

External Interface Reference

Pigeon Point Shelf Manager

Release 3.7.0

August 31, 2017

Electronics Protection

Pentair Technical Solutions

hardware.management@pentair.com

www.pigeonpoint.com

www.pentairprotect.com



This document is furnished under license and may be used or copied only in accordance with the terms of such license. The content of this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Pentair. Pentair assumes no responsibility or liability for any errors or inaccuracies that may appear in this book.

Except as permitted by such license, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, manual, recording, or otherwise, without the prior written permission of Pentair.

The Pigeon Point Shelf Manager uses an implementation of the MD5 Message-Digest algorithm that is derived from the RSA Data Security, Inc. MD5 Message-Digest algorithm.

All Pentair brands and logos are the property of Pentair or its affiliated companies worldwide. Pentair reserves the right to change information without prior notification.

Table of contents

1	About this document	22
1.1	Shelf Manager documentation	22
1.2	Conventions used in this document	22
1.3	Additional resources	23
2	Introduction	24
3	Command Line Interface	25
3.1	Starting the Command Line Interface	25
3.2	Command Line Interface summary table	26
3.3	Shorthand notations	40
3.4	activate	42
3.4.1	Syntax	42
3.4.2	Purpose	42
3.4.3	Examples	42
3.5	airfilterreplaced	43
3.5.1	Syntax	43
3.5.2	Purpose	43
3.5.3	Examples	43
3.6	alarm	44
3.6.1	Syntax	44
3.6.2	Purpose	44
3.6.3	Examples	44
3.7	amcgetlanconf	46
3.7.1	Syntax	46
3.7.2	Purpose	46
3.7.3	Example	50
3.7.4	auth_support	50
3.7.5	auth_enables	51
3.7.6	ip	52
3.7.7	ip_source	52
3.7.8	mac	53
3.7.9	subnet_mask	53
3.7.10	ipv4_hdr_param	54
3.7.11	pri_rmcp_port	54
3.7.12	sec_rmcp_port	55
3.7.13	arp_control	55
3.7.14	arp_interval	56
3.7.15	dft_gw_ip	56
3.7.16	dft_gw_mac	56
3.7.17	backup_gw_ip	57
3.7.18	backup_gw_mac	57
3.7.19	community	58
3.7.20	destination_count	58
3.7.21	destination_type	59

3.7.22	destination_address	59
3.7.23	vlan_id	60
3.7.24	vlan_priority	61
3.7.25	cs_entry_count	61
3.7.26	cs_entries	62
3.7.27	cs_priv_levels	62
3.7.28	destination_vlan_tag	63
3.7.29	hpm2_caps	64
3.7.30	hpm2_if_mask	64
3.7.31	hpm2_if_descr	65
3.7.32	hpm2_if_grp_mask	66
3.7.33	hpm2_if_grp_descr	66
3.7.34	hpm2_act_if_group	67
3.7.35	hpm2_def_if_group	67
3.7.36	hpm2_rd_grp_mask	67
3.7.37	hpm2_rd_grp_descr	68
3.7.38	hpm2_rd_timeout	68
3.7.39	hpm2_def_rd_timeout	69
3.7.40	hpm3_ch_index	69
3.7.41	hpm3_dhcp_options	69
3.8	amcgetsolconf	71
3.8.1	Syntax	71
3.8.2	Purpose	71
3.8.3	Examples	72
3.8.4	enable	73
3.8.5	auth	73
3.8.6	character	74
3.8.7	retry	74
3.8.8	nv_bit_rate	75
3.8.9	bit_rate	75
3.8.10	payload_channel	76
3.8.11	payload_port	76
3.8.12	hpm2_bit_rate	76
3.8.13	hpm2_nv_bit_rate	77
3.8.14	hpm2_character	78
3.8.15	hpm2_nv_character	78
3.8.16	hpm2_retry	79
3.8.17	hpm2_nv_retry	79
3.8.18	hpm2_port_name	80
3.9	amcportstate	81
3.9.1	Syntax	81
3.9.2	Purpose	81
3.9.3	Example	81
3.10	amcsetlanconf	83
3.10.1	Syntax	83
3.10.2	Purpose	83

3.10.3	auth_enables	85
3.10.4	ip	86
3.10.5	ip_source	87
3.10.6	subnet_mask	87
3.10.7	ipv4_hdr_param	88
3.10.8	arp_control	88
3.10.9	arp_interval	89
3.10.10	dft_gw_ip	89
3.10.11	backup_gw_ip	90
3.10.12	community	90
3.10.13	destination_type	91
3.10.14	destination_address	91
3.10.15	vlan_id	92
3.10.16	vlan_priority	93
3.10.17	cs_priv_levels	93
3.10.18	hpm2_act_if_group	94
3.10.19	hpm2_def_if_group	94
3.10.20	hpm2_rd_timeout	94
3.10.21	hpm2_def_rd_timeout	95
3.10.22	hpm3_dhcp_value	95
3.11	amcsetsolconf	97
3.11.1	Syntax	97
3.11.2	Purpose	97
3.11.3	enable	98
3.11.4	auth	99
3.11.5	character	99
3.11.6	retry	100
3.11.7	nv_bit_rate	100
3.11.8	bit_rate	101
3.11.9	payload_port	101
3.11.10	hpm2_bit_rate	102
3.11.11	hpm2_nv_bit_rate	102
3.11.12	hpm2_character	103
3.11.13	hpm2_nv_character	103
3.11.14	hpm2_retry	104
3.11.15	hpm2_nv_retry	104
3.12	axie	106
3.12.1	Syntax	106
3.12.2	Purpose	106
3.12.3	sequencing	106
3.13	board	109
3.13.1	Syntax	109
3.13.2	Purpose	109
3.13.3	Example	110
3.14	boardreset	112
3.14.1	Syntax	112

3.14.2	Purpose	112
3.14.3	Examples	113
3.15	busres	114
3.15.1	Syntax	114
3.15.2	Purpose	114
3.15.3	info	114
3.15.4	release force <resource>	115
3.15.5	lock unlock	115
3.15.6	query	116
3.15.7	setowner	117
3.15.8	sendbusfree	118
3.16	cooling	119
3.16.1	Syntax	119
3.16.2	Purpose	119
3.16.3	Examples	120
3.17	deactivate	121
3.17.1	Syntax	121
3.17.2	Purpose	121
3.17.3	Examples	121
3.18	debuglevel	122
3.18.1	Syntax	122
3.18.2	Purpose	122
3.18.3	Examples	122
3.19	dhcp	124
3.19.1	Syntax	124
3.19.2	Purpose	124
3.19.3	Examples	125
3.20	exit/quit	130
3.20.1	Syntax	130
3.20.2	Purpose	130
3.20.3	Examples	130
3.21	fans	131
3.21.1	Syntax	131
3.21.2	Purpose	131
3.21.3	Examples	131
3.22	firewall	132
3.22.1	Syntax	132
3.22.2	Purpose	132
3.22.3	Examples	133
3.23	fru	137
3.23.1	Syntax	137
3.23.2	Purpose	137
3.23.3	Examples	138
3.24	frudata	141
3.24.1	Syntax	141

3.24.2	Purpose	141
3.24.3	Examples	141
3.25	frudatar	144
3.25.1	Syntax	144
3.25.2	Purpose	144
3.25.3	Examples	144
3.26	frudataw	145
3.26.1	Syntax	145
3.26.2	Purpose	145
3.26.3	Examples	146
3.27	fruinfo	148
3.27.1	Syntax	148
3.27.2	Purpose	148
3.27.3	Examples	148
3.28	frucontrol	156
3.28.1	Syntax	156
3.28.2	Purpose	156
3.28.3	Examples	156
3.29	getbootdev	158
3.29.1	Syntax	158
3.29.2	Purpose	158
3.29.3	Examples	158
3.30	getconfigparam	159
3.30.1	Syntax	159
3.30.2	Purpose	159
3.30.3	Examples	159
3.31	getfanlevel	163
3.31.1	Syntax	163
3.31.2	Purpose	163
3.31.3	Examples	163
3.32	getfanpolicy	164
3.32.1	Syntax	164
3.32.2	Purpose	164
3.32.3	Examples	164
3.33	getfruledstate	165
3.33.1	Syntax	165
3.33.2	Purpose	165
3.33.3	Examples	165
3.34	gethysteresis	167
3.34.1	Syntax	167
3.34.2	Purpose	167
3.34.3	Examples	167
3.35	getipmbstate	169
3.35.1	Syntax	169
3.35.2	Purpose	169

3.35.3	Examples	169
3.36	getlanconf	170
3.36.1	Syntax	170
3.36.2	Purpose	170
3.36.3	Examples	176
3.36.4	auth_support	176
3.36.5	auth_enables	177
3.36.6	ip	177
3.36.7	ip_source	178
3.36.8	mac	178
3.36.9	subnet_mask	179
3.36.10	ipv4_hdr_param	179
3.36.11	pri_rmcp_port	179
3.36.12	sec_rmcp_port	180
3.36.13	arp_control	180
3.36.14	arp_interval	181
3.36.15	dft_gw_ip	181
3.36.16	dft_gw_mac	181
3.36.17	backup_gw_ip	182
3.36.18	backup_gw_mac	182
3.36.19	community	182
3.36.20	destination_count	183
3.36.21	destination_type	183
3.36.22	destination_address	184
3.36.23	vlan_id	185
3.36.24	vlan_priority	185
3.36.25	cs_entry_count	186
3.36.26	cs_entries	186
3.36.27	cs_priv_levels	186
3.36.28	destination_vlan_tag	187
3.36.29	bad_password_threshold	188
3.36.30	ipv6_support	188
3.36.31	ipv6_addr_enables	189
3.36.32	ipv6_traffic_class	189
3.36.33	ipv6_hop_limit	190
3.36.34	ipv6_flow_label	190
3.36.35	ipv6_status	191
3.36.36	ipv6_addresses	191
3.36.37	ipv6_static_duid_length	192
3.36.38	ipv6_static_duid	192
3.36.39	ipv6_dynamic_addresses	193
3.36.40	ipv6_dynamic_duid_length	193
3.36.41	ipv6_dynamic_duid	194
3.36.42	ipv6_dhcpv6_timing_support	195
3.36.43	ipv6_dhcpv6_timing	195
3.36.44	ipv6_router_config	195
3.36.45	ipv6_router1_ip	196

3.36.46	ipv6_router1_mac	196
3.36.47	ipv6_router1_prefix_length	197
3.36.48	ipv6_router1_prefix_value	197
3.36.49	ipv6_router2_ip	197
3.36.50	ipv6_router2_mac	198
3.36.51	ipv6_router2_prefix_length	198
3.36.52	ipv6_router2_prefix_value	198
3.36.53	ipv6_dynamic_router_num	199
3.36.54	ipv6_dynamic_router_ip	199
3.36.55	ipv6_dynamic_router_mac	200
3.36.56	ipv6_dynamic_router_prefix_length	200
3.36.57	ipv6_dynamic_router_prefix_value	201
3.36.58	ipv6_dynamic_router_hop_limit	201
3.36.59	ipv6_nd_slaac_timing_support	202
3.36.60	ipv6_nd_slaac_timing	202
3.36.61	hpm2_caps	202
3.36.62	hpm2_br_control	203
3.36.63	hpm2_br_state	203
3.36.64	hpm2_if_mask	204
3.36.65	hpm2_if_descr	204
3.36.66	hpm2_if_grp_mask	205
3.36.67	hpm2_if_grp_descr	205
3.36.68	hpm2_act_if_group	206
3.36.69	hpm2_def_if_group	206
3.36.70	hpm2_rd_grp_mask	206
3.36.71	hpm2_rd_grp_descr	207
3.36.72	hpm2_rd_timeout	207
3.36.73	hpm2_def_rd_timeout	207
3.36.74	hpm3_ch_index	208
3.36.75	hpm3_dhcp_options	208
3.37	getlanconfig	209
3.37.1	Syntax	209
3.37.2	Purpose	209
3.37.3	Examples	209
3.38	getpefconfig	212
3.38.1	Syntax	212
3.38.2	Purpose	212
3.38.3	Examples	213
3.38.4	control	214
3.38.5	action_control	214
3.38.6	startup_delay	215
3.38.7	alert_startup_delay	215
3.38.8	event_filter_count	216
3.38.9	event_filter	216
3.38.10	event_filter_data1	217
3.38.11	alert_policy_count	218
3.38.12	alert_policy	218

3.38.13	system_guid	219
3.38.14	alert_string_count	219
3.38.15	alert_string_key	219
3.38.16	alert_string	220
3.38.17	oem_filter_count	220
3.38.18	oem_filter	221
3.38.19	pet_format	221
3.39	getsensoreventenable	223
3.39.1	Syntax	223
3.39.2	Purpose	223
3.39.3	Examples	223
3.40	getsolconf	225
3.40.1	Syntax	225
3.40.2	Purpose	225
3.40.3	Examples	226
3.40.4	enable	227
3.40.5	auth	227
3.40.6	character	228
3.40.7	retry	228
3.40.8	nv_bit_rate	228
3.40.9	bit_rate	229
3.40.10	payload_channel	229
3.40.11	payload_port	229
3.40.12	hpm2_bit_rate	230
3.40.13	hpm2_nv_bit_rate	230
3.40.14	hpm2_character	231
3.40.15	hpm2_nv_character	231
3.40.16	hpm2_retry	232
3.40.17	hpm2_nv_retry	232
3.40.18	hpm2_port_name	233
3.41	getthreshold/threshold	234
3.41.1	Syntax	234
3.41.2	Purpose	234
3.41.3	Examples	235
3.42	help	236
3.42.1	Syntax	236
3.42.2	Purpose	236
3.42.3	Examples	236
3.43	hpi	241
3.43.1	Syntax	241
3.43.2	Purpose	241
3.43.3	Displaying HPI version	241
3.43.4	Displaying HPI session information	241
3.43.5	Displaying HPI resource information	242
3.44	ipmc	244
3.44.1	Syntax	244

3.44.2	Purpose	244
3.44.3	Examples	245
3.45	localaddress	249
3.45.1	Syntax	249
3.45.2	Purpose	249
3.45.3	Examples	249
3.46	md5hash	250
3.46.1	Syntax	250
3.46.2	Purpose	250
3.46.3	Examples	250
3.47	minfanlevel	251
3.47.1	Syntax	251
3.47.2	Purpose	251
3.47.3	Examples	251
3.48	networkelementid	253
3.48.1	Syntax	253
3.48.2	Purpose	253
3.48.3	Examples	253
3.49	poll	255
3.49.1	Syntax	255
3.49.2	Purpose	255
3.49.3	Examples	255
3.50	sel	256
3.50.1	Syntax	256
3.50.2	Purpose	256
3.50.3	Examples	256
3.51	sendamc	259
3.51.1	Syntax	259
3.51.2	Purpose	259
3.51.3	Examples	259
3.52	sendcmd	261
3.52.1	Syntax	261
3.52.2	Purpose	261
3.52.3	Examples	261
3.53	sensor	263
3.53.1	Syntax	263
3.53.2	Purpose	263
3.53.3	Examples	264
3.54	sensordata	268
3.54.1	Syntax	268
3.54.2	Purpose	268
3.54.3	Examples	269
3.55	sensorread	272
3.55.1	Syntax	272
3.55.2	Purpose	272

3.55.3	Examples	272
3.56	session	274
3.56.1	Syntax	274
3.56.2	Purpose	274
3.56.3	Examples	274
3.57	setbootdev	276
3.57.1	Syntax	276
3.57.2	Purpose	276
3.57.3	Examples	276
3.58	setcommandpolicy	277
3.58.1	Syntax	277
3.58.2	Purpose	277
3.58.3	Examples	277
3.59	setextracted	279
3.59.1	Syntax	279
3.59.2	Purpose	279
3.59.3	Examples	279
3.60	setfanlevel	280
3.60.1	Syntax	280
3.60.2	Purpose	280
3.60.3	Examples	280
3.61	setfanpolicy	281
3.61.1	Syntax	281
3.61.2	Purpose	281
3.61.3	Examples	281
3.62	setfruledstate	283
3.62.1	Syntax	283
3.62.2	Purpose	283
3.62.3	Examples	284
3.63	setfunctionpolicy	285
3.63.1	Syntax	285
3.63.2	Purpose	285
3.63.3	Examples	285
3.64	sethysteresis	287
3.64.1	Syntax	287
3.64.2	Purpose	287
3.64.3	Examples	287
3.65	setipmbstate	288
3.65.1	Syntax	288
3.65.2	Purpose	288
3.65.3	Examples	288
3.66	setlanconf	289
3.66.1	Syntax	289
3.66.2	Purpose	289
3.66.3	auth_enables	292

3.66.4	ip	293
3.66.5	ip_source	293
3.66.6	subnet_mask	294
3.66.7	ipv4_hdr_param	294
3.66.8	arp_control	295
3.66.9	arp_interval	295
3.66.10	dft_gw_ip	296
3.66.11	backup_gw_ip	296
3.66.12	community	296
3.66.13	destination_type	297
3.66.14	destination_address	297
3.66.15	vlan_id	298
3.66.16	vlan_priority	298
3.66.17	cs_priv_levels	299
3.66.18	bad_password_threshold	299
3.66.19	ipv6_addr_enables	300
3.66.20	ipv6_traffic_class	300
3.66.21	ipv6_hop_limit	301
3.66.22	ipv6_flow_label	301
3.66.23	ipv6_addresses	302
3.66.24	ipv6_static_duid	302
3.66.25	ipv6_dynamic_duid	303
3.66.26	ipv6_dhcpv6_timing	303
3.66.27	ipv6_router_config	304
3.66.28	ipv6_router1_ip	304
3.66.29	ipv6_router1_mac	305
3.66.30	ipv6_router1_prefix_length	305
3.66.31	ipv6_router1_prefix_value	305
3.66.32	ipv6_router2_ip	306
3.66.33	ipv6_router2_mac	306
3.66.34	ipv6_router2_prefix_length	307
3.66.35	ipv6_router2_prefix_value	307
3.66.36	ipv6_nd_slaac_timing	307
3.66.37	hpm2_br_control	308
3.66.38	hpm2_act_if_group	308
3.66.39	hpm2_def_if_group	309
3.66.40	hpm2_rd_timeout	309
3.66.41	hpm2_def_rd_timeout	309
3.66.42	hpm3_dhcp_value	310
3.67	setlanconfig	311
3.67.1	Syntax	311
3.67.2	Purpose	311
3.68	setlocked	312
3.68.1	Syntax	312
3.68.2	Purpose	312
3.68.3	Examples	312
3.69	setpefconfig	313

3.69.1	Syntax	313
3.69.2	Purpose	313
3.69.3	control	316
3.69.4	action_control	316
3.69.5	startup_delay	317
3.69.6	alert_startup_delay	317
3.69.7	event_filter	318
3.69.8	event_filter_data1	319
3.69.9	alert_policy	319
3.69.10	system_guid	320
3.69.11	alert_string_key	321
3.69.12	alert_string	321
3.69.13	oem_filter	322
3.69.14	pet_format	323
3.70	setpowerlevel	323
3.70.1	Syntax	323
3.70.2	Purpose	323
3.70.3	Examples	324
3.71	setsensordata	325
3.71.1	Syntax	325
3.71.2	Purpose	325
3.71.3	Examples	327
3.72	setsensoreventenable	328
3.72.1	Syntax	328
3.72.2	Purpose	328
3.72.3	Examples	330
3.73	setsolconf	331
3.73.1	Syntax	331
3.73.2	Purpose	331
3.73.3	enable	332
3.73.4	auth	332
3.73.5	character	333
3.73.6	retry	333
3.73.7	nv_bit_rate	334
3.73.8	bit_rate	334
3.73.9	payload_port	334
3.73.10	hpm2_bit_rate	335
3.73.11	hpm2_nv_bit_rate	335
3.73.12	hpm2_character	336
3.73.13	hpm2_nv_character	336
3.73.14	hpm2_retry	337
3.73.15	hpm2_nv_retry	337
3.74	setthreshold	338
3.74.1	Syntax	338
3.74.2	Purpose	338
3.74.3	Examples	338

3.75	shelf	340
3.75.1	Syntax	340
3.75.2	Purpose	340
3.75.3	Displaying Shelf FRU Information	341
3.75.4	Modifying Maximum External Available Current	347
3.75.5	Modifying Minimum Expected Operating Voltage	349
3.75.6	Modifying Shelf Manager Controlled Activation Flag	351
3.75.7	Modifying Shelf Manager Controlled Deactivation flag	354
3.75.8	Modifying Shelf Manager BDSelGrounded flag	356
3.75.9	Modifying Maximum FRU Power Capability	357
3.75.10	Modifying Delay Before Next Power On	359
3.75.11	Modifying Allowance for FRU Activation Readiness	360
3.75.12	Reorder the FRU Activation and Power Descriptors	361
3.75.13	Refresh the Shelf FRU Information	363
3.75.14	Check the Shelf FRU Information for validity	364
3.75.15	Updating the Shelf FRU Information storage devices	365
3.75.16	Modifying Enable flag for an entry in the Pentair Cold-Sensitive FRU List record	365
3.76	shelfaddress	367
3.76.1	Syntax	367
3.76.2	Purpose	367
3.76.3	Examples	367
3.77	shmstatus	368
3.77.1	Syntax	368
3.77.2	Purpose	368
3.77.3	Examples	368
3.78	showunhealthy	369
3.78.1	Syntax	369
3.78.2	Purpose	369
3.78.3	Examples	369
3.79	switchover	370
3.79.1	Syntax	370
3.79.2	Purpose	370
3.79.3	Examples	370
3.80	terminate	371
3.80.1	Syntax	371
3.80.2	Purpose	371
3.80.3	Examples	371
3.81	user	372
3.81.1	Syntax	372
3.81.2	Purpose	372
3.81.3	Displaying user information	372
3.81.4	Adding a new user	373
3.81.5	Deleting a user	374
3.81.6	Enabling and disabling a user	374
3.81.7	Modifying a user name	375
3.81.8	Modifying a user's password	376

3.81.9	Modify channel access settings	377
3.82	variable	379
3.82.1	Syntax	379
3.82.2	Purpose	379
3.82.3	Examples	379
3.83	version	382
3.83.1	Syntax	382
3.83.2	Purpose	382
3.83.3	Examples	382
4	Web interface	384
4.1	Starting the Web interface	384
4.2	Boards/IPMCs/AMCs	386
4.2.1	Boards	386
4.2.2	IPMCs	388
4.2.3	AMCs	390
4.3	FRUs	392
4.3.1	FRU State	393
4.3.2	FRU Information	394
4.3.3	FRU Data	395
4.3.4	Show Unhealthy FRUs	397
4.3.5	FRU LED State	397
4.3.6	FRU Control	400
4.3.7	FRU Activation	401
4.3.8	Set Power Level	405
4.4	Fan Trays	406
4.4.1	Show Fans	407
4.4.2	Fan Level	407
4.4.3	Minimum Fan Level	409
4.4.4	Fan Policy	411
4.4.5	Filter Change Date	413
4.5	IPMB State	414
4.5.1	Show	415
4.5.2	Set	416
4.6	Sensors	417
4.6.1	Sensor Information	417
4.6.2	Sensor Data	418
4.6.3	Thresholds	422
4.6.4	Hysteresis	424
4.6.5	Event Enable Status	426
4.7	SEL	428
4.7.1	Show	428
4.7.2	Clear	429
4.7.3	Info	430
4.8	Shelf	431
4.8.1	Show FRU Information	431

4.8.2	Configure	435
4.8.3	Shelf Address	436
4.8.4	Firmware Firewall	436
4.9	Shelf Manager	440
4.9.1	Version	440
4.9.2	Status	441
4.9.3	Local Address	441
4.9.4	Sessions	442
4.9.5	Configuration Parameters	442
4.9.6	Control	442
4.9.7	HPDL Variables	444
4.9.8	MIB Files	444
4.10	LAN	445
4.10.1	DHCP	446
4.10.2	Show LAN Configuration	447
4.10.3	Set LAN Configuration	448
4.11	PEF	454
4.11.1	Show Configuration	455
4.11.2	Set Configuration	455
4.12	TELCO Alarm	459
4.12.1	Status	459
4.12.2	Set	460
4.12.3	Clear	461
4.13	HPI	461
4.13.1	Sessions	461
4.13.2	Resources	462
5	Simple Network Management Protocol (SNMP)	463
5.1	Basic MIB variables	464
5.1.1	Board variables	464
5.1.2	Fan Tray variables	468
5.1.3	Power Supply variables	473
5.1.4	Shelf Manager variables	476
5.1.5	Chassis variables	479
5.1.6	Event variables	481
5.1.7	Shelf Manager Status variables	483
5.1.8	Shelf Manager Version variables	483
5.1.9	TELCO Alarm variables	484
5.1.10	SEL variables	485
5.1.11	Carrier-specific variables	485
5.1.12	xTCA PEM variables	486
5.1.13	xTCA Power Supply variables	488
5.2	Advanced MIB variables	491
5.2.1	IPM Controller variables	491
5.2.2	FRU device variables	492
5.2.3	Sensor variables	495

5.2.4	Board variables	503
5.2.5	FRU LED variables	505
5.2.6	System Event Log variables	509
5.2.7	Shelf variables	509
5.2.8	LAN configuration variables	510
5.2.9	PEF configuration variables	517
5.2.10	FRU Information variables	520
5.2.11	FRU device by site variables	520
5.3	Accessing the Shelf Manager via SNMP	525
5.3.1	SNMPv2c	525
5.3.2	SNMPv3	525
6	RMCP interface	536
6.1	Supported IPMI commands	536
6.1.1	Get Device ID response	546
6.1.2	Get Self Test Results response	548
6.2	Pentair-specific extension commands and sensors	549
6.2.1	TELCO Alarm sensor	554
6.2.2	Set/Clear TELCO Alarms	554
6.2.3	Get TELCO Alarm Sensor Number	554
6.2.4	Query Digital Output Properties	555
6.2.5	Get Digital Outputs	555
6.2.6	Set/Clear Digital Outputs	556
6.2.7	Get Shelf FRU Record Data	557
6.2.8	Notify Shelf Manager About an Extracted FRU	559
6.2.9	Initiate Shelf Manager Switchover	559
6.2.10	Subscribe for Event Notifications	560
6.2.11	Set Shelf FRU Record Data	561
6.2.12	Get Cached Device SDR Info	562
6.2.13	Get Cached Device SDR	564
6.2.14	Reserve Cached Device SDR Repository	565
6.2.15	Set FRU Activation Parameters	565
6.2.16	Set Minimal Fan Level	566
6.2.17	Get Minimal Fan Level	567
6.2.18	DHCP Client Control	568
6.2.19	Diagnostic Initiator commands	569
6.2.20	AXIe Allow Enable PCIe Hosts	584
6.2.21	CPLD/HWRI State sensor	585
6.2.22	Reboot Reason sensor	586
6.2.23	HPI System Event sensor	586
6.2.24	Fan Tray Operational Status sensor	587
6.2.25	Cooling State sensor	587
6.2.26	Fans State sensor	587
6.2.27	Shelf Manager Redundancy sensor	587
6.2.28	Shelf FRU Information Redundancy sensor	587
6.2.29	Network Element ID Redundancy sensors	588
6.2.30	Shelf Manager firmware bank 1 active sensor (ShMM-700 only)	588

6.2.31	Shelf Manager firmware upgrade rollback sensor (ShMM-700 only)	588
6.3	Deactivation scenarios for the Shelf Manager	589
7	Pentair OEM records in FRU Information	590
7.1	Air Filter Replacement Date record	591
7.2	Shelf FRU Update record	592
7.3	IPMB Topology record	593
7.4	HPDL Data record	595
7.5	HPDL Sensor SDRs record	595
7.6	Shelf Manager Configuration record	596
7.7	Slot Power Capabilities record	597
7.8	Board/AMC LAN Configuration Parameters record	598
7.9	Cold-Sensitive FRU List record	599
8	Hardware Platform Interface (HPI)	601
8.1	HPI Functions support in IntegralHPI	601
8.2	HPI mapping sensors and controls in IntegralHPI	605
8.3	Redundancy in IntegralHPI	607
9	Revision history	609
9.1	Release 2.1.0	609
9.2	Release 2.2.0	609
9.3	Release 2.3.0	609
9.4	Release 2.4.0	610
9.5	Release 2.4.1	610
9.6	Release 2.4.2	611
9.7	Release 2.4.3	611
9.8	Release 2.4.4	611
9.9	Release 2.5.0	611
9.10	Release 2.5.2	612
9.11	Release 2.5.3	613
9.12	Release 2.6.0	613
9.13	Release 2.6.1	613
9.14	Release 2.6.4	614
9.15	Release 2.6.4.2	614
9.16	Release 2.7.0	614
9.17	Release 2.7.1	615
9.18	Release 2.7.2	615
9.19	Release 2.7.3	615
9.20	Release 2.7.4	615
9.21	Release 2.8.0	615
9.22	Release 2.8.2	616
9.23	Release 3.0.0	616
9.24	Release 3.2.0	616
9.25	Release 3.2.1	617
9.26	Release 3.3.0	617

9.27	Release 3.4.0	617
9.28	Release 3.4.0.1	617
9.29	Release 3.4.2.2	617
9.30	Release 3.5.0	617
9.31	Release 3.6.0	618
9.32	Release 3.6.1	618
9.33	Release 3.6.1.2	618
9.34	Release 3.6.1.3	618
9.35	Release 3.6.1.4	618
9.36	Release 3.6.1.5	619
9.37	Release 3.7.0	619

List of tables

Table 1: Shelf Manager documentation	22
Table 2: Conventions used in this document	22
Table 3: Supported commands.....	26
Table 4: Names and numbers of LAN configuration parameters supported by the amcgetlanconf command.....	46
Table 5: Names and numbers of SOL configuration parameters supported by the amcgetsolconf command	71
Table 6: Names and numbers of LAN configuration parameters supported by the amcsetlanconf command	83
Table 7: Names and numbers of SOL configuration parameters supported by the amcsetsolconf command.....	97
Table 8: AXIe sequencing states	106
Table 9: AXIe power monitor states	108
Table 10: Mapping between ATCA logical slot numbers and IPMB addresses.....	109
Table 11: Mapping between CompactPCI physical slot numbers and IPMB addresses	110
Table 12: Mapping PICMG 3.0 logical slot numbers.....	112
Table 13: Mapping between CompactPCI physical slot numbers and IPMB addresses	112
Table 14: Names and numbers of LAN configuration parameters supported by the getlanconf command	170
Table 15: Names and numbers of PEF configuration parameters supported by the getpefconfig command	212
Table 16: Names and numbers of SOL configuration parameters supported by the getsolconf command	225
Table 17: Names and numbers of LAN configuration parameters supported by the setlanconf command.....	289
Table 18: Names and numbers of PEF configuration parameters supported by the setpefconfig command	313
Table 19: Names and numbers of SOL configuration parameters supported by the setsolconf command	331
Table 20: Parameters supported by the shelf command	341
Table 21: Board variable indices.....	465
Table 22: Basic Fan Tray variables	469
Table 23: Basic Power Supply variables.....	473
Table 24: Basic Shelf Manager variables	477
Table 25: Basic Chassis variables	479
Table 26: Basic Event variables.....	481
Table 27: Basic Shelf Manager Status variables	483
Table 28: Basic Shelf Manager Version variables	483

Table 29: Basic TELCO Alarm variables	484
Table 30: Basic SEL variables	485
Table 31: Basic xTCA PEM variables	486
Table 32: Basic xTCA Power Supply variables	488
Table 33: Advanced IPM controller variables	491
Table 34: Advanced FRU variables.....	492
Table 35: Advanced Sensor variables	496
Table 36: Advanced Board slot variables.....	503
Table 37: FRU LED variables	505
Table 38: Advanced System Event Log variables	509
Table 39: Advanced Shelf variables	509
Table 40: Advanced LAN channel variables	510
Table 41: Advanced PEF configuration variables.....	517
Table 42: PEF Event Filter variables.....	518
Table 43: PEF Alert Policy variables	519
Table 44: PEF Alert String variables	519
Table 45: FRU Information block variables.....	520
Table 46: Advanced FRU device variables	521
Table 47: IPMI commands implemented by the Shelf Manager	536
Table 48: Fields of Get Device ID response	546
Table 49: Logical Shelf Manager sensors.....	550
Table 50: Physical Shelf Manager sensors.....	553
Table 51: Set/Clear TELCO Alarms command	554
Table 52: Get TELCO Alarm Sensor Number command.....	555
Table 53: Query Digital Output Properties command	555
Table 54: Get Digital Outputs command	556
Table 55: Set/Clear Digital Outputs command	556
Table 56: Get Shelf FRU Record Data command	558
Table 57: Notify Shelf Manager About an Extracted FRU command.....	559
Table 58: Initiate Shelf Manager Switchover command.....	560
Table 59: Subscribe for Event Notifications command	561
Table 60: Set Shelf FRU Record Data command	562
Table 61: Get Cached Device SDR Info command	563
Table 62: Get Cached Device SDR command.....	564
Table 63: Reserve Cached Device SDR Repository command	565
Table 64: Set FRU Activation Parameters command.....	566
Table 65: Set Min Fan Level command.....	567
Table 66: Get Min Fan Level command	568
Table 67: DHCP Client Control command	569
Table 68: Get Static DI Data command.....	570
Table 69: Static DI information data structure	570

Table 70: DI information descriptor	571
Table 71: Test information descriptor	571
Table 72: Affected entity descriptor	573
Table 73: Parameter information descriptor	573
Table 74: Min/Max/Default Value descriptor for BOOLEAN parameters.....	574
Table 75: Min/Max/Default Value descriptor for Int32 parameters	574
Table 76: Min/Max/Default Value descriptor for Float64 parameters	574
Table 77: Min/Max/Default Value descriptor for Text parameters	575
Table 78: Min/Max/Default Value descriptor for Int8 parameters	575
Table 79: Min/Max/Default Value descriptor for Int16 parameters	575
Table 80: Get DI Test Readiness command	575
Table 81: Get Start DI Test Reservation ID command	577
Table 82: Specify DI Test Parameters command	577
Table 83: Parameter value data format by parameter type.....	578
Table 84: Start DI Test command	579
Table 85: Cancel DI Test command	580
Table 86: Get DI Test Status command	580
Table 87: Get DI Test Results Reservation ID command	581
Table 88: Get DI Test Results command.....	582
Table 89: DI test results data structure	583
Table 90: AXIe Allow Enable PCIe Hosts command	585
Table 91: Pentair OEM-specific records in FRU Information	590
Table 92: Air Filter Replacement Date record	591
Table 93: Shelf FRU Update record	592
Table: 94 IPMB Topology record	593
Table 95: HPDL Data record.....	595
Table 96: HPDL Sensor SDRs record	596
Table 97: Shelf Manager Configuration record	596
Table 98: Slot Power Capabilities record	597
Table 99: Slot Power Capability descriptor.....	598
Table 100: Shelf Manager Configuration record	598
Table 101: Cold-Sensitive FRU List record	599
Table 102: Cold-Sensitive FRU descriptor.....	599
Table 103: HPI functions implemented by IntegralHPI.....	601
Table 104: Standard instruments implemented by IntegralHPI	605
Table 105: Additional instruments implemented by IntegralHPI	607

1 About this document

This document describes how to use the Shelf Manager command line interface, the web interface, the Simple Network Management Protocol (SNMP) interface and the Remote Management Control Protocol (RMCP) interface.

1.1 Shelf Manager documentation

This document is one of two in the Shelf Manager documentation set. These documents are available in PDF file format. The complete set includes:

Table 1: Shelf Manager documentation

DOCUMENT	DESCRIPTION
<i>Pigeon Point Shelf Manager User Guide</i>	This document describes the overall configuration and use of the Pigeon Point Shelf Manager.
<i>Pigeon Point Shelf Manager External Interface Reference</i>	This document describes how to use the Shelf Manager command line interface, web interface, Simple Network Management Protocol (SNMP) interface and Remote Management Control Protocol (RMCP) interface.

1.2 Conventions used in this document

This table describes the textual conventions used in this document.

Table 2: Conventions used in this document

CONVENTION SAMPLE	DESCRIPTION
setenv	This 10 point bold Courier font is used for text entered at keyboard in example dialogues, which typically occur as one or more separate lines.
ARMboot 1.0.2 (Apr 18 2003 - 14:58:54)	This 10 point normal Courier font is used ShMM output in example dialogues.
<i>addmisc</i>	This 12 point italic Courier New font is used for special text within normal paragraphs. The types of such special text include command names, file names, configuration parameters and command parameters, plus other text that could be entered by or displayed to a Shelf Manager user. This font is also used for command syntax definitions.

"Get Device ID"	IPMI commands defined by the IPMI specification or as PICMG extensions are shown in the normal font, surrounded by double quotes. This matches the corresponding convention used in PICMG specifications.
-----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1.3 Additional resources

For more information about Pigeon Point products, please visit the following web site:
<http://www.pigeonpoint.com/products.html>.

2 Introduction

The Pigeon Point Shelf Manager external interfaces include support for a command line interface, a web interface, a Simple Network Management Protocol (SNMP) interface and a Remote Management Control Protocol (RMCP) interface. The following chapters describe how to use each of these interfaces.

The Pigeon Point Shelf Manager User Guide provides an introduction to shelf management, the Shelf Manager and the Shelf Management Mezzanine (ShMM) on which the Shelf Manager runs; familiarity with that introduction is assumed in this document.

In this document, references to ShMM cover both ShMM-500 and ShMM-500R; the latter model complies with the Restriction of Hazardous Substances (RoHS) directive, but is software equivalent with its non-RoHS predecessor from a Shelf Manager perspective. References to ShMM also cover ShMM-700R and ShMM-1500R; the Shelf Manager running on either of those platforms is interface-compatible with the Shelf Manager running on ShMM-500, though it is implemented by a different binary executable in each case.

3 Command Line Interface

The Command Line Interface (CLI) is used to communicate with the intelligent management controllers of the shelf, with boards, and with the Shelf Manager itself, via textual commands.

The CLI is an IPMI-based set of commands that can be accessed directly or through a higher-level management application or a script. Administrators can access the CLI through *telnet* or the ShMM's serial port.

Using the CLI, operators can access information about the current state of the shelf including current FRU population, current sensor values, threshold settings, recent events and overall shelf health.

3.1 Starting the Command Line Interface

To use the CLI, a user should first log on to the Linux system on which the Shelf Manager (ShM) runs. Once logged in, a user runs the executable *clia* (for Command Line Interface Agent) from the command line with specific parameters. The first parameter is the command verb.

The *clia* executable is located on the virtual root file system maintained by Linux running on the ShMM. The *clia* executable connects to the main Shelf Manager software process, passes the command information to it and retrieves the results. The Shelf Manager must be running prior to starting the CLI.

For example,

```
# clia ipmc
Pigeon Point Shelf Manager Command Line Interpreter
20: Entity: (0xf0, 1) Maximum FRU device ID: 0x10
    PICMG Version 2.3
    Hot Swap State: M4, Previous: M3, Last State Change Cause: Normal State
Change (0)
#
```

If it is started without parameters, *clia* enters an interactive mode. In that mode, the program repeatedly issues a prompt to the terminal, accepts user input as the next command with parameters, executes that command and shows the results on the terminal, until the user types the command *exit* or *quit*.

For example,

```
# clia
Pigeon Point Shelf Manager Command Line Interpreter
CLI> ipmc 20
20: Entity: (0xf0, 1) Maximum FRU device ID: 0x10
    PICMG Version 2.3
    Hot Swap State: M4, Previous: M3, Last State Change Cause: Normal State
Change (0)
CLI> exit
#
```

3.2 Command Line Interface summary table

The command line interface implements the commands shown in the following table, with a designated subset of them available for use on the backup Shelf Manager.

The commands are described in detail in the subsequent subsections in alphabetical order of the command names.

