VadaTech MicroTCA

Carrier SNMP Interface Reference Manual

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vadatech inc

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Revision History

Doc Rev	Description of Change	Revision Date
1.0	Document Created	02/23/2009
2.0	Updated for MCH release 1.4.0	05/20/2009

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1 Overview

This document is an extension to the VadaTech ATCA Core SNMP Interface Reference Manual, and is relevant only to the MicroTCA Carrier platform. This document details the SNMP tables and scalars as they apply to the MicroTCA Carrier platform, excluding those tables that are described in the VadaTech ATCA Core SNMP Interface Reference Manual.

1.1 Document References

- PICMG® 3.0 Revision 3.0 AdvancedTCA® Base Specification
- PICMG® AMC.0 R2.0 Advanced Mezzanine Card Base Specification
- VadaTech ATCA Core SNMP Reference Manual
- VadaTech MCH Software Management Manual
- VadaTech SNMP Trap Handler User Manual

1.2 Acronyms Used in this Document

Acronym	Description
API	Application Programming Interface
ATCA	Advanced Telecommunications Computing Architecture
MC	Management Controller
MCH	MicroTCA Carrier Hub
MIB	Management Information Base
SNMP	Simple Network Management Protocol

Table 1: Acronyms

2 SNMP Interface Overview

The MicroTCA Carrier Manager supports v1, v2c, and v3 of the Simple Network Management Protocol (SNMP), with the capability for SNMP queries and SNMP traps in v1, v2c, or v3.

Figure 1 describes the logical organization and entities associated with the MicroTCA Carrier SNMP interface.

