

VadaTech MicroTCA

Shelf SNMP Interface Reference Manual

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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 Shelf platform. This document details the SNMP tables and scalars as they apply to the MicroTCA Shelf 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 Interface 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 Shelf 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 Shelf SNMP interface.

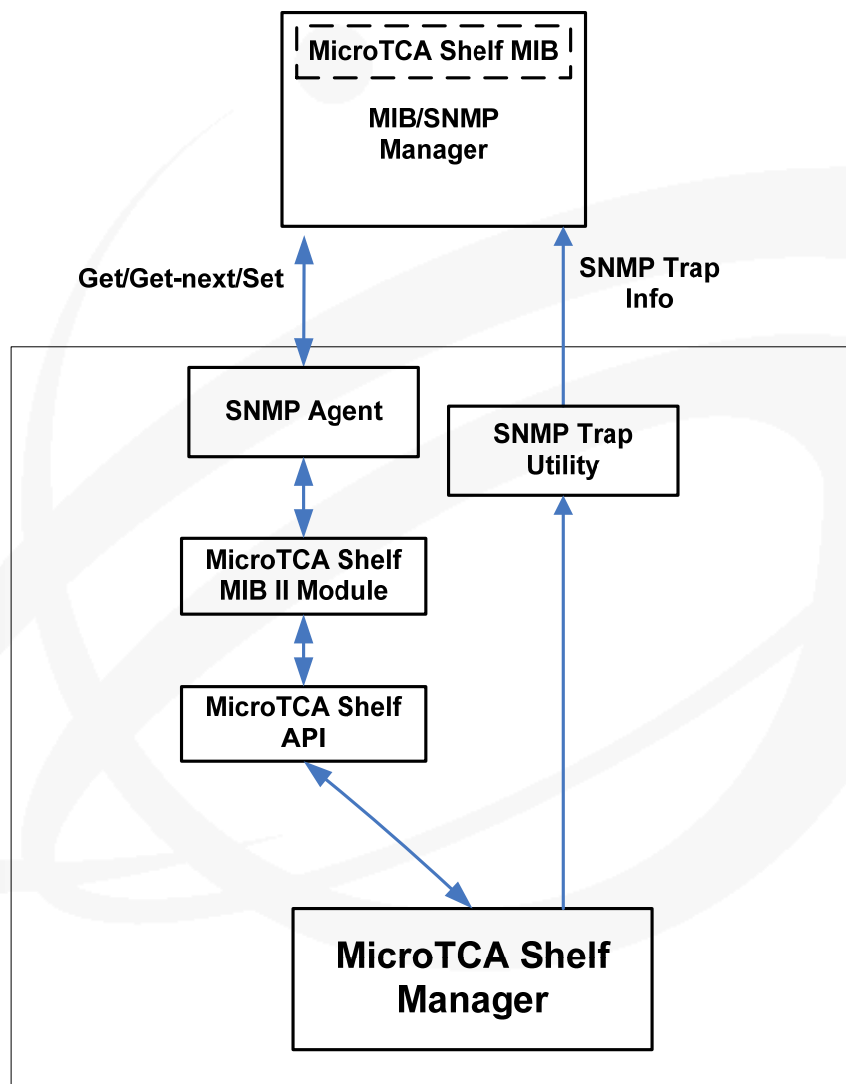


Figure 1: MicroTCA Shelf Management Controller SNMP Agent / Sub-Agents

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

Name	Description
MIB Manager	see SNMP Manager
MicroTCA Shelf API	Shelf Manager programming interface used by the SNMP module to communicate with the MicroTCA Shelf Manager
MicroTCA Shelf MIB	MIB module describing the tables and scalars specific to the MicroTCA Shelf platform
MicroTCA Shelf MIB II Module	compiled MicroTCA Shelf Manager-specific MIB II modules
MicroTCA Shelf 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 (see <code>snmpwalk</code> , <code>snmpget</code> , <code>snmpset</code>)
SNMP Trap Utility	SNMP Trap interface used to notify external devices of user-configurable event notifications

Table 2: Elements of the SNMP Interface

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

3 Shelf Management Information Base

The MicroTCA Shelf Manager comes with a Management Information Base (MIB) file (`vt-utcsH.mib`) that describes the Shelf 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 Shelf. The Shelf MIB file is located in the `/opt/vadatech/SNMP/mibs` directory. Users can utilize `scp` to retrieve this file from the Shelf Manager.

3.1 MIB Tree Root OID

The MicroTCA Shelf 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 Shelf platform OID, as shown in Figure 2.

