel Adapter on this network entity."

INDEX { ibCaIndex }

::= { ibCaAttributeTable 1 }

IbCaAttributeEntry ::= SEQUENCE {

ibCaHasReliableConnection TruthValue,

ibCaHasUnreliableConnection TruthValue,

ibCaHasReliableDatagram TruthValue,

ibCaHasUnreliableDatagram TruthValue,

ibCaSupportsAtomicOperations TruthValue,

ibCaSupportsOtherOperations TruthValue,

ibCaSupportsSolicitedEvents TruthValue,

ibCaPathMtuSetSupport INTEGER,

ibCaGenEndToEndFlowControl TruthValue,

ibCaSupportsMulticast TruthValue,

ibCaSupportsAutoPathMigration TruthValue,

ibCaSupportsMemoryProtection TruthValue,

ibCaSupportsLoopback TruthValue,

ibCaSupportsSubnetManager TruthValue

}**ibCaHasReliableConnection OBJECT-TYPE**

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports Reliable Connection (RC) transport service."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 1 }

ibCaHasUnreliableConnection OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports Unreliable Connection (UC) transport service."

REFERENCE

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."
 ::= { ibCaAttributeEntry 2 }

ibCaHasReliableDatagram OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports
Reliable Datagram (RD) transport service."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 3 }

ibCaHasUnreliableDatagram OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports
Unreliable Datagram (UD) transport service."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 4 }

ibCaSupportsAtomicOperations OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports
atomic operations. An atomic operation is an operation
that is guaranteed to finish without having another
operation alter the results once the atomic operation
has been initiated."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 5 }

ibCaSupportsOtherOperations OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports

all of the other operations (excluding atomic operations)

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defined for a particular supported transport service."
REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 6 }

ibCaSupportsSolicitedEvents OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports the generation and reception of solicited events. A solicited event is a feature by which a queue pair consumer on a CA can cause an event to be generated at the destination when its message is received."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.2](#); Table 314 Channel Adapter Attributes.
and [Section 9.2.3](#) Solicited Event (SE) - 1 bit."

::= { ibCaAttributeEntry 7 }

ibCaPathMtuSetSupport OBJECT-TYPE

SYNTAX INTEGER {
 mtu256(1),
 mtu256n512(2),
 mtu256n512n1024(3),
 mtu256n512n1024n2048(4),
 mtu256n512n1024n2048n4096(5)
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Set of MTU values (in bytes) supported by this CA for all transport service classes. The Maximum Transfer Unit is the largest size allowable for the packet payload."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 8 }

ibCaGenEndToEndFlowControl OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports the generation of end-to-end flow control. End-to-end

flow control is a mechanism that prevents sending messages

when the destination does not have adequate receive buffers to receive the message."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 9 }

ibCaSupportsMulticast OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports multicast operations. Multicast is the ability to deliver a single packet to multiple ports."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 10 }

ibCaSupportsAutoPathMigration OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports automatic path migration. Automatic path migration is the process by which a CA (on a per QP basis) signals another CA to cause path migration to a preset alternate path."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 11 }

ibCaSupportsMemoryProtection OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports InfiniBand memory management protection mechanisms."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes. and [Section 10.6](#) Memory Management."

::= { ibCaAttributeEntry 12 }

ibCaSupportsLoopback OBJECT-TYPE

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SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports loopback operations. Loopback support allows for the sending and receiving of self-addressed packets that do not go out on the wire. If this feature is supported, self-addressed packets must work, even if no switch is present."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 13 }

ibCaSupportsSubnetManager OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports a Subnet Manager (SM) instance."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.2](#); Table 314 Channel Adapter Attributes."

::= { ibCaAttributeEntry 14 }

```
-- *****
-- Channel Adapter Port Attributes and GID Info Group
--
-- DESCRIPTION: This group contains information about the CA ports
--               on the network entity and the GID table associated with each
--               port.
-- *****
```

ibCaPortAttrInfo OBJECT IDENTIFIER ::= { ibCaObjects 3 }

```
-- *****
-- Channel Adapter Port Attribute Table
-- *****
```

ibCaPortAttributeTable OBJECT-TYPE

SYNTAX SEQUENCE OF IbCaPortAttributeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing information about the Channel Adapter port attributes on this network entity."

```
::= { ibCaPortAttrInfo 1 }
```

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ibCaPortAttributeEntry OBJECT-TYPE

SYNTAX IbCaPortAttributeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row of the ibCaPortAttributeTable containing information about the general characteristics of each Channel Adapter port on this network entity."

INDEX { ibCaIndex, ibCaPortIndex }

::= { ibCaPortAttributeTable 1 }

IbCaPortAttributeEntry ::= SEQUENCE {

ibCaPortIndex IbPhysPort,

ibCaPortGuid OCTET STRING,

ibCaPhysicalInterface INTEGER,

ibCaSupportsStaticRateControl TruthValue,

ibCaInterpacketDelayValue Unsigned32,

ibCaSupportsMultipathing TruthValue,

ibCaValidatesInPktDlid TruthValue,

ibCaMaxGidsPerPort Unsigned32

}

ibCaPortIndex OBJECT-TYPE

SYNTAX IbPhysPort

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Index that identifies the InfiniBand data port. The IBA defines a range of valid data ports from 1 to N, where N can have a maximum value of 254 for an IBA switch."