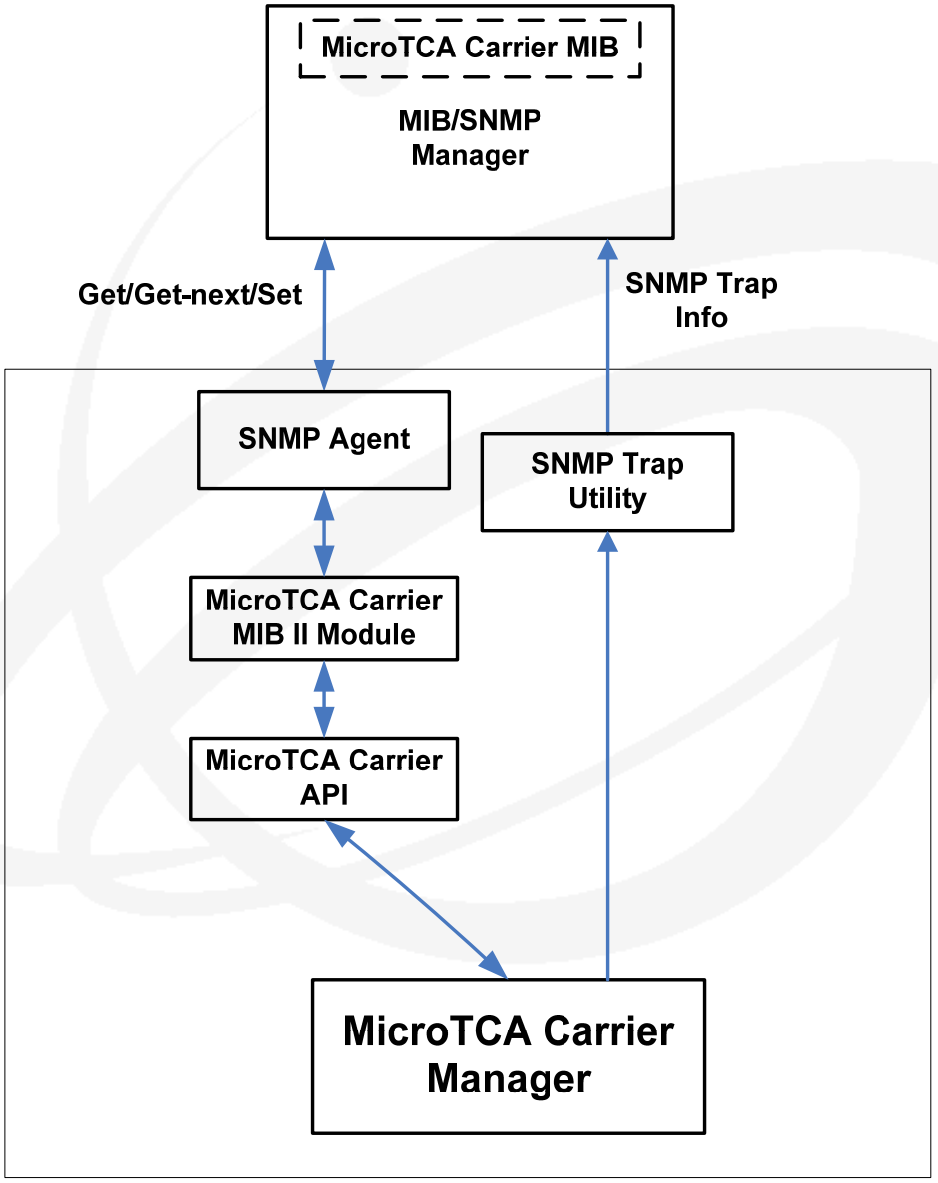

Figure 1: MicroTCA Carrier Management Controller SNMP Agent / Sub-Agents

The elements of the VadaTech SNMP Interface are described in Table 2.

Name	Description
MIB Manager	see SNMP Manager
MicroTCA Carrier API	Carrier Manager programming interface used by the SNMP module to communicate with the MicroTCA Carrier Manager
MicroTCA Carrier MIB	MIB module describing the tables and scalars specific to the MicroTCA Carrier platform
MicroTCA Carrier MIB II Module	compiled MicroTCA Carrier Manager-specific MIB II modules
MicroTCA Carrier Manager	platform with which the SNMP Interface communicates (refer to the VadaTech MCH Software Management Manual for more information)
SNMP Traps	asynchronous event notifications (archaic 'reports')
SNMP Agent	SNMP kernel on the active MCH that handles the SNMP requests from the remote SNMP client, the MIB/SNMP Manager
SNMP Manager	client MIB Manager that interfaces with the SNMP agent for user-specified requests
SNMP Trap Utility	SNMP Trap interface used to notify external devices of user-configurable event notifications (refer to the VadaTech SNMP Trap Handler User Manual for more information)

Table 2: Elements of the SNMP Interface

The rest of this document will focus on the MicroTCA Carrier MIB file (**`VT-UTCC.mib`**), and describe the tables and scalars contained within the file not discussed in the Core ATCA SNMP Interface documentation.

3 Carrier Management Information Base

The MicroTCA Carrier Manager comes with a Management Information Base (MIB) file (**VT-UTCC.mib**) that describes the Carrier Manager and platform objects to be managed. A remote application, such as an SNMP/MIB manager, can compile files (using a MIB compiler) and utilize this information to manage devices in the Carrier. The Carrier MIB file is located in the **/opt/vadatech/SNMP/mibs** directory. Users can utilize **scp** to retrieve this file from the Carrier Manager.

3.1 MIB Tree Root OID

The MicroTCA Carrier Manager custom MIB is represented via a hierarchal data model, where each variable contained therein is identified via an object identifier (OID). All the object identifiers in this document have a common MicroTCA Carrier platform OID, as shown in Figure 2.

23858 is the unique private VadaTech enterprise number obtained from IANA.

The root MicroTCA Carrier platform OID specifies the MicroTCA Carrier platform OID. This document will denote this OID as <ROOT_OID>.