Table 3: Supported commands

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
activate	IPMB address FRU device ID	Activates the specified FRU.	No
airfilterreplaced	dd.mm.yyyy (optional)	Sets the date when the Air Filter is to be replaced.	No
alarm	alarm type	Activates or clears TELCO alarms.	No
amcgetlanconf	IPMB address FRU device ID channel number parameter name or number (optional) set selector (optional)	Shows a LAN configuration parameter for the specific channel on a specified AMC at the specified address.	No
amcgetsolconf	IPMB address FRU device ID channel number parameter name or number (optional) set selector (optional)	Shows a SOL configuration parameter for the specific channel on a specified AMC at the specified address.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
amcportstate	IPMB address FRU device ID or AMC number (optional)	Shows AMC port state information for a specified AMC. If AMC number is not specified, the AMC port state information is reported for all active AMCs for the designated IPM controller.	No
amcsetlanconf	IPMB address FRU device ID channel parameter name or number additional parameters	Sets the value of the LAN configuration parameter for the specified channel on a specified AMC at the specified address.	No
amcsetsolconf	IPMB address FRU device ID channel parameter name or number set selector additional parameters	Sets the value of the SOL configuration parameter for the specified channel on a specified AMC at the specified address.	No
axie	subcommand, with its parameters	Shows AXIe-related information.	No
board	slot number (optional)	Shows information about boards.	No
boardreset	slot number	Resets the specified board.	No
busres	subcommand, with its parameters	Performs the specified operation on the Bused E-Keying-managed resources.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
cooling	subcommand, with its parameters	Shows and sets cooling-related parameters for specific carriers.	No
deactivate	IPMB address FRU device ID	Deactivates the specified FRU.	No
debuglevel	new debug level (optional)	Gets current debug levels for the Shelf Manager (for both the system log and the console) or sets new debug levels.	Yes
dhcp	subcommand	Manages the DHCP client embedded in the Shelf Manager.	No
exit/quit		Exits from the interpreter in interactive mode.	Yes
fans	IPMB address (optional) FRU device ID (optional)	Shows information about fans.	No
firewall	subcommand, with its optional parameters	Shows firmware firewall state, enabled/disabled state, support and configurability for IPMI commands and functions, starts and stops firmware firewall.	No
fru	IPMB address (optional) FRU device ID (optional)	Shows information about one or a group of FRUs in the shelf; FRUs are selected by type or by the parent IPM controller.	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
frucontrol	IPMB address FRU device ID Option	Sends "FRU Control" command to specific FRU.	Yes

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
frudata	IPMB address (optional) FRU device ID (optional) block / byte offset (optional) data (optional)	Provides raw access to the FRU Information on the specified FRU.	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
frudatar	IPMB address FRU device ID File name	Reads the FRU data area of the specified FRU and stores the data in the specified file.	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
frudataw	IPMB address FRU device ID File name	Writes the FRU data in the specified file into the FRU data area of the specified FRU.	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
fruinfo	IPMB address FRU device ID	Provides user friendly FRU Information output.	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
getbootdev	IPMB address FRU device ID or AMC address	Shows system boot device parameter.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
getfanlevel	IPMB address (optional) FRU device ID (optional)	Shows the current level of the fan controlled by the specified FRU.	No
getfanpolicy	IPMB address (optional) FRU device ID (optional) <site_type> (optional) <site_number> (optional)	Retrieves information about Fan Tray(s) control mode and/or FRUs coverage by the specified Fan Tray(s). This command returns two different pieces of data: whether or not the site(s) are enabled/disabled for autonomous control by the Shelf Manager (based on "Set Fan Policy" commands), and whether or not the FRU site(s) are covered by the fans (according to the Fan Geography record).	No
getfruledstate	IPMB address (optional) FRU device ID (optional) LED ID or ALL(optional)	Shows the FRU LED state.	Yes; on the backup Shelf Manager, reports information only about FRU LEDs that are local to that backup.
gethysteresis	IPMB address (optional) sensor name (optional) sensor number (optional)	Shows both the positive and negative hysteresis of the specified sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
getipmbstate	IPMB address IPMB link number (optional)	Shows the current state of IPMB-0 at the target address. If a link number is specified and the target IPM controller is an IPMB hub, information about a specific link is shown.	Yes; on the backup Shelf Manager, reports the current state of IPMB-0 links that are local to that backup.
getlanconf	IPMB address channel number parameter name or number (optional) set selector (optional)	Shows a LAN configuration parameter for the specific channel on an IPM controller at the specified address.	No
getlanconfig	channel number parameter name or number (optional) set selector (optional)	Shows a LAN configuration parameter for a specific channel.	No
getpefconfig	parameter name or number (optional) set selector (optional)	Shows a PEF configuration parameter.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
getsensoreventenable	IPMB address (optional) sensor name (optional) sensor number (optional)	Shows the current sensor event mask values for the supported events of the specified sensor(s).	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
getsolconf	IPMB address channel number parameter name or number (optional) set selector (optional)	Shows a SOL configuration parameter for the specific channel on an IPM controller at the specified address.	No
getthreshold, threshold	IPMB address (optional) sensor name (optional) sensor number (optional)	Shows threshold information about a specific sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
help		Shows the list of supported commands.	Yes
ipmc	IPMB address (optional)	Shows information about one or all IPM controllers in the shelf.	Yes; on the backup Shelf Manager, reports information only about IPM controllers that are local to that backup.

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
localaddress		Retrieves the IPMB address of the current Shelf Manager.	Yes
minfanlevel	fan level (optional)	Shows or sets the minimum fan level.	No
networkelementid	Index (optional) Network Element Identifier (optional)	Allows getting or setting the Network Element Identifier	No
poll		Initiates a poll of the IPM controllers on IPMB-0.	No
sel	IPMB address (optional) number of items (optional)	Shows the most recent items from the System Event Log maintained on the target IPM controller.	No
sendamc	IPMB address AMC address or FRU ID LUN (optional) Network function Command Code Byte1 (optional) ... (optional) ByteN (optional)	Transparently sends an arbitrary IPMI command to an Advanced Management Controller (AMC) that resides behind its correspondent IPM controller in a transparent way.	Yes
sendcmd	IPMB address LUN (optional) Network function Command Code Byte1 (optional) ... (optional) ByteN (optional)	Transparently sends an arbitrary IPMI command to the target IPMC.	Yes

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
sensor	IPMB address (optional) sensor name (optional) sensor number (optional)	Shows information about one or a group of sensors; sensors are selected by IPM controller address, number or name.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
sensordata	IPMB address (optional) sensor name (optional) sensor number (optional)	Shows value information for a specific sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
sensorread	IPMB address sensor number	Shows raw value information for a specific sensor (ignoring any Sensor Data Record describing the sensor). It does not check the presence of the target IPM controllers or validity of the sensor number, but just sends the request directly via IPMB.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
session		Shows information about active RMCP sessions.	No
setbootdev	IPMB address FRU device ID or AMC address boot device parameter	Sets system boot device parameter.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
setcommandpolicy	action network function command code, channel (optional) LUN (optional)	Enables/disables (via the action parameter) a specific command for execution, using the IPMI 2.0 firmware firewall functionality	No
setextracted	IPMB address FRU device ID	Notifies the Shelf Manager that the specified FRU has been physically extracted from the shelf.	No
setfanpolicy	IPMB address FRU device ID action to be taken: ENABLE or DISABLE timeout (optional) site type (optional) site number (optional)	Enables or disables Shelf Manager control over fan trays for cooling management purposes.	No
setfanlevel	IPMB address FRU device ID level	Sets a new level for the fan controlled by the specified FRU.	No
setfruledstate	IPMB address FRU device ID LED Id or ALL LED operation LED Color (optional)	Sets the state of a specific LED or all LEDs for the given FRU.	Yes; on the backup Shelf Manager, reports information only about FRU LEDs that are local to that backup.

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
setfunctionpolicy	mask network function command code channel (optional) LUN (optional)	Enables/disables specific subfunctions of a specific command for execution, using the IPMI 2.0 firmware firewall functionality	No
sethysteresis	IPMB address sensor name or sensor number hysteresis to be set (pos or neg) hysteresis value	Sets new hysteresis value for the specified sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
setipmbstate	IPMB address IPMB bus name (A or B) IPMB link number (optional) action to be taken	Disables/enables IPMB-A or IPMB-B (or the specific IPMB link) on the target IPM controller.	Yes; on the backup Shelf Manager, reports information only about IPMB-0 links that are local to that backup.
setlanconf	IPMB address channel parameter name or number additional parameters	Sets the value of the LAN configuration parameter for the specified channel on an IPM controller at the specified address.	No
setlanconfig	channel parameter name or number additional parameters	Sets the value of the LAN configuration parameter for the specified channel.	No

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
setlocked	IPMB address FRU device ID State	Sets the Locked bit for the specified FRU to the specified state (0 – unlock, 1 – lock).	Yes; on the backup Shelf Manager, reports information only about FRUs that are local to that backup.
setpefconfig	parameter name or number set selector (optional) parameter value	Sets a new value of a PEF configuration parameter.	No
setpowerlevel	IPMB address FRU device ID Power level Copy flag (optional)	Sets the power level of a board/FRU.	No
setsensoreventenable	IPMB address sensor name sensor number global flags assertion events mask (optional) deassertion events mask (optional)	Changes the event enable masks for a specific sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
setsolconf	IPMB address channel parameter name or number set selector additional parameters	Sets the value of the SOL configuration parameter for the specified channel on an IPM controller at the specified address.	No
setthreshold	IPMB address sensor name sensor number threshold type threshold value	Changes a specific threshold value (upper/lower, critical/non-critical/non-recoverable) for a specific sensor.	Yes; on the backup Shelf Manager, reports information only about sensors that are local to that backup.
shelf	subcommand, with its parameters	Shows general information about the shelf; several subcommands allow setting shelf attributes and getting additional information about specific areas.	No
shelfaddress	Shelf Address string (optional)	Gets or sets the Shelf Address field of the Address Table within Shelf FRU Information.	No
shmstatus		Shows the Shelf Manager active/backup status	Yes
showunhealthy		Shows the unhealthy components of the shelf	No
switchover		Initiates a switchover to the backup Shelf Manager.	Yes
terminate		Terminates the Shelf Manager, optionally without rebooting the ShMM.	Yes

COMMAND	PARAMETERS	DESCRIPTION	USEABLE ON BACKUP SHELF MANAGER
user	subcommand, with its parameters	Shows information about the RMCP user accounts on the Shelf Manager and provides a simple way to add, delete and modify user accounts.	No
variable	variable name variable value (optional)	Shows or sets the value of the HPDL variable	No
version		Shows the Shelf Manager version information.	Yes

Most informational commands support brief and verbose modes of execution, differing in the amount of information provided. Brief mode is the default (standard); verbose mode is selected by using the option `-v` in the command line, directly after the command and before the positional arguments. Commands that are executed on the backup Shelf Manager can only access objects (such as sensors, FRUs, IPM controllers) that are local to the backup Shelf Manager.

To help the user to determine whether a specific command is being executed on the active or on the backup Shelf Manager, the following message is issued when a CLI command is executed on the backup Shelf Manager: "Running on the Backup Shelf Manager, with limited functionality".

For more information about documentation conventions, see Conventions used in this document.

3.3 Shorthand notations

The next chapters provide the details of the individual commands of the CLI and the syntax and usage of each of the available commands. The CLI supports both AdvancedTCA and CompactPCI shelf contexts.

As a convenience, key types of shelf components can be referenced in the following way, as an alternative to a reference notation based solely on an IPMB address and numerical FRU identifier:

- *board* <N>
- *power_supply* <N>
- *fan_tray* <N>
- *pem* <N>
- <IPMB-address> *amc* <M>
- *board* <N> *amc* <M>

In all the above convenience notations, <N> and <M> are Site Numbers of the component, as described in the Address Table for the shelf. Site Type 00h (“PICMG Board”) corresponds to *board*, 01h (“Power Entry”) – to *pem* and 04h (“Fan Tray”) – to *fan_tray*. In both ATCA and CompactPCI systems, the OEM-defined site type C5h (“CompactPCI Power Supply”) corresponds to *power_supply*.

This notation enables a user to designate a specific AMC by its number, using the syntax <IPMB-address> *amc* <M> or *board* <N> *amc* <M>. In that case, <IPMB-address> or *board* <N> identifies the corresponding AMC carrier board.

Revision 2.0 of the AMC.0 specification defines how the AMC slots are numbered, according to the following principles:

- AMC slot numbers 1-4 (which are also referenced as A1-A4, according to the specification) are only present on AMC carriers that support two layers of AMC slots (each of which can hold two compact size AMCs). These slots are actually embedded through the main board of the carrier, which is therefore called a “cutaway” carrier.
- AMC slot numbers 5-8 (which are also referenced as B1-B4, according to the specification) usually refer to either mid-size or full-size slots, but on cutaway carriers that support two layers of slots, these slots are “above” the A slots (that is, farther away from the main board of the carrier).
- For each layer, slot numbering starts from the slot that is closest to the Zone 3 end of the board (at the top of a vertical slot). The first layer A slot is numbered 1 or A1 and the first layer B slot is numbered 5 or B1.

Furthermore, the CLI supports the following abbreviations:

- *board* <N> can be abbreviated to *b* <N>
- *power_supply* <N> can be abbreviated to *ps* <N>
- *fan_tray* <N> can be abbreviated to *ft* <N>

The special abbreviations *shm 1* and *shm 2* can be used to access the redundant Shelf Managers that are described in the address table in the Shelf FRU Information. *shm 1* relates to the Shelf Manager with the numerically smaller hardware address and *shm 2* relates to the Shelf Manager with the numerically greater hardware address.

In redundant configurations, not all CLI commands are supported by the backup Shelf Manager. Table 3 in section 3.2 provides a list of all the CLI commands, including identification of which commands are supported by the backup Shelf Manager.

3.4 activate

3.4.1 Syntax

```
activate <IPMB-address> <fru_id>
activate board <N>
activate shm <N>
activate fan_tray <N>
activate power_supply <N>
activate pem <N>
activate <IPMB-address> amc <M>
activate board <N> amc <M>
```

3.4.2 Purpose

This command activates the specified FRU. To achieve that, it clears the “Activation Locked” flag on the target FRU by sending the IPMI command “Set FRU Activation Policy (Clear Locked)”, and then sends the IPMI command “Set FRU Activation (Activate FRU)” to the target FRU.

The first step allows the command to activate FRUs that are in the state M1. To allow the FRU some time to transition from the state M1 to the state M2, if the command “Set FRU Activation” returns the completion code “COMMAND NOT SUPPORTED IN PRESENT STATE”, it is repeated up to the number of times indicated by the value of the Shelf Manager configuration parameter *TASKLET_RETRIES*.

The FRU is specified using the IPMB address of the owning IPM controller and the FRU device ID. FRU device ID 0 designates the IPM controller proper in PICMG 3.0 contexts. In PICMG 2.x contexts, the Shelf Manager emulates this command in the best possible way for each specific type of FRU.

In the PICMG 3.0 context, this command is primarily useful for those FRUs that are not listed in the power management table in the Shelf FRU Information, or for which the Shelf Manager Controlled Activation attribute is set to *FALSE*.

These FRUs are not automatically activated by the Shelf Manager and stay in the state M2. The Shelf Manager automatically activates other FRUs once they reach state M2. Attempting to activate a FRU that is not in state M2 does nothing.

3.4.3 Examples

Activate the IPM controller proper at address 9Ch.

```
# clia activate 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
  Command executed successfully
#
```

3.5 airfilterreplaced

3.5.1 Syntax

airfilterreplaced [<dd.mm.yyyy>]

3.5.2 Purpose

A fan tray air filter change date can be maintained in a Pentair defined multirecord in the Shelf FRU Information. This multirecord contains the following information related to air filter changes:

- Air Filter Replaced – Indicates the date when the Air Filter was last replaced. The format is “dd.mm.yyyy”
- Air Filter To Be Replaced – Indicates the date when the Air Filter must be replaced again (the filter expiration date). The format is “dd.mm.yyyy”.

After an operator has replaced the air filter, he or she should use the Shelf Manager CLI tool to change the dates above in the Shelf FRU Information.

The date “dd.mm.yyyy” specified as the command parameter indicates the filter expiration date (i.e. when the Air Filter shall be replaced again). If the date is omitted, the default expiration time is 6 months from the current date.

After executing the command, the Shelf Manager updates the Shelf FRU Information as follows: the field Air Filter Replaced contains the current calendar date and the field Air Filter To Be Replaced contains the expiration date – either the date supplied with the command or the default date – 6 months in the future.

Note: This command requires special carrier-specific support and is not implemented for all ShMM carriers. If the command is not implemented for the current carrier, an error message is shown when this command is used.

3.5.3 Examples

```
# clia airfilterreplaced 25.12.2006
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Air filter date set successfully to 25.12.2006.
```

3.6 alarm

3.6.1 Syntax

```
alarm [clear | info | minor | major | critical]
```

3.6.2 Purpose

This command provides access to the TELCO alarm outputs. Parameters *minor*, *major* and *critical* allow the user to set the corresponding alarm output. These actions are cumulative; that is, after the commands *clia alarm minor* and *clia alarm major*, both minor and major alarms will be set. The action *clear* clears the minor and major alarm outputs; the critical alarm output can be cleared only if the configuration variable *ALLOW_CLEARING_CRITICAL_ALARM* is set to *TRUE*. The action *info* displays information about the last alarm that occurred in the shelf.

Command invocation without parameters returns the status of the TELCO alarm outputs.

3.6.3 Examples

clia alarm

```
Pigeon Point Shelf Manager Command Line Interpreter
alarm mask: 0x00
```

#

clia alarm major

```
Pigeon Point Shelf Manager Command Line Interpreter
Returned completion code: 0
```

#

clia alarm

```
Pigeon Point Shelf Manager Command Line Interpreter
alarm mask: 0x02
Major Alarm
```

#

clia alarm clear

```
Pigeon Point Shelf Manager Command Line Interpreter
Returned completion code: 0
```

#

clia alarm

```
Pigeon Point Shelf Manager Command Line Interpreter
alarm mask: 0x00
```

#

clia alarm info

```
Pigeon Point Shelf Manager Command Line Interpreter
Last saved alarm information:
Alarm mask: 0x02
Alarm date/time: Wed May 10 10:54:04 2006
Alarm source: Remote request
```

```
Alarm reason: On-demand setting alarms mask: 0x02
```

```
#
```

The following example assumes that the last alarm setting was done by the Platform Event Filter (PEF); the command reports that, along with details of the event that triggered the action by PEF.

```
# clia alarm info
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Last saved alarm information:
```

```
Alarm mask: 0x06
```

```
Alarm date/time: Sat May 2 23:44:38 2009
```

```
Alarm source: PEF
```

```
Alarm reason: event from: (0x10,0,0); sensor: (0x02,1); event
```

```
data: 0x57, 0x18, 0x50
```

```
#
```

3.7 amcgetlanconf

3.7.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> [ <parameter-name> [ <additional-parameters> ] ]
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> [ <parameter-number> [ <additional-parameters> ] ]
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> [ <parameter-name> [ <additional-parameters> ] ]
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> [ <parameter-number> [ <additional-parameters> ] ]
```

3.7.2 Purpose

This command shows the value of the specified LAN configuration parameter for the specified channel *<channel>* on the AMC at the specified address. The address of the AMC can be specified in one of the two ways:

1. the IPMB-0 address of the Carrier IPMC and FRU ID of the corresponding subsidiary FRU:
<IPMB-0 address> <fru-id>.
2. the IPMB-0 address of the Carrier IPMC and the corresponding AMC site number:
<IPMB-0 address> amc <amc-number>.

If no configuration parameter name or number is specified, all configuration parameters for the specified channel of the specified AMC are shown.

The LAN configuration parameters addressed by this command are implemented by the Module Management Controller (MMC) that is part of the AMC. Thus, it is the MMC of the designated AMC that is responding to this command.

For IPMI LAN channels with either HPM.2 or HPM.3 support, several additional LAN configuration parameters are defined. The HPM.2 LAN configuration parameters are described in the HPM.2 specification. The HPM.3 LAN configuration parameters are described in the HPM.3 specification. HPM.2 and HPM.3 LAN configuration parameters do not have fixed parameter numbers; their numbers are allocated as a contiguous sub-range of the OEM parameter range (192-255) and each MMC reports the starting number of the sub-range in the response to the commands “Get HPM.2 Capabilities” and “Get HPM.3 Capabilities”.

The following table lists the names and numbers of LAN configuration parameters supported by the *amcgetlanconf* command:

Table 4: Names and numbers of LAN configuration parameters supported by the *amcgetlanconf* command

PARAMETER NAME	NUMBER	DESCRIPTION
auth_support	1	An 8-bit value that contains authentication type support flags for the LAN channel.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>auth_enables</code>	2	Five 8-bit values that contain authentication type enable flags for the Callback, User, Operator, Administrator and OEM privilege levels for the LAN channel.
<code>ip</code>	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation (e.g. 192.168.0.15).
<code>ip_source</code>	4	A value that encodes the source of the assigned IP address.
<code>mac</code>	5	A string value that contains the MAC address assigned to the LAN channel as 6 hexadecimal byte values delimited by ':' symbols (e.g. 00:A0:24:C6:18:2F).
<code>subnet_mask</code>	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation (e.g. 255.255.255.0).
<code>ipv4_hdr_param</code>	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP packets: <ul style="list-style-type: none"> • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
<code>pri_rmcp_port</code>	8	A 16-bit value that contains the primary RMCP port number (the port used for regular RMCP communication).
<code>sec_rmcp_port</code>	9	A 16-bit value that contains the secondary RMCP port number (the port used for secure RMCP communication).
<code>arp_control</code>	10	Two flags that control ARP behavior on the LAN channel: <ul style="list-style-type: none"> • Enable responding to ARP requests • Enable sending Gratuitous ARPs
<code>arp_interval</code>	11	The Gratuitous ARP interval in seconds, in fixed-point format (potentially including a fractional part).
<code>dft_gw_ip</code>	12	A string value that contains the IP address of the default gateway in dotted decimal notation.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>dft_gw_mac</code>	13	A string value that contains the MAC address of the default gateway as 6 hexadecimal byte values delimited by ':' symbols.
<code>backup_gw_ip</code>	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.
<code>backup_gw_mac</code>	15	A string value that contains the MAC address of the backup gateway as 6 hexadecimal byte values delimited by ':' symbols.
<code>community</code>	16	A string value (up to 18 symbols) that is put into the "Community String" field in PET Traps.
<code>destination_count</code>	17	The maximum number of LAN alert destinations supported on the LAN channel.
<code>destination_type</code>	18	The destination type identified by the specified set selector. If no set selector is given, all destination types are shown. Each destination type entry contains the following fields: <ul style="list-style-type: none"> • destination type (0-7) • alert acknowledge flag • alert acknowledge timeout / retry interval in seconds (1-256) • number of retries (0-7)
<code>destination_address</code>	19	The destination addresses associated with the specified set selector. If no set selector is given, all destination addresses are shown. Each destination address entry contains the following fields: <ul style="list-style-type: none"> • gateway selector: 0 – use default, 1 – use backup • IP address (string in dotted decimal format) • MAC address (string of 6 hexadecimal byte values delimited by ':' symbols)

PARAMETER NAME	NUMBER	DESCRIPTION
<code>vlan_id</code>	20	The flag that indicates whether Virtual LANs are enabled for the channel, and the Virtual LAN ID (a number in the range 1 to 4095, or the value 0, indicating that Virtual LAN IDs are not used for the channel)
<code>vlan_priority</code>	21	A number in the range 0 to 7, that specifies the packet Priority field, according to 802.1q
<code>cs_entry_count</code>	22	A number in the range 0 to 16, that specifies how many Cipher Suites are supported by the target MMC
<code>cs_entries</code>	23	A list of the Cipher Suite IDs supported by the target MMC, in hexadecimal, separated by commas. The standard Cipher Suite IDs are defined in the IPMI 2.0 specification, section 22.15.2.
<code>cs_priv_levels</code>	24	A list of the currently assigned Cipher Suite privilege levels. Each item of the list includes a Cipher Suite ID and the maximum privilege level associated with that Cipher Suite.
<code>destination_vlan_tag</code>	25	<p>The alert destination VLAN tag identified by the specified set selector. If no set selector is specified, all destination VLAN tags are shown. Each destination VLAN tag contains the following fields:</p> <ul style="list-style-type: none"> • destination selector (0-15) • address format • VLAN ID (0-4095) • VLAN priority (0-7) <p>For the Pigeon Point Shelf Manager, VLAN tags are read-only and are the same for all alert destinations.</p>
<code>hpm2_caps</code>	N/A	The HPM.2-related capabilities of the IPMI LAN channel.
<code>hpm2_if_mask</code>	N/A	A list of the interfaces supported on the IPMI LAN channel.
<code>hpm2_if_descr</code>	N/A	A description of the specific physical interface supported on the IPMI LAN channel.
<code>hpm2_if_grp_mask</code>	N/A	A list of Interface Groups supported on the IPMI LAN channel.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>hpm2_if_grp_descr</code>	N/A	The description of Interfaces belonging to an Interface Group supported on the IPMI LAN channel.
<code>hpm2_act_if_group</code>	N/A	The Active Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_def_if_group</code>	N/A	The Default Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_rd_grp_mask</code>	N/A	A list of Redundancy Groups supported by the IPMI LAN channel.
<code>hpm2_rd_grp_descr</code>	N/A	A list of Interface Groups that are supported within the specified Redundancy Group.
<code>hpm2_rd_timeout</code>	N/A	The timeout period used by the MMC for managing failovers between Interface Groups.
<code>hpm2_def_rd_timeout</code>	N/A	The default timeout period used by the MMC for managing failovers between Interface Groups.
<code>hpm3_ch_index</code>	N/A	The HPM.3 Channel Index for the given IPMI LAN channel
<code>hpm3_dhcp_options</code>	N/A	A list of numbers of additional DHCP Options obtained from the DHCP server by the DHCP Proxy

3.7.3 Example

```
# clia amcgetlanconf 82 4 2 3
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address: 192.168.1.142

```
# clia amcgetlanconf 82 amc 2 2 3
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address: 192.168.1.142

3.7.4 auth_support

3.7.4.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> auth_support
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
```

```
auth_support
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 1
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 1
```

3.7.4.2 Purpose

This command shows the current value of the LAN parameter *auth_support*. This parameter indicates which authentication types are supported by the target MMC, represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Other bits are reserved and should be set to 0. Besides the raw hexadecimal value, symbolic values for the bits that are set are also shown.

3.7.4.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 auth_support
Pigeon Point Shelf Manager Command Line Interpreter
Authentication Type Support: 0x15 ( None MD5 Straight Password/Key )
#
```

3.7.5 auth_enables

3.7.5.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> auth_enables
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
auth_enables
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 2
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 2
```

3.7.5.2 Purpose

This command shows the current value of the LAN parameter *auth_enables*. This parameter indicates which authentication types are currently enabled by the target MMC for each of five supported privilege levels (Callback, User, Operator, Administrator and OEM), represented by a sequence of five bytes, each corresponding to the respective privilege level, treated as a bit mask with the following meanings of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Other bits are reserved and should be set to 0.

Besides the raw hexadecimal values, symbolic values for the bits that are set are also shown.

3.7.5.3 Examples

Show the types of authentication supported by LAN channel 2 of AMC #2 on address 82h.

```
# clia amcgetlanconf 82 amc 2 2 auth_enables
```

Pigeon Point Shelf Manager Command Line Interpreter

Authentication Type Enables:

Callback level: 0x00

User level: 0x15 (None MD5 Straight Password/Key)

Operator level: 0x15 (None MD5 Straight Password/Key)

Administrator level: 0x15 (None MD5 Straight Password/Key)

OEM level: 0x00

```
#
```

3.7.6 ip

3.7.6.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> ip
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> ip
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 3
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 3
```

3.7.6.2 Purpose

This command shows the current IP address used by the channel, in dotted decimal notation.

3.7.6.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 ip
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address: 172.16.2.203

```
#
```

3.7.7 ip_source

3.7.7.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> ip_source
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>  
ip_source
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 4
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 4
```

3.7.7.2 Purpose

This command shows the current value of the LAN parameter *ip_source*. This parameter indicates the source of the IP Address used by the target MMC, represented by a single byte, which can have one of the following values:

- 0 Unspecified
- 1 Static address (manually configured)

- 2 Address obtained by Shelf Manager running DHCP
- 3 Address loaded by BIOS or system software
- 4 Address obtained by target MMC running other address assignment protocol

Other values are reserved.

Besides the raw hexadecimal value, the symbolic value is also shown.

3.7.7.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 ip_source
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address Source: Address Obtained by BMC Running Other Address Assignment Protocol (0x04)

```
#
```

3.7.8 mac

3.7.8.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> mac
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> mac
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 5
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 5
```

3.7.8.2 Purpose

This command shows the current MAC address used by the channel, in the form of six hexadecimal bytes separated by colons.

3.7.8.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 mac
```

Pigeon Point Shelf Manager Command Line Interpreter

MAC Address: 90:91:91:91:91:91

```
#
```

3.7.9 subnet_mask

3.7.9.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> subnet_mask
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>  
subnet_mask
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 6
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 6
```

3.7.9.2 Purpose

This command shows the current IP subnet mask used by the channel, in dotted decimal notation.

3.7.9.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 subnet_mask
Pigeon Point Shelf Manager Command Line Interpreter
Subnet Mask: 255.255.255.0
#
```

3.7.10 ipv4_hdr_param

3.7.10.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> ipv4_hdr_param
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
ipv4_hdr_param
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 7
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 7
```

3.7.10.2 Purpose

This command shows the current IPv4 header parameters. They are represented as 3 single-byte values in hexadecimal notation, separated with colons. The content of the bytes conforms to section 23.2 of the IPMI 2.0 specification.

3.7.10.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 ipv4_hdr_param
Pigeon Point Shelf Manager Command Line Interpreter
IPv4 Header Parameters: 0x40:0x40:0x10
#
```

3.7.11 pri_rmcp_port

3.7.11.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> pri_rmcp_port
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
pri_rmcp_port
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 8
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 8
```

3.7.11.2 Purpose

This command shows the current RMCP primary port used by the channel, in hexadecimal. This is the port used for regular interactions via RMCP.

3.7.11.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 pri_rmcp_port
Pigeon Point Shelf Manager Command Line Interpreter
Primary RMCP Port Number: 0x026f
#
```

3.7.12 `sec_rmcp_port`

3.7.12.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> sec_rmcp_port
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
sec_rmcp_port
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 9
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 9
```

3.7.12.2 Purpose

This command shows the current RMCP secondary port used by the channel, in hexadecimal. This is the port used for secure interactions via RMCP.

3.7.12.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 sec_rmcp_port
Pigeon Point Shelf Manager Command Line Interpreter
Secondary RMCP Port Number: 0x0298
#
```

3.7.13 `arp_control`

3.7.13.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> arp_control
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
arp_control
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 10
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 10
```

3.7.13.2 Purpose

This command shows the current value of the LAN parameter `arp_control`. This parameter indicates the additional ARP support provided by the MMC, represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable MMC-generated Gratuitous ARPs
- 0x02 Enable MMC-generated ARP responses

Other bits are reserved and should be set to 0.

Besides the raw hexadecimal value, symbolic values for the bits that are set are also shown.

3.7.13.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 arp_control
Pigeon Point Shelf Manager Command Line Interpreter
BMC-generated ARP Control: 02
    Enable BMC-generated Gratuitous Response
#
```

3.7.14 arp_interval

3.7.14.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> arp_interval
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
arp_interval
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 11
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 11
```

3.7.14.2 Purpose

This command shows the current ARP interval used by the channel. The value is shown as a number of seconds in fixed-point numeric format (with a resolution of 0.5 seconds).

3.7.14.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 arp_interval
Pigeon Point Shelf Manager Command Line Interpreter
Gratuitous ARP Interval: 2.0 seconds
#
```

3.7.15 dft_gw_ip

3.7.15.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> dft_gw_ip
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
dft_gw_ip
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 12
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 12
```

3.7.15.2 Purpose

This command shows the IP address of the default gateway used by the channel, in dotted decimal notation.

3.7.15.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 dft_gw_ip
Pigeon Point Shelf Manager Command Line Interpreter
Default Gateway Address: 0.0.0.0
#
```

3.7.16 dft_gw_mac

3.7.16.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> dft_gw_mac
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
dft_gw_mac
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 13
```



```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 13
```

3.7.16.2 Purpose

This command shows the MAC address of the default gateway used by the channel, in the form of six hexadecimal bytes separated by colons.

3.7.16.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 dft_gw_mac
Pigeon Point Shelf Manager Command Line Interpreter
Default Gateway MAC Address: 14:4:14:af:ce:12
#
```

3.7.17 backup_gw_ip

3.7.17.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> backup_gw_ip
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
backup_gw_ip
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 14
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 14
```

3.7.17.2 Purpose

This command shows the IP address of the backup gateway used by the channel, in dotted decimal notation.

3.7.17.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 backup_gw_ip
Pigeon Point Shelf Manager Command Line Interpreter
Backup Gateway Address: 0.0.0.0
#
```

3.7.18 backup_gw_mac

3.7.18.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> backup_gw_mac
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
backup_gw_mac
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 15
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 15
```

3.7.18.2 Purpose

This command shows the MAC address of the backup gateway used by the channel, in the form of six hexadecimal bytes separated by colons.

3.7.18.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 backup_gw_mac
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Backup Gateway MAC Address: 25:68:c4:af:b3:10  
#
```

3.7.19 community

3.7.19.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> community  
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>  
community  
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 16  
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 16
```

3.7.19.2 Purpose

This command shows the community string parameter used in PET traps.

3.7.19.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 community  
Pigeon Point Shelf Manager Command Line Interpreter  
Community String: "public"  
#
```

3.7.20 destination_count

3.7.20.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>  
destination_count  
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>  
destination_count  
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 17  
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 17
```

3.7.20.2 Purpose

This command shows the maximum number of alert destinations available for the channel. This is a configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

3.7.20.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 destination_count  
Pigeon Point Shelf Manager Command Line Interpreter  
Number of Destinations: 16  
#
```

3.7.21 destination_type

3.7.21.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
destination_type [ <set-selector> ]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
destination_type [ <set-selector> ]
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 18 [ <set-
selector> ]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 18 [
<set-selector> ]
```

3.7.21.2 Purpose

This command shows the element of the destination table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The following information is shown about the destination:

- the destination selector
- the alert destination type (PET Trap or OEM destination; whether the alert should be acknowledged)
- alert acknowledge timeout
- retry count

If the set selector is omitted, all active destinations are shown, with their numbers.

3.7.21.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 destination_type 2
Pigeon Point Shelf Manager Command Line Interpreter
DST Type # 2, Type: Acknowledged PET Trap Destination (0x80), ACK Timeout /
Retry Interval: 3 seconds, Retries: 5
# clia amcgetlanconf 82 amc 2 2 destination_type
Pigeon Point Shelf Manager Command Line Interpreter
DST Type # 0, Type: Acknowledged reserved (0x81), ACK Timeout / Retry
Interval: 2 seconds, Retries: 6
DST Type # 1, Type: Unacknowledged reserved (0x02), ACK Timeout / Retry
Interval: 3 seconds, Retries: 4
DST Type # 2, Type: Acknowledged PET Trap Destination (0x80), ACK Timeout /
Retry Interval: 3 seconds, Retries: 5
#
```

3.7.22 destination_address

3.7.22.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
destination_address [ <set-selector> ]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
destination_address [ <set-selector> ]
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 19 [ <set-selector> ]
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 19 [ <set-selector> ]
```

3.7.22.2 Purpose

This command shows the element of the destination address table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The following information is shown about the destination:

- the destination selector
- address format (IP+MAC by default)
- the destination IP address
- the destination MAC address
- which gateway to use (default vs. backup).

If the set selector is omitted, all active destination addresses are shown, with their numbers.

3.7.22.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 destination_address 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
DST Addresses # 2, Address Format: IPv4 IP Address followed by DIX ethernet / 802.3 MAC Address (0x00)
```

```
Gateway: Default (0x00), Alerting IP: 172.16.2.100, Alerting MAC: 90:93:93:93:93:93
```

```
#
```

3.7.23 vlan_id

3.7.23.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> vlan_id
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> vlan_id
```

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 20
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 20
```

3.7.23.2 Purpose

This command shows whether VLANs are currently enabled for the channel and the VLAN ID that is currently assigned to the designated channel. The MMC activates the Virtual LAN facility for a channel only if VLANs are enabled and VLAN ID is not 0.

3.7.23.3 Examples

```
# clia amcgetlanconf 82 amc 2 2 vlan_id
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
802.1q VLAN ID: 4 (enabled)
```

```
#
```

For a channel with disabled VLAN functionality:

```
# clia amcgetlanconf 10 amc 2 1 vlan_id
Pigeon Point Shelf Manager Command Line Interpreter
802.1q VLAN ID: 0 (disabled)
#
```

3.7.24 vlan_priority

3.7.24.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> vlan_priority
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
vlan_priority
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 21
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 21
```

3.7.24.2 Purpose

This command shows the VLAN priority that is currently assigned to the designated channel; this is the value of the Priority field used in the VLAN 802.1q network packet headers.

3.7.24.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 vlan_priority
Pigeon Point Shelf Manager Command Line Interpreter
VLAN priority: 0
#
```

3.7.25 cs_entry_count

3.7.25.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> cs_entry_count
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
cs_entry_count
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 22
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 22
```

3.7.25.2 Purpose

This command shows the number of Cipher Suites supported by the MMC.

3.7.25.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 cs_entry_count
Pigeon Point Shelf Manager Command Line Interpreter
Cipher Suite Entry count: 15
#
```

3.7.26 cs_entries

3.7.26.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> cs_entries
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
cs_entries
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 23
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 23
```

3.7.26.2 Purpose

This command shows the list of Cipher Suites IDs supported by the MMC. (The standard Cipher Suite IDs are listed in the IPMI 2.0 specification, section 22.15.2.)

3.7.26.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 cs_entries
Pigeon Point Shelf Manager Command Line Interpreter
Supported Cipher Suite IDs: 0h, 1h, 2h, 3h, 4h, 5h, 6h, 7h, 8h, 9h, Ah, Bh,
Ch, Dh, Eh
#
```

3.7.27 cs_priv_levels

3.7.27.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> cs_priv_levels
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
cs_priv_levels
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 24
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 24
```

3.7.27.2 Purpose

This command shows the list of maximum privilege levels for the Cipher Suites supported by the MMC. Each item of the list contains a Cipher Suite ID and the maximum privilege level associated with that Cipher Suite. (The standard Cipher Suite IDs are listed in the IPMI 2.0 specification, section 22.15.2.) The maximum privilege level associated with a specific Cipher Suite can be changed via the CLI command *amcsetlanconf* or via the IPMI command “Set LAN Configuration Parameters”.

3.7.27.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 cs_priv_levels
Pigeon Point Shelf Manager Command Line Interpreter
Cipher Suite Privilege Levels:
    ID 00h, Priv.Level 'User' (2); ID 01h, Priv.Level 'User'
(2);
    ID 02h, Priv.Level 'Administrator' (4); ID 03h, Priv.Level 'OEM
Proprietary' (5);
```

```
ID 04h, Priv.Level 'OEM Proprietary' (5); ID 05h, Priv.Level 'OEM
Proprietary' (5);
    ID 06h, Priv.Level 'User' (2); ID 07h, Priv.Level
'Administrator' (4);
    ID 08h, Priv.Level 'OEM Proprietary' (5); ID 09h, Priv.Level 'OEM
Proprietary' (5);
    ID 0Ah, Priv.Level 'OEM Proprietary' (5); ID 0Bh, Priv.Level
'Administrator' (4);
    ID 0Ch, Priv.Level 'OEM Proprietary' (5); ID 0Dh, Priv.Level 'OEM
Proprietary' (5);
    ID 0Eh, Priv.Level 'OEM Proprietary' (5);
#
```

3.7.28 destination_vlan_tag

3.7.28.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
destination_vlan_tag [ <set-selector> ]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
destination_vlan_tag [ <set-selector> ]
amcgetlanconf <IPMB-0 address> <fru-id> <channel> 25 [ <set-
selector> ]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel> 25 [
<set-selector> ]
```

3.7.28.2 Purpose

This command shows the element of the destination VLAN tag table with the index *<set-selector>*. Indices are 0-based. Selector 0 is used to address the volatile destination (used with the “Alert Immediate” command). The following information is shown about the designated destination:

- destination selector
- address format (“802.1q VLAN TAG” is the only one currently supported)
- VLAN ID
- Canonical format indicator (currently always 0)
- VLAN priority.

If the set selector is omitted, all destination VLAN tags are shown, with their associated destination numbers. However, if VLANs are not in use for the designated channel, the text *N/A* is shown as a single line.

In the current implementation, VLAN tags are read-only and the same for all destinations on the same channel. In fact, the VLAN tag contents are derived from the VLAN-related channel configuration parameters.

3.7.28.3 Examples

```
# clia amcgetlanconf 10 amc 2 1 destination_vlan_tag 2
Pigeon Point Shelf Manager Command Line Interpreter
```

Destination Adresse VLAN TAGs:

DST VLAN TAGs # 2, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 4, CFI 0, Priority 0 (hex: 0x100004)

#

3.7.29 hpm2_caps

3.7.29.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> hpm2_caps
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_caps
```

3.7.29.2 Purpose

This command shows the HPM.2-related capabilities of the IPMI LAN channel; these include capability flags, LAN attachment type, and maximum message sizes in both the inbound (from a Network Client to the MMC) and outbound (from the MMC to a Network Client) directions.

3.7.29.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_caps
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Capabilities:

IPMC Managed Failover

Advanced Discovery Mechanism

LAN Attachment: Dedicated NC, No Onboard Switch in Path

Bandwidth Capability Class: 10 Mbit to 100 Mbit

Maximum Inbound Payload Size: 560 bytes

Maximum Outbound Payload Size: 560 bytes

#

3.7.30 hpm2_if_mask

3.7.30.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> hpm2_if_mask
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_if_mask
```

3.7.30.2 Purpose

This command reports the numbers of interfaces supported on the IPMI LAN channel.

3.7.30.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_if_mask
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Interfaces: 0,1,2,3,4

#

3.7.31 hpm2_if_descr

3.7.31.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> hpm2_if_descr  
[<selector>]
```

```
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_if_descr [<selector>]
```

3.7.31.2 Purpose

This command reports the details of a specific interface identified by the *<selector>* parameter. The *<selector>* is the interface selector, an integer number in the range 0..63. If this parameter is omitted, the details of all the supported interfaces are shown.

For each interface, the following information is shown:

- Interface selector
- Interface type (Non E-Keyed, ATCA Backplane, AMC Module or MCH/IRTM/Zone 3 IRTM compliant)
- Additional information (ATCA or AMC Link designator, On-Carrier Device ID for MCH/IRTM/Zone 3 IRTM compliant interfaces, a board-vendor assigned unique number for non E-keyed interfaces)
- Current availability of the interface and its power requirements.

3.7.31.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_if_descr  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Interface 0: Non E-Keyed: Board vendor number: 0  
    Currently available/enabled  
HPM.2 Interface 1: ATCA Backplane: Ch=0/If=Base/Ports=none  
    Currently available/enabled  
    Requires Payload Power  
HPM.2 Interface 2: ATCA Backplane: Ch=0/If=Base/Ports=none  
    Currently available/enabled  
    Requires Payload Power  
HPM.2 Interface 3: ATCA Backplane: Ch=0/If=Base/Ports=none  
    Currently available/enabled  
    Requires Payload Power  
HPM.2 Interface 4: ATCA Backplane: Ch=0/If=Base/Ports=none  
    Currently available/enabled  
    Requires Payload Power  
# clia amcgetlanconf 82 amc 2 5 hpm2_if_descr 1  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Interface 1: ATCA Backplane: Ch=0/If=Base/Ports=none  
    Currently available/enabled  
    Requires Payload Power
```

#

3.7.32 hpm2_if_grp_mask

3.7.32.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_if_grp_mask
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_if_grp_mask
```

3.7.32.2 Purpose

This command reports the list of Interface Groups that are supported by the corresponding IPMI LAN channel.