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

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

`<ROOT_OID> = 1.3.6.1.4.1.23858.2.1.3`

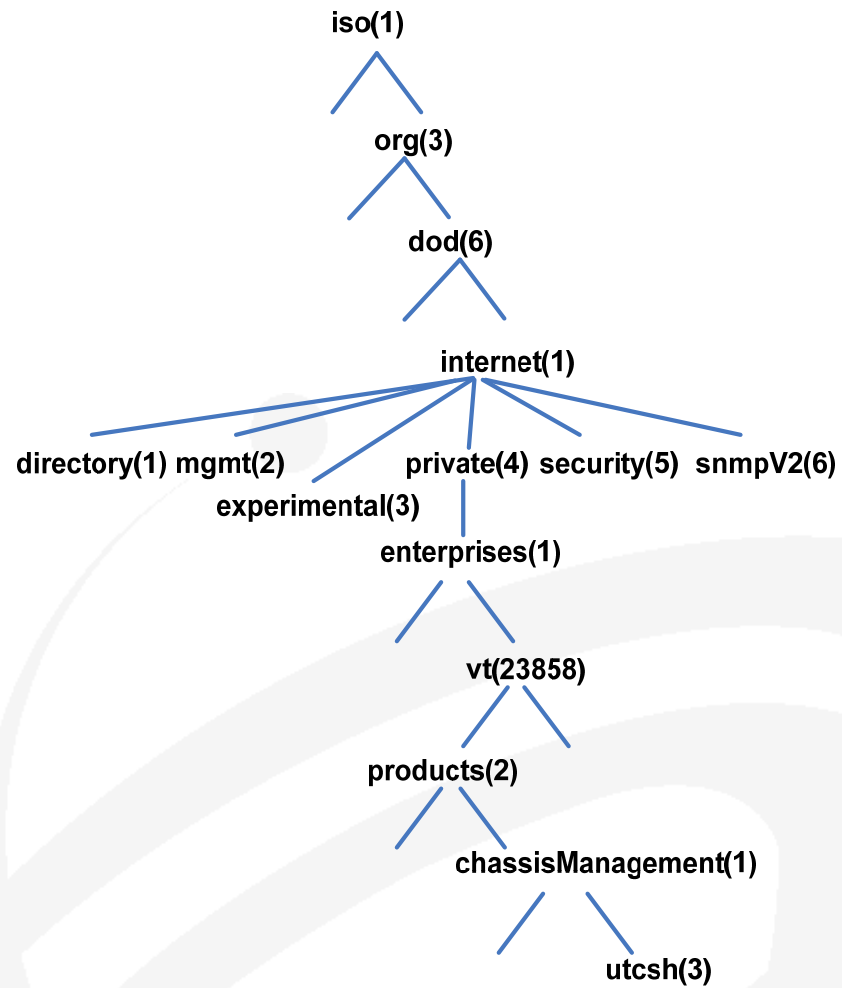


Figure 2: SNMP object identifier tree for the VadaTech MicroTCA Shelf MIB

3.2 MicroTCA Shelf MIB Objects

A MicroTCA Shelf'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 Shelf's extended groups of variables:

Note: The following variables are only applicable to VadaTech MCH configurations where the Shelf Manager is enabled, i.e., for systems where the VadaTech Shelf Manager and Carrier Manager both are running in the same MicroTCA Carrier Chassis.

The variables can also be used with a VadaTech Shelf Manager that is remotely managing other MicroTCA Carrier Chassis.

Group	Object Name	Object Identifier	Description
Chassis Identifier	chassisIdentifier	<ROOT_OID>.58.0	provides a variable to obtain and set the chassis identifier
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	powerChannelStatus	<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 within the MicroTCA Shelf
Telco Alarms	telcoTable	<ROOT_OID>.151.1	provide variables to obtain capabilities and status information regarding a MicroTCA Carrier's Telco Alarms
Shelf Location	shelf*	<ROOT_OID>.152...155.0	provide variables to obtain information regarding the physical location of the MicroTCA Shelf
Active Carrier Manager MCH	activeCarrierManagerMCHTable	<ROOT_OID>.156.1	provide variables to obtain information regarding an active manager MCH
Carrier Location	carrierLocationTable	<ROOT_OID>.157.1	provide variables to obtain information regarding the physical location of a MicroTCA Carrier within the MicroTCA Shelf

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

3.2.1 Chassis Identifier

The following scalar variable is defined to obtain and set the chassis identifier. 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
58	chassisIdentifier	Display String	read-write	Chassis Identifier

Table 4: MicroTCA Shelf Chassis Identifier scalar object

3.2.2 Power Module

This table describes the status of 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	table index component, as described by <address>; address of the Management Controller (MicroTCA Carrier MC)
2	pmFruId	INTEGER	read-only	table index component, 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 5: Variable descriptions for the Power Module Table

3.2.3 Power Channel Status

This table describes the power channels for each Power Module installed in the Shelf.

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, 1-16.

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

				1 – Yes
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Table 6: Variable descriptions for the Power Channel Status Table



3.2.4 Module Location

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

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, as described by <address>; 8-bit address of the Management Controller
2	mlFruId	INTEGER	read-only	table index, 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 7: Variable descriptions for the Module Location Table

3.2.5 Telco Alarms

This table describes the capabilities and statuses of the Telco alarms on a per-MicroTCA Carrier basis. If a Carrier does not support Telco alarms, SNMP moves on to the next available Carrier.