<ROOT_OID> = 1.3.6.1.4.1.23858.2.1.4

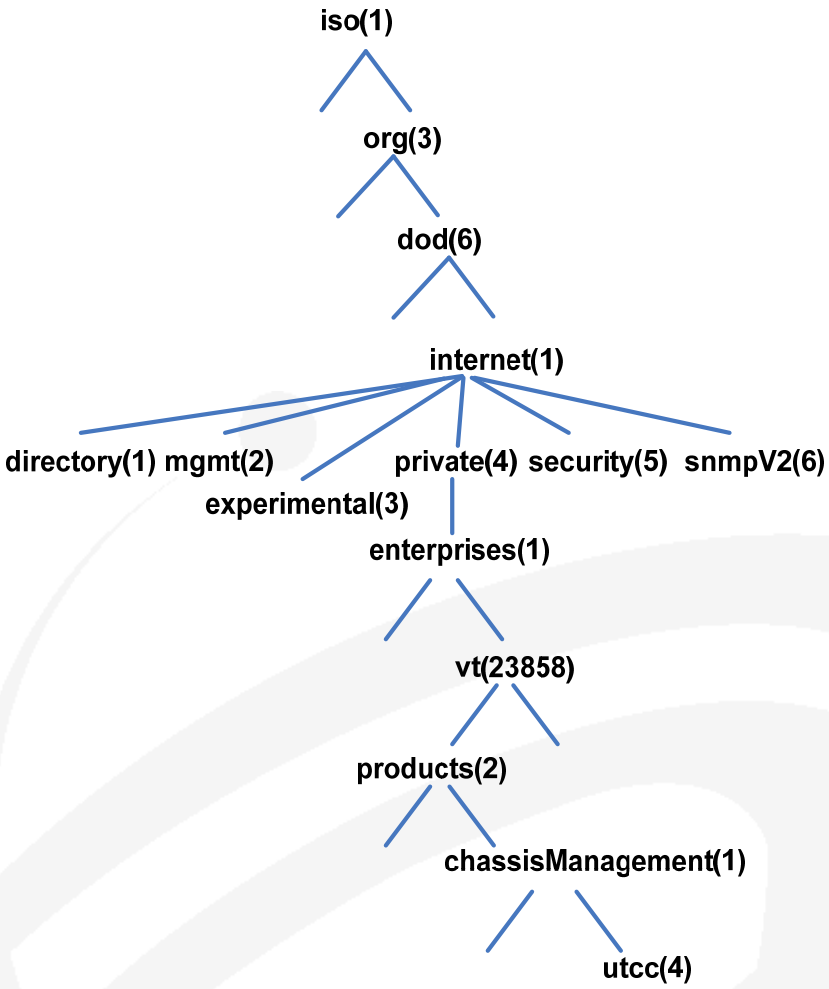

Figure 2: SNMP object identifier tree for the VadaTech MicroTCA Carrier MIB

3.2 MicroTCA Carrier MIB Objects

A MicroTCA Carrier's resources can be configured and managed using the MIB objects described in the VadaTech ATCA Core SNMP Interface Reference Manual, as well as the following groups of MIB variables. Table 3 is a summary of the supported MicroTCA Carrier's extended groups of variables:

Group	Object Name	Object Identifier	Description
Power Feed	**powerFeedTable**	**<ROOT_OID>.55.1**	provide variables to obtain information regarding the available and consumed power of a Power Module
Site Map	**siteMapTable**	**<ROOT_OID>.56.1**	provide variables to get parameters defined in the Address Table
Manager Fail-Over	**managerFailover**	**<ROOT_OID>.57.0**	provide a variable to initiate failover between MicroTCA Carriers
Power Module	**powerModuleTable**	**<ROOT_OID>.101.1**	provide variables to obtain information regarding a Power Module and to reset a Power module
Power Channel Status	**powerChannelStatusTable**	**<ROOT_OID>.102.1**	provide variables to obtain information regarding a power channel
Module Location	**moduleLocationTable**	**<ROOT_OID>.103.1**	provide variables to obtain information regarding the physical locations of a Module within a MicroTCA Carrier
Active Carrier Manager MCH FRU ID	**activeCarrierManagerMCHFruId**	**<ROOT_OID>.151.0**	provide a variable to obtain information regarding the active MicroTCA Carrier Manager
Carrier Address	**carrierAddress**	**<ROOT_OID>.152.0**	provide a variable to obtain information regarding the Carrier Address
Telco Alarms	**telco<alarmParameter>**	**<ROOT_OID>.153…165.0**	provide variables to obtain capabilities and status information regarding a MicroTCA Carrier's Telco Alarms
Power Channel Information	**powerChannelInfoTable**	**<ROOT_OID>.166.1**	provide variables to obtain information regarding a power channel and the available and consumed power on that channel

Table 3: Tables and scalar objects described in the MicroTCA Carrier MIB file

3.2.1 Power Feed

This table describes the feeds powering the system.