3.7.32.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_if_grp_mask
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface Groups: 0,1,2
#
```

3.7.33 hpm2_if_grp_descr

3.7.33.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_if_grp_descr [<selector>]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_if_grp_descr [<selector>]
```

3.7.33.2 Purpose

This command reports the list of interfaces belonging to the Interface Group specified by the *<selector>* parameter. If the parameter is omitted, the command reports the lists of interfaces for all the Interface Groups that are supported on the corresponding IPMI LAN channel.

3.7.33.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_if_grp_descr
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface Group 0: 0
HPM.2 Interface Group 1: 1,2
HPM.2 Interface Group 2: 3,4
# clia amcgetlanconf 82 amc 2 5 hpm2_if_grp_descr 2
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface Group 2: 3,4
#
```

3.7.34 hpm2_act_if_group

3.7.34.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_act_if_group
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_act_if_group
```

3.7.34.2 Purpose

This command reports the Active Interface Group number and the Active Redundancy Group number for the given IPMI LAN channel.

3.7.34.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_act_if_group
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Active Interface Group: 2; Active Redundancy Group: 0
#
```

3.7.35 hpm2_def_if_group

3.7.35.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_def_if_group
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_def_if_group
```

3.7.35.2 Purpose

This command reports the Default Interface Group number and the Default Redundancy Group number for the given IPMI LAN channel.

3.7.35.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_def_if_group
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Interface Group: 0; Default Redundancy Group: 0
#
```

3.7.36 hpm2_rd_grp_mask

3.7.36.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_rd_grp_mask
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_rd_grp_mask
```

3.7.36.2 Purpose

This command reports the list of Redundancy Groups that are supported on the corresponding IPMI LAN channel.

3.7.36.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_rd_grp_mask
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Groups: 0
#
```

3.7.37 hpm2_rd_grp_descr

3.7.37.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_rd_grp_descr [<selector>]
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_rd_grp_descr [<selector>]
```

3.7.37.2 Purpose

This command reports the Interface Groups supported within the Redundancy Group specified by the parameter *<selector>*. If the parameter is omitted, Interface Groups are reported for all the Redundancy Groups that are supported on the corresponding IPMI LAN channel.

3.7.37.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_rd_grp_descr
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Group 0: 0,1,2
HPM.2 Redundancy Group 1: 0,2
# clia amcgetlanconf 82 amc 2 5 hpm2_rd_grp_descr 0
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Group 0: 0,1,2
#
```

3.7.38 hpm2_rd_timeout

3.7.38.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_rd_timeout
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_rd_timeout
```

3.7.38.2 Purpose

This command reports the timeout period used by the MMC for managing failovers between Interface Groups.

3.7.38.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_rd_timeout
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Timeout: 15 seconds
#
```

3.7.39 hpm2_def_rd_timeout

3.7.39.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_def_rd_timeout
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_def_rd_timeout
```

3.7.39.2 Purpose

This command reports a default timeout period used by the MMC for managing failovers between Interface Groups.

3.7.39.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm2_def_rd_timeout
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Redundancy Timeout: 10 seconds
#
```

3.7.40 hpm3_ch_index

3.7.40.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel> hpm3_ch_index
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm3_ch_index
```

3.7.40.2 Purpose

This command reports the HPM.3 LAN Channel Index for the given IPMI LAN channel on the MMC.

3.7.40.3 Examples

```
# clia amcgetlanconf 0x82 amc 2 2 hpm3_ch_index
Pigeon Point Shelf Manager Command Line Interpreter
HPM.3 LAN Channel Index: 2
#
```

3.7.41 hpm3_dhcp_options

3.7.41.1 Syntax

```
amcgetlanconf <IPMB-0 address> <fru-id> <channel>
hpm3_dhcp_options
amcgetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm3_dhcp_options
```

3.7.41.2 Purpose

This command indicates the list of DHCP option numbers that are requested from the DHCP server by the DHCP Proxy on behalf of the target MMC.

3.7.41.3 Examples

```
# clia amcgetlanconf 82 amc 2 5 hpm3_dhcp_options
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.3 DHCP Option Numbers: 125

3.8 amcgetsolconf

3.8.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> [ <parameter-name> [<port number>]]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> [ <parameter-name> [<port number>]]
```

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> [ <parameter-number> ]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> [ <parameter-number> ]
```

3.8.2 Purpose

This command shows the value of the specified SOL (Serial-over-LAN) configuration parameter for the specified channel implemented by the Module Management Controller (MMC) on the specified AMC. The address of the AMC can be specified in one of the two ways:

1. the IPMB-0 address of the Carrier IPMC and FRU ID of the corresponding subsidiary FRU:
<IPMB-0 address> <fru-id>.
2. the IPMB-0 address of the Carrier IPMC and the corresponding AMC site number:
<IPMB-0 address> amc <amc-number>.

If no configuration parameter name or number is specified, all the SOL configuration parameters for the specified channel are shown. The HPM.2 extended SOL configuration parameters are described in the HPM.2 specification. HPM.2 SOL configuration parameters do not have fixed parameter numbers; their numbers are allocated as a contiguous sub-range of the OEM parameter range (192-255) and each MMC reports the starting number of the sub-range in the response to the command “Get HPM.2 Capabilities”.

The following table lists the names and numbers of SOL configuration parameters supported by the *amcgetsolconf* command:

Table 5: Names and numbers of SOL configuration parameters supported by the *amcgetsolconf* command

PARAMETER NAME	NUMBER	DESCRIPTION
enable	1	This parameter controls whether the SOL payload type can be activated.
auth	2	The Privilege Level and two flags: Force Encryption and Force Authentication.
character	3	The SOL Character Accumulate Interval and Character Send Threshold
retry	4	The SOL Retry Count and Retry Interval
nv_bit_rate	5	The SOL Non-Volatile Bit Rate
bit_rate	6	The SOL Volatile Bit Rate

PARAMETER NAME	NUMBER	DESCRIPTION
<code>payload_channel</code>	7	The SOL Payload Channel indicates which IPMI channel is being used for the communication parameters for the SOL Payload (if different from the current channel)
<code>payload_port</code>	8	The SOL Payload Port indicates the port number over which the SOL payload can be activated
<code>hpm2_bit_rate</code>	N/A	The HPM.2 Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
<code>hpm2_nv_bit_rate</code>	N/A	The HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
<code>hpm2_character</code>	N/A	The HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_nv_character</code>	N/A	The HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_retry</code>	N/A	The HPM.2 Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_nv_retry</code>	N/A	The HPM.2 Non-Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_port_name</code>	N/A	The HPM.2 System Serial Port Name

3.8.3 Examples

Shows the SOL configuration for all the ports of channel 5 on AMC #2 at address 82h.

```
# clia amcgetsolconf 82 amc 2 5
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
SOL: Enabled
```

```
Authentication:
```

```
    Privilege Level: 4 (Administrator level)
```

```
Character Accumulate Interval: 5 ms; Send Threshold: 1
```

```
Retry Count: 1; Retry Interval: 50 ms
```

```
Non-Volatile Bit Rate: 10 (115.2 kbps)
```

```
Volatile Bit Rate: 10 (115.2 kbps)
```

```
Payload Channel: N/A
```

```
Payload Port: 623
```

```
HPM.2: Port 1:
```

```
    Volatile Bit Rate: 6 (9600 bps)
```

```
    Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2
```



```
Non-Volatile Bit Rate: 6 (9600 bps)
Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2
Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1
Non-Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1
Volatile Retry Count: 5; Retry Interval: 60 ms
Non-Volatile Retry Count: 5; Retry Interval: 60 ms
Name:"SOL PORT"
```

```
#
```

3.8.4 enable

3.8.4.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> enable
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> enable
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 1
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 1
```

3.8.4.2 Purpose

This command shows whether the target MMC has SOL enabled on the channel *<channel>*.

3.8.4.3 Examples

Check for SOL enabled status on channel 5 for AMC #2 at address 82h.

```
# clia amcgetsolconf 82 amc 2 5 enable
```

```
Pigeon Point Shelf Manager Command Line Interpreter
SOL: Enabled
```

Check for SOL capabilities on channel 1 for AMC #2 at address 82h.

```
# clia amcgetsolconf 82 amc 2 1 enable
```

```
Pigeon Point Shelf Manager Command Line Interpreter
SOL: N/A
```

Confirm that SOL is disabled on channel 5 for AMC #2 at address 84h.

```
# clia amcgetsolconf 84 amc 2 5 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
SOL: Disabled
```

3.8.5 auth

3.8.5.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> auth
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> auth
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 2
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 2
```

3.8.5.2 Purpose

This command shows the SOL Authentication capabilities of channel *<channel>* on the target MMC. One of four supported privilege levels (User, Operator, Administrator and OEM) is reported. The flags “Force Encryption” and “Force Authentication” are reported only if they are set.

3.8.5.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 auth
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Authentication:
```

```
Privilege Level: 4 (Administrator level)
```

```
# clia amcgetsolconf 82 amc 2 1 auth
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Authentication:
```

```
Privilege Level: 3 (Operator level), Force Encryption, Force  
Authentication
```

3.8.6 character

3.8.6.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> character
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>  
character
```

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 3
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 3
```

3.8.6.2 Purpose

This command shows the SOL Character Accumulate Interval and Character Send Threshold of channel *<channel>* of the target MMC.

3.8.6.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 character
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Character Accumulate Interval: 5 ms; Send Threshold: 1
```

3.8.7 retry

3.8.7.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> retry
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> retry
```

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 4
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 4
```

3.8.7.2 Purpose

This command shows the SOL Volatile Retry Count and Retry Interval of channel *<channel>* of the target MMC.

3.8.7.3 Examples

```
# clia amcgetsolconf 82 amc 2 retry
Pigeon Point Shelf Manager Command Line Interpreter
Retry Count: 1; Retry Interval: 50 ms
```

3.8.8 nv_bit_rate

3.8.8.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> nv_bit_rate
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
nv_bit_rate
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 5
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 5
```

3.8.8.2 Purpose

This command shows the SOL Non-Volatile Bit Rate of channel *<channel>* of the target MMC.

3.8.8.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 nv_bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
Non-Volatile Bit Rate: 10 (115.2 kbps)
```

3.8.9 bit_rate

3.8.9.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> bit_rate
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
bit_rate
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 6
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 6
```

3.8.9.2 Purpose

This command shows the SOL Volatile Bit Rate of channel *<channel>* of the target MMC.

3.8.9.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
Volatile Bit Rate: 10 (115.2 kbps)
```

3.8.10 payload_channel

3.8.10.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel>
payload_channel
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
payload_channel
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 7
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 7
```

3.8.10.2 Purpose

This command shows the SOL Payload Channel Number of channel *<channel>* of the target MMC. This value is reported as *N/A* if the same channel is used for the SOL payload.

3.8.10.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 payload_channel
Pigeon Point Shelf Manager Command Line Interpreter
Payload Channel: N/A
```

3.8.11 payload_port

3.8.11.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> payload_port
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
payload_port
amcgetsolconf <IPMB-0 address> <fru-id> <channel> 8
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel> 8
```

3.8.11.2 Purpose

This command shows the SOL Payload Port Number of channel *<channel>* of the target MMC.

3.8.11.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 payload_port
Pigeon Point Shelf Manager Command Line Interpreter
Payload Port: 623
```

3.8.12 hpm2_bit_rate

3.8.12.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> hpm2_bit_rate
[<port number>]
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_bit_rate [<port number>]
```

3.8.12.2 Purpose

This command reports the HPM.2 Volatile SOL Bit Rate and Physical UART Settings for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.12.3 Examples

```
# clia amcgetsolconf 82 amc 1 5 hpm2_bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Volatile Bit Rate: 0 (Current)
    Flow Control: Disabled; Parity: Disable; Word Bits: 5; Stop Bits: 1
# clia amcgetsolconf 84 amc 3 3 hpm2_bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Volatile Bit Rate: 6 (9600 bps)
    Flow Control: Hardware; Parity: Even; Word Bits: 7; Stop Bits: 1
# clia amcgetsolconf 82 amc 2 5 hpm2_bit_rate 2
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 2: Volatile Bit Rate: N/A
```

3.8.13 hpm2_nv_bit_rate

3.8.13.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel>
hpm2_nv_bit_rate [<port number>]
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_nv_bit_rate [<port number>]
```

3.8.13.2 Purpose

This command reports the HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.13.3 Examples

```
# clia amcgetsolconf 82 amc 2 5 hpm2_nv_bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Non-Volatile Bit Rate: 0 (Current)
    Flow Control: Disabled; Parity: Disable; Word Bits: 5; Stop Bits: 1
# clia amcgetsolconf 82 amc 1 5 hpm2_nv_bit_rate 1
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1: Non-Volatile Bit Rate: 6 (9600 bps)
    Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2
# clia amcgetsolconf 82 amc 3 5 hpm2_nv_bit_rate
Pigeon Point Shelf Manager Command Line Interpreter
```

HPM.2: Port 1:

Non-Volatile Bit Rate: 6 (9600 bps)

Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2

3.8.14 hpm2_character

3.8.14.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> hpm2_character  
[<port number>]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_character [<port number>]
```

3.8.14.2 Purpose

This command reports the HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.14.3 Examples

```
# clia amcgetsolconf 82 1 5 hpm2_character 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1

```
# clia amcgetsolconf 82 2 5 hpm2_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Character Attributes: Use Global Settings

```
# clia amcgetsolconf 82 3 5 hpm2_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

3.8.15 hpm2_nv_character

3.8.15.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel>  
hpm2_nv_character [<port number>]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_nv_character [<port number>]
```

3.8.15.2 Purpose

This command reports the HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.15.3 Examples

```
# clia amcgetsolconf 82 1 5 hpm2_nv_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Character Attributes: Use Global Settings

```
# clia amcgetsolconf 82 2 5 hpm2_nv_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

```
# clia amcgetsolconf 82 3 5 hpm2_nv_character 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Non-Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

3.8.16 hpm2_retry

3.8.16.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> hpm2_retry  
[<port number>]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_retry [<port number>]
```

3.8.16.2 Purpose

This command reports the HPM.2 Volatile Retry Count and Retry Interval for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.16.3 Examples

```
# clia amcgetsolconf 82 1 5 hpm2_retry 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Volatile Retry: Use Global Settings

```
# clia amcgetsolconf 82 2 5 hpm2_retry
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Retry: Use Global Settings

```
#clia amcgetsolconf 82 3 5 hpm2_retry
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Retry Count: 5; Retry Interval: 60 ms

3.8.17 hpm2_nv_retry

3.8.17.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> hpm2_nv_retry  
[<port number>]
```

```
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_nv_retry [<port number>]
```

3.8.17.2 Purpose

This command reports the HPM.2 Non-Volatile Retry Count and Retry Interval for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.17.3 Examples

```
# clia amcgetsolconf 82 1 5 hpm2_nv_retry
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Non-Volatile Retry: Use Global Settings
# clia amcgetsolconf 82 2 5 hpm2_nv_retry
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Non-Volatile Retry Count: 5; Retry Interval: 60 ms
# clia amcgetsolconf 82 3 5 hpm2_nv_retry 1
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1: Non-Volatile Retry Count: 5; Retry Interval: 60 ms
```

3.8.18 hpm2_port_name

3.8.18.1 Syntax

```
amcgetsolconf <IPMB-0 address> <fru-id> <channel> hpm2_port_name
[<port number>]
amcgetsolconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_port_name [<port number>]
```

3.8.18.2 Purpose

This command reports the HPM.2 System Serial Port Name for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.8.18.3 Examples

```
# clia amcgetsolconf 82 1 5 hpm2_port_name
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2: Port 1:
    Name:"SOL PORT"
# clia amcgetsolconf 82 2 5 hpm2_port_name 1
Pigeon Point Shelf Manager Command Line Interpreter
Name:"SOL PORT"
```


3.9 amcportstate

3.9.1 Syntax

```
amcportstate [-v] <IPMB-0 address> [<fru_id> | amc <M>]
```

```
amcportstate [-v] shm <N> [amc <M>]
```

```
amcportstate [-v] board <N> amc <M>]
```

3.9.2 Purpose

This command shows AMC port state information for a specific AMC. If a FRU ID or AMC number is omitted and an *<IPMB-0 address>* argument is specified, the AMC port state information is reported for all active AMCs for the designated MMC. If a FRU ID or AMC number is omitted and either a *shm <N>* or *board <N>* argument is specified, the AMC port state information is reported for AMC 0 on the designated Carrier IPMC.

3.9.3 Example

```
# clia amcportstate 98
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
98: FRU # 1 (AMC # 5)
```

```
Channel 0:
```

```
Link 1 configuration:
```

```
lane mask 03, type 07, type extension 02, grouping ID 00, status  
0 (Disabled)
```

```
Link 2 configuration:
```

```
lane mask 01, type 07, type extension 02, grouping ID 00, status  
1 (Enabled)
```

```
Link 3 configuration:
```

```
lane mask 02, type 07, type extension 02, grouping ID 00, status  
0 (Disabled)
```

```
98: FRU # 2 (AMC # 6)
```

```
Channel 0:
```

```
Link 1 configuration:
```

```
lane mask 03, type 07, type extension 02, grouping ID 00, status  
0 (Disabled)
```

```
Link 2 configuration:
```

```
lane mask 01, type 07, type extension 02, grouping ID 00, status  
1 (Enabled)
```

```
Link 3 configuration:
```

```
lane mask 02, type 07, type extension 02, grouping ID 00, status  
0 (Disabled)
```

```
# clia amcportstate 9c 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
9C: FRU # 2 (AMC # 6)
```

```
Channel 0:
```

```
Link 1 configuration:
```

```
        lane mask 0f, type 05, type extension 01, grouping ID 00, status
1 (Enabled)
    Channel 1:
        Link 1 configuration:
            lane mask 0f, type 05, type extension 01, grouping ID 00, status
1 (Enabled)
    Channel 2:
        Link 1 configuration:
            lane mask 01, type f0, type extension 00, grouping ID 00, status
1 (Enabled)
# clia amcportstate 88 amc 6
Pigeon Point Shelf Manager Command Line Interpreter
88: FRU # 2 (AMC # 6)
    Channel 0:
        Link 1 configuration:
            lane mask 01, type 07, type extension 01, grouping ID 00, status
1 (Enabled)
    Channel 1:
        Link 1 configuration:
            lane mask 01, type 07, type extension 01, grouping ID 00, status
0 (Disabled)
```

3.10 amcsetlanconf

3.10.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> <parameter-name> <additional-parameters>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> <parameter-name> <additional-parameters>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> <parameter-number> <additional-parameters>
```

```
amcsetlanconf <IPMB-0 address> <amc-number> <channel> <parameter-number> <additional-parameters>
```

3.10.2 Purpose

This command sets the value of the specified LAN configuration parameter for the specified channel implemented by the Module Management Controller (MMC) on the specified AMC. The AMC address, the channel number, the configuration parameter name or number, and the parameter value should be explicitly specified.

The address of the AMC can be specified in one of the two ways:

1. the IPMB-0 address of the Carrier IPMC and FRU ID of the corresponding subsidiary FRU:

```
<IPMB-0 address> <fru-id>.
```

2. the IPMB-0 address of the Carrier IPMC and the corresponding AMC site number:

```
<IPMB-0 address> amc <amc-number>.
```

The following table lists the names and numbers of LAN configuration parameters supported by the *amcsetlanconf* command:

Table 6: Names and numbers of LAN configuration parameters supported by the *amcsetlanconf* command

PARAMETER NAME	NUMBER	DESCRIPTION
auth_enables	2	Five 8-bit values that contain authentication type enable flags for the Callback, User, Operator, Administrator and OEM privilege levels for the LAN channel.
ip	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation.
ip_source	4	A value that encodes the source of the assigned IP address.
subnet_mask	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation.
ipv4_hdr_param	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP

PARAMETER NAME	NUMBER	DESCRIPTION
		packets: <ul style="list-style-type: none"> • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
<code>arp_control</code>	10	Two flags that control ARP behavior on the LAN channel: <ul style="list-style-type: none"> • Enable responding to ARP requests • Enable sending Gratuitous ARPs
<code>arp_interval</code>	11	The Gratuitous ARP interval in a fixed-point format (where the integral part represents seconds and the fractional part represents milliseconds)
<code>dft_gw_ip</code>	12	A string value that contains the IP address of the default gateway in dotted decimal notation.
<code>backup_gw_ip</code>	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.
<code>community</code>	16	A string value (up to 18 symbols) that is put into the “Community String” field in PET Traps.
<code>destination_type</code>	18	The destination type identified by the specified set selector. Set selector (destination selector) must be specified for this parameter. Each destination type entry contains the following fields: <ul style="list-style-type: none"> • destination table entry selector (0-15) • alert acknowledge flag • alert acknowledge timeout / retry interval in seconds (1-256) • number of retries (0-7)
<code>destination_address</code>	19	The destination addresses associated with the specified set selector. Set selector (destination selector) must be specified for this parameter. Each destination address entry contains the following fields: <ul style="list-style-type: none"> • destination table entry selector (0-15)

PARAMETER NAME	NUMBER	DESCRIPTION
		<ul style="list-style-type: none"> gateway selector: 0 – use default, 1 – use backup IP address (string in dotted decimal format) MAC address (string of 6 hexadecimal byte values delimited by ':' symbols)
<code>vlan_id</code>	20	The flag that indicates whether Virtual LANs are enabled for the channel, and the Virtual LAN ID (a number in the range 1 to 4095, or the value 0, indicating that Virtual LAN IDs are not used for the channel)
<code>vlan_priority</code>	21	A number in the range 0 to 7 that specifies the packet Priority field, according to 802.1q
<code>cs_priv_levels</code>	24	The maximum privilege level associated with the Cipher Suite that is identified by the specified set selector.
<code>hpm2_act_if_group</code>	N/A	The Active Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_def_if_group</code>	N/A	The Default Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_rd_timeout</code>	N/A	The timeout period used by the Module Management Controller (MMC) for managing failovers between Interface Groups.
<code>hpm2_def_rd_timeout</code>	N/A	The default timeout period used by the MMC for managing failovers between Interface Groups.
<code>hpm3_dhcp_value</code>	N/A	The DHCP option value as a sequence of bytes, representing the option number, followed by the block number, followed by up to 16 value bytes

3.10.3 auth_enables

3.10.3.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> auth_enables
<value1> <value2> <value3> <value4> <value5>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
auth_enables <value1> <value2> <value3> <value4> <value5>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 2 <value1>
<value2> <value3> <value4> <value5>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 2
<value1> <value2> <value3> <value4> <value5>
```

3.10.3.2 Purpose

This command sets the value of the LAN parameter *auth_enables*. This parameter indicates which authentication types are currently enabled by the target MMC for each of five supported privilege levels (Callback, User, Operator, Administrator and OEM) and is represented by a sequence of five bytes, each corresponding to the respective privilege level, treated as a bit mask with the following meaning of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Parameters <value1> to <value5> should represent the values of these bytes, in hexadecimal.

3.10.3.3 Examples

```
# clia amcsetlanconf 82 amc 2 2 auth_enables 0 1 1 1 0
Pigeon Point Shelf Manager Command Line Interpreter
Authentication Type Enables set successfully
#
```

3.10.4 ip

3.10.4.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> ip <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> ip
<value>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 3 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 3
<value>
```

3.10.4.2 Purpose

This command sets the IP address used by the channel. The value should represent an IP address in dotted decimal notation.

3.10.4.3 Examples

```
# clia amcsetlanconf 82 amc 2 2 ip 172.16.2.203
Pigeon Point Shelf Manager Command Line Interpreter
IP set successfully
#
```

3.10.5 ip_source

3.10.5.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> ip_source  
<value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
ip_source <value>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 4 <value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 4  
<value>
```

3.10.5.2 Purpose

This command sets the IP address source used by the channel. The numeric value should represent the IP address source in accordance with the IPMI 2.0 specification:

- 0 Unspecified
- 1 Static address (manually configured)
- 2 Address obtained by Shelf Manager running DHCP
- 3 Address loaded by BIOS or system software
- 4 Address obtained by IPM controller running other address assignment protocol

3.10.5.3 Examples

```
# clia amcsetlanconf 82 amc 2 2 ip_source 2  
Pigeon Point Shelf Manager Command Line Interpreter  
IP Address Source set successfully  
#
```

3.10.6 subnet_mask

3.10.6.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> subnet_mask  
<value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
subnet_mask <value>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 6 <value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 6  
<value>
```

3.10.6.2 Purpose

This command sets the IP subnet mask used by the channel. The value should represent a subnet mask in dotted decimal notation.

3.10.6.3 Examples

```
# clia setlanconf 82 amc 1 2 subnet_mask 255.255.255.0  
Pigeon Point Shelf Manager Command Line Interpreter
```

Subnet Mask set successfully

#

3.10.7 ipv4_hdr_param

3.10.7.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> ipv4_hdr_param  
<value1> <value2> <value3>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
ipv4_hdr_param <value1> <value2> <value3>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 7 <value1>  
<value2> <value3>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 7  
<value1> <value2> <value3>
```

3.10.7.2 Purpose

This command sets the IPv4 header parameters for the target MMC. They are represented as 3 single-byte values in hexadecimal notation: <value1>, <value2> and <value3>. The content of the bytes conforms to section 23.2 of the IPMI 2.0 specification and contains the following attributes:

- Time-to-live in byte 1
- IP header flags (bits [7:5]) in byte 2
- Precedence (bits [7:5]) and type of service (bits [4:1]) in byte 3

3.10.7.3 Examples

```
# clia setlanconf 82 3 2 ipv4_hdr_param 37 E0 11
```

Pigeon Point Shelf Manager Command Line Interpreter

IPv4 Header Parameters set successfully

#

3.10.8 arp_control

3.10.8.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> arp_control  
<value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
arp_control <value>
```

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 10 <value>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 10  
<value>
```

3.10.8.2 Purpose

This command sets the current value of the LAN parameter *arp_control*. This parameter indicates additional ARP support provided by the MMC, and is represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable MMC-generated Gratuitous ARPs
- 0x02 Enable MMC-generated ARP responses

Other bits are reserved and should be set to 0.

3.10.8.3 Examples

```
# clia amcsetlanconf 82 amc 2 1 arp_control 3
Pigeon Point Shelf Manager Command Line Interpreter
BMC-generated ARP control set successfully
#
```

3.10.9 arp_interval

3.10.9.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> arp_interval
<value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
arp_interval <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 11 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 11
<value>
```

3.10.9.2 Purpose

This command sets the current ARP interval used by the channel. The value should represent the number of seconds/milliseconds in fixed-point numeric format (with a possible fractional part). Due to the definition of this parameter in IPMI, it is truncated to the largest time interval that is divisible by 500 milliseconds.

3.10.9.3 Examples

```
# clia amcsetlanconf 82 amc 1 2 arp_interval 3.5
Pigeon Point Shelf Manager Command Line Interpreter
Gratuitous ARP interval set successfully
#
```

3.10.10 dft_gw_ip

3.10.10.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> dft_gw_ip
<value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
dft_gw_ip <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 12 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 12
<value>
```

3.10.10.2 Purpose

This command sets the IP address of the default gateway used by the channel. The value should represent an IP address in dotted decimal notation.

3.10.10.3 Examples

```
# clia amcsetlanconfig 82 3 2 dft_gw_ip 172.16.2.100
Pigeon Point Shelf Manager Command Line Interpreter
Default Gateway Address set successfully
#
```

3.10.11 backup_gw_ip

3.10.11.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> backup_gw_ip
<value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
backup_gw_ip <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 14 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 14
<value>
```

3.10.11.2 Purpose

This command sets the IP address of the backup gateway used by the channel. The value should represent an IP address in dotted decimal notation.

3.10.11.3 Examples

```
# clia amcsetlanconf 82 amc 2 2 backup_gw_ip 172.16.2.100
Pigeon Point Shelf Manager Command Line Interpreter
Backup Gateway Address set successfully
#
```

3.10.12 community

3.10.12.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> community
<value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
community <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 16 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 16
<value>
```

3.10.12.2 Purpose

This command sets the community string parameter used in PET traps. The value should be a string enclosed in double quotes.

3.10.12.3 Examples

```
# clia amcsetlanconf 82 amc 1 2 community "Community"
Pigeon Point Shelf Manager Command Line Interpreter
Community string set successfully
#
```

3.10.13 destination_type

3.10.13.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
destination_type <set-selector> <value1> <value2> <value3>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
destination_type <set-selector> <value1> <value2> <value3>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 18 <set-
selector> <value1> <value2> <value3>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 18
<set-selector> <value1> <value2> <value3>
```

3.10.13.2 Purpose

This command sets the element of the destination table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. Values *<value1>*, *<value2>* and *<value3>* supply information about the new destination according to section 23.2 of the IPMI 2.0 specification. The following information is supplied:

- the alert destination type (PET Trap or OEM destination; whether the alert should be acknowledged)
- alert acknowledge timeout
- retry count

3.10.13.3 Examples

```
# clia amcsetlanconf 82 3 2 destination_type 2 80 3 5
Pigeon Point Shelf Manager Command Line Interpreter
Destination Type set successfully
#
```

3.10.14 destination_address

3.10.14.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
destination_address <set-selector> <gateway-sel> <IP-address>
<MAC-address>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
destination_address <set-selector> <gateway-sel> <IP-address>
<MAC-address>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 19 <set-
selector> <gateway-sel> <IP-address> <MAC-address>
```

```
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 19  
<set-selector> <gateway-sel> <IP-address> <MAC-address>
```

3.10.14.2 Purpose

This command sets the element of the destination address table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The command parameters supply the necessary information:

- *<gateway-sel>* - gateway to use: 0 for default gateway, 1 for backup gateway
- *<IP-address>* - the destination IP address in dotted-decimal notation
- *<MAC-address>* - the destination MAC address, six hexadecimal bytes separated by colons

3.10.14.3 Examples

```
# clia amcsetlanconf 82 amc 2 2 destination_address 2 0 172.16.2.100  
90:93:93:93:93:93
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Destination Addresses set successfully  
#
```

3.10.15 vlan_id

3.10.15.1 Syntax

```
amcsetlanconfig <IPMB-0 address> <fru-id> <channel> vlan_id  
(disabled | enabled <value>)  
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
vlan_id (disabled | enabled <value>)  
amcsetlanconfig <IPMB-0 address> <fru-id> <channel> 20 disabled  
| enabled <value>)  
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>  
20(disabled | enabled <value>)
```

3.10.15.2 Purpose

This command enables or disables Virtual LAN support for the channel, and if *enabled*, specifies the Virtual LAN ID to use. If the parameter *disabled* is specified, the VLAN ID in the LAN configuration parameters for the specified MMC is set to 0.

3.10.15.3 Examples

```
# clia setlanconf 82 amc 1 2 vlan_id enabled 4  
Pigeon Point Shelf Manager Command Line Interpreter  
VLAN ID set successfully  
#
```

3.10.16 `vlan_priority`

3.10.16.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> vlan_priority
<value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
vlan_priority <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 21 <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 21
<value>
```

3.10.16.2 Purpose

This command sets the VLAN priority for the channel, that is, the value of the Priority field used in VLAN 802.1q network packet headers.

3.10.16.3 Examples

```
# clia amcsetlanconf 82 3 2 vlan_priority 1
Pigeon Point Shelf Manager Command Line Interpreter
VLAN priority set successfully
#
```

3.10.17 `cs_priv_levels`

3.10.17.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel> cs_priv_levels
<set-selector> <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
cs_priv_levels <set-selector> <value>
amcsetlanconf <IPMB-0 address> <fru-id> <channel> 24 <set-
selector> <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel> 24
<set-selector> <value>
```

3.10.17.2 Purpose

This command sets the maximum privilege level for the Cipher Suite that is identified by the `<set-selector>`. Standard Cipher Suite IDs are defined in the IPMI 2.0 specification, section 22.15.2 and are in the range from 0 to 14. The parameter `<value>` specifies the desired maximum privilege level.

3.10.17.3 Examples

Set the maximum privilege level “Operator” for Cipher Suite 2:

```
# clia amcsetlanconf 82 amc 2 2 cs_priv_levels 2 3
Pigeon Point Shelf Manager Command Line Interpreter
Cipher Suite Privilege Levels set successfully
#
```

3.10.18 hpm2_act_if_group

3.10.18.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_act_if_group <rd_group> <if_group>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_act_if_group <rd_group> <if_group>
```

3.10.18.2 Purpose

This command sets the Active Redundancy Group and Interface Group for the IPMI LAN channel. The parameter *<rd_group>*, which defines the Active Redundancy Group, is a number in the range 0 to 31, or the value 255, indicating that MMC-managed failover is not used. The parameter *<if_group>*, which defines the Active Interface Group, is a number in the range 0 to 31.

3.10.18.3 Examples

```
# clia amcsetlanconf 20 amc 1 1 act_if_group 1 0
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Active Interface Group set successfully
#
```

3.10.19 hpm2_def_if_group

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_def_if_group <rd_group> <if_group>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_def_if_group <rd_group> <if_group>
```

3.10.19.1 Purpose

This command sets the Default Redundancy Group and Interface Group for the IPMI LAN channel. The parameter *<rd_group>*, which defines the Default Redundancy Group, is a number in the range 0 to 31, or the value 255, indicating that MMC-managed failover is not used. The parameter *<if_group>*, which defines the Default Interface Group, is a number in the range 0 to 31.

3.10.19.2 Examples

```
# clia amcsetlanconf 20 3 1 def_if_group 12 3
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Interface Group set successfully
```

3.10.20 hpm2_rd_timeout

3.10.20.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_rd_timeout <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_rd_timeout <value>
```

3.10.20.2 Purpose

This command sets the Redundancy Timeout. The parameter *<value>* is the new value for the parameter in seconds. The range of the possible values is 0..255.

3.10.20.3 Examples

```
# clia amcsetlanconf 20 amc 2 1 rd_timeout 4
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Timeout set successfully
```

3.10.21 hpm2_def_rd_timeout

3.10.21.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
hpm2_def_rd_timeout <value>
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm2_def_rd_timeout <value>
```

3.10.21.2 Purpose

This command sets the Default Redundancy Timeout. The parameter *<value>* is the new value for the parameter in seconds. The range of the possible values is 0..255.

3.10.21.3 Examples

```
# clia setlanconf 20 amc 1 1 def_rd_timeout 12
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Redundancy Timeout set successfully
```

3.10.22 hpm3_dhcp_value

3.10.22.1 Syntax

```
amcsetlanconf <IPMB-0 address> <fru-id> <channel>
hpm3_dhcp_value <option number> <block number> <byte1> [<byte2>
[ ...]]
amcsetlanconf <IPMB-0 address> amc <amc-number> <channel>
hpm3_dhcp_value <option number> <block number> <byte1> [<byte2>
[ ...]]
```

3.10.22.2 Purpose

This command sets the HPM.3 DHCP Option value. All parameters are byte-sized values and must be in the range 0..255. The *<option number>* specifies the DHCP Option number to set. The *<block number>* specifies the 16-byte block number of the option value data. *<byte1>*, ..., *<byteN>* define value bytes. There should be at least one value byte and no more than 16 value bytes. Hexadecimal values must be prefixed with "0x".

3.10.22.3 Examples

Set first 4 bytes of DHCP Option with DHCP option number = 6. Block number is 0; value bytes are 0xFF, 0xFF, 0xFF, 0x00.



```
# clia amcsetlanconf 20 3 1 hpm3_dhcp_value 6 0 0xFF 0xFF 0xFF 0x00  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.3 DHCP Option value set successfully
```


3.11 amcsetsolconf

3.11.1 Syntax

```
amcsetsolconf <IPMB-0 address> <fru-id> <channel> [<port number>] <parameter-name> <additional-parameters>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> [<port number>] <parameter-name> <additional-parameters>
```

```
amcsetsolconf <IPMB-0 address> <fru-id> <channel> <parameter-number> <additional-parameters>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> <parameter-number> <additional-parameters>
```

3.11.2 Purpose

This command sets the value of the specified SOL (Serial-over-LAN) configuration parameter for the specified channel implemented by the Module Management Controller (MMC) of a designated AMC. The AMC address, the channel number, the parameter name and the parameter value should be explicitly specified. The address of the AMC can be specified in one of the two ways:

1. the IPMB-0 address of the Carrier IPMC and FRU ID of the corresponding subsidiary FRU:
<IPMB-0 address> <fru-id>.
2. the IPMB-0 address of the Carrier IPMC and the corresponding AMC site number:
<IPMB-0 address> amc <amc-number>.

The System Serial Port *<port number>* should be specified for the HPM.2 extended SOL configuration parameters.

The following table lists the names and numbers of SOL configuration parameters supported by the *amcsetsolconf* command:

Table 7: Names and numbers of SOL configuration parameters supported by the *amcsetsolconf* command

PARAMETER NAME	NUMBER	DESCRIPTION
enable	1	This parameter controls whether the SOL payload type can be activated
auth	2	The Privilege Level and two flags: Force Encryption and Force Authentication.
character	3	The SOL Character Accumulate Interval and Character Send Threshold
retry	4	The SOL Retry Count and Retry Interval
nv_bit_rate	5	The SOL Non-Volatile Bit Rate
bit_rate	6	The SOL Volatile Bit Rate

PARAMETER NAME	NUMBER	DESCRIPTION
<code>payload_port</code>	8	The SOL Payload Port Number indicates the port number over which the SOL payload can be activated
<code>hpm2_bit_rate</code>	N/A	The HPM.2 Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
<code>hpm2_nv_bit_rate</code>	N/A	The HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
<code>hpm2_character</code>	N/A	The HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_nv_character</code>	N/A	The HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_retry</code>	N/A	The HPM.2 Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_nv_retry</code>	N/A	The HPM.2 Non-Volatile Retry Count and Retry Interval for a System Serial Port

3.11.3 enable

3.11.3.1 Syntax

```

amcsetsolconf <IPMB-0 address> <fru-id> <channel> enable (0|1)
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> enable
(0|1)
amcsetsolconf <IPMB-0 address> <fru-id> <channel> 1 (0|1)
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 1
(0|1)

```

3.11.3.2 Purpose

This command sets the SOL Enable parameter, which controls whether a SOL payload type can be activated.

3.11.3.3 Examples

Set the SOL Enable to 1; SOL payload type can be activated.

```
#cli> amcsetsolconf 82 amc 2 5 enable 1
```

```

Pigeon Point Shelf Manager Command Line Interpreter
SOL Enable is set successfully

```

3.11.4 auth

3.11.4.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> auth <level>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> auth
<level>
amcsetsolconf <IPMB-0 address> <channel> 2 <level>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 2
<level>
```

3.11.4.2 Purpose

This command sets the SOL Privilege Level and two flags: “Force SOL Payload Encryption” and “Force SOL Payload Authentication”, as a single byte. Encoding of the specific fields in this byte is defined in section 26.3 of the IPMI 2.0 specification.

3.11.4.3 Examples

Set the SOL Privilege Level to Operator level.

```
#cli> amcsetsolconf 82 amc 1 5 auth 3
Pigeon Point Shelf Manager Command Line Interpreter
SOL Authentication is set successfully
```

3.11.5 character

3.11.5.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> character <interval>
<threshold>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel>
character <interval> <threshold>
amcsetsolconf <IPMB-0 address> <channel> 3 <interval>
<threshold>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 3
<interval> <threshold>
```

3.11.5.2 Purpose

This command sets the SOL Character Accumulate Interval and the Character Send Threshold. The parameter *<interval>* specifies the Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 5..1275. The parameter *<threshold>* specifies the Character Send Threshold.

3.11.5.3 Examples

Set the SOL Character Accumulate Interval to 15ms and the Character Send Threshold to 3 for channel 5 for AMC #3 at address 82h.

```
#cli> amcsetsolconf 82 3 5 character 15 3
Pigeon Point Shelf Manager Command Line Interpreter
SOL Character Attributes are set successfully
```

3.11.6 retry

3.11.6.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> retry <retry count>  
<retry interval>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> retry  
<retry count> <retry interval>
```

```
amcsetsolconf <IPMB-0 address> channel> 4 <retry count> <retry  
interval>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 4  
<retry count> <retry interval>
```

3.11.6.2 Purpose

This command sets the SOL Retry Count and the SOL Retry Interval used by the channel. The parameter *<retry count>* has values in the range 0..7. If this parameter is set to 0, there will be no retries after a packet is transmitted. The parameter *<retry interval>* specifies the time that the target MMC will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be multiple of 10 within the range 0..2550. If the parameter *<retry interval>* is 0, retries will sent back-to-back.

3.11.6.3 Examples

Set the SOL Retry Count to 4 and the SOL Retry Interval to 30 ms for channel 5 for AMC #2 at address 82h.

```
#clia amcsetsolconf 82 amc 2 5 retry 4 30
```

Pigeon Point Shelf Manager Command Line Interpreter

SOL Retry Count and Interval are set successfully

3.11.7 nv_bit_rate

3.11.7.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> nv_bit_rate <bit rate>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel>  
nv_bit_rate <bit rate>
```

```
amcsetsolconf <IPMB-0 address> <channel> 5 <bit rate>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 5 <bit  
rate>
```

3.11.7.2 Purpose

This command sets the SOL Non-Volatile Bit Rate used by the channel. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0.

3.11.7.3 Examples

Set the SOL Non-Volatile Bit Rate to 7 (38400 bps) for channel 5 for AMC #1 at address 82h.

```
#clia amcsetsolconf 82 amc 1 5 nv_bit_rate 8
```

Pigeon Point Shelf Manager Command Line Interpreter
SOL Non-Volatile Bit Rate is set successfully

3.11.8 bit_rate

3.11.8.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> bit_rate <bit rate>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel>
bit_rate <bit rate>
amcsetsolconf <IPMB-0 address> <channel> 6 <bit rate>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 6 <bit
rate>
```

3.11.8.2 Purpose

This command sets the SOL Volatile Bit Rate used by the channel. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0.

3.11.8.3 Examples

Set the SOL Volatile Bit Rate to 7 (19200 bps) for channel 5 for the AMC on subsidiary FRU #3 at address 82h.