::= { ibCaPortAttributeEntry 1 }

ibCaPortGuid OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(8))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The GUID of this CA port. All ports on the same CA shall report a unique ibCaPortGuid value. This provides a means for uniquely identifying a CA port on a node within a subnet and helps to determine the co-location of the ports."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1. [Section 17.2.5](#)."

::= { ibCaPortAttributeEntry 2 }

ibCaPhysicalInterface OBJECT-TYPE

SYNTAX INTEGER {

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```
        cable(1),
        fiber(2),
        backplane(3)
    }
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The physical interface for this CA. When the value is cable(1), the CA supports a cable connector physical interface. This physical attach point is defined for use with copper cables. When the value is fiber(2), the CA supports a fiber connector physical interface. This physical attach point is defined for use with optical cables. When the value is backplane(3), the CA supports a backplane connector physical interface. This physical attach point is defined for accepting a specified form factor that houses the channel adapter."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.1.3](#) Port Attributes and Functions;
Vol. 2. 3.1 Introduction (Physical Layer Overview)."

::= { ibCaPortAttributeEntry 3 }

ibCaSupportsStaticRateControl OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports static rate control. Static rate controls are required for all IB ports that support a data rate over 2.5 Gbps."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.
[Section 17.2.6](#) Static Rate Control."

::= { ibCaPortAttributeEntry 4 }

ibCaInterpacketDelayValue OBJECT-TYPE

SYNTAX Unsigned32 (0..255)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Interpacket Delay Value (IPD) supported for CAs that have static rate control (i.e., the ibCaSupportsStaticRateControl object must have a value of true(1) for this object to contain a valid value; Otherwise, 0 is returned).

The IPD allows for the slowing of the packet rate for all of the standard link rates."

REFERENCE

[Section 17.2.6](#) Static Rate Control, and Table 315

Static Rate Control IPD Values.

[Section 9.11.1](#) Static Rate Control for Heterogeneous Links,
and Table 63 Inter Packet Delay"

::= { ibCaPortAttributeEntry 5 }

ibCaSupportsMultipathing OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports multipathing.
The CA link layer port checks the unicast DLID in the
received packet for validity by masking the number of low
order bits indicated by the LID Mask Control field (LMC)
before comparing the DLID to its assigned LID if this
object is true(1)."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.1.3](#) and Table 313 Port Attributes & Functions;
Also, [Section 7.11.1](#) Multipathing Requirements on End Node."

::= { ibCaPortAttributeEntry 6 }

ibCaValidatesInPktDlid OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Flag that indicates whether this CA supports the validation
of incoming packet DLIDs, and if the GRH is present, the
DGID."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.1.3](#). and Table 313 Port Attributes & Functions."

::= { ibCaPortAttributeEntry 7 }

ibCaMaxGidsPerPort OBJECT-TYPE

SYNTAX Unsigned32(1..65535)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Maximum number of GIDs per port. The maximum number of
unicast GIDs supported per CA port is implementation specific.
Each port will support at least one (1) GID."

REFERENCE

"InfiniBand Architecture Release 1.2 Vol. 1.

[Section 17.2.1.3](#). and Table 313 Port Attributes & Functions."

::= { ibCaPortAttributeEntry 8 }


```
-- *****  
-- Channel Adapter Port Global Identifier (GID) Table  
-- *****
```

ibCaPortGidTable OBJECT-TYPE

SYNTAX SEQUENCE OF IbCaPortGidEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing the port GIDs for each CA."

::= { ibCaPortAttrInfo 2 }

ibCaPortGidEntry OBJECT-TYPE

SYNTAX IbCaPortGidEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A conceptual row of the ibCaPortGidTable containing
information about a particular GID on an IB port
for a particular CA."

INDEX { ibCaIndex, ibCaPortIndex, ibCaPortGidIndex }

::= { ibCaPortGidTable 1 }

IbCaPortGidEntry ::= SEQUENCE {

ibCaPortGidIndex Unsigned32,

ibCaPortGidValue OCTET STRING

}

ibCaPortGidIndex OBJECT-TYPE

SYNTAX Unsigned32(1..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Index that identifies the GID entry for this IB data port.
Each port on a CA is assigned at least 1 unicast GID.
Note, the value of ibCaPortGidIndex will never be greater
than the value of ibCaMaxGidsPerPort that defines the
upper value for this index."