MIB TABLE NAME: **powerFeedTable**
MIB TABLE OID: **55**
MIB TABLE ENTRY NAME: **powerFeedEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.55.1.<var>.<feedNumber>

<var> variable name or index in the table described below
<feedNumber> Power Module site number

Var #	Name	Data Type	Access Mode	Description
1	feedNumber	INTEGER	read-only	table index, as described by **<feedNumber>**; Power Module site number
2	feedMaxAvailableCurrent	Display String	read-only	maximum available current in amps
3	feedMaxInternalCurrent	Display String	read-only	maximum internal current in amps
4	feedMinExpectedOperatingVoltage	Display String	read-only	minimum voltage. A value from 48h (-36v) up to and including 90h (-72V). Voltage is in ½ volt increments
5	feedAvailablePower	Display String	read-only	maximum available power in watts
6	feedPowerConsumption	Display String	read-only	maximum power consumption in watts

Table 4: Variable descriptions for the Power Feed Table

3.2.2 Site Map

This table displays the MicroTCA addressing table.

MIB TABLE NAME: **siteMapTable**
MIB TABLE OID: **56**
MIB TABLE ENTRY NAME: **siteMapEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.56.1.<var>.<index>

<var> variable name or index in the table described below
<index> index of the entry in the address table

Var #	Name	Data Type	Access Mode	Description
1	smIndex	INTEGER	read-only	table index, as described by **<index>**; index of the entry in the address table(1...N address table entries)
2	smHwAddress	INTEGER	read-only	FRU's hardware address
3	smSiteNumber	INTEGER	read-only	FRU's site number
4	smSiteType	INTEGER	read-only	FRU's site type

Table 5: Variable descriptions for the Site Map Table

3.2.3 Manager Fail-Over

This scalar provides the ability to fail-over from one Carrier to another. The index is always 0.

SYNTAX: **<ROOT_OID>.<var>.0**

<var> variable name or index in the table described below

Var #	Name	Data Type	Access Mode	Description
57	managerFailOver	INTEGER	read	always 0
			write	1 – triggers failover

Table 6: Manager Fail-Over scalar object

3.2.4 Power Module

This table describes the status information for Power Modules currently in the system.

MIB TABLE NAME: **powerModuleTable**
MIB TABLE OID: **101**
MIB TABLE ENTRY NAME: **powerModuleEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.101.1.<var>.<address>.<fruId>

<var> variable name or index in the table described below
<address> address of the Carrier Management Controller
<fruId> FRU ID of the Power Module

Var #	Name	Data Type	Access Mode	Description
1	pmAddress	INTEGER	read-only	comprises the table index, as described by **<address>**; address of the Management Controller (20h)
2	pmFruId	INTEGER	read-only	comprises the table index, as described by **<fruId>**; FRU ID of the Power Module
3	pmHotSwapState	INTEGER	read-only	Power Module's current hotswap state (M0-M7)
4	pmHealthy	INTEGER	read-only	Power Module's presence/health status 0 – Power Module is absent or unhealthy 1 – Power Module is present and healthy
5	pmGlobalStatus	INTEGER	read-only	Power Module's global presence/health status, for all power channels implemented by the PM 0 – Power Module is absent or unhealthy 1 – Power Module is present and healthy
6	pmReset	INTEGER	read	always 0
			write	1 – trigger a reset of the Power Module
7	pmRole	INTEGER	read-only	Power Module's role 0 – Power Module is acting as the redundant PM 1 – Power Module is acting as the primary PM
8	pmMgtPowerStatus	INTEGER	read-only	Power Module's management power status 0 – Power Module management power status is unhealthy to one or more channels 1 – Power Module management power status is healthy