```
#cli> amcsetsolconf 82 3 5 bit_rate 7
Pigeon Point Shelf Manager Command Line Interpreter
SOL Volatile Bit Rate is set successfully
```

3.11.9 payload_port

3.11.9.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> payload_port <port>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel>
payload_port
amcsetsolconf <IPMB-0 address> <channel> 8 <port>
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> 8
<port>
```

3.11.9.2 Purpose

This command sets the SOL Payload Port Number.

3.11.9.3 Examples

Set the SOL Payload Port Number to 127 for channel 5 for AMC #2 at address 82h.

```
#cli> amcsetsolconf 82 amc 2 5 payload_port 127
Pigeon Point Shelf Manager Command Line Interpreter
SOL Payload Port is set successfully
```

3.11.10 hpm2_bit_rate

3.11.10.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_bit_rate <port  
amcselector> <bit rate> <uart settings>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel>  
hpm2_bit_rate <port amcselector> <bit rate> <uart settings>
```

3.11.10.2 Purpose

This command sets the HPM.2 Volatile SOL Bit Rate used by the channel. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0. The parameter *<uart settings>* is a byte value that defines Physical UARTSettings (see section 3.10.1 “HPM.2 SOL configuration parameters” in the HPM.2 specification).

3.11.10.3 Examples

Set the HPM.2 Volatile SOL Bit Rate for System Serial Port 1 of channel 5 for AMC #1 at address 82h. The Volatile Bit Rate is set to 6, which corresponds to 9600 bps.

```
#clia amcsetsolconf 82 amc 1 5 hpm2_bit_rate 1 6 2
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Bit Rate and UART Settings are set successfully

3.11.11 hpm2_nv_bit_rate

3.11.11.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_nv_bit_rate <port  
selector> <bit rate> <uart settings>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> <port  
selector> <bit rate> <uart settings>
```

3.11.11.2 Purpose

This command sets the HPM.2 Non-Volatile SOL Bit Rate used by the channel. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0. The parameter *<uart settings>* is a byte value that defines Physical UART Settings (see section 3.10.1 “HPM.2 SOL configuration parameters” in the HPM.2 specification).

3.11.11.3 Examples

Set the HPM.2 Non-Volatile SOL Bit Rate for System Serial Port 1 of channel 5 for AMC #1 at address 82h. The Volatile Bit Rate is set to 7, which corresponds to 19200 bps.

```
# clia amcsetsolconf 82 amc 1 5 hpm2_nv_bit_rate 1 7 6
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Bit Rate and UART Settings are set successfully

3.11.12 hpm2_character

3.11.12.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_character <port selector> <interval> <threshold>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> hpm2_character <port selector> <interval> <threshold>
```

3.11.12.2 Purpose

This command sets the HPM.2 Volatile Character Accumulate Interval and Character Send Threshold. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<interval>* indicates Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 0..1275. The parameter *<threshold>* indicates Character Send Threshold. This parameter must be within the range 1..255. If both the parameters *<interval>* and *<threshold>* are 0, the global settings will be used.

3.11.12.3 Examples

Set the HPM.2 Volatile Character Accumulate Interval to 5ms and Character Send Threshold to 2 for System Serial Port 1 of channel 5 for the AMC on subsidiary FRU #3 at address 82h.

```
# clia amcsetsolconf 82 3 5 hpm2_character 1 5 2
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Character Attributes are set successfully

3.11.13 hpm2_nv_character

3.11.13.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_nv_character <port selector> <interval> <threshold>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> hpm2_nv_character <port selector> <interval> <threshold>
```

3.11.13.2 Purpose

This command sets the HPM.2 Non-Volatile Character Accumulate Interval and the Character Send Threshold. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<interval>* indicates the Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 0..1275. The parameter *<threshold>* indicates the Character Send Threshold. This parameter must be within the range 1..255. If both the parameters *<interval>* and *<threshold>* are 0, the global settings will be used.

3.11.13.3 Examples

Set the HPM.2 Non-Volatile Character Accumulate Interval to 15ms and the Character Send Threshold to 1 for System Serial Port 1 of channel 5 for AMC #2 at address 82h.

```
# clia amcsetsolconf 82 amc 2 5 hpm2_nv_character 1 15 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Character Attributes are set successfully

3.11.14 hpm2_retry

3.11.14.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_retry <port selector> <retry count> <retry interval>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> hpm2_retry <port selector> <retry count> <retry interval>
```

3.11.14.2 Purpose

This command sets the HPM.2 Volatile Retry Count and Retry Interval. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<retry count>* has values in the range 0..7. If this parameter is set to 0, there will be no retries after a packet is transmitted. The parameter *<retry interval>* indicates the time that the MMC will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be a multiple of 10 within the range 0..2550. If both the parameters *<retry count>* and *<retry interval>* are 0, the global settings will be used.

3.11.14.3 Examples

Set the HPM.2 Volatile Retry Count to 3 and Retry Interval to 20ms for System Serial Port 1 of channel 5 for AMC #1 at address 82h.

```
# clia amcsetsolconf 82 amc 1 5 hpm2_retry 1 3 20
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Retry Count and Interval are set successfully
```

3.11.15 hpm2_nv_retry

3.11.15.1 Syntax

```
amcsetsolconf <IPMB-0 address> <channel> hpm2_nv_retry <port selector> <retry count> <retry interval>
```

```
amcsetsolconf <IPMB-0 address> amc <amc-number> <channel> hpm2_nv_retry <port selector> <retry count> <retry interval>
```

3.11.15.2 Purpose

This command sets the HPM.2 Non-Volatile Retry Count and Retry Interval. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<retry count>* has values in the range 0..7. If this parameter is set to 0, then there will be no retries after a packet is transmitted. The parameter *<retry interval>* indicates the time that the MMC will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be multiple of 10 within the range 0..2550. If both the parameters *<retry count>* and *<retry interval>* are 0, the global settings will be used.

3.11.15.3 Examples

Set the HPM.2 Non-Volatile Retry Count to 5 and Retry Interval to 60ms for System Serial Port 1 of channel 5 for the AMC on subsidiary FRU #3 at address 82.

```
# clia amcsetsolconf 82 3 5 hpm2_nv_retry 1 5 60
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Retry Count and Interval are set successfully

3.12 axie

3.12.1 Syntax

axie <subcommand>

The following subcommands are supported:

- *sequencing*

3.12.2 Purpose

This command shows AXIe-related information. Currently the only supported subcommand is *sequencing* that shows information about the AXIe sequencing state machine.

3.12.3 sequencing

3.12.3.1 Syntax

axie sequencing

3.12.3.2 Purpose

This command displays information about the current state of the AXIe sequencing state machine, the current AXIe power monitor state of the shelf, and the IPMB addresses of current PCI Express (PCIe) hosts.

The command takes no parameters. The IPMI sensors associated with this facility (such as “all modules are in M4”) are defined on a shelf-specific basis by the HPDL (Hardware Platform Description Language) for the shelf.

The states for the AXIe sequencing state machine are defined as follows:

Table 8: AXIe sequencing states

STATE	DESCRIPTION
0 = Initial	<p>Initial state; the Shelf Manager is in this state after the initial power up or a power cycle caused by the Power Switch.</p> <p>On entry to this state, the Shelf Manager turns on the “Enumeration Not Ready” signal, turns off the “All modules are in M4” signal, sets to “deasserted” the “all Modules are in M4” sensor for the System Manager.</p> <p>In this state, AXIe modules are not powered but can be E-Keyed; the system module is not E-Keyed in this state.</p>
1 = E-Keying System Module	<p>The system module is being E-Keyed. The Shelf Manager transitions to this state after all other modules are E-Keyed and then proceeds to E-Key the system module.</p>

STATE	DESCRIPTION
2 = Power On_AXIe FRUs	All AXIe modules are being powered (except M9536 [†] modules E-Keyed as PCIe hosts). The Shelf Manager transitions to this state after the system module is E-Keyed.
3 = Wait for AXIe FRUs in M4	<p>The Shelf Manager waits for all modules (except M9536 modules E-Keyed as PCIe hosts) to achieve state M4. The Shelf Manager transitions to this state after all modules (except M9536 modules E-Keyed as PCIe hosts) are powered.</p> <p>The duration of this state is controlled by a user-configurable timeout; after the expiration of the timeout, the Shelf Manager transitions to the next state even if the requisite modules are not in M4.</p>
4 = Startup Delay	<p>The Shelf Manager turns off the “Enumeration Not Ready” output signal, turns on the “All modules are in M4” signal, sets to “asserted” the “all Modules are in M4” sensor for the System Manager.</p> <p>After that, the Shelf Manager stays in this state for the number of milliseconds indicated by the “startup delay” configuration parameter.</p>
5 = Wait for Enumeration Ready	<p>The Shelf Manager waits for the “Enumeration Not Ready” input signal to be deasserted.</p> <p>The duration of this state is controlled by a user-configurable timeout; after the expiration of the timeout, the Shelf Manager transitions to the next state even if that input signal has not been deasserted.</p>
6 = Wait for System Manager Ready	<p>The Shelf Manager waits for the System Manager to issue the Pentair-specific command “AXIe Allow Enable PCIe Hosts”.</p> <p>The duration of this state is controlled by a user-configurable timeout; after the expiration of the timeout, the Shelf Manager transitions to the next state even if that command has not been received.</p>
7 = Sending Set PCIe Host State	The Shelf Manager sends the AXIe-specific command “AXIe Set PCIe Host State” to every module that has been E-Keyed as a PCIe host.

[†] “M9536 module” refers to the Agilent M9536A AXIe Embedded Controller.

STATE	DESCRIPTION
8 = Power on M9536 Hosts	The Shelf Manager powers on the M9536 modules that have been E-Keyed as PCIe hosts.
9 = Finished	Final state; in this state, power sequencing has been completed.

The AXIe power monitor states are defined as follows:

Table 9: AXIe power monitor states

STATE	DESCRIPTION
0 = Power Up Requested	The shelf has received a power up request. This may be the initial power up or power up request after a power down. The shelf stays in this state during initial power up and normal operation.
1 = Power Down Requested	This is a transitional state, indicating that a hardware request to power down the shelf has been received and the shelf is currently powering down, starting with the PCIe hosts.
2 = Host Power Down Complete	This is a transitional state, indicating that all PCIe hosts have been powered down and now the Shelf Manager is powering down the rest of the FRUs.
3 = Power Down Complete	This state indicates that all FRUs have been powered down as a result of a previous power down request. The Shelf Manager is now in the idle state waiting for a possible power up request.

3.12.3.3 Examples

Get information about the current AXIe sequencing, power monitor states and PCI Express hosts, if any.

```
# clia axie sequencing
```

```
Pigeon Point Shelf Manager Command Line Interpreter
AXIe Sequencing State: 5 (Wait for Enumeration Ready)
AXIe Power Monitor State: 0 (Power Up Requested)
PCIe Host(s): 82
#
```

3.13 board

3.13.1 Syntax

board [-v] [<physical-slot-address>]

3.13.2 Purpose

This command and the *boardreset* command are different from most of the rest of the command set in that they work with ATCA or CompactPCI boards and take as arguments physical slot numbers, instead of IPM controller addresses and FRU device IDs.

This makes them easier for the end user and allows their use in CompactPCI contexts, where boards may not include an IPM controller and therefore, are not easily addressable using the IPMB address – FRU device ID pair.

This command shows information about each IPM controller in the range of IPMB addresses allocated to CompactPCI/ATCA slots, and about each additional FRU represented by those controllers. This command is a short-hand version of the *fru* command and the information displayed is the same.

The range of IPMB addresses is 82h-A0h for PICMG 3.0 systems and B0h-ECh for PICMG 2.9 systems, where boards have IPM controllers on them. In generic PICMG 2.x systems, where boards do not necessarily have IPM controllers on them, there may be no IPM controller address or FRU device ID defined. In that case, only the *board* and *boardreset* commands among the CLI commands are applicable.

The physical address should be specified as a decimal number. For PICMG 3.0 systems, the correspondence between physical addresses and IPMB addresses is specified in the Shelf FRU Information. If the Shelf FRU Information does not contain an address table, (which would only occur in a non-compliant ATCA shelf) the following mapping table (mapping of logical slot numbers) is used.

Table 10: Mapping between ATCA logical slot numbers and IPMB addresses

LOGICAL SLOT NUMBER	IPMB ADDRESS	LOGICAL SLOT NUMBER	IPMB ADDRESS
1	82	9	92
2	84	10	94
3	86	11	96
4	88	12	98
5	8A	13	9A
6	8C	14	9C
7	8E	15	9E
8	90	16	AE

For PICMG 2.9 based systems, the following mapping between Slot Number and IPMB address is used. “Slot Number” refers to the PICMG 2.x concept of “Physical Slot Number”.

Table 11: Mapping between CompactPCI physical slot numbers and IPMB addresses

PHYSICAL SLOT NUMBER	IPMB ADDRESS	PHYSICAL SLOT NUMBER	IPMB ADDRESS
1	B0	16	D0
2	B2	17	D2
3	B4	18	D4
4	B6	19	D6
5	B8	20	D8
6	BA	21	DA
7	BE	22	DC
8	BC	23	DE
9	C0	24	E0
10	C2	25	E2
11	C4	26	E4
12	C6	27	E6
13	C8	28	E8
14	CC	29	EA
15	CE	30	EC

3.13.3 Example

Get standard information about all boards in the shelf (where only physical slots 1 and 14 happen to be occupied).

```
# clia board
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Physical Slot # 1
```

```
82: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x08
```

```
    PICMG Version 2.3
```

```
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last
    State Change Cause: Normal State Change (0x0)
```

```
82: FRU # 0
```

```
    Entity: (0xa0, 0x60)
```

```
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last
    State Change Cause: Normal State Change (0x0)
```

```
    Device ID String: Emulated IPMC
```

```
Physical Slot # 14
```

```
9c: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x08
```

```
    PICMG Version 2.3
```

```
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last
    State Change Cause: Normal State Change (0x0)
```

```
9c: FRU # 0
```

```
    Entity: (0xa0, 0x60)
```



Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID String: Emulated IPMC

#

Get verbose information about a board in physical slot 14.

clia board -v 14

Pigeon Point Shelf Manager Command Line Interpreter

Physical Slot # 14

9c: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x08

PICMG Version 2.3

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID: 0x00, Revision: 0, Firmware: 1.01, IPMI ver 1.5

Manufacturer ID: 00315a (PICMG), Product ID: 0000, Auxiliary Rev: 01ac1014

Device ID String: Emulated IPMC

Global Initialization: 0x0, Power State Notification: 0x0, Device Capabilities: 0x29

Controller provides Device SDRs

Supported features: 0x29

Sensor Device FRU Inventory Device IPMB Event Generator

9c: FRU # 0

Entity: (0xa0, 0x60)

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID String: Emulated IPMC

Site Type: 0x00, Site Number: 14

Current Power Level: 0x01, Maximum Power Level: 0x01, Current Power Allocation: 20.0 Watts

#

3.14 boardreset

3.14.1 Syntax

boardreset <physical-slot-address>

3.14.2 Purpose

This command resets the board in the specified physical slot, sending it the IPMI command “FRU Control (Cold Reset)”.

The physical address should be specified as a decimal number. For PICMG 3.0 systems, correspondence between physical addresses and IPMB addresses is specified in the Shelf FRU Information. If the Shelf FRU Information does not contain an address table, (which would only be true in a non-compliant ATCA shelf) the following mapping is used. FRU device ID is 0.

Table 12: Mapping PICMG 3.0 logical slot numbers

LOGICAL SLOT NUMBER	IPMB ADDRESS	LOGICAL SLOT NUMBER	IPMB ADDRESS
1	82	9	92
2	84	10	94
3	86	11	96
4	88	12	98
5	8A	13	9A
6	8C	14	9C
7	8E	15	9E
8	90	16	A0

In PICMG 2.x contexts, the Shelf Manager uses the radial board reset signal line, if available. Otherwise, if the radial BD_SEL# line is available, the Shelf Manager uses that mechanism to power cycle the board. In generic PICMG 2.x systems, where boards do not have IPM controllers on them, there may be no direct association between the physical slot number and the IPM controller and FRU device ID pair. In that case, CLI commands other than *board* and *boardreset* are not applicable to boards in physical slots.

For PICMG 2.9 based systems, the following CompactPCI Peripheral address mapping table is used:

Table 13: Mapping between CompactPCI physical slot numbers and IPMB addresses

PHYSICAL SLOT NUMBER	IPMB ADDRESS	PHYSICAL SLOT NUMBER	IPMB ADDRESS
1	B0	16	D0
2	B2	17	D2
3	B4	18	D4
4	B6	19	D6

PHYSICAL SLOT NUMBER	IPMB ADDRESS	PHYSICAL SLOT NUMBER	IPMB ADDRESS
5	B8	20	D8
6	BA	21	DA
7	BC	22	DC
8	BE	23	DE
9	C0	24	E0
10	C4	25	E2
11	C6	26	E4
12	C8	27	E6
13	CA	28	E8
14	CC	29	EA
15	CE	30	EC

3.14.3 Examples

Reset the board in physical slot 14 (IPMB address 9Ch, FRU 0).

```
# cli boardreset 14
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Board 14 reset, status returned 0
```

```
#
```

3.15 busres

3.15.1 Syntax

busres <subcommand>

The following subcommands are supported:

- *info* [<resource>]
- *release* <resource>
- *force* <resource>
- *lock* <resource>
- *unlock* <resource>
- *query* [-v] <resource> [<target> [nouupdate]]
- *setowner* <resource> <target>
- *sendbusfree* <resource> <target>

3.15.2 Purpose

This command shows information about the current state of the Bused E-Keying-managed resources and allows changing that state.

All subcommands accept a resource ID as one of the parameters. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

The following subsections describe the syntax of the several variations of the *busres* command.

3.15.3 info

3.15.3.1 Syntax

busres info [<resource>]

3.15.3.2 Purpose

This command displays information about the current state of the specified resource or all resources, if the resource ID is not specified.

The parameter <resource> is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1

- 3 | *clk2* --Synch Clock group 2

3.15.3.3 Examples

Get information about the state of Metallic Test Bus pair 2.

```
# clia busres info mtb2
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Metallic Test Bus pair 2 (ID 1): Owned by IPMC 0x82, Locked  
#
```

3.15.4 release | force <resource>

3.15.4.1 Syntax

```
busres release | force <resource>
```

3.15.4.2 Purpose

This command sends the “Bused Resource Control” request to the current owner of the resource, instructing it to release the resource. If the command syntax is *busres release <resource>*, the “Bused Resource Control (Release)” command is sent. If the command is *busres force <resource>*, the “Bused Resource Control (Force)” command is sent. See section 3.7.3.4 of the PICMG 3.0 specification for a detailed description of these ATCA commands.

The parameter *<resource>* is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

3.15.4.3 Examples

Force releasing Metallic Test Bus pair 2 by the current owner.

```
# clia busres force mtb2
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Force operation succeeded  
#
```

3.15.5 lock | unlock

3.15.5.1 Syntax

```
busres lock | unlock <resource>
```

3.15.5.2 Purpose

This command locks (*busres lock <resource>*) or unlocks (*busres unlock <resource>*) the specified resource. If the resource is locked, when another IPM controller sends the “Bused Resource Control (Request)” command to the Shelf Manager, the Shelf

Manager responds with the Deny status. If the resource is unlocked, when another IPM controller sends the “Bused Resource Control (Request)” command to the Shelf Manager, the Shelf Manager responds with Busy status and sends the “Bused Resource Control (Release)” to the current owner. If the current owner releases the resource, on the next request, this resource will be granted to the requestor.

Please note that only the resources that are owned by some IPM controller can be locked. Also, as soon as the current owner releases the resource, the lock is also removed from this resource.

The parameter *<resource>* is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

3.15.5.3 Examples

Lock Synch Clock group 3.

```
# clia busres lock clk3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Lock operation succeeded
```

```
#
```

3.15.6 query

3.15.6.1 Syntax

```
busres [-v] query <resource> [<target> [noupdate]]
```

3.15.6.2 Purpose

This command sends the “Bused Resource Control (Query)” request to the specified IPM controller. If the IPM controller is not specified in the command line, the request is sent to the current owner of the resource. Upon receiving the response, appropriate changes are made in the resource table (for example, if the IPM controller that is believed to be the current owner responds with the No Control status, the table is modified to reflect that fact), unless the *noupdate* flag is provided. If this flag is passed in the command line, no changes to the resource table are made based on the received information.

The parameter *<resource>* is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

The parameter *<target>* specifies the IPM controller to which the request will be sent. It can either be an IPMB address of the IPM controller, or a symbolic name: *board <N>*, *fan_tray <N>*, or *power_supply <N>*, where *<N>* is the number of the board, fan tray, or power supply respectively, exactly as for *clia ipmc* command.

The flag *noupdate*, if present, indicates that the information received in response to the Query request should not be used to update the resource table. In the current revision of the Shelf Manager, no additional information is provided if *-v* flag is specified.

3.15.6.3 Examples

Send query for Metallic Test Bus pair 1 to the IPM controller with address 82h.

Don't update the resource table based on the response.

```
# clia busres query mtb1 0x82 noupdate
Pigeon Point Shelf Manager Command Line Interpreter
No Control: IPMC 0x82 is not the owner of resource 0
#
```

3.15.7 setowner

3.15.7.1 Syntax

busres setowner <resource> <target>

3.15.7.2 Purpose

Warning: This command is for experienced users. Use it with care and only when you know what you are doing!

This command directly sets the owner of the specified resource in the resource table. It doesn't send a "Bused Resource Control" command, even if the resource had a different owner before executing the command. This is a low-level command that should be used for testing and recovery purposes only.

The parameter *<resource>* is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

The parameter *<target>* specifies the IPM controller that is set as the owner of the resource. It can either be an IPMB address of the IPM controller, or a symbolic name: *board <N>*, *fan_tray <N>*, or *power_supply <N>*, where *<N>* is the number of the board, fan tray, or power supply respectively, exactly as for the *clia ipmc* command. Use 0 as the IPMB address to specify that the resource is not owned by any IPM controller.

3.15.7.3 Examples

Set board 1 as the new owner for Metallic Test Bus pair 1.

```
# clia busres setowner mtb1 board 1
Pigeon Point Shelf Manager Command Line Interpreter
New owner is set successfully
#
```

3.15.8 sendbusfree

3.15.8.1 Syntax

```
busres sendbusfree <resource> <target>
```

3.15.8.2 Purpose

Warning: This command is for experienced users. Use it with care and only when you know what you are doing!

This command sends the “Bused Resource Control (Bus Free)” request to the specified IPM controller. No operation is performed on the resource before sending the request even if a different IPM controller owns it. However, the resource table is updated based on the response to this request. That is, if the IPM controller accepts ownership of the resource, it is set as the new owner in that table. This is a low-level command that should be used for testing and recovery purposes only.

The parameter *<resource>* is the resource ID. The resource ID is either a 0-based resource number or a short resource name, as follows:

- 0 | *mtb1* --Metallic Test Bus pair 1
- 1 | *mtb2* --Metallic Test Bus pair 2
- 2 | *clk1* --Synch Clock group 1
- 3 | *clk2* --Synch Clock group 2

The parameter *<target>* specifies the IPM controller, to which the request is sent. It can either be an IPMB address of the IPM controller, or a symbolic name: *board <N>*, *fan_tray <N>*, or *power_supply <N>*, where *<N>* is the number of the board, fan tray, or power supply respectively, exactly as for *clia ipmc* command. Use 0 as the IPMB address to specify that the resource is not owned by any IPM controller.

3.15.8.3 Examples

Send a Bus Free request for Metallic Test Bus pair 1 to the IPM controller with address 82h.

```
# clia busres sendbusfree mtb1 0x82
Pigeon Point Shelf Manager Command Line Interpreter
IPMC rejected ownership of the resource
```

3.16 cooling

3.16.1 Syntax

```
cooling reset  
cooling info  
cooling lkmin [<value>]  
cooling ukmin [<value>]  
cooling tc [<value>]  
cooling tc2 [<value>]  
cooling tc3 [<value>]
```

3.16.2 Purpose

This command controls the cooling algorithm for certain specific Shelf Manager carriers. It implements several subcommands.

The subcommand *reset* has no parameters and resets the current state of the cooling algorithm, restarting the algorithm state machine from the initial state.

The subcommand *info* has no parameters and shows information about the current state of the cooling algorithm.

The subcommand *lkmin* has an optional parameter *<value>* that sets the new value of the cooling algorithm parameter LK_{\min} (the lower limit of the lower boundary of the fan speed control range). If no new value is specified, the current value of the cooling algorithm parameter LK_{\min} is shown.

The subcommand *ukmin* has an optional parameter *<value>* that sets the new value of the cooling algorithm parameter UK_{\min} (the upper limit of the lower boundary of the fan speed control range). If no new value is specified, the current value of the cooling algorithm parameter UK_{\min} is shown.

The subcommand *tc* has an optional parameter *<value>* that sets the new value of the cooling algorithm parameter *tc* (the time constant: fan speed is decreased if fan speed is not minimum and there are no Upper Temperature Events within $tc \times 10$ seconds). If no new value is specified, the current value of the cooling algorithm parameter *tc* is shown.

The subcommand *tc2* has an optional parameter *<value>* that sets the new value of the cooling algorithm parameter tc_2 (the second time constant: the fan speed control range is shifted down if it is not at minimum and there are no Upper Temperature Events within $tc_2 \times tc \times 10$ seconds). If no new value is specified, the current value of the cooling algorithm parameter tc_2 is shown.

The subcommand *tc3* has an optional parameter *<value>* that sets the new value of the cooling algorithm parameter tc_3 (the third time constant: the fan speed control range is shifted up if it is not at maximum and there is an assertion of an Upper Temperature Event within $tc_3 \times 10$ seconds after the fan speed adjusting parameter has been decreased or a previous deassertion of an Upper Temperature Event). If no new value is specified, the current value of the cooling algorithm parameter tc_3 is shown.

The values of cooling algorithm parameters LK_{\min} , UK_{\min} , tc , tc_2 , tc_3 are persistently stored in the file `/var/nvdata/cooling_parameters`. When any of the parameters is changed by this CLI command, the new value is propagated to the backup Shelf Manager and the persistent storage is updated on both Shelf Managers.

Note: This command requires special carrier-specific support and is not implemented for all ShMM carriers. If the command is not implemented for the current carrier, an error message is shown when this command is used.

3.16.3 Examples

```
# clia cooling info
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Cooling (ver.5):
```

```
    LKmin = -1
```

```
    Kmin = -1
```

```
    UKmin = 2
```

```
    Kmax = 3
```

```
    K = 0
```

```
    tc = 36
```

```
    tc2 = 27
```

```
    tc3 = 90
```

```
# clia cooling reset
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Cooling (ver.5): reset.
```


3.17 deactivate

3.17.1 Syntax

```
deactivate <IPMB-address> <fru_id>
deactivate board <N>
deactivate shm <N>
deactivate fan_tray <N>
deactivate power_supply <N>
deactivate pem <N>
deactivate <IPMB-address> amc <M>
deactivate board <N> amc <M>
```

3.17.2 Purpose

This command sends the IPMI command “Set FRU Activation (Deactivate FRU)” to the specified FRU. The FRU is specified using the IPMB address of the owning IPM controller and the FRU device ID. FRU device ID 0 designates the IPM controller proper in PICMG 3.0 contexts. In PICMG 2.x contexts, the Shelf Manager emulates this command in the best possible way for each specific type of FRU. Attempting to deactivate an already inactive FRU does nothing.

Note: Programmatic deactivation of the active Shelf Manager (such as via the command `clia deactivate 0x20`) does not affect the Shelf Manager functionality and does not cause a switchover to the other Shelf Manager. However, programmatic deactivation of the physical Shelf Manager IPM controller on the active Shelf Manager causes a switchover to the backup Shelf Manager if the configuration variable `SWITCHOVER_ON_HANDLE_OPEN` is set to `TRUE` (remembering that the default value of this parameter is carrier-dependent) and if the backup Shelf Manager is available for switchover. Please see the section 6.2.15 for more information on this topic.

3.17.3 Examples

Deactivate the IPM controller proper at address 9Ch.

```
# clia deactivate 9c 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
    Command executed successfully
```

```
# clia deactivate b 4 amc 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
    Command executed successfully
```

3.18 debuglevel

3.18.1 Syntax

```
debuglevel [ <new-value> [<new-console-value>]]
```

3.18.2 Purpose

This command shows the current debug levels for the Pigeon Point Shelf Manager (for both the system log and the console), or sets them to new values if new values are specified.

The debug level is a hexadecimal number in the range 0x0000 to 0x00FF that is treated as a bit mask. Each bit in the mask, when set, enables debug output of a specific type:

- 0x0001 Error messages
- 0x0002 Warning messages
- 0x0004 Informational messages
- 0x0008 Verbose informational messages
- 0x0010 Trace messages
- 0x0020 Verbose trace messages
- 0x0040 Messages displayed for important commands sent to the IPM controllers during their initialization
- 0x0080 Verbose messages about acquiring and releasing internal locks

Starting with release 2.4.4, separate debug levels can be set for Shelf Manager output to the system log versus output to the console. This makes it possible, for example, to reserve the system console for only serious error messages, while preserving the normal verbosity of the Shelf Manager output to the system log.

This command, when issued without parameters, shows the current debug level values for both system log and console. If both levels have the same value, only a single line of output is produced.

This command, when issued with a single parameter *<new-value>*, sets the specified debug level for output to both the system log and the console.

If this command is invoked with two parameters, the first parameter specifies the debug level for system log output and the second parameter specifies the debug level for console output.

The default debug level for the Shelf Manager is 0x0007 (for both the system log and the console), but this value can be overridden in the Shelf Manager configuration file (separately for the system log and the console), or during Shelf Manager startup using the *-v* option in the command line (for both the system log and the console).

This command can also be issued on the backup Shelf Manager.

3.18.3 Examples

Get current debug levels, and then set both of them to 0x001F. Here, the command *debuglevel* works in a mode compatible with previous releases.

```
# cli debuglevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Debug Mask is 0x0007
```

```
#
```

```
# cli debuglevel 1f
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Debug Mask is set to 0x001f
```

```
#
```

```
# cli debuglevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Debug Mask is 0x001f
```

```
#
```

Set the system log debug level mask to 0x0007 (informational) and the console mask to 0x0003 (errors and warnings only).

```
# cli debuglevel 7 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Debug Mask is set to 0x0007
```

```
Console Debug Mask is set to 0x0003
```

```
#
```

```
# cli debuglevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Debug Mask is 0x0007
```

```
Console Debug Mask is 0x0003
```

```
#
```

3.19 dhcp

3.19.1 Syntax

dhcp restart

dhcp [-v] status

3.19.2 Purpose

This command is used to control the operation of the DHCP client in the Shelf Manager.

Starting from release 3.6.0, two DHCPv4 clients (the legacy one and the new one) are supported in the Shelf Manager (all variants) and DHCPv6 client functionality is implemented (the latter on ShMM-700 only). By default, the new client is used; to run the legacy client instead, set the configuration parameter *ENABLE_NEW_DHCPV4_CLIENT* to *FALSE*.

The CLI command *dhcp* is applicable to both the legacy and the new DHCPv4 clients, and to the DHCPv6 client (except option *-v* in the subcommand *status*, that does not make any difference in the case of the legacy client).

The subcommand *restart* can be used to restart the DHCP client (both DHCPv4 and DHCPv6) and update the IP addresses and other network parameters of the Shelf Manager via DHCP. For example, this subcommand can be useful if the configuration of the DHCP Server has been changed.

The subcommand *status* allows the user to inspect the current status of the DHCP client.

For the legacy DHCPv4 client, status is reported separately for each of the two network adapters used by the Shelf Manager and the output information for the *status* subcommand command is in the following format:

```
DHCP Client: <adapter-1>: <status>; <adapter-2>: <status>
```

Where *<adapter-1>* and *<adapter-2>* are the names of the first and the second network adapters used by the Shelf Manager, and *<status>* is one of the following:

- “completed” – the DHCP client completed the retrieving of LAN parameters, the new parameters have been applied;
- “started” – the DHCP client received a start request and is now in the process of retrieving the LAN parameters from the DHCP server;
- “not started” – the DHCP client has not been started yet;
- “stopped” – the DHCP client has been stopped;
- “error occurred” – an unexpected error has occurred in the interaction between the client and the DHCP server;
- “not used” - the DHCP client is not enabled in Shelf Manager configuration and not used for the given adapter.

For the new DHCPv4 client and for the DHCPv6 client, the *status* subcommand shows information about current leases and requests for leases, and network interfaces for which the leases have been requested. The following information is shown:

- Network interface name and the Shelf Manager LAN channel mapped to this interface.

- Type of the lease: DHCPv4 or DHCPv6
- Client ID used to obtain the lease (DUID and IAID in the case of DHCPv6)
- For the DHCPv4 client, the name of the network interface to which the address is assigned (which can be an alias of the actual interface name, e.g. "eth0:1")
- Lease state according to the protocol, e.g. BOUND, REQUESTING, RENEWING, etc.; state names are different between DHCPv4 and DHCPv6
- The IP address received from the server, with the network mask (DHCPv4) or network prefix (DHCPv6)
- The address of the DHCP server that provided the lease
- Values of the protocol timers

In verbose mode, additionally, the active protocol timers for the lease and their expiration times are shown.

If the DHCPv6 client is operational, the combined output format for the *status* subcommand depends on which DHCPv4 client is working. If the new DHCPv4 client is in use, the information about DHCPv4 and DHCPv6 leases is shown mixed in the output. If the old DHCPv4 client is in use, the DHCPv4 client status is shown first, then the status of the DHCPv6 leases is shown separately.

3.19.3 Examples

This following command restarts the DHCP client:

```
# clia dhcp restart
Pigeon Point Shelf Manager Command Line Interpreter
    DHCP client restarted successfully.
#
```

This command shows current status of the DHCP client if the legacy DHCPv4 client is used and the DHCPv6 client is not active:

```
# clia dhcp status
Pigeon Point Shelf Manager Command Line Interpreter
DHCP Client: "eth0": completed; "eth1": completed
#
```

This command shows current status of the DHCP client if the new DHCPv4 client is used, and the DHCPv6 client is not active:

```
# clia dhcp status
Pigeon Point Shelf Manager Command Line Interpreter
DHCP status:
    Interface: eth1; Channel: 2
    DHCPv4 local address client:
    Client ID: FF 00 00 00 01 00 02 00 00 31 5A 48 50 4D 2E 33
                2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
                00 00 00 00 00 00 00 03 02 00 00
    Network device: eth1
```

```
State: BOUND
Received address: 172.16.0.167 mask 255.255.0.0
Server address: 172.16.0.105
T1: 600 sec; T2: 1050 sec; Lease time: 1200 sec
Interface: eth1.8; Channel: 2
DHCPv4 Shelf Manager IP address client:
Client ID: FF 00 00 00 01 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 00 00 00
Network device: eth1.8
State: BOUND
Received address: 192.168.5.100 mask 255.255.255.0
Server address: 192.168.5.33
T1: 60 sec; T2: 105 sec; Lease time: 120 sec
Interface: eth0; Channel: 1
DHCPv4 local address client:
Client ID: FF 00 00 00 00 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 02 00 00
Network device: eth0
State: BOUND
Received address: 172.16.0.161 mask 255.255.0.0
Server address: 172.16.0.105
T1: 600 sec; T2: 1050 sec; Lease time: 1200 sec
Interface: eth0.8; Channel: 1
DHCPv4 Shelf Manager IP address client:
Client ID: FF 00 00 00 00 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 00 00 00
Network device: eth0.8
State: BOUND
Received address: 192.168.5.101 mask 255.255.255.0
Server address: 192.168.5.33
T1: 60 sec; T2: 105 sec; Lease time: 120 sec
```

#

This command shows detailed status of the DHCP client if the new DHCPv4 client is used, and the DHCPv6 client is also active:

```
# clia dhcp -v status
```

Pigeon Point Shelf Manager Command Line Interpreter

DHCP status:

```
Interface: eth1; Channel: 2
DHCPv4 local address client:
Client ID: FF 00 00 00 01 00 02 00 00 31 5A 48 50 4D 2E 33
```

```
2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 03 02 00 00
```

Network device: eth1

State: BOUND

Received address: 172.16.0.167 mask 255.255.0.0

Server address: 172.16.0.105

T1: 600 sec; T2: 1050 sec; Lease time: 1200 sec

Active Timers:

Valid: expires at 19:21:31 on Oct 08,2015

Preferred: expires at 19:21:31 on Oct 08,2015

T2: expires at 19:19:01 on Oct 08,2015

T1: expires at 19:11:31 on Oct 08,2015

Interface: eth1.8; Channel: 2

DHCPv6 local address client:

```
DUID: 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C4 54 45
      53 54 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 03 02 00 00
```

IAID: 1

State: BOUND

Received address: 3ffe:302:11:2:1499:25c5:6a83:c24d/64

Server address: 3ffe:302:11:2::7a

T1: 11520 sec; T2: 18432 sec; Preferred Lifetime: 69120 sec; Valid Lifetime: 103680 sec

Active Timers:

Valid: expires at 23:49:30 on Oct 09,2015

Preferred: expires at 14:13:30 on Oct 09,2015

T2: expires at 00:08:42 on Oct 09,2015

T1: expires at 22:13:30 on Oct 08,2015

DHCPv4 Shelf Manager IP address client:

```
Client ID: FF 00 00 00 01 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 00 00 00
```

Network device: eth1.8

State: BOUND

Received address: 192.168.5.100 mask 255.255.255.0

Server address: 192.168.5.33

T1: 60 sec; T2: 105 sec; Lease time: 120 sec

Active Timers:

Valid: expires at 19:03:33 on Oct 08,2015

Preferred: expires at 19:03:33 on Oct 08,2015

T2: expires at 19:03:18 on Oct 08,2015

T1: expires at 19:02:33 on Oct 08,2015

DHCPv6 Shelf Manager IP address client:

```
DUID: 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C4 54 45
      53 54 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 03 00 00 00

IAID: 1
State: BOUND
Received address: 3ffe:302:11:2:adf9:6071:bce1:ec81/64
Server address: 3ffe:302:11:2::7a
T1: 11520 sec; T2: 18432 sec; Preferred Lifetime: 69120 sec; Valid
Lifetime: 103680 sec
Active Timers:
  Valid: expires at 23:49:31 on Oct 09,2015
  Preferred: expires at 14:13:31 on Oct 09,2015
  T2: expires at 00:08:43 on Oct 09,2015
  T1: expires at 22:13:31 on Oct 08,2015
Interface: eth0; Channel: 1
DHCPv4 local address client:
Client ID: FF 00 00 00 00 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 02 00 00
Network device: eth0
State: BOUND
Received address: 172.16.0.161 mask 255.255.0.0
Server address: 172.16.0.105
T1: 600 sec; T2: 1050 sec; Lease time: 1200 sec
Active Timers:
  Valid: expires at 19:21:28 on Oct 08,2015
  Preferred: expires at 19:21:28 on Oct 08,2015
  T2: expires at 19:18:58 on Oct 08,2015
  T1: expires at 19:11:28 on Oct 08,2015
Interface: eth0.8; Channel: 1
DHCPv6 local address client:
DUID: 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C4 54 45
      53 54 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 03 02 00 00

IAID: 0
State: BOUND
Received address: 3ffe:302:11:2:6cad:cfab:9fe2:6a62/64
Server address: 3ffe:302:11:2::7a
T1: 11520 sec; T2: 18432 sec; Preferred Lifetime: 69120 sec; Valid
Lifetime: 103680 sec
Active Timers:
  Valid: expires at 23:49:27 on Oct 09,2015
  Preferred: expires at 14:13:27 on Oct 09,2015
  T2: expires at 00:08:39 on Oct 09,2015
```



```
T1: expires at 22:13:27 on Oct 08,2015
DHCPv4 Shelf Manager IP address client:
Client ID: FF 00 00 00 00 00 02 00 00 31 5A 48 50 4D 2E 33
          2D 31 C4 54 45 53 54 00 00 00 00 00 00 00 00
          00 00 00 00 00 00 00 00 03 00 00 00
Network device: eth0.8
State: BOUND
Received address: 192.168.5.101 mask 255.255.255.0
Server address: 192.168.5.33
T1: 60 sec; T2: 105 sec; Lease time: 120 sec
Active Timers:
  Valid: expires at 19:03:34 on Oct 08,2015
  Preferred: expires at 19:03:34 on Oct 08,2015
  T2: expires at 19:03:19 on Oct 08,2015
  T1: expires at 19:02:34 on Oct 08,2015
DHCPv6 Shelf Manager IP address client:
DUID: 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C4 54 45
      53 54 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 03 00 00 00
IAID: 0
State: BOUND
Received address: 3ffe:302:11:2:36d5:54b5:e655:5219/64
Server address: 3ffe:302:11:2::7a
T1: 11520 sec; T2: 18432 sec; Preferred Lifetime: 69120 sec; Valid
Lifetime: 103680 sec
Active Timers:
  Valid: expires at 23:49:32 on Oct 09,2015
  Preferred: expires at 14:13:32 on Oct 09,2015
  T2: expires at 00:08:44 on Oct 09,2015
  T1: expires at 22:13:32 on Oct 08,2015
```

#

3.20 `exit/quit`

3.20.1 Syntax

`exit` | `quit`

3.20.2 Purpose

The command `exit` or `quit` exits the CLI interactive mode (which is entered by issuing `cli` without parameters). This command can also be issued on the backup Shelf Manager.