MIB TABLE NAME: **telcoTable**

MIB TABLE OID: **151**

MIB TABLE ENTRY NAME: **telcoEntry**

MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.151.1.<var>.<address>

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

<address> address of the Carrier Management Controller

Var #	Name	Data Type	Access Mode	Description
1	tAddress	INTEGER	read-only	table index, as described by <address> ; 8-bit address of the Management Controller (Carrier)
2	tCriticalStatus	INTEGER	read-write	critical alarm state 0 – Off 1 – On 255 – Test
3	tMajorStatus	INTEGER	read-write	major alarm state 0 – Off 1 – On 255 – Test
4	tMinorStatus	INTEGER	read-write	minor alarm state 0 – Off 1 – On 255 – Test
5	tPowerIndicatorStatus	INTEGER	read-write	power Indicator alarm state 0 – Off 1 – On 255 – Test
6	tCutoffStatus	INTEGER	read-write	cutoff alarm state 0 – Off 1 – On 255 – Test
7	tAutoMajorResetCapable	INTEGER	read-only	automatic major reset capable 0 – incapable 1 – capable
8	tAutoMinorResetCapable	INTEGER	read-only	automatic minor reset capable 0 – incapable 1 – capable

9	tAutoCutoffCapable	INTEGER	read-only	automatic cutoff capable 0 – incapable 1 – capable
10	tTestCapable	INTEGER	read-only	test modes capable 0 – incapable 1 – capable
11	tPowerIndicatorCapable	INTEGER	read-only	power indicator alarm capable 0 – incapable 1 – capable
12	tCriticalCapable	INTEGER	read-only	critical alarm capable 0 – incapable 1 – capable
13	tMajorCapable	INTEGER	read-only	major alarm capable 0 – incapable 1 – capable
14	tMinorCapable	INTEGER	read-only	minor alarm capable 0 – incapable 1 – capable

Table 8: Variable descriptions for the Active Carrier Manager MCH Table

3.2.6 Shelf Location

This table describes the scalars relevant to the Shelf manager location information. 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	shelfLocationX	INTEGER	read-only	X Cartesian coordinate, in mm, of the MicroTCA Shelf Manager
153	shelfLocationY	INTEGER	read-only	Y Cartesian coordinate, in mm, of the MicroTCA Shelf Manager
154	shelfSlotIndexStart	INTEGER	read-only	starting slot index, either 0 or 1
155	shelfTierIndexStart	INTEGER	read-only	starting tier index, either 0 or 1

Table 9: MicroTCA Shelf Location scalar objects

3.2.7 Active Carrier Manager MCH

This table describes the active Carrier Manager's MCH for each MicroTCA Carrier in the MicroTCA Shelf.

MIB TABLE NAME: **activeCarrierManagerMCHTable**

MIB TABLE OID: 156

MIB TABLE ENTRY NAME: **activeCarrierManagerMCHEntry**

MIB TABLE ENTRY OID: 1

SYNTAX:

<ROOT_OID>.156.1.<var>.<address>

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

<address> address of the Carrier Management Controller

Var #	Name	Data Type	Access Mode	Description
1	mchCarrierAddress	INTEGER	read-only	table index, as described by <address>; 8-bit address of the Management Controller (Carrier)
2	mchFruld	INTEGER	read-only	FRU ID of the active Carrier Manager's MCH

Table 10: Variable descriptions for the Active Carrier Manager MCH Table

3.2.8 Carrier Location

This table describes the physical locations of MicroTCA Carriers currently in the system.

MIB TABLE NAME: **carrierLocationTable**
 MIB TABLE OID: **157**
 MIB TABLE ENTRY NAME: **carrierLocationEntry**
 MIB TABLE ENTRY OID: **1**

SYNTAX:

<ROOT_OID>.157.1.<var>.<address>

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

Var #	Name	Data Type	Access Mode	Description
1	clAddress	INTEGER	read-only	table index, as described by <address>; 8-bit address of the Management Controller
2	clSlot	INTEGER	read-only	MicroTCA Carrier Manager's slot number within the Shelf
3	clTier	INTEGER	read-only	MicroTCA Carrier Manager's tier number within the Shelf
4	clOrientation	INTEGER	read-only	Carrier orientation 0 – slots increment left to right, while tier numbers increment from bottom to top 1 – slots increment from bottom to top, while tier numbers increment from left to right
5	clCoordinateX	Display String	read-only	X Cartesian coordinate, in mm, from the lower left corner of the MicroTCA Carrier, relative to the Shelf, to the left edge of its Shelf
6	clCoordinateY	Display String	read-only	Y Cartesian coordinate, in mm, from the lower left corner of a MicroTCA Carrier, relative to the Shelf, to the bottom edge of its shelf

Table 11: Variable descriptions for the Carrier Location Table

4 SNMP Commands

Refer to the [VadaTech ATCA Core SNMP Interface Reference Manual](#) for use of the SNMP client interface commands. Note that the MicroTCA Shelf MIB Module name is `VT-UTCSE`, and has the OID value of `utcsh(3)`, as discussed in **Section 3.1: MIB Tree Root OID**.



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