9	pmPayloadPowerStatus	INTEGER	read-only	Power Module's payload power status 0 – Power Module payload power status is unhealthy to one or more channels 1 – Power Module payload power status is healthy
10	pmRedundantPMActive	INTEGER	read-only	redundant Power Module status 1 – Redundant PM is providing payload power current 0 – Redundant PM is not providing payload power current

Table 7: Variable descriptions for the Power Module Table

3.2.5 Power Channel Status

This table describes the power channels on each Power Module.

MIB TABLE NAME: **powerChannelStatusTable**
MIB TABLE OID: **102**
MIB TABLE ENTRY NAME: **powerChannelStatusEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.102.1.<var>.<address>.<fruId>.<channelNumber>

<var> variable name or index in the table described below
<address> address of the Carrier Management Controller
<fruId> FRU ID of the Power Module
<channelNumber> power channel number

Var #	Name	Data Type	Access Mode	Description
1	pmcsAddress	INTEGER	read-only	table index component, as described by **<address>**; address of the Management Controller
2	pmcsFruId	INTEGER	read-only	table index component, as described by **<fruId>**; Power Module FRU ID, relative to the MicroTCA Carrier's local FRU addressing
3	pmcsChannelNumber	INTEGER	read-only	table index component, as described by **<channelNumber>**; power channel number
4	pmcsPowerAsserted	INTEGER	read-only	power asserted for channel 0 – No 1 – Yes
5	pmcsPresenceAsserted	INTEGER	read-only	presense asserted for channel 0 – No 1 – Yes
6	pmcsEnableAsserted	INTEGER	read-only	enable asserted for channel 0 – No 1 – Yes
7	pmcsMgtPowerEnabled	INTEGER	read-only	management power enabled for channel 0 – No 1 – Yes
8	pmcsMgtPowerOvercurrent	INTEGER	read-only	management power over-current asserted for channel 0 – No 1 – Yes
9	pmcsPayloadPowerAsserted	INTEGER	read-only	payload power asserted on channel 0 – No 1 – Yes

10	pmcsPayloadPowerOvercurrent	INTEGER	read-only	payload power over-current asserted on channel 0 – No 1 – Yes

Table 8: Variable descriptions for the Power Channel Status Table

3.2.6 Module Location

This table describes the physical locations of Modules currently in the Carrier.

MIB TABLE NAME: **moduleLocationTable**
MIB TABLE OID: **103**
MIB TABLE ENTRY NAME: **moduleLocationEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.103.1.<var>.<address>.<fruId>

<var> variable name or index in the table described below
<address> address of the Carrier Management Controller
<fruId> FRU ID of the Module

Var #	Name	Data Type	Access Mode	Description
1	mlAddress	INTEGER	read-only	table index component, as described by **<address>**; 8-bit address of the Management Controller
2	mlFruId	INTEGER	read-only	table index component, as described by **<fruId>**; Module FRU ID, relative to the MicroTCA Carrier's local FRU addressing
3	mlSlot	INTEGER	read-only	Module slot number within a MicroTCA Carrier
4	mlTier	INTEGER	read-only	Module tier number within a MicroTCA Carrier
6	mlCoordinateX	Display String	read-only	X Cartesian coordinate, in mm, from the ejector handle corner of a slot to the left edge of its MicroTCA Carrier, relative to its Shelf
7	mlCoordinateY	Display String	read-only	Y Cartesian coordinate, in mm, from the ejector handle corner of a slot to the bottom edge of its MicroTCA Carrier, relative to its Shelf

Table 9: Variable descriptions for the Module Location Table

3.2.7 Active Carrier Manager MCH FRU ID

FRU ID of the active Carrier Manager's MCH (3 or 4). The index is always 0.