3.20.3 Examples

```
CLI> exit
```

```
#
```

3.21 fans

3.21.1 Syntax

```
fans [-v] [ <IPMB-address> [ <fru_id> ] ]
fans board <N>
fans shm <N>
fans power_supply <N>
fans pem <N>
fans fan_tray <N>
fans <IPMB-address> amc <M>
fans board <N> amc <M>
```

3.21.2 Purpose

This command shows information about the specified fan FRUs. If the FRU device ID is omitted, the command shows information about all fan FRUs controlled by the IPM controller at the specified address. If the IPMB address is also omitted, the command shows information about all fan FRUs known to the Shelf Manager.

The following information is shown:

- IPMB address and FRU device ID
- Minimum Speed Level
- Maximum Speed Level
- Current Level (the pair of Override and Local Control levels if both are available)

3.21.3 Examples

Get fan information about all fan FRUs at IPMB address 20h.

```
# cli fans 20
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 3
    Current Level: 3
    Minimum Speed Level: 0, Maximum Speed Level: 15
20: FRU # 5
    Current Level: 3
    Minimum Speed Level: 0, Maximum Speed Level: 15
20: FRU # 4
    Current Level: 3
    Minimum Speed Level: 0, Maximum Speed Level: 15
```

Get fan information for the fan residing at AMC 1 for AMC carrier at IPMB address 82h.

```
#cli fans 82 amc 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
    No known fans at FRU id 0x01 at controller 0x82
#
```

3.22 firewall

3.22.1 Syntax

```
firewall [info [<channel>:[<LUN>:[<netfn>:[<command_code>]]]]]
firewall [info all]
firewall stop
firewall start
```

The *<channel>*, *<LUN>*, *<netfn>* and *<command_code>* arguments can be used in hexadecimal or decimal forms. Any of those arguments is treated as hexadecimal if it includes a 0x prefix or a hexadecimal letter (A, B, C, D, E, and F); otherwise, an argument is treated as a decimal value.

3.22.2 Purpose

This command can be used to inspect the IPMI 2.0 firmware firewall state, enabled/disabled state, specification and initial version information, plus configurability for IPMI commands and functions. Also, this command allows the user to start and stop the firewall functionality at run-time. This feature (*stop/start*) should be used carefully and is mainly for test and debug purposes. Initially, the firewall is started.

The output information for the each command is in the following format:

```
<Spec.Type> <Ver> <Rev> <Err> <C/N> <E/D> <CMD> <Name> [<cfm> : <efm>]
```

where:

- *<Spec.Type>* - specification type; can be *IPMI*, *IPMB*, *ICMB*, etc., see the IPMI 2.0 specification;
- *<Ver>* - version of the specification when the command was initially supported;
- *<Rev>* - revision of the version when the command was initially supported;
- *<Err>* - errata version of the revision when the command was initially supported;
- *<C/N>* - a flag; *C* - the command is configurable, *N* - the command is not configurable;
- *<E/D>* - a flag; *E* - the command is enabled, *D* - the command is disabled;
- *<CMD>* - hexadecimal number of the command within the given Network Function;
- *<Name>* - name of the command in plain text (which does not necessarily correspond to the name used in the corresponding specification);
- *<cfm>* - 64-bit configurable functions mask (only for commands that have configurable subfunctions, as defined by the IPMI 2.0 specification);
- *<efm>* - 64-bit enabled functions mask (only for commands that have configurable subfunctions, as defined by the IPMI 2.0 specification).

If the command is issued without parameters or with the single parameter *info*, information about the overall firewall status and summary firewall information is shown. With the parameter *info all*, information about the status of all known commands is shown. If any


```
IPMI 1.5 1.1 0.0 c e 0x07 Get System Restart Cause
IPMI 1.5 1.1 0.0 c e 0x08 Set System Boot Options
[00000000000001FFF:00000000000001FFF]
IPMI 1.5 1.1 0.0 c e 0x09 Get System Boot Options
IPMI 1.5 1.1 0.0 c e 0x0F Get POH Counter
NetFn: 0x02 Bridge
IPMI 1.5 1.1 0.0 c e 0x00 Get Bridge State
IPMI 1.5 1.1 0.0 c e 0x01 Set Bridge State
```

.....

.....

#

Show current firewall settings for channel 0 and LUN 1.

```
# clia firewall info 0:1
```

Pigeon Point Shelf Manager Command Line Interpreter

Firewall is running

```
Commands database: /var/nvdata/firewall_cmd, 5307 bytes
Functions database: /var/nvdata/firewall_sfm, 4876 bytes
Channels in database: 4
LUNs in database: 4
Network Functions in database: 128
```

Channel: 0x00

LUN: 1

NetFn: 0x00 Chassis

```
IPMI 1.5 1.1 0.0 c e 0x00 Get Chassis Capabilities
IPMI 1.5 1.1 0.0 c e 0x01 Get Chassis Status
IPMI 1.5 1.1 0.0 c e 0x02 Chassis Control
[000000000000003F:000000000000003F]
IPMI 1.5 1.1 0.0 c e 0x03 Chassis Reset
IPMI 1.5 1.1 0.0 c e 0x04 Chassis Identify
[0000000000000001:0000000000000001]
IPMI 1.5 1.1 0.0 c e 0x05 Set Chassis Capabilities
IPMI 1.5 1.1 0.0 c e 0x06 Set Power Restore Policy
IPMI 1.5 1.1 0.0 c e 0x07 Get System Restart Cause
```

....

....

#

Show current firewall settings for channel 0, LUN 1 and NetFn 0x0A.

```
# clia firewall info 0:1:A
```

Pigeon Point Shelf Manager Command Line Interpreter

Firewall is running

```
Commands database: /var/nvdata/firewall_cmd, 5307 bytes
Functions database: /var/nvdata/firewall_sfm, 4876 bytes
Channels in database: 4
LUNs in database: 4
```

Network Functions in database: 128

Channel: 0x00

LUN: 1

NetFn: 0x0A Storage

```
IPMI 1.5 1.1 0.0 c e 0x10 Get FRU Inventory Area Info
IPMI 1.5 1.1 0.0 c e 0x11 Read FRU Data
IPMI 1.5 1.1 0.0 c e 0x12 Write FRU Data
IPMI 1.5 1.1 0.0 c e 0x20 Get SDR Repository Info
IPMI 1.5 1.1 0.0 c e 0x21 Get SDR Repository Allocation Info
IPMI 1.5 1.1 0.0 c e 0x22 Reserve SDR Repository
IPMI 1.5 1.1 0.0 c e 0x23 Get SDR
IPMI 1.5 1.1 0.0 c e 0x24 Add SDR
IPMI 1.5 1.1 0.0 c e 0x25 Partial Add SDR
IPMI 1.5 1.1 0.0 c e 0x26 Delete SDR
IPMI 1.5 1.1 0.0 c e 0x27 Clear SDR Repository
IPMI 1.5 1.1 0.0 c e 0x28 Get SDR Repository Time
IPMI 1.5 1.1 0.0 c e 0x29 Set SDR Repository Time
IPMI 1.5 1.1 0.0 c e 0x2A Enter SDR Repository Update Mode
IPMI 1.5 1.1 0.0 c e 0x2B Exit SDR Repository Update Mode
IPMI 1.5 1.1 0.0 c e 0x2C Run Initialization Agent
IPMI 1.5 1.1 0.0 c e 0x40 Get SEL Info
IPMI 1.5 1.1 0.0 c e 0x41 Get SEL Allocation Info
IPMI 1.5 1.1 0.0 c e 0x42 Reserve SEL
IPMI 1.5 1.1 0.0 c e 0x43 Get SEL Entry
IPMI 1.5 1.1 0.0 c e 0x44 Add SEL Entry
IPMI 1.5 1.1 0.0 c e 0x45 Partial Add SEL Entry
IPMI 1.5 1.1 0.0 c e 0x46 Delete SEL Entry
IPMI 1.5 1.1 0.0 c e 0x47 Clear SEL
IPMI 1.5 1.1 0.0 c e 0x48 Get SEL Time
IPMI 1.5 1.1 0.0 c e 0x49 Set SEL Time
IPMI 1.5 1.1 0.0 c e 0x5A Get Auxiliary Log Status
IPMI 1.5 1.1 0.0 c e 0x5B Set Auxiliary Log Status
```

[0000000000000007:0000000000000007]

#

Show current firewall settings for channel 4, LUN 0, NetFn 0x0C and command 27 (treated as decimal).

clia firewall info 2:0:0xC:27

Pigeon Point Shelf Manager Command Line Interpreter

Firewall is running

Commands database: /var/nvdata/firewall_cmd, 5307 bytes

Functions database: /var/nvdata/firewall_sfm, 4876 bytes

Channels in database: 4

LUNs in database: 4

Network Functions in database: 128



```
Channel: 0x02
  LUN: 0
  NetFn: 0x0C Transport
    IPMI 1.5 1.1 0.0 c e 0x1B Get User Callback Options
```

```
#
```

Stop firewall.

```
# cli firewall stop
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
  Firewall has been stopped successfully...
```

```
#
```

Enable firewall.

```
# cli firewall start
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
  Firewall has been started successfully...
```


3.23 fru

3.23.1 Syntax

```
fru [-v] [<IPMB-address> [<fru_id> | id=<fru_id> |  
type=<site_type>]] | [type=<site_type> [/<site_number>]]  
fru board <N>  
fru shm <N>  
fru power_supply <N>  
fru pem <N>  
fru fan_tray <N>  
fru <IPMB-address> amc <M>  
fru board <N> amc <M>
```

3.23.2 Purpose

This command shows information about a specific FRU. If the FRU device ID is omitted, the command shows information about all FRUs controlled by the IPM controller at the specified address. If the IPMB address is also omitted, the command shows information about all FRUs known to the Shelf Manager.

Additionally, the site type can select FRUs. Site type should be specified in command parameters in hexadecimal. Associations between FRUs and their site types are stored in the Shelf FRU Information. Site types are defined in the PICMG 3.0 specification as follows:

- 00h = AdvancedTCA Board
- 01h = Power Entry Module
- 02h = Shelf FRU Information
- 03h = Dedicated ShMC
- 04h = Fan Tray
- 05h = Fan Filter Tray
- 06h = Alarm
- 07h = AdvancedMC Module (Mezzanine)
- 08h = PMC
- 09h = Rear Transition Module
- C0h - CFh = OEM defined

All other values are reserved.

In CompactPCI systems, the following OEM-defined site types are used to describe CompactPCI sites:

- C4h = CompactPCI Board
- C5h = CompactPCI Power Supply

The following information is shown for the FRU in standard mode:

- IPMB address and the FRU device ID
- Entity ID, Entity Instance
- Site type and number (if known)
- Current hot swap state, previous hot swap state and cause of the last state change for the FRU. The hot swap states M0-M7 are defined in the PICMG 3.0 specification as follows:
 - M0 – Not Installed
 - M1 – Inactive
 - M2 – Activation Request
 - M3 – Activation in Progress
 - M4 – FRU Active
 - M5 – Deactivation Request
 - M6 – Deactivation in Progress
 - M7 – Communication Lost

The following information is shown for the FRU in verbose mode only:

- The FRU device type, device type modifier (only for FRU-device-ID ≠ 0). This information is taken from the FRU Device Locator SDR and conforms to section 43.13 of the IPMI specification.
- Device ID string from the Management Controller Device Locator or the FRU Device Locator SDR.
- Current FRU power level and maximum FRU power level; current assigned power allocation in Watts.

If the target FRU is an intelligent FRU, the following additional information is shown in verbose mode only:

- The Device ID information for the corresponding management controller (device ID, manufacturer ID, firmware revision, IPMI specification version, product ID, auxiliary device ID).
- The number of the client HPM.2 session that the Shelf Manager has established to the target controller (if any)
- The HPM.2 and HPM.3 capabilities of the target controller (if any)

This command shows information about FRUs in state M1, if they were known previously to the Shelf Manager. This command can also be issued on the backup Shelf Manager; in that case, information is only reported about FRUs that are local to the backup Shelf Manager.

3.23.3 Examples

Get standard information about all FRUs at address 9Ch.

```
# clia fru 9c 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
9c: FRU # 0
```

```
Entity: (0xd0, 0x0)
```

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID String: "Emulated IPMC"

#

Get verbose information about all FRUs at address 9Ch.

clia fru -v 9c 0

Pigeon Point Shelf Manager Command Line Interpreter

9c: FRU # 0

Entity: (0xd0, 0x0)

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID String: "Emulated IPMC"

Site Type: 0x00, Site Number: 14

Current Power Level: 0x01, Maximum Power Level: 0x01, Current Power Allocation: 20.0 Watts

#

Get verbose information about FRU 1 at address 20h.

clia fru -v 20 id=1

Pigeon Point Shelf Manager Command Line Interpreter

20: FRU # 1

Entity: (0x1, 0x1)

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device Type: "FRU Inventory Device behind management controller" (0x10), Modifier 0x0

Device ID String: "Emulated IPMC FRU1"

Current Power Level: UNKNOWN, Maximum Power Level: UNKNOWN, Current Power Allocation: UNKNOWN

#

Get information about AMC #1 on the AMC carrier in slot 8.

clia fru board 8 amc 1

Pigeon Point Shelf Manager Command Line Interpreter

84: FRU # 1 (AMC # 1)

Entity: (0xc1, 0x61)

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID String: "AMC Module 1"

#

Get verbose information about the HPM.2 compliant AMC #2 on the AMC carrier in slot 2.

clia fru -v board 2 amc 2

Pigeon Point Shelf Manager Command Line Interpreter

84: FRU # 4 (AMC # 2)

Entity: (0xc1, 0x62)

Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)



Device Type: "FRU Inventory Device behind management controller" (0x10),
Modifier 0x0

Device ID String: "BMR-A2F-AMCm BTR"

Current Power Level: 0x01, Maximum Power Level: 0x01, Current Power
Allocation: 42.4 Watts

Device ID: 0x34, Revision: 0, Firmware: 1.20 (ver 1.2.0), IPMI ver 2.0

Manufacturer ID: 00400a, Product ID: beef, Auxiliary Rev: 00000000

HPM.2 Session: 6; Channel: 5; State: Established

HPM.2 Capabilities:

SOL Extensions

Extended Inactive State Management

Version Change Sensor for LAN Configuration

Dynamic Sessions

HPM.2 Channels: 5

HPM.2 LAN Parameters: start at 192 (0xc0), revision 1

HPM.2 SOL Parameters: start at 192 (0xc0), revision 1

HPM.3 Capable: Parameters: start at 205 (0xcd), revision 1

#

3.24 frudata

3.24.1 Syntax

```
frudata [<IPMB-address> [<fru_id> [<block_number>]]]
```

```
frudata <IPMB-address> <fru_id> <byte_offset> <byte1> [<byte2> ...  
 [<byte16>] ... ]
```

<IPMB-address> <fru_id> can be replaced with any of the following alternatives:

- *board* <N>
- *shm* <N>
- *power_supply* <N>
- *pem* <N>
- *fan_tray* <N>
- <IPMB-address> *amc* <M>
- *board* <N> *amc* <M>

3.24.2 Purpose

This command provides access to FRU Information in raw form. Depending on the command format, it is used to read or write the FRU Information.

In the read format, the command takes an optional 32-byte block number. This parameter is a decimal number. Block numbers are zero-based. The parameter <block_number> must not exceed FRU Information size / 32. The value of FRU Information size is reported in the output of a *frudata* command invoked with the read format.

In the write format, the command requires a byte offset parameter. The <byte1>, <byte2>, ..., <byte16> parameters can be either decimal or hexadecimal byte values (with a "0x" prefix in the latter case). The user can modify up to 65535 bytes of FRU Information. Changes in the Shelf FRU Information become fully effective only after the next restart of the Shelf Manager.

This command can also be issued on the backup Shelf Manager; in that case, FRU Information is only displayed in the read format or modifiable in the write format for FRUs that are local to the backup Shelf Manager.

Warning: This command is for experienced users. Use it with care and only when you know what you are doing!

3.24.3 Examples

```
# clia frudata
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 0 Failure status: 203 (0xcb)
```

```
Requested data not present
```

```
20: FRU # 1 Raw FRU Info Data
```

```
FRU Info size: 529
20: FRU # 2 Failure status: 203 (0xcb)
    Requested data not present
82: FRU # 0 Raw FRU Info Data
    FRU Info size: 160
9c: FRU # 0 Raw FRU Info Data
    FRU Info size: 160
fc: FRU # 0 Raw FRU Info Data
    FRU Info size: 160
fe: FRU # 0 Raw FRU Info Data
    FRU Info size: 160
#
# clia frudata 20 1 0
Pigeon Point Shelf Manager Command Line Interpreter
20: FRU # 1 Block # 0 Raw FRU Info Data
    FRU Info size: 529
    01 00 01 05 0E 18 00 D3 01 04 01 02 55 AA 83 55
    AA 55 C1 00 00 00 00 00 00 00 00 00 00 00 00
#
# clia frudata 20 1 1 0xfc 0xfe
Pigeon Point Shelf Manager Command Line Interpreter
    Writing 2 bytes to IPM 0x20, FRU # 1, offset: 1, status = 0(0x0)
# clia frudata 20 1 0
Pigeon Point Shelf Manager Command Line Interpreter
20: FRU # 1 Block # 0 Raw FRU Info Data
    FRU Info size: 529
    01 FC FE 05 0E 18 00 D3 01 04 01 02 55 AA 83 55
    AA 55 C1 00 00 00 00 00 00 00 00 00 00 00 00
#
# clia frudata 20 1 1 0 1
Pigeon Point Shelf Manager Command Line Interpreter
    Writing 2 bytes to IPM 0x20, FRU # 1, offset: 1, status = 0(0x0)
# clia frudata 20 1 0
Pigeon Point Shelf Manager Command Line Interpreter
20: FRU # 1 Block # 0 Raw FRU Info Data
    FRU Info size: 529
    01 00 01 05 0E 18 00 D3 01 04 01 02 55 AA 83 55
    AA 55 C1 00 00 00 00 00 00 00 00 00 00 00 00
#
# clia frudata board 8 amc 1
Pigeon Point Shelf Manager Command Line Interpreter
84: FRU # 1 Raw FRU Info Data
    FRU Info size: 64
    01 00 00 00 00 01 00 FE C0 02 06 41 F7 5A 31 00
```



16 00 1E C0 82 28 20 76 5A 31 00 19 00 00 80 04
E0 FF FF E1 FF FF E2 FF FF E3 FF FF 00 51 00 00
FC 01 51 00 00 FC 02 51 00 00 FC 03 51 00 00 FC

3.25 frudatar

3.25.1 Syntax

frudatar <IPMB-address> <fru_id> <file name>

<IPMB-address> <fru_id> can be replaced with any of the following alternatives:

- *board* <N>
- *shm* <N>
- *power_supply* <N>
- *pem* <N>
- *fan_tray* <N>
- <IPMB-address> *amc* <M>
- *board* <N> *amc* <M>

3.25.2 Purpose

This command reads FRU Information from the specified FRU and stores it in a file on the ShMM flash file system in a raw format (in other words, uploads FRU Information from the specified FRU to a flash file). The parameter <file name> specifies the path to the destination file. The number of bytes read from the FRU and written to the destination file is equal to the number of bytes returned in the response to the IPMI command “Get FRU Inventory Area Info” for the specified FRU.

This command can also be issued on the backup Shelf Manager; in that case, FRU Information is only read from FRUs that are local to the backup Shelf Manager.

3.25.3 Examples

```
# clia frudatar 20 2 /var/tmp/20.2.bin
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 2 Raw FRU Info Data
```

```
FRU Info size: 176
```

```
01 00 00 01 09 00 00 F5 01 08 19 84 C0 42 C7 53
63 68 72 6F 66 66 D9 53 68 4D 4D 2D 41 43 42 2D
46 43 20 53 68 65 6C 66 20 4D 61 6E 61 67 65 72
86 10 04 41 10 14 01 89 D2 04 65 58 13 51 17 00
00 C0 C1 00 00 00 00 EA 01 0D 19 C7 53 63 68 72
6F 66 66 DD 46 61 6E 20 43 6F 6E 74 72 6F 6C 6C
65 72 20 6F 6E 20 53 68 4D 4D 2D 41 43 42 2D 46
43 89 D2 04 65 58 13 51 17 00 00 C9 52 65 76 2E
20 31 2E 30 30 86 10 04 41 10 14 01 C0 DF 2F 76
61 72 2F 6E 76 64 61 74 61 2F 66 61 6E 2D 66 72
75 2D 69 6E 66 6F 72 6D 61 74 69 6F 6E C1 00 26
```

```
#
```


3.26 frudataw

3.26.1 Syntax

```
frudataw [-s|-d|-p|-l] <IPMB-address> <fru_id> <file name>
```

```
frudataw -s -c <IPMB-address> <fru_id>
```

```
frudataw -d -c <IPMB-address> <fru_id>
```

```
frudataw -p -c <IPMB-address> <fru_id>
```

```
frudataw -l -c <IPMB-address> <fru_id>
```

<IPMB-address> <fru_id> can be replaced with any the following alternatives:

- `board <N>`
- `shm <N>`
- `power_supply <N>`
- `pem <N>`
- `fan_tray <N>`
- `<IPMB-address> amc <M>`
- `board <N> amc <M>`

3.26.2 Purpose

This command downloads FRU Information to the specified FRU from a file on the ShMM flash file system. The file contains the raw binary image of the FRU Information. The parameter <file name> specifies the path to the source file. The changes will become fully effective only after the restart of the shelf.

This command can also be issued on the backup Shelf Manager; in that case, FRU Information is only downloaded to FRUs that are local to the backup Shelf Manager.

There are four special options to update HPDL data, Shelf Manager Configuration Parameters and Board Lan Configuration Parameters records in the FRU Information. The option `-d` indicates that HPDL data are to be updated; the option `-s` indicates that SDRs are to be updated; the option `-p` indicates that Shelf Manager Configuration Parameters records are to be updated; the option `-l` indicates that Board/AMC LAN Configuration Parameters records are to be updated. In all cases, the parameter <file name> specifies the path to the file that contains binary data to be stored in the target FRU Information. The option `-c` (if specified instead of the file name) removes (clears) the specified records from the target FRU Information.

The parameters <IPMB-address> and <fru_id> specify the IPMB address and FRU device ID of the FRU Information to update. When updating records in the Shelf FRU Information, one can specify either the addresses of actual locations of the Shelf FRU Information or the alias (20h, 254) that refers to the logical Shelf FRU Information storage.

The file that contains binary HPDL data, SDRs, Shelf Manager Configuration or Board/AMC LAN Configuration records can be compressed using the `gzip` compression utility. The compressed data is then stored in the FRU Information. Decompression is performed by the Shelf Manager

when reading from the FRU Information. The Shelf Manager automatically detects whether the data is compressed or not.

3.26.3 Examples

```
# clia frudataw 20 2 /var/tmp/20.2.orig.bin
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 0, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 16, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 32, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 48, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 64, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 80, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 96, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 112, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 128, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 144, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 160, status = 0(0x0)
File "/var/tmp/20.2.orig.bin" has been written to the FRU 20#2
```

```
#
```

```
# clia frudataw -d 20 2 /var/nvdata/chassis_data
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 2 Reading FRU Info Data, size 8192
```

```
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 0, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 16, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 32, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 48, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 64, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 80, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 96, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 112, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 128, status = 0(0x0)
```

```
.....
```

```
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 3072, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 3088, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 3104, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 3120, status = 0(0x0)
Writing 8 bytes to IPM 0x20, FRU # 2, offset: 3136, status = 0(0x0)
wrote 3144 (of 3144) bytes to the FRU 20#2 #
```

```
# clia frudataw -s -c 20 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 2 Reading FRU Info Data, size 8192
```

```
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 0, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 16, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 32, status = 0(0x0)
```



```
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 48, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 64, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 80, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 96, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 112, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 128, status = 0(0x0)
```

```
.....
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 1136, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 1152, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 1168, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 1184, status = 0(0x0)
Writing 16 bytes to IPM 0x20, FRU # 2, offset: 1200, status = 0(0x0)
Writing 13 bytes to IPM 0x20, FRU # 2, offset: 1216, status = 0(0x0)
wrote 1229 (of 1229) bytes to the FRU 20#2 #
```

3.27 fruinfo

3.27.1 Syntax

fruinfo [-v] [-x] <IPMB-address> <fru_id>

<IPMB-address> <fru_id> can be replaced with any the following alternatives:

- *board* <N>
- *shm* <N>
- *power_supply* <N>
- *pem* <N>
- *fan_tray* <N>
- <IPMB-address> *amc* <M>
- *board* <N> *amc* <M>

3.27.2 Purpose

This command shows FRU Information in a user-friendly format. This command can also be issued on the backup Shelf Manager; in that case, FRU Information is only shown for FRUs that are local to the backup Shelf Manager.

With the *-v* option, the command shows the contents of records in the Multi-record area in detail. Without this option, only the record headers are shown.

With the *-x* option, a hexadecimal dump of all FRU Information areas and records is shown along with the textual representation.

3.27.3 Examples

```
# clia fruinfo 20 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 0, FRU Info
```

```
    Failure status: 203 (0xcb)
```

```
    Requested data not present
```

```
#
```

```
# clia fruinfo 20 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 1, FRU Info
```

```
Common Header:      Format Version = 1
```

```
Chassis Info Area:
```

```
    Version      = 1
```

```
    Chassis Type                = (1)
```

```
    Chassis Part Number         = 0x55 0xAA
```

```
    Chassis Serial Number       = 5I:5
```

```
Board Info Area:
```

```
    Version      = 1
```

```
    Language Code                = 25
```



```
Mfg Date/Time          = Jun 16 15:37:00 2011 (8129737 minutes since
1996)
Board Manufacturer      = Pentair Technical Products
Board Product Name     = Shelf Manager
Board Serial Number    = 0000000
Board Part Number      = A
FRU Programmer File ID =
```

Product Info Area:

```
Version      = 1
Language Code      = 25
Manufacturer Name  = Pentair Technical Products
Product Name     = Shelf Manager
Product Part / Model# = 000000
Product Version   = Rev. 1.00
Product Serial Number = 0000000
Asset Tag        =
FRU Programmer File ID =
```

Multi Record Area:

```
Record Type          = Management Access Record
  Version = 2
Sub-Record Type: Component Name (0x05)
PICMG Address Table Record (ID=0x10)
  Version = 1

PICMG Backplane Point-to-Point Connectivity Record (ID=0x04)
  Version = 0
PICMG Shelf Power Distribution Record (ID=0x11)
  Version = 0
PICMG Shelf Activation And Power Management Record (ID=0x12)
  Version = 0
```

#

clia fruinfo -v -x 20 1

Pigeon Point Shelf Manager Command Line Interpreter

20: FRU # 1, FRU Info

Common Header: Format Version = 1

01 00 01 05 0E 18 00 D3

Chassis Info Area:

```
Version      = 1
Chassis Type          = (1)
Chassis Part Number   = 0x55 0xAA
Chassis Serial Number = 5I:5
Custom Chassis Info   =

01 04 01 02 55 AA 83 55 AA 55 C1 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 61
```



Board Info Area:

Version = 1
Language Code = 25
Mfg Date/Time = Jun 16 15:37:00 2011 (8129737 minutes since 1996)
Board Manufacturer = Pentair Technical Products
Board Product Name = Shelf Manager
Board Serial Number = 0000000
Board Part Number = A
FRU Programmer File ID =
Custom Board Info =
01 09 19 C9 0C 7C D4 50 69 67 65 6F 6E 20 50 6F
69 6E 74 20 53 79 73 74 65 6D 73 D6 53 68 65 6C
66 20 4D 61 6E 61 67 65 72 20 20 20 20 20 20 20
20 20 CA 50 50 53 30 30 30 30 30 30 30 30 C2 41 20
C0 C1 00 00 00 00 00 A0

Product Info Area:

Version = 1
Language Code = 25
Manufacturer Name = Pentair Technical Products
Product Name = Shelf Manager
Product Part / Model# = 000000
Product Version = Rev. 1.00
Product Serial Number = 0000000
Asset Tag =
FRU Programmer File ID =
Custom Product Info =
01 0A 19 D4 50 69 67 65 6F 6E 20 50 6F 69 6E 74
20 53 79 73 74 65 6D 73 D6 53 68 65 6C 66 20 4D
61 6E 61 67 65 72 20 20 20 20 20 20 20 C6
30 30 30 30 30 30 C9 52 65 76 2E 20 31 2E 30 30
CA 50 50 53 30 30 30 30 30 30 30 C0 C0 C1 00 6A

Multi Record Area:

Record Type = Management Access Record
Version = 2
Sub-Record Type: Component Name (0x05)
Sub-Record Data: = ShMM
03 02 05 A6 50 05 53 68 4D 4D
PICMG Address Table Record (ID=0x10)
Version = 1
Shelf Address =
Address Table Entries# = 16
Hw Addr: 41, Site # 1, Type: "AdvancedTCA Board" 00
Hw Addr: 42, Site # 2, Type: "AdvancedTCA Board" 00

```

Hw Addr: 43, Site # 3, Type: "AdvancedTCA Board" 00
Hw Addr: 44, Site # 4, Type: "AdvancedTCA Board" 00
Hw Addr: 45, Site # 5, Type: "AdvancedTCA Board" 00
Hw Addr: 46, Site # 6, Type: "AdvancedTCA Board" 00
Hw Addr: 47, Site # 7, Type: "AdvancedTCA Board" 00
Hw Addr: 48, Site # 8, Type: "AdvancedTCA Board" 00
Hw Addr: 49, Site # 9, Type: "AdvancedTCA Board" 00
Hw Addr: 4a, Site # 10, Type: "AdvancedTCA Board" 00
Hw Addr: 4b, Site # 11, Type: "AdvancedTCA Board" 00
Hw Addr: 4c, Site # 12, Type: "AdvancedTCA Board" 00
Hw Addr: 4d, Site # 13, Type: "AdvancedTCA Board" 00
Hw Addr: 4e, Site # 14, Type: "AdvancedTCA Board" 00
Hw Addr: 4f, Site # 15, Type: "AdvancedTCA Board" 00
Hw Addr: 50, Site # 16, Type: "AdvancedTCA Board" 00

```

```

C0 02 4B 44 AF 5A 31 00 10 01 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 10
41 01 00 42 02 00 43 03 00 44 04 00 45 05 00 46
06 00 47 07 00 48 08 00 49 09 00 4A 0A 00 4B 0B
00 4C 0C 00 4D 0D 00 4E 0E 00 4F 0F 00 50 10 00

```

PICMG Backplane Point-to-Point Connectivity Record (ID=0x04)

Version = 0

P2P Slot Descriptor:

```

Channel Type          = 0x0B PICMG®3.0 Base Interface
LocalSlot/HW Address = 0x41
Channel Count        = 0x0F
Channel Descriptor   = LocalChannel 2, RemoteChannel 2, RemoteSlot
0x42
Channel Descriptor   = LocalChannel 3, RemoteChannel 1, RemoteSlot
0x43
Channel Descriptor   = LocalChannel 4, RemoteChannel 1, RemoteSlot
0x44
Channel Descriptor   = LocalChannel 5, RemoteChannel 1, RemoteSlot
0x45
Channel Descriptor   = LocalChannel 6, RemoteChannel 1, RemoteSlot
0x46
Channel Descriptor   = LocalChannel 7, RemoteChannel 1, RemoteSlot
0x47
Channel Descriptor   = LocalChannel 8, RemoteChannel 1, RemoteSlot
0x48
Channel Descriptor   = LocalChannel 9, RemoteChannel 1, RemoteSlot
0x49
Channel Descriptor   = LocalChannel 10, RemoteChannel 1, RemoteSlot
0x4A
Channel Descriptor   = LocalChannel 11, RemoteChannel 1, RemoteSlot
0x4B

```

```

0x4C      Channel Descriptor = LocalChannel 12, RemoteChannel 1, RemoteSlot
0x4D      Channel Descriptor = LocalChannel 13, RemoteChannel 1, RemoteSlot
0x4E      Channel Descriptor = LocalChannel 14, RemoteChannel 1, RemoteSlot
0x4F      Channel Descriptor = LocalChannel 15, RemoteChannel 1, RemoteSlot
0x50      Channel Descriptor = LocalChannel 16, RemoteChannel 1, RemoteSlot

    P2P Slot Descriptor:
        Channel Type          = 0x0B PICMG®3.0 Base Interface
        LocalSlot/HW Address = 0x42
        Channel Count         = 0x0F
0x41      Channel Descriptor = LocalChannel 2, RemoteChannel 2, RemoteSlot
0x43      Channel Descriptor = LocalChannel 3, RemoteChannel 2, RemoteSlot
0x44      Channel Descriptor = LocalChannel 4, RemoteChannel 2, RemoteSlot
0x45      Channel Descriptor = LocalChannel 5, RemoteChannel 2, RemoteSlot
0x46      Channel Descriptor = LocalChannel 6, RemoteChannel 2, RemoteSlot
0x47      Channel Descriptor = LocalChannel 7, RemoteChannel 2, RemoteSlot
0x48      Channel Descriptor = LocalChannel 8, RemoteChannel 2, RemoteSlot
0x49      Channel Descriptor = LocalChannel 9, RemoteChannel 2, RemoteSlot
0x4A      Channel Descriptor = LocalChannel 10, RemoteChannel 2, RemoteSlot
0x4B      Channel Descriptor = LocalChannel 11, RemoteChannel 2, RemoteSlot
0x4C      Channel Descriptor = LocalChannel 12, RemoteChannel 2, RemoteSlot
0x4D      Channel Descriptor = LocalChannel 13, RemoteChannel 2, RemoteSlot
0x4E      Channel Descriptor = LocalChannel 14, RemoteChannel 2, RemoteSlot
0x4F      Channel Descriptor = LocalChannel 15, RemoteChannel 2, RemoteSlot
0x50      Channel Descriptor = LocalChannel 16, RemoteChannel 2, RemoteSlot

C0 02 65 2B AE 5A 31 00 04 00 0B 41 0F 42 42 00
43 61 00 44 81 00 45 A1 00 46 C1 00 47 E1 00 48
01 01 49 21 01 4A 41 01 4B 61 01 4C 81 01 4D A1
01 4E C1 01 4F E1 01 50 01 02 0B 42 0F 41 42 00
43 62 00 44 82 00 45 A2 00 46 C2 00 47 E2 00 48

```




02 01 49 22 01 4A 42 01 4B 62 01 4C 82 01 4D A2
01 4E C2 01 4F E2 01 50 02 02

PICMG Shelf Power Distribution Record (ID=0x11)

Version = 0

Feed count: 1

Feed:

Maximum External Available Current: 50.0 Amps

Maximum Internal Current: Not specified

Minimum Expected Operating Voltage: -40.5 Volts

Feed-to-FRU Mapping entries count: 16

FRU Addr: 41, FRU ID: 0xfe

FRU Addr: 42, FRU ID: 0xfe

FRU Addr: 43, FRU ID: 0xfe

FRU Addr: 44, FRU ID: 0xfe

FRU Addr: 45, FRU ID: 0xfe

FRU Addr: 46, FRU ID: 0xfe

FRU Addr: 47, FRU ID: 0xfe

FRU Addr: 48, FRU ID: 0xfe

FRU Addr: 49, FRU ID: 0xfe

FRU Addr: 4a, FRU ID: 0xfe

FRU Addr: 4b, FRU ID: 0xfe

FRU Addr: 4c, FRU ID: 0xfe

FRU Addr: 4d, FRU ID: 0xfe

FRU Addr: 4e, FRU ID: 0xfe

FRU Addr: 4f, FRU ID: 0xfe

FRU Addr: 50, FRU ID: 0xfe

C0 02 2C A7 6B 5A 31 00 11 00 01 F4 01 FF FF 51
10 41 FE 42 FE 43 FE 44 FE 45 FE 46 FE 47 FE 48
FE 49 FE 4A FE 4B FE 4C FE 4D FE 4E FE 4F FE 50
FE

PICMG Shelf ActivationAnd Power Management Record (ID=0x12)

Version = 0

Allowance for FRU Activation Readiness: 10 seconds

FRU Activation and Power Description Count: 16

Hw Address: 41, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 42, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 43, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 44, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

```
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 45, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 46, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 47, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 48, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 49, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4a, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4b, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4c, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4d, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4e, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4f, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 50, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
C0 82 57 81 E6 5A 31 00 12 00 0A 10 41 FE 96 00
40 42 FE 96 00 40 43 FE 96 00 40 44 FE 96 00 40
45 FE 96 00 40 46 FE 96 00 40 47 FE 96 00 40 48
FE 96 00 40 49 FE 96 00 40 4A FE 96 00 40 4B FE
96 00 40 4C FE 96 00 40 4D FE 96 00 40 4E FE 96
00 40 4F FE 96 00 40 50 FE 96 00 40
```



#

3.28 frucontrol

3.28.1 Syntax

```
frucontrol <IPMB-address> <fru_id> <option>
frucontrol board <N> <option>
frucontrol shm <N> <option>
frucontrol power_supply <N> <option>
frucontrol pem <N>
frucontrol fan_tray <N> <option>
frucontrol <IPMB-address> amc <M> <option>
frucontrol board <N> amc <M> <option>
```

3.28.2 Purpose

This command sends the “FRU Control” command to the specified FRU, performing the specified operation on the FRU payload. The FRU is specified using the IPMB address of the owning IPM controller and the FRU device ID. FRU device ID 0 designates the IPM controller proper in PICMG 3.0 contexts.

When the *<option>* parameter is *info*, the command “Get FRU Control Capabilities” is sent to the specified FRU. The returned byte indicates which “FRU Control” commands are supported by the specified FRU. This option only works for FRUs that support ECN-002 to the PICMG 3.0 R2.0 specification.

The parameter *<option>* specifies the option of the “FRU Control” command to be used. It can be specified as one of the following symbolic values:

- *cold_reset* (abbreviated as *cr*) – perform cold reset of the FRU payload
- *warm_reset* (abbreviated as *wr*) – perform warm reset of the FRU payload
- *graceful_reboot* (abbreviated as *gr*) – perform graceful reboot of the FRU payload
- *diagnostic_interrupt* (abbreviated as *di*) – issue the diagnostic interrupt
- *info* – get FRU Control capabilities.

This command can also be issued on the backup Shelf Manager; in that case, the “FRU Control” command is only sent to FRUs that are local to the backup Shelf Manager.

According to the PICMG 3.0 specification, the command “FRU Control (Cold Reset)” must be implemented for all FRUs. Most FRUs that are represented by the Shelf Manager (such as fan trays or PEMs) have no payload to which the operations of this command would apply; for these FRUs the Shelf Manager implements the cold reset command as a no-operation that just returns the successful completion code.

3.28.3 Examples

Issue a “Cold Reset” command to the FRU 0 at IPMB address 9Ch.

```
# clia frucontrol 9c 0 cr
```

Pigeon Point Shelf Manager Command Line Interpreter

FRU Control: Controller 0x9c, FRU ID # 0, command 0x00, status 0(0x0)

Command executed successfully

#

Get FRU Control capabilities for the FRU 0 at IPMB address 0Eh.

cli frucontrol 0e 0 info

Pigeon Point Shelf Manager Command Line Interpreter

FRU Control Capabilities: Controller 0x0e, FRU ID # 0, status 0(0x0)

Capabilities: 00; Supported commands: Cold Reset

#

3.29 getbootdev

3.29.1 Syntax

```
getbootdev <IPMB-0-address> [<fru_id> | <IPMB-L-address>]
```

3.29.2 Purpose

This command shows the system boot parameters for a designated IPM controller. If AdvancedMC access is not targeted, the second parameter should be set to 0 or omitted. The IPMB-L address for an AMC address is used if the second parameter exceeds 70h. Otherwise, the second parameter is treated as a FRU ID and converted to an IPMB-L address via AMC address mapping.

3.29.3 Examples

Get the system boot options for IPM controller at IPMB address 82h.

```
# clia getbootdev 82
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Get boot device option: status = 0x0 (0)
```

```
Response data (raw): 01 05 00 00 00 00 00
```

```
Decoded:
```

```
Parameter version: 1
Parameter valid = TRUE
Boot option selector: 5
Boot flags valid = FALSE
Boot device selector: 0 (No override)
```

Get the system boot options for an AMC, where the carrier has IPMB-0 address 90h and the MMC has address IPMB-L address 72h.

```
# clia getbootdev 90 72
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Get boot device option: status = 0x0 (0)
```

```
Response data (raw): 01 05 80 04 00 00 00
```

```
Decoded:
```

```
Parameter version: 1
Parameter valid = TRUE
Boot option selector: 5
Boot flags valid = TRUE
Boot device selector: 1 (Force PXE)
```

3.30 getconfigparam

3.30.1 Syntax

getconfigparam [<parameter name>]

3.30.2 Purpose

This command shows the value of the specified Shelf Manager configuration parameter. If no name is specified, all known configuration parameters are shown, with their values.

Names of the configuration parameters are described in the *Shelf Manager User Guide*.

This command can be useful to see the actual values of configuration parameters if configuration parameters are set from multiple sources (multiple configuration files and/or the Shelf FRU Information).