::= { ibCaPortGidEntry 1 }

ibCaPortGidValue OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(16))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The Global Identifier (GID) is a 128-bit (16-byte) unicast
or multicast identifier used to identify a channel adapter
port. A GID is a valid 128-bit IPv6 address (as defined in

[RFC 2373](#)) with additional IBA modifications that facilitate

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```
node discovery, routing, and communications."
REFERENCE
  "InfiniBand Architecture Release 1.2 Vol. 1.
  Section 4.1.1 GID Usage and Properties."
 ::= { ibCaPortGidEntry 2 }

_ _ *****
-- Module Conformance Statement
--
-- DESCRIPTION: The module conformance statement includes the
-- compliance statements and the units of conformance
-- section.
_ _ *****

ibCaCompliances OBJECT IDENTIFIER ::= { ibCaConformance 1 }

ibCaGroups OBJECT IDENTIFIER ::= { ibCaConformance 2 }

_ _ *****
-- Compliance Statements
_ _ *****

ibCaBasicCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION
    "The basic CA implementation requirements for agents that
    support the IPOIB CA MIB."

  MODULE -- this module
    MANDATORY-GROUPS {
      ibCaGeneralGroup
    }
  ::= { ibCaCompliances 1 }

ibCaFullCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION
    "The complete node implementation requirements for agents that
    support the full IPOIB CA MIB."
  MODULE -- this module
    MANDATORY-GROUPS {
      ibCaGeneralGroup,
      ibCaAttrGroup,
      ibCaPortAttrGroup,
      ibCaPortGidGroup
    }
  ::= { ibCaCompliances 2 }

_ _ *****
```



```
-- Units of Conformance
```

```
-- *****
```

```
ibCaGeneralGroup OBJECT-GROUP
```

```
  OBJECTS {
```

```
    ibCaType,
```

```
    ibCaNodeGuid,
```

```
    ibCaNumPorts
```

```
  }
```

```
  STATUS current
```

```
  DESCRIPTION
```

```
    "The ibCaGeneralGroup defines the MIB objects that describe  
    the general characteristics of this Channel Adapter."
```

```
  ::= { ibCaGroups 1 }
```

```
ibCaAttrGroup OBJECT-GROUP
```

```
  OBJECTS {
```

```
    ibCaHasReliableConnection,
```

```
    ibCaHasUnreliableConnection,
```

```
    ibCaHasReliableDatagram,
```

```
    ibCaHasUnreliableDatagram,
```

```
    ibCaSupportsAtomicOperations,
```

```
    ibCaSupportsOtherOperations,
```

```
    ibCaSupportsSolicitedEvents,
```

```
    ibCaPathMtuSetSupport,
```

```
    ibCaGenEndToEndFlowControl,
```

```
    ibCaSupportsMulticast,
```

```
    ibCaSupportsAutoPathMigration,
```

```
    ibCaSupportsMemoryProtection,
```

```
    ibCaSupportsLoopback,
```

```
    ibCaSupportsSubnetManager
```

```
  }
```

```
  STATUS current
```

```
  DESCRIPTION
```

```
    "The ibCaAttrGroup defines the MIB objects that describe  
    more specific attributes about the Channel Adapter."
```

```
  ::= { ibCaGroups 2 }
```

```
ibCaPortAttrGroup OBJECT-GROUP
```

```
  OBJECTS {
```

```
    ibCaPortGuid,
```

```
    ibCaPhysicalInterface,
```

```
    ibCaSupportsStaticRateControl,
```

```
    ibCaInterpacketDelayValue,
```

```
    ibCaSupportsMultipathing,
```

```
    ibCaValidatesInPktDlid,
```

```
    ibCaMaxGidsPerPort
```

}

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```
STATUS current
DESCRIPTION
    "The ibCaPortAttrGroup defines the MIB objects that describe
    attributes about the Channel Adapter ports."
    ::= { ibCaGroups 3 }

ibCaPortGidGroup OBJECT-GROUP
    OBJECTS {
        ibCaPortGidValue
    }
    STATUS current
    DESCRIPTION
        "The ibCaPortGidGroup defines the MIB objects that describe
        attributes about the Channel Adapter port GIDs."
    ::= { ibCaGroups 4 }

END
```

5. Security Considerations

This memo defines textual conventions and object identities for use in IPOVERIB MIB modules. Security issues for these MIB modules are addressed in the memos defining those modules. Because this memo does not define management objects, the memo has no impact on the security of the Internet.

6. IANA Considerations

IANA is requested to make a MIB OID assignment under the transmission branch, that is, assign the infinibandMIB under { transmission 199 }. This sub-id is requested because 199 is the ifType for infiniband(199) and is available under transmission.

In the future, IPOIB related standards track MIB modules should be rooted under the infinibandMIB subtree. The IANA is requested to manage that namespace. New assignments can only be made via a Standards Action as specified in [RFC2434].

This document also requests IANA to assign { infinibandMIB 4 } to the IB-CA-MIB specified in this document.

7. Revision History

This section should be removed when this document is published as an RFC.

7.1 Changes from <[draft-ietf-ipoib-channel-adapter-mib-07.txt](#)>

Replaced IbDataPort with IbPhysPort

Updated to InfiniBand Architecture Revision 1.2 from 1.1

8. References

8.1 Normative References

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- [RFC2578] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
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- [INFINIV1] InfiniBand Architecture Specification Volume 1, Release 1.2, October, 2004, Final Release.

8.2 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.

9. Acknowledgements

This MIB module was updated based on the original work done by Sean Harnedy.

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