SYNTAX: **<ROOT_OID>.<var>.0**

<var> variable name or index in the table described below

Var #	Name	Data Type	Access Mode	Description
151	activeCarrierManagerMCHFruId	INTEGER	read-only	FRU ID of the MCH the active Carrier resides on

Table 10: Active MicroTCA Carrier Manager MCH FRU Identifier scalar object

3.2.8 Carrier Address

This scalar describes the address of the Carrier. The index is always 0.

SYNTAX: **<ROOT_OID>.<var>.0**

<var> variable name or index in the table described below

Var #	Name	Data Type	Access Mode	Description
152	carrierAddress	INTEGER	read-only	8-bit address of the Carrier Management Controller

Table 11: Carrier Address scalar object

3.2.9 Telco Alarms

This table describes the scalars relevant to the capabilities and statuses of the Telco alarms. The index is always 0.

SYNTAX: **<ROOT_OID>.<var>.0**

<var> variable name or index in the table described below

Var #	Name	Data Type	Access Mode	Description
153	telcoCriticalStatus	INTEGER	read-only	critical alarm state -1 – alarm not supported 0 – off 1 – on 255 – test
154	telcoMajorStatus	INTEGER	read-write	major alarm state -1 – alarm not supported 0 – off 1 – on 255– test
155	telcoMinorStatus	INTEGER	read-write	minor alarm state -1 – alarm not supported 0 – off 1 – on 255 – test
156	telcoPowerIndicatorStatus	INTEGER	read-write	power Indicator alarm state -1 – alarm not supported 0 – off 1 – on 255 – test
157	telcoCutoffStatus	INTEGER	read-write	cutoff alarm state -1 – alarm not supported 0 – off 1 – on 255 – test
158	telcoAutoMajorResetCapable	INTEGER	read-only	automatic major reset capable 0 – incapable 1 – capable
159	telcoAutoMinorResetCapable	INTEGER	read-only	automatic minor reset capable 0 – incapable 1 – capable
160	telcoAutoCutoffCapable	INTEGER	read-only	automatic cutoff capable 0 – incapable 1 – capable
161	telcoTestCapable	INTEGER	read-only	test modes capable 0 – incapable 1 – capable

162	telcoPowerIndicatorCapable	INTEGER	read-only	power indicator alarm capable 0 – incapable 1 – capable
163	telcoCriticalCapable	INTEGER	read-only	critical alarm capable 0 – incapable 1 – capable
164	telcoMajorCapable	INTEGER	read-only	major alarm capable 0 – incapable 1 – capable
165	telcoMinorCapable	INTEGER	read-only	minor alarm capable 0 – incapable 1 – capable

Table 12: Telco Alarm scalar objects

3.2.10 Power Channel Information

This table describes the power channels on each Power Module.

MIB TABLE NAME: **powerChannelInfoTable**
MIB TABLE OID: **166**
MIB TABLE ENTRY NAME: **powerChannelInfoEntry**
MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.166.1.<var>.<address>.<fruId>.<channelNumber>

<var> variable name or index in the table described below
<address> address of the Carrier Management Controller
<fruId> FRU ID of the Power Module
<channelNumber> power channel number

Var #	Name	Data Type	Access Mode	Description
1	pmciAddress	INTEGER	read-only	table index, as described by **<address>**; 8-bit IPMB address of the Management Controller(0x20)
2	pmciFruId	INTEGER	read-only	table index, as described by **<fruId>**; Power Module FRU ID
3	pmciChannelNumber	INTEGER	read-only	table index, as described by <channelNumber>; power channel number
4	pmciDeviceFruId	INTEGER	read-only	FRU ID of the device corresponding to the specified channel number
5	pmciMaxPower	Display String	read-only	maximum power available to the power channel
6	pmciPowerConsumption	Display String	read-only	consumed power on the power channel

Table 13: Variable descriptions for the Power Channel Information Table

3.3 SNMP Commands

Refer to the VadaTech ATCA Core SNMP Interface Reference Manual for use of the SNMP client interface commands. Note that the MicroTCA Carrier MIB Module name is **VT-UTCC**, and has the OID value of **utcc**(4), as discussed in Section 3.1: MIB Tree Root OID.

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