3.30.3 Examples

Get the value of the configuration parameter *SENSOR_POLL_INTERVAL*.

```
# clia getconfigparam SENSOR_POLL_INTERVAL
Pigeon Point Shelf Manager Command Line Interpreter
SENSOR_POLL_INTERVAL = 1
#
```

Show all configuration parameters with their values.

```
# clia getconfigparam
Pigeon Point Shelf Manager Command Line Interpreter
2_X_SYSTEM = FALSE
ACTIVATE_LOCAL_WITHOUT_SHELF_FRU = FALSE
ALARM_CUTOFF_TIMEOUT = 600
ALLOW_ALL_COMMANDS_FROM_IPMB = FALSE
ALLOW_CHANGE_EVENT_RECEIVER = TRUE
ALLOW_CLEARING_CRITICAL_ALARM = FALSE
ALLOW_POWER_UNRELATED_FRU_IN_CRITICAL_STATE = FALSE
ALLOW_RESET_STANDALONE = FALSE
ALTERNATE_CONTROLLER = TRUE
ATCA_TESTER_COMPATIBILITY = FALSE
AUTO_SEND_MESSAGE = TRUE
BOARD_LAN_PARAMETERS_CHANNEL_LIST =
CARRIER = GENERIC
CARRIER_OPTIONS =
CONSOLE_LOGGING_ENABLED = TRUE
COOLING_EXHAUST_SENSOR_LIST =
COOLING_FAN_DECREASE_TIMEOUT = 0
COOLING_FAN_INCREASE_TIMEOUT = 0
COOLING_INTAKE_SENSOR_LIST =
COOLING_KEEP_POWERED_OFF_FRUS_IN_M1 = FALSE
COOLING_MANAGEMENT =
```

```
COOLING_POLL_TIMEOUT = 30
CPLD_ACTIVE_WORKAROUND = FALSE
CTCA_FRU_RESET_TIMEOUT = 500
CTCA_HEALTHY_TIMEOUT = 0
CTCA_INITIAL_FAN_LEVEL = 5
DEFAULT_GATEWAY_IP_ADDRESS = 192.168.1.253
DEFAULT_GATEWAY_IP_ADDRESS2 = 0.0.0.0
DEFAULT_HPM2_CLIENT_IP_ADDRESS = 0.0.0.0
DEFAULT_HPM2_GATEWAY_IP_ADDRESS = 0.0.0.0
DEFAULT_HPM2_NETMASK = 0.0.0.0
DEFAULT_RMCP_IP_ADDRESS = 192.168.1.68
DEFAULT_RMCP_IP_ADDRESS2 = 0.0.0.0
DEFAULT_RMCP_NETMASK = 255.255.255.0
DEFAULT_RMCP_NETMASK2 = 0.0.0.0
DEFAULT_VLAN_ID = 0
DEFAULT_VLAN_ID2 = 0
DETECT_DEADLOCKS = TRUE
DEVICE_POLL_TIMEOUT = 15
DHCP_FOR_RMCP_ONLY = FALSE
DHCP_SERVER_ADDRESS = 0.0.0.0
ENABLE_DIRECT_SHELF_FRU_WRITE = FALSE
ENABLE_INTEGRALHPI = TRUE
EXIT_IF_HEALTHY_LOST_IN_STANDALONE_MODE = FALSE
EXIT_IF_NO_SHELF_FRU = FALSE
EXTERNAL_EVENT_HANDLER =
FAN_FULL_SPEED_DELAY = 0
FAN_LEVEL_STEP_DOWN = 1
FAN_LEVEL_STEP_UP = 1
HPDL = FALSE
HPDL_ON_SUBSIDIARY_FRUS = TRUE
HPM2_ENABLE_CLIENT_SESSIONS = TRUE
HPM2_CLIENT_MIRROR_CHANNEL = 1
HPM2_NET_ADAPTER =
IGNORE_FAILED_DIRECTED_POWER_DOWN = TRUE
INITIALIZATION_SCRIPT =
INITIAL_FAN_LEVEL = 5
INITIAL_SLOW_LINK_DELAY = 0
INNER_SEQUENCE_NUMBER_IN_SEND_MSG_RESPONSE = TRUE
IPMB_ADDRESS = 0
IPMB_LINK_ISOLATION_TIMEOUT = -1
IPMB_RETRIES = 3
IPMB_RETRY_TIMEOUT = 4
IPMB_RETRY_TIMEOUT_MSEC = 500
IPMC_PRESERVE_ON_REVISION_CHANGE = TRUE
```



```
ISOLATE_MUX_ADDRESS = 112
ISOLATE_MUX_IGNORE_COUNT = 10
ISOLATE_MUX_ON_GPIO8 = FALSE
LOCAL_SHELF_FRU = TRUE
M7_TIMEOUT = -1
MAX_ALERT_POLICIES = 64
MAX_ALERT_STRINGS = 64
MAX_DEFERRED_ALERTS = 32
MAX_EVENT_FILTERS = 64
MAX_EVENT_SUBSCRIBERS = 64
MAX_EVENT_SUBSCRIBER_IDLE_TIME = 60
MAX_INCOMING_IPMB_REQUESTS = 192
MAX_NODE_BUSY_TRANSMISSIONS = 255
MAX_OEM_FILTERS = 16
MAX_PENDING_EVENT_NOTIFICATIONS = 1024
MAX_PENDING_IPMB_REQUESTS = 192
MAX_SEL_ENTRIES = 1024
MAX_SESSIONS = 32
MAX_USERS = 32
MICRO_TCA = FALSE
MIN_FAN_LEVEL = 1
MIN_SHELF_FRUS = 1
NORMAL_STABLE_TIME = 3600
PEF_USE_KEYED_ALARMS = FALSE
PET_FORMAT = 0
POWER_UNLISTED_FRUS = TRUE
PROPAGATE_RMCP_ADDRESS = FALSE
REAPPLY_POWER_MAX_COOLING_STATE = NORMAL
REDUNDANCY_ENABLED = TRUE
REDUNDANCY_NET_ADAPTER = eth1
REDUNDANCY_NET_ADAPTER2 =
REDUNDANCY_NETMASK = 0.0.0.0
REDUNDANCY_PORT = 1040
REDUNDANT_IP_ADDRESS = 192.168.0.62
RESERVATION_RETRIES = 10
RMCP_NET_ADAPTER = eth0
RMCP_NET_ADAPTER2 =
RMCP_WITHOUT_SHELF_FRU = FALSE
SAVE_CRASH_INFORMATION = TRUE
SDR_READ_RETRIES = 3
SEL_FILE_COMPRESSION_ENABLED = TRUE
SEL_FILE_JOURNALING_ENABLED = TRUE
SEL_FILE_WRITE_DELAY = 3
SEL_HIGH_WATERMARK = 10
```

```
SEL_LOW_WATERMARK = 50
SENSOR_POLL_INTERVAL = 1
SESSION_SEQUENCE_WINDOW = 128
SHELF_FRU_IN_EEPROM = TRUE
SHELF_FRU_IPMB_SOURCE1 = 0
SHELF_FRU_IPMB_SOURCE2 = 0
SHELF_FRU_TIMEOUT = 20
SHELF_MANAGER_CONFIGURATION_IN_SHELF_FRU_INFO = FALSE
SHORT_SEND_MSG_RESPONSE = TRUE
SWAPPED_CROSS_CONNECTS = FALSE
SWITCHOVER_ON_HANDLE_OPEN = FALSE
SWITCHOVER_TIMEOUT_ON_BROKEN_LINK = 11
SYSLOG_LOGGING_ENABLED = TRUE
SYSTEM_MANAGER_TRUNCATES_SEL = FALSE
TACHOMETER_THRESHOLD_UPDATE_DELAY = 15
TASKLET_RETRIES = 3
TIMEPROTO =
TIMESERVER = 0.0.0.0
TURBO_MODE_MIN_FAN_FAILURES = 1
UNCONDITIONAL_SDR_REREAD_ON_VERSION_CHANGE = FALSE
USE_DHCP = FALSE
USE_SECOND_CHANNEL = FALSE
VERBOSITY = 7
VERBOSITY_CONSOLE = -1
VERIFY_SHELF_FRU_CHECKSUM = TRUE
WATCHDOG_ENABLED = TRUE
```

3.31 getfanlevel

3.31.1 Syntax

```
getfanlevel <IPMB-address> <fru_id>
getfanlevel shm <N>
getfanlevel board <N>
getfanlevel power_supply <N>
getfanlevel pem <N>
getfanlevel fan_tray <N>
getfanlevel <IPMB-address> amc <M>
getfanlevel board <N> amc <M>
```

3.31.2 Purpose

This command shows the current level of the fan controlled by the FRU specified in the command parameters.

3.31.3 Examples

Get fan level for the fan residing at FRU #2 at IPMB address 20h.

```
# clia getfanlevel 20 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 2 Override Fan Level: 1, Local Fan Level: 255
```

```
#
```

3.32 getfanpolicy

3.32.1 Syntax

```
getfanpolicy [<fan tray addr> [<fan tray fru_id>]] [-s  
<addr>|<site_type> [<fru_id>|<site_number>]]
```

3.32.2 Purpose

This command retrieves information about Fan Tray(s) control mode and/or FRUs coverage by the specified Fan Tray(s). Notice that this command returns two different pieces of data: whether or not the site(s) are enabled/disabled for autonomous control by the Shelf Manager (based on “Set Fan Policy” commands), and whether or not the FRU site(s) are covered by the fans (according to the Fan Geography record).

The parameters *<fan tray addr>* and *<fan tray fru_id>* specify a fan tray. The command may be issued with no parameters; in this case, the information about all Fan Trays and FRUs will be received.

If a numeric argument is expected to be treated as a hexadecimal, the “0x” prefix should be used, otherwise the error will be returned.

The flag *-s* precedes the parameters that define a site covered by the fan tray.

The *<site_type>* parameter can accept one of the following values: *Board, PEM, ShelfFRU, ShelfManager, FanTray, FanFilterTray, Alarm, Mezzanine, PMC, RTM*.

3.32.3 Examples

Get fan policy for the fan tray at IPMB address 20h, FRU ID 3.

```
# clia getfanpolicy 0x20 3  
Pigeon Point Shelf Manager Command Line Interpreter  
Fan Tray: 0x20, FRU Id # 3  
Policy Type: Any Site  
Policy Timeout: 20 seconds  
Policy Applied: Tue Oct 17 02:32:06 2006
```

Get fan policy for the fan tray at IPMB address 20h, FRU ID 3, applied to the site at IPMB address 20h, FRU ID 1.

```
# clia getfanpolicy 0x20 3 -s 0x20 1  
Pigeon Point Shelf Manager Command Line Interpreter  
Fan Tray: 0x20, FRU Id # 3  
Policy Type: Per Site  
Policy Timeout: 20 seconds  
Policy Applied: Tue Oct 17 02:39:06 2006  
Site Type: Dedicated ShMC, Site Number: 1  
Site Covered: TRUE
```

3.33 getfruledstate

3.33.1 Syntax

```
getfruledstate [-v] [<IPMB-address> [<fru_id> [<LedId>|ALL]]]
getfruledstate [-v] shm <N> [<LedId>|ALL]
getfruledstate [-v] board <N> [<LedId>|ALL]
getfruledstate [-v] power_supply <N> [<LedId>|ALL]
getfruledstate [-v] pem <N> [<LedId>|ALL]
getfruledstate [-v] fan_tray <N> [<LedId>|ALL]
getfruledstate [-v] <IPMB-address> amc <M> [<LedId>|ALL]
getfruledstate [-v] board <N> amc <M> [<LedId>|ALL]
```

3.33.2 Purpose

This command shows the current FRU LED state on all levels of control that are enabled for the LED(s).

In verbose mode, the Shelf Manager shows additional information about the colors supported by the LED(s). Also, if a LED Description record is present in the FRU Information of the target FRU, the Shelf Manager shows the legend, symbol and description information from that record for the target LED(s).

Information can be shown about a specific LED or all LEDs for the given FRU. IPMB address and FRU ID of the target LED can also be omitted. If FRU ID is omitted, information is shown about all LEDs on all FRUs of the given IPM controller. If IPMB address is also omitted, information is shown about all known LEDs in the shelf.

This command can also be issued on the backup Shelf Manager; in that case, the FRU LED state is only shown for FRU LEDs that are local to the backup Shelf Manager.

3.33.3 Examples

Show LED state for all LEDs on the IPM controller at IPMB address FCh:

```
# clia getfruledstate fc
Pigeon Point Shelf Manager Command Line Interpreter
fc: FRU # 0, Led # 0 ("BLUE LED"):
    Local Control LED State: LED OFF
fc: FRU # 0, Led # 1 ("LED 1"):
    Local Control LED State: LED OFF
fc: FRU # 0, Led # 2 ("LED 2"):
    Local Control LED State: LED OFF
fc: FRU # 0, Led # 3 ("LED 3"):
    Local Control LED State: LED OFF

fc: FRU # 0, Led # 4 ("Application Specific LED# 1"):
    Local Control LED State: LED ON, color: GREEN
```

Show verbose LED state for the FRU 3 at IPMB address 20h:

```
# clia getfruledstate -v 20 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 3, Led # 0 ("BLUE LED"):
```

```
Local Control LED State: LED OFF
```

```
LED's color capabilities:
```

```
Colors supported(0x02): BLUE
```

```
Default LED Color in Local Control State(0x01): BLUE
```

```
Default LED Color in Override State(0x01): BLUE
```

```
Legend: "H/S"
```

```
Description: "Blue LED"
```

```
20: FRU # 3, Led # 1 ("LED 1"):
```

```
Local Control LED State: LED OFF
```

```
LED's color capabilities:
```

```
Colors supported(0x04): RED
```

```
Default LED Color in Local Control State(0x02): RED
```

```
Default LED Color in Override State(0x02): RED
```

```
Legend: "OOS"
```

```
Description: "Out of Service LED"
```

```
20: FRU # 3, Led # 2 ("LED 2"):
```

```
Local Control LED State: LED ON, color: GREEN
```

```
LED's color capabilities:
```

```
Colors supported(0x08): GREEN
```

```
Default LED Color in Local Control State(0x03): GREEN
```

```
Default LED Color in Override State(0x03): GREEN
```

```
Symbol: "IEC-60417-5867"
```

```
Description: "Green. Should not blink"
```

```
#
```

Show LED state for FRU #0 of the IPM controller at IPMB address 20h:

```
# clia getfruledstate 20 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 0, Led # 0 ("BLUE LED"):
```

```
Local Control LED State: LED ON, color: BLUE
```

```
20: FRU # 0, Led # 1 ("LED 1"):
```

```
Local Control LED State: LED OFF
```

Show verbose LED state for LED #1 from FRU #0 of the IPM controller at IPMB address 20h:

```
#clia getfruledstate -v 20 0 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 0, Led # 1 ("LED 1"):
```

```
Local Control LED State: LED OFF
```

```
LED's color capabilities:
```

```
Colors supported(0x04): RED
```

```
Default LED Color in Local Control State(0x02): RED
```

```
Default LED Color in Override State(0x02): RED
```

3.34 gethysteresis

3.34.1 Syntax

```
gethysteresis [<IPMB-address> [ [ <lun>: ] <sensor id> | <sensor
name>] ]
gethysteresis [board <N> [ [ <lun>: ] <sensor id> | <sensor
name>] ]
gethysteresis [shm <N> [ [ <lun>: ] <sensor id> | <sensor name>]
]
gethysteresis <IPMB-address> -f <fru_id>
gethysteresis <IPMB-address> -f amc <amc_number>
gethysteresis board <N> -f <fru_id>
gethysteresis board <N> -f amc <amc_number>
gethysteresis shm <N> -f <fru_id>
gethysteresis shm <N> -f amc <amc_number>
```

3.34.2 Purpose

This command shows the current hysteresis values for the specified sensor(s). The sensor(s) must be threshold-based. Both raw and processed values are shown.

The option `-f` allows the user to select all sensors that belong to a specific FRU, designated either with its `<fru_id>` or, if it is an AMC, with the `amc <amc_number>` notation.

The command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the targets controller supports sensors on multiple LUNs. If the LUN is omitted, the current hysteresis values for all sensors with the specified sensor number are shown. `<lun>` can take the value 0, 1 or 3. (LUN 2 is reserved.)

Sensor names are not qualified with LUN numbers, since it is assumed that sensor names will normally be unique within the controller. However, if there are several sensors with the same name within the controller, information is shown about all of them. If `<IPMB-address>` is omitted, the current hysteresis levels for all sensors for the specified IPMB address are shown.

This command can also be issued on the backup Shelf Manager; in that case, the current hysteresis values are only shown for sensors that are local to the backup Shelf Manager.

3.34.3 Examples

Show the hysteresis values for sensor # 2 on the IPM controller at IPMB address FCh.

```
# cli gethysteresis FC 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fc: LUN: 0, Sensor # 2 ("lm75 temp")
```

```
    Type: Threshold (0x01), "Temperature"(0x01)
```

```
        Positive hysteresis, Raw data: 0x00    Processed data: 0.00000 degrees
C
```

```
        Negative hysteresis, Raw data: 0x00    Processed data: 0.00000 degrees
C
```



Show the hysteresis values for sensors that belong to FRU #5 on the IPM controller at IPMB address 20h

```
# clia gethysteresis 20 -f 5
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 126 ("Temp_In Right")
```

```
    Type: Threshold (0x01), "Temperature" (0x01)
```

```
        Positive hysteresis, Raw Data: 0x00    Processed data: 0.000000  
degrees C
```

```
        Negative hysteresis, Raw Data: 0x00    Processed data: 0.000000  
degrees C
```

```
#
```


3.35 getipmbstate

3.35.1 Syntax

getipmbstate <IPMB-address> [<link>] (in radial IPMB-0 environment)

getipmbstate <IPMB-address> (in bused IPMB-0 environment)

3.35.2 Purpose

This command shows the current state of IPMB-0 on the target IPM controller. The state is taken from the sensor data provided by the IPMB Link sensor on the target IPM controller (sensor type F1). Information about both buses A and B is displayed.

The command works differently in bused and radial contexts. In a bused shelf, or in a radial shelf if the target IPM controller is not an IPMB hub, the argument <link> is not used.

Information about the state of IPMB-A and IPMB-B on the target IPM controller is shown.

In the radial shelf if the target IPM controller is an IPMB hub, the command works as follows:

- If <link> is omitted, the command shows information about the state of all radial IPMB links. The state is taken from the sensor data of the multiple IPMB link sensors on the IPM controller.
- If <link> is present, the command shows information about the specific radial IPMB link (1 to 95). The state of the link is taken from the state of the corresponding IPMB link sensor on the IPM controller.

In both cases, information about the state of both IPMB-A and IPMB-B is shown.

This command can also be issued on the backup Shelf Manager; in that case, the current state of IPMB-0 is only reported for IPM controllers that are local to the backup Shelf Manager.

3.35.3 Examples

Show the current state of IPMB-0 on the IPM controller at IPMB address 92h.

```
# clia getipmbstate 92
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
92: LUN: 0, Sensor # 1 ("IPMB LINK")
```

```
Bus Status: 0x8 (IPMB-A Enabled, IPMB-B Enabled)
```

```
IPMB A State: 0x8 (LocalControl, No failure)
```

```
IPMB B State: 0x8 (LocalControl, No failure)
```

Show the current state of IPMB link 8 on the Shelf Manager (the IPM controller at 20h).

```
# clia getipmbstate 20 8
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: Link: 8, LUN: 0, Sensor # 12 ("IPMB LINK 8")
```

```
Bus Status: 0x8 (IPMB-A Enabled, IPMB-B Enabled)
```

```
IPMB A State: 0x8 (LocalControl, No failure)
```

```
IPMB B State: 0x8 (LocalControl, No failure)
```

3.36 getlanconf

3.36.1 Syntax

```
getlanconf <IPMB-address> <channel> [ <parameter-name> [
<additional-parameters> ] ]
getlanconf <IPMB-address> <channel> [ <parameter-number> [
<additional-parameters> ] ]
```

3.36.2 Purpose

This command shows the value of the specified LAN configuration parameter for the specified channel *<channel>* of the IPM controller at the specified address *<IPMB-address>*. If no configuration parameter name or number is specified, all configuration parameters for the specified channel of the IPM controller on the specified address are shown.

For IPMI LAN channels with either HPM.2 or HPM.3 support several additional LAN configuration parameters are defined. The HPM.2 LAN configuration parameters are described in the HPM.2 specification. The HPM.3 LAN configuration parameters are described in the HPM.3 specification. HPM.2 and HPM.3 LAN configuration parameters do not have fixed parameter numbers; their numbers are allocated as a contiguous sub-range of the OEM parameter range (192-255) and each IPM controller reports the starting number of the sub-range in the response to the commands “Get HPM.2 Capabilities” and “Get HPM.3 Capabilities”.

The following table lists the names and numbers of LAN configuration parameters supported by the *getlanconf* command:

Table 14: Names and numbers of LAN configuration parameters supported by the *getlanconf* command

PARAMETER NAME	NUMBER	DESCRIPTION
auth_support	1	An 8-bit value that contains authentication type support flags for the LAN channel.
auth_enables	2	Five 8-bit values that contain authentication type enable flags for the Callback, User, Operator, Administrator and OEM privilege levels for the LAN channel.
ip	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation (e.g. 192.168.0.15).
ip_source	4	A value that encodes the source of the assigned IP address.
mac	5	A string value that contains the MAC address assigned to the LAN channel as 6 hexadecimal byte values delimited by ‘:’ symbols (e.g. 00:A0:24:C6:18:2F).

PARAMETER NAME	NUMBER	DESCRIPTION
<code>subnet_mask</code>	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation (e.g. 255.255.255.0).
<code>ipv4_hdr_param</code>	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP packets: <ul style="list-style-type: none"> • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
<code>pri_rmcp_port</code>	8	A 16-bit value that contains the primary RMCP port number (the port used for regular RMCP communication).
<code>sec_rmcp_port</code>	9	A 16-bit value that contains the secondary RMCP port number (the port used for secure RMCP communication).
<code>arp_control</code>	10	Two flags that control ARP behavior on the LAN channel: Enable responding to ARP requests Enable sending Gratuitous ARPs
<code>arp_interval</code>	11	The Gratuitous ARP interval in seconds, in fixed-point format (potentially including a fractional part).
<code>dft_gw_ip</code>	12	A string value that contains the IP address of the default gateway in dotted decimal notation.
<code>dft_gw_mac</code>	13	A string value that contains the MAC address of the default gateway as 6 hexadecimal byte values delimited by ':' symbols.
<code>backup_gw_ip</code>	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.
<code>backup_gw_mac</code>	15	A string value that contains the MAC address of the backup gateway as 6 hexadecimal byte values delimited by ':' symbols.
<code>community</code>	16	A string value (up to 18 symbols) that is put into the "Community String" field in PET Traps.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>destination_count</code>	17	The maximum number of LAN alert destinations supported on the LAN channel.
<code>destination_type</code>	18	The destination type identified by the specified set selector. If no set selector is given, all destination types are shown. Each destination type entry contains the following fields: <ul style="list-style-type: none"> • destination type (0-7) • alert acknowledge flag • alert acknowledge timeout / retry interval in seconds (1-256) • number of retries (0-7)
<code>destination_address</code>	19	The destination addresses associated with the specified set selector. If no set selector is given, all destination addresses are shown. Each destination address entry contains the following fields: <ul style="list-style-type: none"> • Address format: IPv4+MAC or IPv6 For addresses in IPv4+MAC format: <ul style="list-style-type: none"> • IP address (string in dotted decimal format) • MAC address (string of 6 hexadecimal byte values delimited by ‘:’ symbols) • Gateway selector: 0 – use default, 1 – use backup For addresses in IPv6 format (only on ShMM-700): <ul style="list-style-type: none"> • IPv6 address (string in the canonical format)
<code>vlan_id</code>	20	The flag that indicates whether Virtual LANs are enabled for the channel, and the Virtual LAN ID (a number in the range 1 to 4095, or the value 0, indicating that Virtual LAN IDs are not used for the channel)
<code>vlan_priority</code>	21	A number in the range 0 to 7, that specifies the packet Priority field, according to 802.1q
<code>cs_entry_count</code>	22	A number in the range 0 to 16, that specifies how many Cipher Suites are supported by the target IPM controller

PARAMETER NAME	NUMBER	DESCRIPTION
<code>cs_entries</code>	23	A list of the Cipher Suite IDs supported by the target IPM controller, in hexadecimal, separated by commas. The standard Cipher Suite IDs are defined in the IPMI 2.0 specification, section 22.15.2.
<code>cs_priv_levels</code>	24	A list of the currently assigned Cipher Suite privilege levels. Each item of the list includes a Cipher Suite ID and the maximum privilege level associated with that Cipher Suite.
<code>destination_vlan_tag</code>	25	The alert destination VLAN tag identified by the specified set selector. If no set selector is specified, all destination VLAN tags are shown. Each destination VLAN tag contains the following fields: <ul style="list-style-type: none"> • destination selector (0-15) • address format • VLAN ID (0-4095) • VLAN priority (0-7) For the Pigeon Point Shelf Manager, VLAN tags are read-only and are the same for all alert destinations.
<code>bad_password_threshold</code>	26	Bad Password Threshold parameters; a designated user is locked out on a designated channel, after a specified number of RMCP connection attempts with an invalid password.
<code>ipv6_support</code>	50	IPv6/IPv4 support capabilities on the IPMI LAN channel.
<code>ipv6_addr_enables</code>	51	IPv6/IPv4 addressing enables for the IPMI LAN channel.
<code>ipv6_traffic_class</code>	52	IPv6 header static traffic class for the IPMI LAN channel.
<code>ipv6_hop_limit</code>	53	IPv6 header static hop limit for the IPMI LAN channel.
<code>ipv6_flow_label</code>	54	IPv6 header flow label for the IPMI LAN channel.
<code>ipv6_status</code>	55	IPv6 status for the IPMI LAN channel (maximum number of static and dynamic addresses, support for SLAAC and DHCPv6).

PARAMETER NAME	NUMBER	DESCRIPTION
ipv6_addresses	56	IPv6 static addresses for the IPMI LAN channel.
ipv6_static_duid_length	57	IPv6 DHCPv6 static DUID storage length for the IPMI LAN channel.
ipv6_static_duid	58	IPv6 DHCPv6 static DUIDs for the IPMI LAN channel.
ipv6_dynamic_addresses	59	IPv6 dynamic addresses (obtained via DHCPv6 or SLAAC) for the IPMI LAN channel.
ipv6_dynamic_duid_length	60	IPv6 DHCPv6 dynamic DUID storage length for the IPMI LAN channel.
ipv6_dynamic_duid	61	IPv6 DHCPv6 dynamic DUIDs for the IPMI LAN channel.
ipv6_dhcpv6_timing_support	62	IPv6 DHCPv6 timing configuration support for the IPMI LAN channel.
ipv6_dhcpv6_timing	63	IPv6 DHCPv6 timing configuration parameters for the IPMI LAN channel.
ipv6_router_config	64	IPv6 router address configuration control for the IPMI LAN channel.
ipv6_router1_ip	65	IP address of the first IPv6 static router for the IPMI LAN channel.
ipv6_router1_mac	66	MAC address of the first IPv6 static router for the IPMI LAN channel.
ipv6_router1_prefix_length	67	Length of the prefix for the first IPv6 static router for the IPMI LAN channel.
ipv6_router1_prefix_value	68	Value of the prefix for the first IPv6 static router for the IPMI LAN channel.
ipv6_router2_ip	69	IP address of the second IPv6 static router for the IPMI LAN channel.
ipv6_router2_mac	70	MAC address of the second IPv6 static router for the IPMI LAN channel.
ipv6_router2_prefix_length	71	Length of the prefix for the second IPv6 static router for the IPMI LAN channel.
ipv6_router2_prefix_value	72	Value of the prefix for the second IPv6 static router for the IPMI LAN channel.
ipv6_dynamic_router_num	73	Number of dynamic router information sets for the IPMI LAN channel.
ipv6_dynamic_router_ip	74	IP address of a dynamic IPv6 router for the IPMI LAN channel.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>ipv6_dynamic_router_mac</code>	75	MAC address of a dynamic IPv6 router for the IPMI LAN channel.
<code>ipv6_dynamic_router_prefix_length</code>	76	Length of the prefix for a dynamic IPv6 router for the IPMI LAN channel.
<code>ipv6_dynamic_router_prefix_value</code>	77	Value of the prefix for a dynamic IPv6 router for the IPMI LAN channel.
<code>ipv6_dynamic_router_hop_limit</code>	78	Hop limit most recently received from one of the dynamic IPv6 routers for the IPMI LAN channel.
<code>ipv6_nd_slaac_timing_support</code>	79	IPv6 ND/SLAAC timing configuration support for the IPMI LAN channel.
<code>ipv6_nd_slaac_timing</code>	80	IPv6 ND/SLAAC timing configuration parameters for the IPMI LAN channel.
<code>hpm2_caps</code>	N/A	The HPM.2-related capabilities of the IPMI LAN channel.
<code>hpm2_br_control</code>	N/A	The LAN Bridging Control parameters
<code>hpm2_br_state</code>	N/A	The current state of LAN bridging of IPMI messages by the target IPM controller.
<code>hpm2_if_mask</code>	N/A	A list of the interfaces supported on the IPMI LAN channel.
<code>hpm2_if_descr</code>	N/A	A description of the specific physical interface supported on the IPMI LAN channel.
<code>hpm2_if_grp_mask</code>	N/A	A list of Interface Groups supported on the IPMI LAN channel.
<code>hpm2_if_grp_descr</code>	N/A	The description of Interfaces belonging to an Interface Group supported on the IPMI LAN channel.
<code>hpm2_act_if_group</code>	N/A	The Active Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_def_if_group</code>	N/A	The Default Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_rd_grp_mask</code>	N/A	A list of Redundancy Groups supported by the IPMI LAN channel.
<code>hpm2_rd_grp_descr</code>	N/A	A list of Interface Groups that are supported within the specified Redundancy Group.
<code>hpm2_rd_timeout</code>	N/A	The timeout period used by the IPM controller for managing failovers between Interface Groups.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>hpm2_def_rd_timeout</code>	N/A	The default timeout period used by the IPM controller for managing failovers between Interface Groups.
<code>hpm3_ch_index</code>	N/A	The HPM.3 channel index for the given IPMI LAN channel
<code>hpm3_dhcp_options</code>	N/A	A list of numbers of additional DHCP Options obtained from the DHCP server by the DHCP Proxy

3.36.3 Examples

```
# clia getlanconf 82 2 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IP Address: 192.168.1.142
```

3.36.4 auth_support

3.36.4.1 Syntax

```
getlanconf <IPMB-address> <channel> auth_support
```

```
getlanconf <IPMB-address> <channel> 1
```

3.36.4.2 Purpose

This command shows the current value of the LAN parameter *auth_support*. This parameter indicates which authentication types are supported by the IPM controller at *<IPMB-address>*, represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Other bits are reserved and should be set to 0. Besides the raw hexadecimal value, symbolic values for the bits that are set are also shown.

3.36.4.3 Examples

```
# clia getlanconf 82 2 auth_support
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Authentication Type Support: 0x15 ( None MD5 Straight Password/Key )
```

```
#
```


3.36.5 auth_enables

3.36.5.1 Syntax

```
getlanconf <IPMB-address> <channel> auth_enables
getlanconf <IPMB-address> <channel> 2
```

3.36.5.2 Purpose

This command shows the current value of the LAN parameter *auth_enables*. This parameter indicates which authentication types are currently enabled by the IPM controller at *<IPMB-address>* for each of five supported privilege levels (Callback, User, Operator, Administrator and OEM), represented by a sequence of five bytes, each corresponding to the respective privilege level, treated as a bit mask with the following meanings of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Other bits are reserved and should be set to 0.

Besides the raw hexadecimal values, symbolic values for the bits that are set are also shown.

3.36.5.3 Examples

Show the types of authentication supported by LAN channel 1.

```
# clia getlanconf 82 2 auth_enables
```

Pigeon Point Shelf Manager Command Line Interpreter

Authentication Type Enables:

 Callback level: 0x00

 User level: 0x15 (None MD5 Straight Password/Key)

 Operator level: 0x15 (None MD5 Straight Password/Key)

 Administrator level: 0x15 (None MD5 Straight Password/Key)

 OEM level: 0x00

```
#
```

3.36.6 ip

3.36.6.1 Syntax

```
getlanconf <IPMB-address> <channel> ip
getlanconf <IPMB-address> <channel> 3
```

3.36.6.2 Purpose

This command shows the current IP address used by the channel, in dotted decimal notation.

3.36.6.3 Examples

```
# clia getlanconf 82 2 ip
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address: 172.16.2.203

#

3.36.7 ip_source

3.36.7.1 Syntax

```
getlanconf <IPMB-address> <channel> ip_source
```

```
getlanconf <IPMB-address> <channel> 4
```

3.36.7.2 Purpose

This command shows the current value of the LAN parameter *ip_source*. This parameter indicates the source of the IP Address used by the IPM controller, represented by a single byte, which can have one of the following values:

- 0 Unspecified
- 1 Static address (manually configured)
- 2 Address obtained by Shelf Manager running DHCP
- 3 Address loaded by BIOS or system software
- 4 Address obtained by IPM controller running other address assignment protocol

Other values are reserved.

Besides the raw hexadecimal value, the symbolic value is also shown.

3.36.7.3 Examples

```
# clia getlanconf 82 2 ip_source
```

Pigeon Point Shelf Manager Command Line Interpreter

IP Address Source: Address Obtained by BMC Running Other Address Assignment Protocol (0x04)

#

3.36.8 mac

3.36.8.1 Syntax

```
getlanconf <IPMB-address> <channel> mac
```

```
getlanconf <IPMB-address> <channel> 5
```

3.36.8.2 Purpose

This command shows the current MAC address used by the channel, in the form of six hexadecimal bytes separated by colons.

3.36.8.3 Examples

```
# clia getlanconf 82 2 mac
```

Pigeon Point Shelf Manager Command Line Interpreter

MAC Address: 90:91:91:91:91:91

#

3.36.9 subnet_mask

3.36.9.1 Syntax

```
getlanconf <IPMB-address> <channel> subnet_mask  
getlanconf <IPMB-address> <channel> 6
```

3.36.9.2 Purpose

This command shows the current IP subnet mask used by the channel, in dotted decimal notation.

3.36.9.3 Examples

```
# clia getlanconf 82 2 subnet_mask  
Pigeon Point Shelf Manager Command Line Interpreter  
Subnet Mask: 255.255.255.0  
#
```

3.36.10 ipv4_hdr_param

3.36.10.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv4_hdr_param  
getlanconf <IPMB-address> <channel> 7
```

3.36.10.2 Purpose

This command shows the current IPv4 header parameters. They are represented as 3 single-byte values in hexadecimal notation, separated with colons. The content of the bytes conforms to section 23.2 of the IPMI 2.0 specification.

3.36.10.3 Examples

```
# clia getlanconf 82 2 ipv4_hdr_param  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv4 Header Parameters: 0x40:0x40:0x10  
#
```

3.36.11 pri_rmcp_port

3.36.11.1 Syntax

```
getlanconf <IPMB-address> <channel> pri_rmcp_port  
getlanconf <IPMB-address> <channel> 8
```

3.36.11.2 Purpose

This command shows the current RMCP primary port used by the channel, in hexadecimal. This is the port used for regular interactions via RMCP.

3.36.11.3 Examples

```
# clia getlanconf 82 2 pri_rmcp_port
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Primary RMCP Port Number: 0x026f  
#
```

3.36.12 `sec_rmcp_port`

3.36.12.1 Syntax

```
getlanconf <IPMB-address> <channel> sec_rmcp_port  
getlanconf <IPMB-address> <channel> 9
```

3.36.12.2 Purpose

This command shows the current RMCP secondary port used by the channel, in hexadecimal. This is the port used for secure interactions via RMCP.

3.36.12.3 Examples

```
# clia getlanconf 82 2 sec_rmcp_port  
Pigeon Point Shelf Manager Command Line Interpreter  
Secondary RMCP Port Number: 0x0298  
#
```

3.36.13 `arp_control`

3.36.13.1 Syntax

```
getlanconf <IPMB-address> <channel> arp_control  
getlanconf <IPMB-address> <channel> 10
```

3.36.13.2 Purpose

This command shows the current value of the LAN parameter *arp_control*. This parameter indicates the additional ARP support provided by the IPM controller, represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable IPM controller-generated Gratuitous ARPs
- 0x02 Enable IPM controller-generated ARP responses

Other bits are reserved and should be set to 0.

Besides the raw hexadecimal value, symbolic values for the bits that are set are also shown.

3.36.13.3 Examples

```
# clia getlanconf 82 2 arp_control  
Pigeon Point Shelf Manager Command Line Interpreter  
BMC-generated ARP Control: 02  
    Enable BMC-generated Gratuitous Response  
#
```

3.36.14 arp_interval

3.36.14.1 Syntax

```
getlanconf <IPMB-address> <channel> arp_interval  
getlanconf <IPMB-address> <channel> 11
```

3.36.14.2 Purpose

This command shows the current ARP interval used by the channel. The value is shown as a number of seconds in fixed-point numeric format (with a resolution of 0.5 seconds).

3.36.14.3 Examples

```
# clia getlanconf 82 2 arp_interval  
Pigeon Point Shelf Manager Command Line Interpreter  
Gratuitous ARP Interval: 2.0 seconds  
#
```

3.36.15 dft_gw_ip

3.36.15.1 Syntax

```
getlanconf <IPMB-address> <channel> dft_gw_ip  
getlanconf <IPMB-address> <channel> 12
```

3.36.15.2 Purpose

This command shows the IP address of the default gateway used by the channel, in dotted decimal notation.

3.36.15.3 Examples

```
# clia getlanconf 82 2 dft_gw_ip  
Pigeon Point Shelf Manager Command Line Interpreter  
Default Gateway Address: 0.0.0.0  
#
```

3.36.16 dft_gw_mac

3.36.16.1 Syntax

```
getlanconf <IPMB-address> <channel> dft_gw_mac  
getlanconf <IPMB-address> <channel> 13
```

3.36.16.2 Purpose

This command shows the MAC address of the default gateway used by the channel, in the form of six hexadecimal bytes separated by colons.

3.36.16.3 Examples

```
# clia getlanconf 82 2 dft_gw_mac  
Pigeon Point Shelf Manager Command Line Interpreter  
Default Gateway MAC Address: 14:4:14:af:ce:12
```

#

3.36.17 backup_gw_ip

3.36.17.1 Syntax

```
getlanconf <IPMB-address> <channel> backup_gw_ip  
getlanconf <IPMB-address> <channel> 14
```

3.36.17.2 Purpose

This command shows the IP address of the backup gateway used by the channel, in dotted decimal notation.

3.36.17.3 Examples

```
# clia getlanconf 82 2 backup_gw_ip  
Pigeon Point Shelf Manager Command Line Interpreter  
Backup Gateway Address: 0.0.0.0  
#
```

3.36.18 backup_gw_mac

3.36.18.1 Syntax

```
getlanconf <IPMB-address> <channel> backup_gw_mac  
getlanconf <IPMB-address> <channel> 15
```

3.36.18.2 Purpose

This command shows the MAC address of the backup gateway used by the channel, in the form of six hexadecimal bytes separated by colons.

3.36.18.3 Examples

```
# clia getlanconf 82 2 backup_gw_mac  
Pigeon Point Shelf Manager Command Line Interpreter  
Backup Gateway MAC Address: 25:68:c4:af:b3:10  
#
```

3.36.19 community

3.36.19.1 Syntax

```
getlanconf <IPMB-address> <channel> community  
getlanconf <IPMB-address> <channel> 16
```

3.36.19.2 Purpose

This command shows the community string parameter used in PET traps.

3.36.19.3 Examples

```
# clia getlanconf 10 1 community
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Community String: "public"
```

```
#
```

3.36.20 destination_count

3.36.20.1 Syntax

```
getlanconf <IPMB-address> <channel> destination_count
```

```
getlanconf <IPMB-address> <channel> 17
```

3.36.20.2 Purpose

This command shows the maximum number of alert destinations available for the channel. This is a configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

3.36.20.3 Examples

```
# clia getlanconf 10 1 destination_count
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Number of Destinations: 16
```

```
#
```

3.36.21 destination_type

3.36.21.1 Syntax

```
getlanconf <IPMB-address> <channel> destination_type [ <set-selector> ]
```

```
getlanconf <IPMB-address> <channel> 18 [ <set-selector> ]
```

3.36.21.2 Purpose

This command shows the element of the destination table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The following information is shown about the destination:

- the destination selector
- the alert destination type (PET Trap or OEM destination; whether the alert should be acknowledged)
- alert acknowledge timeout
- retry count

If the set selector is omitted, all active destinations are shown, with their numbers.

3.36.21.3 Examples

```
# clia getlanconf 10 1 destination_type 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
DST Type # 2, Type: Acknowledged PET Trap Destination (0x80), ACK Timeout /  
Retry Interval: 3 seconds, Retries: 5
```

```
# clia getlanconf 82 2 destination_type
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

DST Type # 0, Type: Acknowledged reserved (0x81), ACK Timeout / Retry Interval: 2 seconds, Retries: 6

DST Type # 1, Type: Unacknowledged reserved (0x02), ACK Timeout / Retry Interval: 3 seconds, Retries: 4

DST Type # 2, Type: Acknowledged PET Trap Destination (0x80), ACK Timeout / Retry Interval: 3 seconds, Retries: 5

#

3.36.22 destination_address

3.36.22.1 Syntax

```
getlanconf <IPMB-address> <channel> destination_address [ <set-selector> ]
```

```
getlanconf <IPMB-address> <channel> 19 [ <set-selector> ]
```

3.36.22.2 Purpose

This command shows the element of the destination address table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The following information is shown about the destination:

- the destination selector
- address format (IP+MAC or IPv6)

For address format IP+MAC:

- the destination IPv4 address
- the destination MAC address
- which gateway to use (default vs. backup).

For address format IPv6 (available only on ShMM-700):

- the destination IPv6 address

If the set selector is omitted, all active destination addresses are shown, with their numbers.

3.36.22.3 Examples

```
# clia getlanconf 10 1 destination_address 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
DST Addresses # 2, Address Format: IPv4 IP Address followed by DIX ethernet / 802.3 MAC Address (0x00)
```

```
Gateway: Default (0x00), Alerting IP: 172.16.2.100, Alerting MAC: 90:93:93:93:93:93
```

```
#
```

```
# clia getlanconf 20 1 destination_address 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Destination Address:
```

```
DST Addresses # 3, Address Format: IPv6 IP Address (0x10)
```

```
Alerting IP: 3ffe:302:11:2:203:dff:fe2e:2371
```

```
# clia getlanconf 20 1 destination_address
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```


Destination Address:

DST Addresses # 0, Address Format: IPv6 IP Address (0x10)

Alerting IP: 3ffe:302:11:2::7f

DST Addresses # 1, Address Format: IPv6 IP Address (0x10)

Alerting IP: 3ffe:302:11:2::7f

DST Addresses # 2, Address Format: IPv4 IP Address followed by DIX ethernet / 802.3 MAC Address (0x00)

Gateway: Default (0x00), Alerting IP: 80.240.102.224, Alerting MAC: 00:03:0d:2e:23:71

DST Addresses # 3, Address Format: IPv6 IP Address (0x10)

Alerting IP: 3ffe:302:11:2:203:dff:fe2e:2371

3.36.23 **vlan_id**

3.36.23.1 **Syntax**

```
getlanconf <IPMB-address> <channel> vlan_id
```

```
getlanconf <IPMB-address> <channel> 20
```

3.36.23.2 **Purpose**

This command shows whether VLANs are currently enabled for the channel and the VLAN ID that is currently assigned to the designated channel. The IPM controller activates the Virtual LAN facility for a channel only if VLANs are enabled *and* VLAN ID is not 0.

3.36.23.3 **Examples**

```
# clia getlanconf 82 2 vlan_id
```

Pigeon Point Shelf Manager Command Line Interpreter

802.1q VLAN ID: 4 (enabled)

```
#
```

For a channel with disabled VLAN functionality:

```
# clia getlanconf 10 1 vlan_id
```

Pigeon Point Shelf Manager Command Line Interpreter

802.1q VLAN ID: 0 (disabled)

```
#
```

3.36.24 **vlan_priority**

3.36.24.1 **Syntax**

```
getlanconf <IPMB-address> <channel> vlan_priority
```

```
getlanconf <IPMB-address> <channel> 21
```

3.36.24.2 **Purpose**

This command shows the VLAN priority that is currently assigned to the designated channel; this is the value of the Priority field used in the VLAN 802.1q network packet headers.

3.36.24.3 **Examples**

```
# clia getlanconf 10 1 vlan_priority
```

Pigeon Point Shelf Manager Command Line Interpreter

VLAN priority: 0

#

3.36.25 cs_entry_count

3.36.25.1 Syntax

```
getlanconf <IPMB-address> <channel> cs_entry_count
```

```
getlanconf <IPMB-address> <channel> 22
```

3.36.25.2 Purpose

This command shows the number of Cipher Suites supported by the IPM controller.

3.36.25.3 Examples

```
# clia getlanconf 10 1 cs_entry_count
```

Pigeon Point Shelf Manager Command Line Interpreter

Cipher Suite Entry count: 15

#

3.36.26 cs_entries

3.36.26.1 Syntax

```
getlanconf <IPMB-address> <channel> cs_entries
```

```
getlanconf <IPMB-address> <channel> 23
```

3.36.26.2 Purpose

This command shows the list of Cipher Suites IDs supported by the IPM controller. (The standard Cipher Suite IDs are listed in the IPMI 2.0 specification, section 22.15.2.)

3.36.26.3 Examples

```
# clia getlanconf 10 1 cs_entries
```

Pigeon Point Shelf Manager Command Line Interpreter

Supported Cipher Suite IDs: 0h, 1h, 2h, 3h, 4h, 5h, 6h, 7h, 8h, 9h, Ah, Bh, Ch, Dh, Eh

#

3.36.27 cs_priv_levels

3.36.27.1 Syntax

```
getlanconf <IPMB-address> <channel> cs_priv_levels
```

```
getlanconf <IPMB-address> <channel> 24
```

3.36.27.2 Purpose

This command shows the list of maximum privilege levels for the Cipher Suites supported by the IPM controller. Each item of the list contains a Cipher Suite ID and the maximum privilege level associated with that Cipher Suite. (The standard Cipher Suite IDs are listed in the IPMI 2.0 specification, section 22.15.2.) The maximum privilege level associated with a specific Cipher

Suite can be changed via the CLI command `setlanconf` or via the IPMI command “Set LAN Configuration Parameters”.

3.36.27.3 Examples

```
# clia getlanconf 10 1 cs_priv_levels
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Cipher Suite Privilege Levels:
```

```
    ID 00h, Priv.Level 'User'           (2); ID 01h, Priv.Level 'User'
(2);
    ID 02h, Priv.Level 'Administrator'  (4); ID 03h, Priv.Level 'OEM
Proprietary' (5);
    ID 04h, Priv.Level 'OEM Proprietary' (5); ID 05h, Priv.Level 'OEM
Proprietary' (5);
    ID 06h, Priv.Level 'User'           (2); ID 07h, Priv.Level
'Administrator' (4);
    ID 08h, Priv.Level 'OEM Proprietary' (5); ID 09h, Priv.Level 'OEM
Proprietary' (5);
    ID 0Ah, Priv.Level 'OEM Proprietary' (5); ID 0Bh, Priv.Level
'Administrator' (4);
    ID 0Ch, Priv.Level 'OEM Proprietary' (5); ID 0Dh, Priv.Level 'OEM
Proprietary' (5);
    ID 0Eh, Priv.Level 'OEM Proprietary' (5);
#
```

3.36.28 destination_vlan_tag

3.36.28.1 Syntax

```
getlanconf <IPMB-address> <channel> destination_vlan_tag [ <set-
selector> ]
```

```
getlanconf <IPMB-address> <channel> 25 [ <set-selector> ]
```

3.36.28.2 Purpose

This command shows the element of the destination VLAN tag table with the index `<set-selector>`. Indices are 0-based. Selector 0 is used to address the volatile destination (used with the “Alert Immediate” command). The following information is shown about the designated destination:

- destination selector
- address format (“802.1q VLAN TAG” is the only one currently supported)
- VLAN ID
- Canonical format indicator (currently always 0)
- VLAN priority.

If the set selector is omitted, all destination VLAN tags are shown, with their associated destination numbers. However, if VLANs are not in use for the designated channel, the text `N/A` is shown as a single line.

In the current implementation, VLAN tags are read-only and the same for all destinations on the same channel. In fact, the VLAN tag contents are derived from the VLAN-related channel configuration parameters.

3.36.28.3 Examples

```
# clia getlanconf 10 1 destination_vlan_tag 2
Pigeon Point Shelf Manager Command Line Interpreter
Destination Adresse VLAN TAGs:
    DST VLAN TAGs # 2, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 4, CFI
0, Priority 0 (hex: 0x100004)
#
```

3.36.29 bad_password_threshold

3.36.29.1 Syntax

```
getlanconf <IPMB-address> <channel> bad_password_threshold
getlanconf <IPMB-address> <channel> 26
```

3.36.29.2 Purpose

This command shows the current Bad Password Threshold parameters, which are used to track RMCP connection attempts with an invalid password on the specified channel. The following information is shown:

- The Bad Password Threshold value; after this number of unsuccessful connection attempts, the user whose name was used in the connection attempts is disabled for the specified channel
- Whether an “Invalid password disable” event is sent on behalf of the Session Audit sensor in the failure case
- The Attempt Count Reset Interval (in seconds); after that interval, the accumulated count of bad password attempts is automatically reset to 0
- The User Lockout Interval (in seconds); the interval that the user remains disabled after being disabled because the Bad Password Threshold value was reached.

3.36.29.3 Examples

```
# clia getlanconf 20 1 bad_password_threshold
Pigeon Point Shelf Manager Command Line Interpreter
Bad Password Threshold: 3
Generate "Invalid password disable" event
Attempt Count Reset Interval: 30 seconds
User Lockout Interval: 60 seconds
#
```

3.36.30 ipv6_support

3.36.30.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_support
```

```
getlanconf <IPMB-address> <channel> 50
```

3.36.30.2 Purpose

This command shows how the specified channel supports IPv6- and IPv4-based addressing and their combinations. The following capability options are defined:

- Support for IPv6 addressing only, with IPv4 disabled
- Support for IPv4 and IPv6 addressing, simultaneously enabled
- Support for IPv6 destination addresses for LAN Alerting.

The numeric capability mask value is also shown in the output.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.30.3 Examples

```
# clia getlanconf 20 1 ipv6_support
Pigeon Point Shelf Manager Command Line Interpreter
IPv6/IPv4 support: IPv6+IPv4, IPv6 for LAN Alerts (0x06)
#
```

3.36.31 ipv6_addr_enables

3.36.31.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_addr_enables
getlanconf <IPMB-address> <channel> 51
```

3.36.31.2 Purpose

This command shows the current IPv4/IPv6 addressing mode on the channel. One of the following modes can be shown:

- IPv6 addressing is disabled
- IPv6 addressing is enabled, IPv4 addressing is enabled
- Both IPv4 and IPv6 addressing are enabled.

The numeric parameter value is also shown in the output.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.31.3 Examples

```
# clia getlanconf 20 1 ipv6_addr_enables
Pigeon Point Shelf Manager Command Line Interpreter
IPv6/IPv4 Addressing Enables: 0x02 (enable IPv6 and IPv4)#
```

3.36.32 ipv6_traffic_class

3.36.32.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_traffic_class
```

```
getlanconf <IPMB-address> <channel> 52
```

3.36.32.2 Purpose

This command shows the IPv6 traffic class used for transmitting Alert packets on the channel.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.32.3 Examples

```
# clia getlanconf 20 1 ipv6_traffic_class
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Header Static Traffic Class: 0x00
```

3.36.33 ipv6_hop_limit

3.36.33.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_hop_limit
getlanconf <IPMB-address> <channel> 53
```

3.36.33.2 Purpose

This command shows the IPv6 hop limit used for outgoing packets on the channel in the following two circumstances:

- If the router returns “unspecified” (00h) as the hop limit
- When a static router configuration is used.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.33.3 Examples

```
# clia getlanconf 20 1 ipv6_hop_limit
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Header Static Hop Limit: 32
```

3.36.34 ipv6_flow_label

3.36.34.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_flow_label
getlanconf <IPMB-address> <channel> 54
```

3.36.34.2 Purpose

This command shows the IPv6 flow label used for outgoing packets on the channel.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.34.3 Examples

```
# clia getlanconf 20 1 ipv6_flow_label
Pigeon Point Shelf Manager Command Line Interpreter
```

IPv6 Header Flow Label: 0x00,0x00,0x00

3.36.35 ipv6_status

3.36.35.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_status  
getlanconf <IPMB-address> <channel> 55
```

3.36.35.2 Purpose

This command shows the IPv6 status information for the channel (maximum number of static and dynamic addresses and supported types of dynamic addresses).

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.35.3 Examples

```
# clia getlanconf 20 1 ipv6_status  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Status:  
    Max Static Addresses: 4, Max Dynamic Addresses: 4; Addressing Supported:  
    0x02 (SLAAC)
```

3.36.36 ipv6_addresses

3.36.36.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_addresses [<index>]  
getlanconf <IPMB-address> <channel> 56 [<index>]
```

3.36.36.2 Purpose

This command shows the IPv6 static addresses currently assigned to the channel, with their prefix lengths, status values and positions in the static address list.

The index indicates which specific address in the list is requested; if the index is omitted, all addresses are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.36.3 Examples

```
# clia getlanconf 20 1 ipv6_addresses  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Static Addresses:  
    0: 3ffe:302:11:2::6/64: Active (0x00)  
    1: 3ffe:302:11:2::26/64: Active (0x00)  
# clia getlanconf 20 1 ipv6_addresses 1  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Static Addresses:  
    1: 3ffe:302:11:2::26/64: Active (0x00)
```

3.36.37 `ipv6_static_duid_length`

3.36.37.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_static_duid_length
getlanconf <IPMB-address> <channel> 57
```

3.36.37.2 Purpose

This command shows the number of 16-byte blocks allocated for storing each of the IPv6 static DUIDs (DHCP Unique Identifiers) for the channel.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.37.3 Examples

```
# clia getlanconf 20 1 ipv6_static_duid_length
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 DHCPv6 Static DUID Storage Length: 3*16 bytes
```

3.36.38 `ipv6_static_duid`

3.36.38.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_static_duid [<index>]
getlanconf <IPMB-address> <channel> 58 [<index>]
```

3.36.38.2 Purpose

This command shows the IPv6 static DUIDs (DHCP Unique Identifiers) for the channel. According to the IPMI 2.0 specification, a separate DUID can be specified for each of the possible static IPv6 addresses on the channel. For the Shelf Manager, however, a single read-only DUID exists for the channel, and applies to all static IPv6 addresses on the channel. The format and contents of the DUID are defined in the HPM.3 specification (as for the logical Shelf Manager). Other IPMCs may have a different convention with respect to static DUIDs.

The `<index>` parameter indicates which specific DUID is requested; if the index omitted, all DUIDs are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.38.3 Examples

```
# clia getlanconf 20 1 ipv6_static_duid
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 DHCPv6 Static DUIDs:
  0: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
    42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
    00 00 00 00 03 00 00 00
  1: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
    42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
    00 00 00 00 03 00 00 00
```



```
2: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
   42 43 44 45 46 47 48 00 00 00 00 00 00 00 00
   00 00 00 00 03 00 00 00
```

```
3: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
   42 43 44 45 46 47 48 00 00 00 00 00 00 00 00
   00 00 00 00 03 00 00 00
```

```
# clia getlanconf 20 1 ipv6_static_duid 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 DHCPv6 Static DUIDs:
```

```
2: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
   42 43 44 45 46 47 48 00 00 00 00 00 00 00 00
   00 00 00 00 03 00 00 00
```

3.36.39 **ipv6_dynamic_addresses**

3.36.39.1 **Syntax**

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_addresses  
[<index>]
```

```
getlanconf <IPMB-address> <channel> 59 [<index>]
```

3.36.39.2 **Purpose**

This command shows the IPv6 dynamic addresses currently assigned to the channel, with their prefix lengths, origins (SLAAC or DHCPv6), status values and positions in the dynamic address list.

The <*index*> parameter indicates which specific address in the list is requested; if the index is omitted, all addresses are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.39.3 **Examples**

```
# clia getlanconf 20 1 ipv6_dynamic_addresses
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 Dynamic Addresses:
```

```
0: fe80::218:49ff:fe01:8f8c/64: SLAAC: Active (0x00)
```

```
# clia getlanconf 20 1 ipv6_dynamic_addresses 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 Dynamic Addresses:
```

```
0: fe80::218:49ff:fe01:8f8c/64: SLAAC: Active (0x00)
```

3.36.40 **ipv6_dynamic_duid_length**

3.36.40.1 **Syntax**

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_duid_length
```

```
getlanconf <IPMB-address> <channel> 60
```

3.36.40.2 Purpose

This command shows the number of 16-byte blocks allocated for storing each of the IPv6 dynamic DUIDs (DHCP Unique Identifiers) for the channel.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.40.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_duid_length
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 DHCPv6 Dynamic DUID Storage Length: 3*16 bytes
```

3.36.41 ipv6_dynamic_duid

3.36.41.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_duid [<index>]
getlanconf <IPMB-address> <channel> 61 [<index>]
```

3.36.41.2 Purpose

This command shows the IPv6 dynamic DUIDs (DHCP Unique Identifiers) for the channel. According to the IPMI 2.0 specification, a separate DUID can be specified for each of the possible dynamic IPv6 addresses on the channel. For the Shelf Manager, however, a single read-only DUID exists for the channel, and applies to all dynamic IPv6 addresses on the channel. The format and contents of the DUID are defined in the HPM.3 specification (as for the physical Shelf Managers). Other IPMCs may have a different convention with respect to dynamic DUIDs.

The *<index>* parameter indicates which specific DUID is requested; if the index is omitted, all DUIDs are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.41.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_duid
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 DHCPv6 Dynamic DUIDs:
  0: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
    42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
    00 00 00 00 03 01 00 00
  1: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
    42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
    00 00 00 00 03 01 00 00
  2: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
    42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
    00 00 00 00 03 01 00 00
  3: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
```

```
42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
00 00 00 00 03 01 00 00
```

```
# clia getlanconf 20 1 ipv6_dynamic_duid 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 DHCPv6 Dynamic DUIDs:
```

```
2: 27 00 02 00 00 31 5A 48 50 4D 2E 33 2D 31 C8 41
42 43 44 45 46 47 48 00 00 00 00 00 00 00 00 00
00 00 00 00 03 01 00 00
```

3.36.42 ipv6_dhcpv6_timing_support

3.36.42.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dhcpv6_timing_support
```

```
getlanconf <IPMB-address> <channel> 62
```

3.36.42.2 Purpose

This command shows how DHCPv6 timing configuration support is implemented by the target IPMC for the channel. Possible values are “Disabled”, “Global” and “Per Interface”. The Shelf Manager does not support DHCPv6 timing configuration and returns the value “Disabled”.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.42.3 Examples

```
# clia getlanconf 20 1 ipv6_dhcpv6_timing_support
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 DHCPv6 Timing Configuration Support: Disabled (0)
```

3.36.43 ipv6_dhcpv6_timing

3.36.43.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dhcpv6_timing
```

```
getlanconf <IPMB-address> <channel> 63
```

3.36.43.2 Purpose

This command shows the DHCPv6 timing configuration parameters for the target channel, as an opaque sequence of hexadecimal bytes.

The Shelf Manager does not support this parameter as a target IPMC. Other IPMCs may provide such support.

3.36.44 ipv6_router_config

3.36.44.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router_config
```

```
getlanconf <IPMB-address> <channel> 64
```

3.36.44.2 Purpose

This command shows the current router configuration for the channel, with respect to whether static routers and/or dynamic routers are enabled. Possible values are “Disabled”, “Enable Static”, “Enable Dynamic” and “Enable Static And Dynamic”. The numeric value of the parameter is also shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.44.3 Examples

```
# clia getlanconf 20 1 ipv6_router_config
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router Address Configuration Support: Enable Static And Dynamic (3)
```

3.36.45 ipv6_router1_ip

3.36.45.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router1_ip
getlanconf <IPMB-address> <channel> 65
```

3.36.45.2 Purpose

This command shows the IPv6 address of the first static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.45.3 Examples

```
# clia getlanconf 20 1 ipv6_router1_ip
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Static Router 1 IP Address: 3ffe:302:11:2::11
```

3.36.46 ipv6_router1_mac

3.36.46.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router1_mac
getlanconf <IPMB-address> <channel> 66
```

3.36.46.2 Purpose

This command shows the MAC address of the first static router for the channel, as currently configured. The Shelf Manager as a target IPMC does not support this parameter (since it is not actually needed for routing).

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.47 `ipv6_router1_prefix_length`

3.36.47.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router1_prefix_length  
getlanconf <IPMB-address> <channel> 67
```

3.36.47.2 Purpose

This command shows the length of the prefix serviced by the first static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.47.3 Examples

```
# clia getlanconf 20 1 ipv6_router1_prefix_length  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Static Router 1 Prefix Length: 80
```

3.36.48 `ipv6_router1_prefix_value`

3.36.48.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router1_prefix_value  
getlanconf <IPMB-address> <channel> 68
```

3.36.48.2 Purpose

This command shows the actual prefix serviced by the first static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.48.3 Examples

```
# clia getlanconf 20 1 ipv6_router1_prefix_value  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Static Router 1 Prefix Value: 3ffe:302:11::
```

3.36.49 `ipv6_router2_ip`

3.36.49.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router2_ip  
getlanconf <IPMB-address> <channel> 69
```

3.36.49.2 Purpose

This command shows the IPv6 address of the second static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.49.3 Examples

```
# clia getlanconf 20 1 ipv6_router2_ip
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Static Router 2 IP Address: 3ffe:302:11:2::12
```

3.36.50 ipv6_router2_mac

3.36.50.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router2_mac
getlanconf <IPMB-address> <channel> 70
```

3.36.50.2 Purpose

This command shows the MAC address of the second static router for the channel, as currently configured. The Shelf Manager as the target IPMC does not support this parameter (since it is not actually needed for routing).

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.51 ipv6_router2_prefix_length

3.36.51.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router2_prefix_length
getlanconf <IPMB-address> <channel> 71
```

3.36.51.2 Purpose

This command shows the length of the prefix serviced by the second static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.51.3 Examples

```
# clia getlanconf 20 1 ipv6_router2_prefix_length
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Static Router 2 Prefix Length: 0
```

3.36.52 ipv6_router2_prefix_value

3.36.52.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_router2_prefix_value
getlanconf <IPMB-address> <channel> 72
```

3.36.52.2 Purpose

This command shows the actual prefix serviced by the second static router for the channel, as currently configured.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.52.3 Examples

```
# clia getlanconf 20 1 ipv6_router2_prefix_value
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Static Router 2 Prefix Value: ::
```

3.36.53 ipv6_dynamic_router_num

3.36.53.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_router_num
getlanconf <IPMB-address> <channel> 73
```

3.36.53.2 Purpose

This command shows the current number of dynamic router information sets on the target channel. Each information set contains information received and updated dynamically from a local router in the form of Router Advertisement messages.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.53.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_router_num
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info Sets: 1
```

3.36.54 ipv6_dynamic_router_ip

3.36.54.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_router_ip
[<index>]
getlanconf <IPMB-address> <channel> 74 [<index>]
```

3.36.54.2 Purpose

This command shows the IPv6 address of the Nth router in the dynamic router information set for the channel, where N is the value of the parameter *<index>*, starting from 0. If *<index>* is not specified, IPv6 addresses of all dynamic routers are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.54.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_router_ip
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info IP Addresses:
    0: fe80::215:f2ff:fe67:81c6
# clia getlanconf 20 1 ipv6_dynamic_router_ip 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info IP Addresses:
    0: fe80::215:f2ff:fe67:81c6
```

3.36.55 `ipv6_dynamic_router_mac`

3.36.55.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_dynamic_router_mac
[<index>]
getlanconf <IPMB-address> <channel> 75 [<index>]
```

3.36.55.2 Purpose

This command shows the MAC address of the Nth router in the dynamic router information set for the channel, where N is the value of the parameter *<index>*, starting from 0. If *<index>* is not specified, MAC addresses of all dynamic routers are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.55.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_router_mac
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info MAC Addresses:
    0: 00:15:f2:67:81:c6
# clia getlanconf 20 1 ipv6_dynamic_router_mac 0
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info MAC Addresses:
    0: 00:15:f2:67:81:c6
```

3.36.56 `ipv6_dynamic_router_prefix_length`

3.36.56.1 Syntax

```
getlanconf <IPMB-address> <channel>
ipv6_dynamic_router_prefix_length [<index>]
getlanconf <IPMB-address> <channel> 76 [<index>]
```

3.36.56.2 Purpose

This command shows the length of the prefix advertised by the Nth router in the dynamic router information set for the channel, where N is the value of the parameter *<index>*, starting from 0. If *<index>* is not specified, prefix lengths for all dynamic routers are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.56.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_router_prefix_length
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Dynamic Router Info Prefix Lengths:
```



```
0: 0
```

```
# clia getlanconf 20 1 ipv6_dynamic_router_prefix_length 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 Dynamic Router Info Prefix Lengths:
```

```
0: 0
```

3.36.57 ipv6_dynamic_router_prefix_value

3.36.57.1 Syntax

```
getlanconf <IPMB-address> <channel>
```

```
ipv6_dynamic_router_prefix_value [<index>]
```

```
getlanconf <IPMB-address> <channel> 77 [<index>]
```

3.36.57.2 Purpose

This command shows the actual prefix advertised by the Nth router in the dynamic router information set for the channel, where N is the value of the parameter *<index>*, starting from 0. If *<index>* is not specified, prefixes for all dynamic routers are shown.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.57.3 Examples

```
# clia getlanconf 20 1 ipv6_dynamic_router_prefix_value
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 Dynamic Router Info Prefix Values:
```

```
0: ::
```

```
# clia getlanconf 20 1 ipv6_dynamic_router_prefix_value 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
IPv6 Dynamic Router Info Prefix Values:
```

```
0: ::
```

3.36.58 ipv6_dynamic_router_hop_limit

3.36.58.1 Syntax

```
getlanconf <IPMB-address> <channel>
```

```
ipv6_dynamic_router_hop_limit
```

```
getlanconf <IPMB-address> <channel> 78
```

3.36.58.2 Purpose

This command shows the hop limit advertised by one of the dynamic routers for the channel. The value from the most recently received Router Advertisement message is shown, irrespective of which router has sent it.

The Shelf Manager does not support this parameter, which is defined as optional in the IPMI 2.0 specification. Other IPMCs may support it.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.59 ipv6_nd_slaac_timing_support

3.36.59.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_nd_slaac_timing_support  
getlanconf <IPMB-address> <channel> 79
```

3.36.59.2 Purpose

This command shows how ND/SLAAC (Neighbor Discovery/Stateless Address Autoconfiguration) timing configuration support is implemented by the target IPMC for the channel. Possible values are “Disabled”, “Global” and “Per Interface”. The Shelf Manager does not support ND/SLAAC timing configuration and returns the value “Disabled”.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.36.59.3 Examples

```
# clia getlanconf 20 1 ipv6_nd_slaac_timing_support  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 ND/SLAAC Timing Configuration Support: Disabled (0)
```

3.36.60 ipv6_nd_slaac_timing

3.36.60.1 Syntax

```
getlanconf <IPMB-address> <channel> ipv6_nd_slaac_timing  
getlanconf <IPMB-address> <channel> 80
```

3.36.60.2 Purpose

This command shows the ND/SLAAC (Neighbor Discovery/Stateless Address Autoconfiguration) timing configuration parameters for the target channel, as an opaque sequence of hexadecimal bytes.

The Shelf Manager does not support this parameter. Other IPMCs optionally provide such support.

3.36.61 hpm2_caps

3.36.61.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_caps
```

3.36.61.2 Purpose

This command shows the HPM.2-related capabilities of the IPMI LAN channel; these include capability flags, LAN attachment type, and maximum message sizes in both the inbound (from a Network Client to the IPM controller) and outbound (from the IPM controller to a Network Client) directions.

3.36.61.3 Examples

```
# clia getlanconf 82 5 hpm2_caps  
Pigeon Point Shelf Manager Command Line Interpreter
```

HPM.2 Capabilities:

```
IPMC Managed Failover
Advanced Discovery Mechanism
LAN Attachment: Dedicated NC, No Onboard Switch in Path
Bandwidth Capability Class: 10 Mbit to 100 Mbit
Maximum Inbound Payload Size: 560 bytes
Maximum Outbound Payload Size: 560 bytes
```

```
#
```

3.36.62 hpm2_br_control

3.36.62.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_br_control
```

3.36.62.2 Purpose

This command reports that LAN bridging of IPMI messages is either enabled or disabled and either implicit or explicit, on the channel specified. This parameter applies only to an IPM controller that acts as a bridge between the command initiator and the target IPM controller, and to the IPMI LAN channel that is used for communication between the bridging entity and the target IPM controller.

3.36.62.3 Examples

```
# clia getlanconf 82 5 hpm2_br_control
Pigeon Point Shelf Manager Command Line Interpreter
Enabled; Explicit
HPM.2 LAN Bridging Control: Implicit:: Disabled
```

3.36.63 hpm2_br_state

3.36.63.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_br_state <selector>
```

3.36.63.2 Purpose

This command shows the current state of LAN bridging of IPMI messages by the target IPM controller or MMC defined by the <selector> value. This parameter applies only to an IPM controller (the bridging entity, identified by its <IPMB-address>) that acts as a bridge between the command initiator and the target IPM controller or MMC, and to the IPMI LAN channel that is used for communication between the bridging entity and the target IPM controller or MMC.

3.36.63.3 Examples

```
# clia getlanconf 82 5 hpm2_br_state 0x74
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 LAN Bridging State for 0x74: Implicit: Connected, Explicit: Enabled,
Handle: 0x64
#
```

3.36.64 hpm2_if_mask

3.36.64.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_if_mask
```

3.36.64.2 Purpose

This command reports the numbers of interfaces supported on the IPMI LAN channel.

3.36.64.3 Examples

```
# clia getlanconf 82 5 hpm2_if_mask
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interfaces: 0,1,2,3,4
#
```

3.36.65 hpm2_if_descr

3.36.65.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_if_descr [<selector>]
```

3.36.65.2 Purpose

This command reports the details of a specific interface identified by the *<selector>* parameter. The *<selector>* is the interface selector, an integer number in the range 0..63. If this parameter is omitted, the details of all the supported interfaces are shown.

For each interface, the following information is shown:

- Interface selector
- Interface type (Non E-Keyed, ATCA Backplane, AMC Module or MCH/IRTM/Zone 3 IRTM compliant)
- Additional information (ATCA or AMC Link designator, On-Carrier Device ID for MCH/IRTM/Zone 3 IRTM compliant interfaces, a board-vendor assigned unique number for non E-keyed interfaces)
- Current availability of the interface and its power requirements.

3.36.65.3 Examples

```
# clia getlanconf 82 5 hpm2_if_descr
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface 0: Non E-Keyed: Board vendor number: 0
    Currently available/enabled
HPM.2 Interface 1: ATCA Backplane: Ch=0/If=Base/Ports=none
    Currently available/enabled
    Requires Payload Power
HPM.2 Interface 2: ATCA Backplane: Ch=0/If=Base/Ports=none
    Currently available/enabled
    Requires Payload Power
HPM.2 Interface 3: ATCA Backplane: Ch=0/If=Base/Ports=none
```

```
Currently available/enabled
Requires Payload Power
HPM.2 Interface 4: ATCA Backplane: Ch=0/If=Base/Ports=none
Currently available/enabled
Requires Payload Power
# clia getlanconf 82 5 hpm2_if_descr 1
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface 1: ATCA Backplane: Ch=0/If=Base/Ports=none
Currently available/enabled
Requires Payload Power
#
```

3.36.66 hpm2_if_grp_mask

3.36.66.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_if_grp_mask
```

3.36.66.2 Purpose

This command reports the list of Interface Groups that are supported by the corresponding IPMI LAN channel.

3.36.66.3 Examples

```
# clia getlanconf 82 5 hpm2_if_grp_mask
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface Groups: 0,1,2
#
```

3.36.67 hpm2_if_grp_descr

3.36.67.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_if_grp_descr
[<selector>]
```

3.36.67.2 Purpose

This command reports the list of Interfaces belonging to the Interface Group specified by the <selector> parameter. If the parameter is omitted, the command reports the lists of Interfaces for all the Interface Groups that are supported on the corresponding IPMI LAN channel.

3.36.67.3 Examples

```
# clia getlanconf 82 5 hpm2_if_grp_descr
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Interface Group 0: 0
HPM.2 Interface Group 1: 1,2
HPM.2 Interface Group 2: 3,4
# clia getlanconf 82 5 hpm2_if_grp_descr 2
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Interface Group 2: 3,4

#

3.36.68 hpm2_act_if_group

3.36.68.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_act_if_group
```

3.36.68.2 Purpose

This command reports the Active Interface Group number and the Active Redundancy Group number for the given IPMI LAN channel.

3.36.68.3 Examples

```
# clia getlanconf 82 5 hpm2_act_if_group
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Active Interface Group: 2; Active Redundancy Group: 0

#

3.36.69 hpm2_def_if_group

3.36.69.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_def_if_group
```

3.36.69.2 Purpose

This command reports the Default Interface Group number and the Default Redundancy Group number for the given IPMI LAN channel.

3.36.69.3 Examples

```
# clia getlanconf 82 5 hpm2_def_if_group
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Default Interface Group: 0; Default Redundancy Group: 0

#

3.36.70 hpm2_rd_grp_mask

3.36.70.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_rd_grp_mask
```

3.36.70.2 Purpose

This command reports the Redundancy Groups that are supported on the corresponding IPMI LAN channel.

3.36.70.3 Examples

```
# clia getlanconf 82 5 hpm2_rd_grp_mask
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2 Redundancy Groups: 0

#

3.36.71 hpm2_rd_grp_descr

3.36.71.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_rd_grp_descr  
[<selector>]
```

3.36.71.2 Purpose

This command reports the list of Interface Groups supported within the Redundancy Group specified by the parameter *<selector>*. If the parameter is omitted, lists of Interface Groups are reported for all the Redundancy Groups that are supported on the corresponding IPMI LAN channel.

3.36.71.3 Examples

```
# clia getlanconf 82 5 hpm2_rd_grp_descr  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Redundancy Group 0: 0,1,2  
HPM.2 Redundancy Group 1: 0,2  
# clia getlanconf 82 5 hpm2_rd_grp_descr 0  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Redundancy Group 0: 0,1,2  
#
```

3.36.72 hpm2_rd_timeout

3.36.72.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_rd_timeout
```

3.36.72.2 Purpose

This command reports the timeout period used by the IPM controller for managing failovers between Interface Groups.

3.36.72.3 Examples

```
# clia getlanconf 82 5 hpm2_rd_timeout  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Redundancy Timeout: 15 seconds  
#
```

3.36.73 hpm2_def_rd_timeout

3.36.73.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm2_def_rd_timeout
```

3.36.73.2 Purpose

This command reports a default timeout period used by the IPM controller for managing failovers between Interface Groups.

3.36.73.3 Examples

```
# clia getlanconf 82 5 hpm2_def_rd_timeout
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Redundancy Timeout: 10 seconds
#
```

3.36.74 hpm3_ch_index

3.36.74.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm3_ch_index
```

3.36.74.2 Purpose

This command reports the HPM.3 LAN Channel Index for the given IPMI LAN channel on the IPM controller.

3.36.74.3 Examples

```
# clia getlanconf 0x82 2 hpm3_ch_index
Pigeon Point Shelf Manager Command Line Interpreter
HPM.3 LAN Channel Index: 2
#
```

3.36.75 hpm3_dhcp_options

3.36.75.1 Syntax

```
getlanconf <IPMB-address> <channel> hpm3_dhcp_options
```

3.36.75.2 Purpose

This command indicates the list of DHCP option numbers that are requested from the DHCP server by the DHCP Proxy on behalf of the given IPM controller.

3.36.75.3 Examples

```
# clia getlanconf 82 5 hpm3_dhcp_options
Pigeon Point Shelf Manager Command Line Interpreter
HPM.3 DHCP Option Numbers: 125
#
```


3.37 getlanconfig

3.37.1 Syntax

```
getlanconfig <channel> [ <parameter-name> [ <additional-parameters> ] ]
```

```
getlanconfig <channel> [ <parameter-number> [ <additional-parameters> ] ]
```

3.37.2 Purpose

This command shows the value of the specified LAN configuration parameter for the specified channel. If no configuration parameter name or number is specified, all configuration parameters for the specified channel are shown. This command is identical to the CLI command *getlanconf* (see section 3.36) with the *<IPMB-address>* parameter set to 0x20.

The names and numbers of LAN configuration parameters supported by the *getlanconfig* command are the same as supported by the *getlanconf* command. More detailed information about each of the supported parameters can be found in section 3.36.

3.37.3 Examples

Get and show the whole LAN parameter table for channel 1.

```
# clia getlanconfig 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Authentication Type Support: 0x15 ( None MD5 Straight Password/Key )
```

```
Authentication Type Enables: 0x00
```

```
    User level: 0x15 ( None MD5 Straight Password/Key )
```

```
    Operator level: 0x15 ( None MD5 Straight Password/Key )
```

```
    Administrator level: 0x15 ( None MD5 Straight Password/Key )
```

```
    OEM level: 0x00
```

```
IP Address: 172.16.2.203
```

```
IP Address Source: Static Address (Manually Configured) (01)
```

```
MAC Address: 90:91:91:91:91:91
```

```
Subnet Mask: 255.255.255.0
```

```
IPv4 Header Parameters: 0x40:0x40:0x10
```

```
Primary RMCP Port Number: 0x026f
```

```
Secondary RMCP Port Number: 0x0298
```

```
BMC-generated ARP Control: 02
```

```
    Enable BMC-generated Gratuitous Response
```

```
Gratuitous ARP Interval: 2.0 seconds
```

```
Default Gateway Address: 0.0.0.0
```

```
Default Gateway MAC Address: N/A
```

```
Backup Gateway Address: 0.0.0.0
```

```
Backup MAC Address: N/A
```



Community String: "public"
Number of Destinations: 16
Destination Type:
 N/A
Destination Address:
 N/A
802.1q VLAN ID: 4 (enabled)
VLAN priority: 0
Cipher Suite Entry count: 15
Supported Cipher Suite IDs: 0h, 1h, 2h, 3h, 4h, 5h, 6h, 7h, 8h, 9h, Ah, Bh, Ch, Dh, Eh
Cipher Suite Privilege Levels:
 ID 00h, Priv.Level 'User' (2); ID 01h, Priv.Level 'User'
 (2);
 ID 02h, Priv.Level 'Administrator' (4); ID 03h, Priv.Level 'OEM
Proprietary' (5);
 ID 04h, Priv.Level 'OEM Proprietary' (5); ID 05h, Priv.Level 'OEM
Proprietary' (5);
 ID 06h, Priv.Level 'User' (2); ID 07h, Priv.Level
'Administrator' (4);
 ID 08h, Priv.Level 'OEM Proprietary' (5); ID 09h, Priv.Level 'OEM
Proprietary' (5);
 ID 0Ah, Priv.Level 'OEM Proprietary' (5); ID 0Bh, Priv.Level
'Administrator' (4);
 ID 0Ch, Priv.Level 'OEM Proprietary' (5); ID 0Dh, Priv.Level 'OEM
Proprietary' (5);
 ID 0Eh, Priv.Level 'OEM Proprietary' (5);
Destination Address VLAN TAGs:
 DST VLAN TAGs # 0, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 1, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 2, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 3, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 4, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 5, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 6, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 7, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 8, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)
 DST VLAN TAGs # 9, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI
0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 10, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 11, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 12, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 13, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 14, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)

DST VLAN TAGs # 15, Address Format: 802.1q VLAN TAG, VLAN Tag: ID 5, CFI 0, Priority 0, (hex: 0x100500)#

3.38 getpefconfig

3.38.1 Syntax

```
getpefconfig
```

```
getpefconfig <parameter-name> [ <additional-parameters> ]
```

```
getpefconfig <parameter-number> [ <additional-parameters> ]
```

3.38.2 Purpose

This command shows the value of the specified PEF configuration parameter. If neither the configuration parameter name nor the parameter number is specified, all PEF configuration parameters are shown.

The following table lists the names and numbers of PEF configuration parameters:

Table 15: Names and numbers of PEF configuration parameters supported by the getpefconfig command

PARAMETER NAME	NUMBER	DESCRIPTION
control	1	An 8-bit value that represents control flags for PEF (enable PEF, enable PEF startup delay, etc.)
action_control	2	An 8-bit value that represents PEF action global control flags (enable reset, enable power down, etc.)
startup_delay	3	Time to delay PEF after system power-ups and resets, in seconds
alert_startup_delay	4	Time to delay alerts after system power-ups and resets, in seconds
event_filter_count	5	Maximum number of event filters
event_filter	6	An event filter table entry identified by the specified set selector. If no set selector is given, all active event filters are shown.
event_filter_data1	7	The first byte of the event filter table entry identified by the specified set selector. If no set selector is given, all active event filters are shown.
alert_policy_count	8	Maximum number of alert policies
alert_policy	9	An alert policy table entry identified by the specified set selector. If no set selector is given, all active alert policies are shown.
system_guid	10	A GUID used to fill in the GUID field in the PET trap
alert_string_count	11	Maximum number of alert strings

PARAMETER NAME	NUMBER	DESCRIPTION
<code>alert_string_key</code>	12	An alert string key identified by the specified set selector. If no set selector is given, all alert string keys are shown.
<code>alert_string</code>	13	An alert string identified by the specified set selector. If no set selector is given, all alert strings are shown.
<code>oem_filter_count</code>	96	Maximum number of OEM filters
<code>oem_filter</code>	97	An OEM filter table entry identified by the specified set selector. If no set selector is given, all active event filters are shown.
<code>pet_format</code>	98	Format of the Platform Event Traps that are sent by the Shelf Manager as the Alert action initiated by event processing in the Platform Event Filtering facility.

The following subsections provide more detailed information about each of the supported parameters.

3.38.3 Examples

Get and show the whole PEF parameter table.

```
# cli getpefconfig
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
PEF parameters:
```

```
PEF control: 0x00
```

```
PEF Action Global Control: 0x00
```

```
PEF Startup Delay: 60 seconds
```

```
PEF Alert Startup Delay: 60 seconds
```

```
PEF Number of Event Filters: 64
```

```
PEF Number of OEM Filters: 16
```

```
Active Event Filters:
```

```
None
```

```
Active OEM Filters:
```

```
0x01: OEM range boundary 0xff:0xff, alert policy # 1
```

```
Active event filter data:
```

```
None
```

```
Alert Policies Count: 64
```

```
Policy:
```

```
None
```

```
PEF GUID: Using the system GUID
```

```
Alert Strings Count: 64
```

```
Alert string key:
```

```
None
```

Alert Strings:

None

#

3.38.4 control

3.38.4.1 Syntax

```
getpefconfig control
```

```
getpefconfig 1
```

3.38.4.2 Purpose

This command shows the current value of the PEF parameter *control*. This parameter is a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable PEF
- 0x02 Enable generation of event messages for PEF actions
- 0x04 Enable PEF startup delays on system power-ups and resets
- 0x08 Enable PEF Alert Startup delays

Other bits are reserved and should be set to 0.

3.38.4.3 Examples

```
# clia getpefconfig control
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
PEF control: 0x07
```

```
Enable PEF
```

```
Enable Event Message for PEF Actions
```

```
Enable PEF Startup Delay
```

```
#
```

3.38.5 action_control

3.38.5.1 Syntax

```
getpefconfig action_control
```

```
getpefconfig 2
```

3.38.5.2 Purpose

This command shows the current value of the PEF parameter *action_control*. This parameter is a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable alert action
- 0x02 Enable power down action
- 0x04 Enable reset action
- 0x08 Enable power cycle action
- 0x10 Enable OEM action
- 0x20 Enable diagnostic interrupt

Other bits are reserved and should be set to 0.

3.38.5.3 Examples

```
# clia getpefconfig action_control
Pigeon Point Shelf Manager Command Line Interpreter
  PEF Action Global Control: 0x3f
    Enable Alert Action
    Enable Power Down Action
    Enable Reset Action
    Enable Power Cycle Action
    Enable OEM Action
    Enable Diagnostic Interrupt
#
```

3.38.6 startup_delay

3.38.6.1 Syntax

```
getpefconfig startup_delay
getpefconfig 3
```

3.38.6.2 Purpose

This command shows the current value of the PEF parameter *startup_delay*. This parameter is a single byte, representing the number of seconds that the PEF facility delays at startup.

3.38.6.3 Examples

```
# clia getpefconfig startup_delay
Pigeon Point Shelf Manager Command Line Interpreter
  PEF Startup Delay: 60 seconds
#
```

3.38.7 alert_startup_delay

3.38.7.1 Syntax

```
getpefconfig alert_startup_delay
getpefconfig 4
```

3.38.7.2 Purpose

This command shows the current value of the PEF parameter *alert_startup_delay*. This parameter is a single byte, representing the number of seconds that the alerting facility delays at startup.

3.38.7.3 Examples

```
# clia getpefconfig alert_startup_delay
Pigeon Point Shelf Manager Command Line Interpreter
  PEF Alert Startup Delay: 60 seconds
```

#

3.38.8 event_filter_count

3.38.8.1 Syntax

```
getpefconfig event_filter_count  
getpefconfig 5
```

3.38.8.2 Purpose

This command shows the current value of the PEF parameter *event_filter_count*. This read-only value is the size of the event filter table. This value is a configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

3.38.8.3 Examples

```
# clia getpefconfig event_filter_count  
Pigeon Point Shelf Manager Command Line Interpreter  
    PEF Number of Event Filters: 64  
#
```

3.38.9 event_filter

3.38.9.1 Syntax

```
getpefconfig event_filter [ <set-selector> ]  
getpefconfig 6 [ <set-selector> ]
```

3.38.9.2 Purpose

This command shows the element of the event filter table with index *<set-selector>*. Indexes are 1-based. The following information is shown about each event filter:

- filter configuration: whether the filter is software configured or manufacturer pre-configured
- event filter action mask
- alert policy number
- event severity
- Event source address to match (255 = any address)
- Source Channel/LUN to match (255 = match any source channel/LUN)
- Sensor type to match
- Sensor number to match
- Event trigger (event/reading type) to match
- Event offset mask
- AND, Compare 1 and Compare 2 masks for event data bytes 1, 2 and 3.

If the `<set-selector>` is omitted, all active event filter table entries are shown, with their numbers.

3.38.9.3 Examples

```
# clia getpefconfig event_filter 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Active Event Filters:
```

```
0x02: Software Configurable Filter
```

```
Action Mask: 0x01
```

```
Policy Number: 1, Severity: Critical Condition
```

```
Source Address: 0x20, LUN: 3, Channel: 15
```

```
Sensor Type: Hot Swap (0xf0), Sensor # 255 (ANY)
```

```
Event Trigger: 0xff (ANY), Event Offset Mask: 0xffff
```

```
0: AND: 0x0f, CMP1: 0xff, CMP2: 0x00
```

```
1: AND: 0x00, CMP1: 0x00, CMP2: 0x00
```

```
2: AND: 0xff, CMP1: 0xff, CMP2: 0x00
```

```
#
```

3.38.10 event_filter_data1

3.38.10.1 Syntax

```
getpefconfig event_filter_data1 [ <set-selector> ]
```

```
getpefconfig 7 [ <set-selector> ]
```

3.38.10.2 Purpose

This command shows the first byte of the element of the event filter table with the index `<set-selector>`. Indexes are 1-based. This byte is shown in hexadecimal. Bits in this byte have the following meaning:

- 0x80 This filter is enabled
- 0x40 This filter is pre-configured by the manufacturer and should not be altered by software

Other bits are reserved and should be 0.

If the `<set-selector>` is omitted, first byte for each of the active event filter table entries is shown, with the corresponding filter numbers.

3.38.10.3 Examples

```
# clia getpefconfig event_filter_data1 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Active event filter data:
```

```
0x02: 0x80 Enabled 1, Configuration: 0 ("Software Configurable Filter")
```

```
#
```

3.38.11 alert_policy_count

3.38.11.1 Syntax

```
getpefconfig alert_policy_count  
getpefconfig 8
```

3.38.11.2 Purpose

This command shows the current value of the PEF parameter *alert_policy_count*. This read-only value is the size of the alert policy table. This value is a configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

3.38.11.3 Examples

```
# clia getpefconfig alert_policy_count  
Pigeon Point Shelf Manager Command Line Interpreter  
Alert Policies Count: 64  
#
```

3.38.12 alert_policy

3.38.12.1 Syntax

```
getpefconfig alert_policy [ <set-selector> ]  
getpefconfig 9 [ <set-selector> ]
```

3.38.12.2 Purpose

This command shows the element of the alert policy table with index *<set-selector>*. Indexes are 1-based. The following information is shown about each alert policy:

- the policy number
- the policy type (with respect to the alert sent to the previous destination)
- destination channel number
- destination selector
- alert string key

If the *<set-selector>* is omitted, all active alert policy table entries are shown, with their numbers.

3.38.12.3 Examples

```
# clia getpefconfig alert_policy 2  
Pigeon Point Shelf Manager Command Line Interpreter  
Policy:  
0x02: Policy# 5, Policy Type: 0, Channel: 1, DST: 1, Alert String  
Sel: 1  
#
```

3.38.13 system_guid

3.38.13.1 Syntax

```
getpefconfig system_guid  
getpefconfig 10
```

3.38.13.2 Purpose

This command shows the current value of the PEF parameter *system_guid*. This parameter represents the GUID that is sent in a PET Trap PDU to an alert destination. This GUID may be defined as a separate GUID or as being equal to the System GUID (which can be obtained via the “Get System GUID” IPMI command).

3.38.13.3 Examples

```
# clia getpefconfig system_guid  
Pigeon Point Shelf Manager Command Line Interpreter  
    PEF GUID: 23662f7f-ba1b-4b65-8808-94ca09c9bbb0  
#
```

3.38.14 alert_string_count

3.38.14.1 Syntax

```
getpefconfig alert_string_count  
getpefconfig 11
```

3.38.14.2 Purpose

This command shows the current value of the PEF parameter *alert_string_count*. This read-only value is the size of the alert string table, which is the maximum number of alert strings in simultaneous use. This value is the configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

3.38.14.3 Examples

```
# clia getpefconfig alert_string_count  
Pigeon Point Shelf Manager Command Line Interpreter  
    Alert Strings Count: 64  
#
```

3.38.15 alert_string_key

3.38.15.1 Syntax

```
getpefconfig alert_string_key [ <set-selector> ]  
getpefconfig 12 [ <set-selector> ]
```

3.38.15.2 Purpose

This command shows the element of the alert string key table with index *<set-selector>*. Indexes are 1-based. Index 0 can be used to designate the volatile alert string. Each key

associates an event filter with an alert string for alert generation purposes. The following information is shown about each alert string key:

- the alert string key number
- the associated event filter number
- the associated alert string number

If the *<set-selector>* is omitted, all active alert string key table entries are shown with their numbers.

3.38.15.3 Examples

```
# clia getpefconfig alert_string_key 2
Pigeon Point Shelf Manager Command Line Interpreter
    Alert string key: set selector 2, event_filter 0x10, string_set 0x11
#
```

3.38.16 alert_string

3.38.16.1 Syntax

```
getpefconfig alert_string [ <set-selector> ]
getpefconfig 13 [ <set-selector> ]
```

3.38.16.2 Purpose

This command shows the element of the alert string table with index *<set-selector>*. Indexes are 1-based. Index 0 can be used to designate the volatile alert string. This command shows the whole string at once.

If the *<set-selector>* is omitted, all defined alert strings are shown with their numbers.

3.38.16.3 Examples

```
# clia getpefconfig alert_string 2
Pigeon Point Shelf Manager Command Line Interpreter
    Alert Strings:
        0x02: "This is the alert string"
#
```

3.38.17 oem_filter_count

3.38.17.1 Syntax

```
getpefconfig oem_filter_count
getpefconfig 96
```

3.38.17.2 Purpose

This command shows the current value of the PEF parameter *oem_filter_count*. This read-only value is the size of the OEM filter table. This value is a configuration parameter for the Pigeon Point Shelf Manager and can be changed only through the Shelf Manager configuration file.

The OEM filter table is a Pentair-defined OEM extension of the IPMI specification. It allows PEF to be applied, in addition to platform events, also to OEM timestamped and non-timestamped SEL entries (record type range C0h-FFh).

3.38.17.3 Examples

```
# clia getpefconfig oem_filter_count
Pigeon Point Shelf Manager Command Line Interpreter
    PEF Number of OEM Filters: 16
#
```

3.38.18 oem_filter

3.38.18.1 Syntax

```
getpefconfig oem_filter [ <set-selector> ]
getpefconfig 97 [ <set-selector> ]
```

3.38.18.2 Purpose

The OEM filter table is a Pentair-defined OEM extension of the IPMI specification. It allows PEF to be applied, in addition to platform events, also to OEM timestamped and non-timestamped SEL entries (record type range C0h-FFh).

Each entry of the OEM filter table defines the range of record types (in the range of OEM record types), to which this OEM filter applies, and the alert policy number that is to be invoked when a record with the matching record type is placed in the SEL.

This command shows the element of the OEM filter table with index *<set-selector>*. Indexes are 1-based. The following information is shown about each OEM filter:

- Byte 1: SEL Record Type Range Low boundary
- Byte 2: SEL Record type Range high boundary
- Byte 3: Alert policy number that will be invoked for SEL entries that have record types matching the range specified in Bytes 1 and 2.

If the *<set-selector>* is omitted, all active OEM filter table entries are shown, with their numbers.

3.38.18.3 Examples

```
# clia getpefconfig oem_filter
Pigeon Point Shelf Manager Command Line Interpreter
    Active OEM Filters:
    0x01: OEM range boundary 0xff:0xff, alert policy # 1
```

3.38.19 pet_format

3.38.19.1 Syntax

```
getpefconfig pet_format
getpefconfig 98
```

3.38.19.2 Purpose

Reports the format of the Platform Event Traps that are sent by the Shelf Manager as the Alert action initiated by event processing in the Platform Event Filtering facility. The following format types are defined:

- 0 = IPMI default format
- 1 = Plain Text format
- 2 = Multi-variable format.

3.38.19.3 Examples

```
# clia getpefconfig pet_format
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Platform Event Trap format: 0 (IPMI default)
```

```
# clia getpefconfig pet_format
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Platform Event Trap format: 1 (Plain text)
```

```
# clia getpefconfig pet_format
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Platform Event Trap format: 2 (Multi OID)
```

3.39 getsensoreventenable

3.39.1 Syntax

```
getsensoreventenable [ <IPMB-address> [<sensor-name> |  
[<lun>:]<sensor-number> ] ]  
getsensoreventenable board <N> [<sensor-name> | [<lun>:]<sensor-  
number> ] ]  
getsensoreventenable shm <N> [<sensor-name> | [<lun>:]<sensor-  
number> ] ]  
getsensoreventenable <IPMB-address> -f <fru_id>  
getsensoreventenable <IPMB-address> -f amc <amc_number>  
getsensoreventenable board <N> -f <fru_id>  
getsensoreventenable board <N> -f amc <amc_number>  
getsensoreventenable shm <N> -f <fru_id>  
getsensoreventenable shm <N> -f amc <amc_number>
```

3.39.2 Purpose

This command shows the current event enable mask values of the specified sensor(s).

The option *-f* allows the user to select all sensors that belong to a specific FRU, designated either with its *<fru_id>* or, if it is an AMC, with the *amc <amc_number>* notation.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, information about sensors with the specified sensor number on all LUNs is shown. *<lun>* can take the value 0, 1 or 3. (LUN 2 is reserved.)

Sensor names are not qualified with LUN numbers, since it is assumed that sensor names will normally be unique within the controller. However, if there are several sensors with the same name within the controller, information is shown about all of them.

This command shows the current sensor event mask values for the supported events of the specified sensor(s). The following attributes for each sensor are also shown:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR) and the LUN by which the sensor can be accessed
- The Sensor type

This command can also be issued on the backup Shelf Manager; in that case, the current event enable mask values are only shown for sensors that are local to the backup Shelf Manager.

3.39.3 Examples

Get event enable values for a temperature sensor “Local Temp” on IPM controller FEh.

```
# clia getsensoreventenable -v fe "Local Temp"  
Pigeon Point Shelf Manager Command Line Interpreter  
fe: LUN: 0, Sensor # 3 ("Local Temp")
```

```
Type: Threshold (0x01), "Temperature" (0x01)
Assertion event mask: 0x0a80
    Assertion event for "Upper Non-Recoverable Going High" enabled
    Assertion event for "Upper Critical Going High" enabled
    Assertion event for "Upper Non-Critical Going High" enabled
Deassertion event mask: 0x0a80
    Deassertion event for "Upper Non-Recoverable Going High" enabled
    Deassertion event for "Upper Critical Going High" enabled
    Deassertion event for "Upper Non-Critical Going High" enabled
```

#

Get event enable information for the same sensor but specify sensor LUN and number.

```
# clia getsensoreventenable -v fe 0:3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fe: LUN: 0, Sensor # 3 ("Local Temp")
```

```
Type: Threshold (0x01), "Temperature" (0x01)
Assertion event mask: 0x0a80
    Assertion event for "Upper Non-Recoverable Going High" enabled
    Assertion event for "Upper Critical Going High" enabled
    Assertion event for "Upper Non-Critical Going High" enabled
Deassertion event mask: 0x0a80
    Deassertion event for "Upper Non-Recoverable Going High" enabled
    Deassertion event for "Upper Critical Going High" enabled
    Deassertion event for "Upper Non-Critical Going High" enabled
```

#

3.40 getsolconf

3.40.1 Syntax

```
getsolconf <IPMB-address> <channel> [ <parameter-name> [<port number>]]
```

```
getsolconf <IPMB-address> <channel> [ <parameter-number> ]
```

3.40.2 Purpose

This command shows the value of the specified SOL (Serial-over-LAN) configuration parameter for the specified channel. If no configuration parameter name or number is specified, all the SOL configuration parameters for the specified channel are shown. The HPM.2 extended SOL configuration parameters are described in the HPM.2 specification. HPM.2 SOL configuration parameters do not have fixed parameter numbers; their numbers are allocated as a contiguous sub-range of the OEM parameter range (192-255) and each IPM controller reports the starting number of the sub-range in the response to the command “Get HPM.2 Capabilities”.

The following table lists the names and numbers of SOL configuration parameters supported by the *getsolconf* command:

Table 16: Names and numbers of SOL configuration parameters supported by the getsolconf command

PARAMETER NAME	NUMBER	DESCRIPTION
enable	1	This parameter controls whether the SOL payload type can be activated.
auth	2	The Privilege Level and two flags: Force Encryption and Force Authentication.
character	3	The SOL Character Accumulate Interval and Character Send Threshold
retry	4	The SOL Retry Count and Retry Interval
nv_bit_rate	5	The SOL Non-Volatile Bit Rate
bit_rate	6	The SOL Volatile Bit Rate
payload_channel	7	The SOL Payload Channel indicates which IPMI channel is being used for the communication parameters for the SOL Payload (if different from the current channel)
payload_port	8	The SOL Payload Port indicates the port number over which the SOL payload can be activated
hpm2_bit_rate	N/A	The HPM.2 Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port

PARAMETER NAME	NUMBER	DESCRIPTION
<code>hpm2_nv_bit_rate</code>	N/A	The HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
<code>hpm2_character</code>	N/A	The HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_nv_character</code>	N/A	The HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_retry</code>	N/A	The HPM.2 Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_nv_retry</code>	N/A	The HPM.2 Non-Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_port_name</code>	N/A	The HPM.2 System Serial Port Name

3.40.3 Examples

Shows the SOL configuration for all the ports of channel 5 on the IPM controller at address 82h.

```
# cli getsolconf 82 5
Pigeon Point Shelf Manager Command Line Interpreter
SOL: Enabled
Authentication:
    Privilege Level: 4 (Administrator level)
Character Accumulate Interval: 5 ms; Send Threshold: 1
Retry Count: 1; Retry Interval: 50 ms
Non-Volatile Bit Rate: 10 (115.2 kbps)
Volatile Bit Rate: 10 (115.2 kbps)
Payload Channel: N/A
Payload Port: 623
HPM.2: Port 1:
    Volatile Bit Rate: 6 (9600 bps)
    Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2
    Non-Volatile Bit Rate: 6 (9600 bps)
    Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2
    Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1
    Non-Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1
    Volatile Retry Count: 5; Retry Interval: 60 ms
    Non-Volatile Retry Count: 5; Retry Interval: 60 ms
    Name:"SOL PORT"
#
```

3.40.4 enable

3.40.4.1 Syntax

```
getsolconf <IPMB-address> <channel> enable  
getsolconf <IPMB-address> <channel> 1
```

3.40.4.2 Purpose

This command shows whether an IPM controller at <IPMB-address> has SOL enabled on the channel <channel>.

3.40.4.3 Examples

Check for SOL enabled status on channel 5 for the IPM controller at address 82h.

```
# clia getsolconf 82 5 enable  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL: Enabled
```

Check for SOL capabilities on channel 1 for the IPM controller at address 82h.

```
# clia getsolconf 82 1 enable  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL: N/A
```

Confirm that SOL is disabled on channel 5 for the IPM controller at address 84h.

```
# clia getsolconf 84 5 1  
Pigeon Point Shelf Manager Command Line InterpreterSOL: Disabled
```

3.40.5 auth

3.40.5.1 Syntax

```
getsolconf <IPMB-address> <channel> auth  
getsolconf <IPMB-address> <channel> 2
```

3.40.5.2 Purpose

This command shows the SOL Authentication capabilities of channel <channel> on the IPM controller at address <IPMB-address>. One of four supported privilege levels (User, Operator, Administrator and OEM) is reported. The flags “Force Encryption” and “Force Authentication” are reported only if they are set.

3.40.5.3 Examples

```
# clia getsolconf 82 5 auth  
Pigeon Point Shelf Manager Command Line Interpreter  
Authentication:
```

```
Privilege Level: 4 (Administrator level)
```

```
# clia getsolconf 82 1 auth  
Pigeon Point Shelf Manager Command Line Interpreter  
Authentication:
```

```
Privilege Level: 3 (Operator level), Force Encryption, Force  
Authentication
```

3.40.6 character

3.40.6.1 Syntax

```
getsolconf <IPMB-address> <channel> character  
getsolconf <IPMB-address> <channel> 3
```

3.40.6.2 Purpose

This command shows the SOL Character Accumulate Interval and Character Send Threshold of channel <channel> of the IPM controller at address <IPMB-address>.

3.40.6.3 Examples

```
# clia getsolconf 82 5 character  
Pigeon Point Shelf Manager Command Line Interpreter  
Character Accumulate Interval: 5 ms; Send Threshold: 1
```

3.40.7 retry

3.40.7.1 Syntax

```
getsolconf <IPMB-address> <channel> retry  
getsolconf <IPMB-address> <channel> 4
```

3.40.7.2 Purpose

This command shows the SOL Volatile Retry Count and Retry Interval of channel <channel> of the IPM controller at address <IPMB-address>.

3.40.7.3 Examples

```
# clia getsolconf 82 5 retry  
Pigeon Point Shelf Manager Command Line Interpreter  
Retry Count: 1; Retry Interval: 50 ms
```

3.40.8 nv_bit_rate

3.40.8.1 Syntax

```
getsolconf <IPMB-address> <channel> nv_bit_rate  
getsolconf <IPMB-address> <channel> 5
```

3.40.8.2 Purpose

This command shows the SOL Non-Volatile Bit Rate of channel <channel> of the IPM controller at address <IPMB-address>.

3.40.8.3 Examples

```
# clia getsolconf 82 5 nv_bit_rate  
Pigeon Point Shelf Manager Command Line Interpreter  
Non-Volatile Bit Rate: 10 (115.2 kbps)
```

3.40.9 bit_rate

3.40.9.1 Syntax

```
getsolconf <IPMB-address> <channel> bit_rate  
getsolconf <IPMB-address> <channel> 6
```

3.40.9.2 Purpose

This command shows the SOL Volatile Bit Rate of channel *<channel>* of the IPM controller at address *<IPMB-address>*.

3.40.9.3 Examples

```
# clia getsolconf 82 5 bit_rate  
Pigeon Point Shelf Manager Command Line Interpreter  
Volatile Bit Rate: 10 (115.2 kbps)
```

3.40.10 payload_channel

3.40.10.1 Syntax

```
getsolconf <IPMB-address> <channel> payload_channel  
getsolconf <IPMB-address> <channel> 7
```

3.40.10.2 Purpose

This command shows the SOL Payload Channel Number of channel *<channel>* of the IPM controller at address *<IPMB-address>*. This value is reported as *N/A* if the same channel is used for the SOL payload.

3.40.10.3 Examples

```
# clia getsolconf 82 5 payload_channel  
Pigeon Point Shelf Manager Command Line Interpreter  
Payload Channel: N/A
```

3.40.11 payload_port

3.40.11.1 Syntax

```
getsolconf <IPMB-address> <channel> payload_port  
getsolconf <IPMB-address> <channel> 8
```

3.40.11.2 Purpose

This command shows the SOL Payload Port Number of channel *<channel>* of the IPM controller at address *<IPMB-address>*.

3.40.11.3 Examples

```
# clia getsolconf 82 5 payload_port  
Pigeon Point Shelf Manager Command Line Interpreter  
Payload Port: 623
```

3.40.12 hpm2_bit_rate

3.40.12.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_bit_rate [<port number>]
```

3.40.12.2 Purpose

This command reports the HPM.2 Volatile SOL Bit Rate and Physical UART Settings for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.12.3 Examples

```
#clia getsolconf 82 5 hpm2_bit_rate
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2: Port 1:
```

```
    Volatile Bit Rate: 0 (Current)
```

```
    Flow Control: Disabled; Parity: Disable; Word Bits: 5; Stop Bits: 1
```

```
# clia getsolconf 84 3 hpm2_bit_rate
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2: Port 1:
```

```
    Volatile Bit Rate: 6 (9600 bps)
```

```
    Flow Control: Hardware; Parity: Even; Word Bits: 7; Stop Bits: 1
```

```
# clia getsolconf 82 5 hpm2_bit_rate 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2: Port 2: Volatile Bit Rate: N/A
```

3.40.13 hpm2_nv_bit_rate

3.40.13.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_nv_bit_rate [<port number>]
```

3.40.13.2 Purpose

This command reports the HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.13.3 Examples

```
# clia getsolconf 82 5 hpm2_nv_bit_rate
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2: Port 1:
```

```
    Non-Volatile Bit Rate: 0 (Current)
```

```
    Flow Control: Disabled; Parity: Disable; Word Bits: 5; Stop Bits: 1
```

```
# clia getsolconf 82 5 hpm2_nv_bit_rate 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2: Port 1: Non-Volatile Bit Rate: 6 (9600 bps)
```

Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2

```
# clia getsolconf 82 5 hpm2_nv_bit_rate
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Bit Rate: 6 (9600 bps)

Flow Control: Disabled; Parity: Disable; Word Bits: 7; Stop Bits: 2

3.40.14 hpm2_character

3.40.14.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_character [<port number>]
```

3.40.14.2 Purpose

This command reports the HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.14.3 Examples

```
# clia getsolconf 82 5 hpm2_character 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Volatile Character Accumulate Interval: 10 ms; Send Threshold: 1

```
# clia getsolconf 82 5 hpm2_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Character Attributes: Use Global Settings

```
# clia getsolconf 82 5 hpm2_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

3.40.15 hpm2_nv_character

3.40.15.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_nv_character [<port number>]
```

3.40.15.2 Purpose

This command reports the HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.15.3 Examples

```
# clia getsolconf 82 5 hpm2_nv_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Character Attributes: Use Global Settings

```
# clia getsolconf 82 5 hpm2_nv_character
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

```
# clia getsolconf 82 5 hpm2_nv_character 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Non-Volatile Character Accumulate Interval: 5 ms; Send Threshold: 1

3.40.16 hpm2_retry

3.40.16.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_retry [<port number>]
```

3.40.16.2 Purpose

This command reports the HPM.2 Volatile Retry Count and Retry Interval for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.16.3 Examples

```
# clia getsolconf 82 5 hpm2_retry 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Volatile Retry: Use Global Settings

```
# clia getsolconf 82 5 hpm2_retry
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Retry: Use Global Settings

```
#clia getsolconf 82 5 hpm2_retry
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Volatile Retry Count: 5; Retry Interval: 60 ms

3.40.17 hpm2_nv_retry

3.40.17.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_nv_retry [<port number>]
```

3.40.17.2 Purpose

This command reports the HPM.2 Non-Volatile Retry Count and Retry Interval for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.17.3 Examples

```
# clia getsolconf 82 5 hpm2_nv_retry
```


Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Retry: Use Global Settings

```
# clia getsolconf 82 5 hpm2_nv_retry
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Non-Volatile Retry Count: 5; Retry Interval: 60 ms

```
# clia getsolconf 82 5 hpm2_nv_retry 1
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1: Non-Volatile Retry Count: 5; Retry Interval: 60 ms

3.40.18 hpm2_port_name

3.40.18.1 Syntax

```
getsolconf <IPMB-address> <channel> hpm2_port_name [<port number>]
```

3.40.18.2 Purpose

This command reports the HPM.2 System Serial Port Name for the System Serial Port specified by the parameter *<port number>*. If this parameter is omitted, the information is shown for all supported ports.

3.40.18.3 Examples

```
# clia getsolconf 82 5 hpm2_port_name
```

Pigeon Point Shelf Manager Command Line Interpreter

HPM.2: Port 1:

Name:"SOL PORT"

```
# clia getsolconf 82 5 hpm2_port_name 1
```

Pigeon Point Shelf Manager Command Line Interpreter

Name:"SOL PORT"

3.41 `getthreshold/threshold`

3.41.1 Syntax

```
getthreshold [ <IPMB-address> [<sensor-name> | [<lun>:]<sensor-  
number> ] ]
```

```
getthreshold board <N> [<sensor-name> | [<lun>:]<sensor-number>  
] ]
```

```
getthreshold shm <N> [<sensor-name> | [<lun>:]<sensor-number> ]  
]
```

```
getthreshold <IPMB-address> -f <fru_id>
```

```
getthreshold <IPMB-address> -f amc <amc_number>
```

```
getthreshold board <N> -f <fru_id>
```

```
getthreshold board <N> -f amc <amc_number>
```

```
getthreshold shm <N> -f <fru_id>
```

```
getthreshold shm <N> -f amc <amc_number>
```

The verb `threshold` can also be used instead of `getthreshold`.

3.41.2 Purpose

This command shows the current threshold values for the supported thresholds of the specified sensor(s). The sensor must be a threshold-based sensor. Both raw and processed values are shown. The following attributes for each sensor are also shown:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR) and the LUN by which the sensor can be accessed
- The Sensor type and Event/reading type code

The option `-f` allows the user to select all sensors that belong to a specific FRU, designated either with its `<fru_id>` or, if it is an AMC, with the `amc <amc_number>` notation.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, information about sensors with the specified sensor number on all LUNs is shown. `<lun>` can take the value 0, 1 or 3. (LUN 2 is reserved.)

Sensor names are not qualified with LUN numbers, since it is assumed that sensor names will normally be unique within the controller. However, if there are several sensors with the same name within the controller, information is shown about all of them.

If a sensor has a decrementing linearization function according to its SDRs, its upper thresholds in raw format are essentially lower thresholds in processed format, and vice versa. This is reflected explicitly in the command output.

This command can also be issued on the backup Shelf Manager; in that case, the current threshold values are only shown for sensors that are local to the backup Shelf Manager.

3.41.3 Examples

Get threshold values for a temperature sensor “Local Temp” on IPM controller FEh.

```
# clia getthreshold -v fe "Local Temp"
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fe: LUN: 0, Sensor # 3 ("Local Temp")
```

```
    Type: Threshold (0x01), "Temperature" (0x01)
```

```
        Lower Critical Threshold, Raw Data: 0x80, Processed Data: -128.000000  
degrees C
```

```
        Upper Non-Critical Threshold, Raw Data: 0x50, Processed Data:  
80.000000 degrees C
```

```
        Upper Critical Threshold, Raw Data: 0x50, Processed Data: 80.000000  
degrees C
```

```
        Upper Non-Recoverable Threshold, Raw Data: 0x50, Processed Data:  
80.000000 degrees C
```

Get threshold information for the same sensor but specify sensor LUN and number.

```
# clia getthreshold -v fe 0:3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fe: LUN: 0, Sensor # 3 ("Local Temp")
```

```
    Type: Threshold (0x01), "Temperature" (0x01)
```

```
        Lower Critical Threshold, Raw Data: 0x80, Processed Data: -128.000000  
degrees C
```

```
        Upper Non-Critical Threshold, Raw Data: 0x50, Processed Data:  
80.000000 degrees C
```

```
        Upper Critical Threshold, Raw Data: 0x50, Processed Data: 80.000000  
degrees C
```

```
        Upper Non-Recoverable Threshold, Raw Data: 0x50, Processed Data:  
80.000000 degrees C
```

Get threshold values for sensors that belong to FRU #5 on IPM controller 20h.

```
# clia getthreshold 20 -f 5
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 126 ("Temp_In Right")
```

```
    Type: Threshold (0x01), "Temperature" (0x01)
```

```
        Upper Critical Threshold, Raw Data: 0x32    Processed data: 50.000000  
degrees C
```

```
        Upper Non-Recoverable Threshold, Raw Data: 0x41    Processed data:  
65.000000 degrees C
```

Get threshold values for a sensor with a decremting linearization function (“1/x” in this example).

```
# clia getthreshold 20 240
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 240 ("Fan Tach. 0")
```

```
    Type: Threshold (0x01), "Fan" (0x04)
```

```
        Upper Critical Threshold, Raw Data: 0xfe ;
```

```
        Processed data (Lower Critical Threshold): 667.289470 RPM
```

3.42 help

3.42.1 Syntax

help [*<command>* [*<sub command>*]]

3.42.2 Purpose

This command shows help information about supported commands and their syntax.

This command can also be issued on the backup Shelf Manager.

3.42.3 Examples

clia help

Pigeon Point Shelf Manager Command Line Interpreter

Command Line Interface command set:

Parameters are case insensitive

In general:

IPMB address is hexadecimal ALWAYS.

All other numbers may be either decimal and hexadecimal (0x notation required for hexadecimal notation)

-v turns on verbose output

```
activate <addr> <fru_id>
alarm <alarm status/action>
amcgetlanconf <ipmc> amc <N> | <fru_id> <channel> <parameter number> |
<parameter name>
amcgetsolconf <ipmc> amc <N> | <fru_id> <channel number> <parameter name> |
<parameter number> [<port number>]
amcportstate [-v] <ipmc> [ amc <N> | <fru_id> ]
amcsetlanconf <ipmc> amc <N> | <fru_id> <channel number> <parameter number>
| parameter name <parameters ...>
amcsetsolconf <ipmc> amc <N> | <fru_id> <channel number> <parameter number>
| parameter name <parameters ...>
board [slot_number]
boardreset <slot number>
busres force <res>
busres info [<res>]
busres lock <res>
busres query [-v] <res> [<target> [nouupdate]]
busres release <res>
busres sendbusfree <res> <target>
busres setowner <res> <target>
busres unlock <res>
deactivate <addr> <fru_id>
debuglevel [<mask> [<console mask>] ]
exit
fans <addr> <fru id>
```

```
firewall [<info [[[[<channel>]:<LUN>]:<NetFn>]:<command>] | <[all]>> |
<stop> | <start>]
fru [<addr> [id=<fru_id> | type=<site_type>]] | [type=<site_type>
[/<site_number>]]
frucontrol <addr> <fru_id> <command>
frudata [<addr>] [<fru id>] [<block number>]
frudata shm <N> [<block number>]
frudata <addr> <fru id> <byte offset> <byte_1> [byte2 .. [byte_16]]
frudatar <addr> <fru id> <file name>
frudataw <addr> <fru id> [-s|-d] [<file name>|-c]
fruinfo <addr> <fru_id>
getbootdev <addr> [<fru-id> | <amc-addr>]
getconfigparam [<parameter name>]
getfanlevel <addr> <fru_id>
getfanpolicy [<addr> [<fru_id>]] [-s <addr>|site_type
[<fru_id>|site_number]]
getfruledstate [-v] [<addr> [<fru_id> [<LedId>|ALL]]]
gethysteresis [ <addr> [ [ lun: ]<sensor id> | <sensor name> ] ]
gethysteresis [ <addr> -f <fru id> ]
gethysteresis [ <addr> -f amc <amc number> ]
getipmbstate <addr> [<link>]
getlanconf <address> <channel number> <parameter number> | <parameter name>
getlanconfig <channel number> <parameter number> | <parameter name>
getpefconfig <parameter name> | <parameter number> [<set selector>]
getsensoreventenable [ <addr> [ [ lun: ]<sensor_id> | <sensor name> ] ]
getsensoreventenable [ <addr> -f <fru id> ]
getsensoreventenable [ <addr> -f amc <amc number> ]
getsolconf <address> <channel number> <parameter name> | <parameter number>
[<port number>]
getthreshold [ <addr> [ [ lun: ]<sensor id> | <sensor name> ] ]
getthreshold [ <addr> -f <fru id> ]
getthreshold [ <addr> -f amc <amc number> ]
help [<command>]
ipmc [-v] [-x] [<addr>]
localaddress
minfanlevel <addr> <fru_id> <min fan level>
minfanlevel [<min fan level>]
poll
quit
sel [clear] [ <addr> ]
sel info [<addr>]
sendamc [-x] <addr> <amc> [<lun>:]<netfn> <command> [<parameters ...>]
sendcmd [-x] <addr> [<lun>:]<netfn> <command> [<parameters ...>]
sensor [ <addr> [ [ lun: ]<sensor id> | <sensor name> ] ]
sensor [ <addr> -f <fru id> ]
```

```

sensor [ <addr> -f amc <amc number> ]
sensordata [-t] [-d <state>] [ <addr> [ [ lun: ]<sensor id> | <sensor name>
] ]
sensordata [-t] [-d <state>] [ <addr> -f <fru id> ]
sensordata [-t] [-d <state>] [ <addr> -f amc <amc number> ]
sensorread <addr> [ lun: ]<sensor id>
session
setbootdev <addr> <fru-id | amc-addr> <boot-device>
setcommandpolicy <Enable|Disable> <NetFn> <CMD> [<channel>] [<LUN>]
setextracted <addr> <fru_id>
setfanlevel <addr> <fru_id> <state>
setfanpolicy <addr> <fru_id> <ENABLE|DISABLE [timeout]> [-s
<addr>|site_type <fru_id>|site_number]
setfruledstate <addr> <fru_id> <LedId>|ALL <LedOp|tail> [LedColor]
setfunctionpolicy <EnableDisableMask> <NetFn> <CMD> [<channel>] [<LUN>]
sethysteresis <addr> [ lun: ]<sensor_id> | <sensor name> pos | neg <value>
setipmbstate <addr> A|B [<link>] 0|1
setlanconf <address> <channel number> <parameter number> | parameter name
<parameters ...>
setlanconfig <channel number> <parameter number> | parameter name
<parameters ...>
setlocked <addr> <fru_id> <value>
setpefconfig <parameter name> | <parameter number> [<set selector>]
<parameters ...>
setpowerlevel <addr> <fru_id> [<pwr_lvl>|OFF] [Copy]
setsensordata <addr> [ lun: ]<sensor_id> | <sensor name> [ reading [-r]
<value> ]
    [ assertion <mask> ] [ deassertion <mask> ]
    [ event_data <b1> <b2> <b3> | event_data_no_offset <b1> <b2> <b3>]
setsensoreventenable <addr> [ lun: ]<sensor_id> | <sensor name> global
[assertion_events [deassertion_events]]
setsolconf <address> <channel number> <parameter number> | parameter name
<parameters ...>
setthreshold <addr> [ lun: ]<sensor_id> | <sensor name> unc | uc | unr |
lnc | lc | lnr [-r] value
shelf <parameters>
shelf board_lan_cfg_params
shelf cooling_state
shelf cs
shelf address_table
shelf at
shelf fans_state
shelf fs
shelf h110_connectivity
shelf h110c
shelf ha_connectivity

```

```
shelf hac
shelf pci_connectivity
shelf pcic
shelf point-to-point_connectivity
shelf ppc
shelf power_distribution
shelf pd
shelf power_management
shelf pm
shelf shm_cfg_params
shelfaddress [-x] ["<shelf address>"]
shmstatus
showunhealthy
switchover [-force] [-clear-hpdl]
terminate [-reboot]
threshold [ <addr> [ [ lun: ]<sensor id> | <sensor name> ] ]
threshold [ <addr> -f <fru id> ]
threshold [ <addr> -f amc <amc number> ]
user [<user id>]
user add <user id> <user name> <flags> <privilege level> <password>
user channel <user id> <channel number> <flags> <privilege level>
user delete <user id>
user enable <user id> 1|0
user name <user id> <user name>
user passwd <user id> <user password>
version
```

clia help shelf

Pigeon Point Shelf Manager Command Line Interpreter

"shelf" command provides access to the dedicated records of the Shelf FRU Info

```
Activation <hw-addr> <fru_id> 1/0
address_table
Allowance <seconds>
BDSelGrounded <slot number> 1/0
    1 means Enabled, 0 means Disabled
board_lan_cfg_params
cooling_state
Deactivation <hw-addr> <fru_id> 1/0
fans_state
h110_connectivity
ha_connectivity
info_refresh
info_check
info_force_update
```

```
MaxCurrent [feed] <Amps>
MinVoltage [feed] <Volts>
pci_connectivity
point-to-point_connectivity
power_distribution
power_management
PwrCapability <hw-addr> <fru_id> <Watts>
PwrDelay <hw-addr> <fru_id> <10ths_of_second>
PwrReorder <hw-addr1> <fru_id1> before/after <hw-addr2> <fru_id2>
shm_cfg_params
cold_sensitive <hw-addr> <fru_id> <enable>
shelf <parameters>
```

clia help shelf pwrreorder

Pigeon Point Shelf Manager Command Line Interpreter

Change the order of FRU Activation and Power Descriptors
instead of <addr> <fru_id> user may use:

```
board <N>
shm <N>
power_supply <N>
pem <N>
fan_tray <N>
board <M> amc <N>
<addr> amc <N>
PwrReorder <addr1> <fru_id1> before/after <addr2> <fru_id2>
```


3.43 hpi

3.43.1 Syntax

hpi <subcommand> [*<additional-parameters>*]

The following subcommands are supported:

- *version*
- *session*
- *fru*
- *resource*

3.43.2 Purpose

The command *hpi* shows information related to the IntegralHPI implementation of the Hardware Platform Interface (HPI) in the Shelf Manager. The following subsections describe separate subcommands of the *hpi* command and the information that can be retrieved using these subcommands.

Note: this command works properly only if IntegralHPI is enabled, otherwise an error message is output.

3.43.3 Displaying HPI version

3.43.3.1 Syntax

hpi version

3.43.3.2 Purpose

This variant of the *hpi* command displays the version of the IntegralHPI library. Normally this version matches the version of the Shelf Manager application, but it may be different if the IntegralHPI library has been taken from another release or if it is a special library built for debugging purposes.

3.43.3.3 Examples

```
# cli hpi version
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
  HPI spec version: B.03.02; Pigeon Point Shelf Manager 3.6.1.5
```

```
#
```

3.43.4 Displaying HPI session information

3.43.4.1 Syntax

hpi session

3.43.4.2 Purpose

This variant of the *hpi* command shows HPI sessions opened to the IntegralHPI subsystem in the Shelf Manager. For each session, the command output includes the client's IP address and the number of HPI events queued to that client.

3.43.4.3 Examples

Get HPI session information for the current logical Shelf Manager.

```
# clia hpi session
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPI sessions:
```

```
Session 0, Peer IP address: 192.168.1.56, Queued events: 0
```

```
#
```

3.43.5 Displaying HPI resource information

3.43.5.1 Syntax

```
hpi fru <addr> <fru id>
```

<addr> <fru_id> can be replaced with any the following alternatives:

- *power_supply <N>*
- *pem <N>*
- *fan_tray <N>*
- *board <M> amc <N>*
- *<addr> amc <N>*
- *board <N>*
- *shm <N>*

```
hpi resource [ <resource id> ]
```

3.43.5.2 Purpose

These variants of the *hpi* command show information about a specific HPI resource. The resource can be specified using a FRU ID or a resource ID. In the first case, the command output describes the resource that corresponds to the specified FRU. In the second case, information about an arbitrary resource can be requested.

In the second variant of this command, the resource ID is omitted; in this case, information about all known HPI resources are shown.

3.43.5.3 Examples

Get information about an HPI resource that represents FRU 3 on the logical Shelf Manager:

```
# clia hpi fru 20 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 3
```

```
HPI Resource Id: 400
```

```
HPI Entity: {0x1e,1}{0x94,1}{0x10003,1}
```



```
HPI Hot Swap State: ACTIVE
Policy Execution Time: N/A
HPI Resource Tag: "FanTray1"
```

Get information about an HPI resource that represents the first fan tray in the shelf:

```
# clia hpi fru fan_tray 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 3
```

```
HPI Resource Id: 400
HPI Entity: {0x1e,1}{0x94,1}{0x10003,1}
HPI Hot Swap State: ACTIVE
Policy Execution Time: N/A
HPI Resource Tag: "FanTray1"
```

Get information about an arbitrary HPI resource by its resource ID:

```
# clia hpi resource 400
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: FRU # 3
```

```
HPI Resource Id: 400
HPI Entity: {0x1e,1}{0x94,1}{0x10003,1}
HPI Hot Swap State: ACTIVE
Policy Execution Time: N/A
HPI Resource Tag: "FanTray1"
```

3.44 ipmc

3.44.1 Syntax

```
ipmc [-v] [-x] [<IPMB-address>]
```

```
ipmc [-v] [-x] board <N>
```

```
ipmc [-v] [-x] shm <N>
```

3.44.2 Purpose

This command shows information about the IPM controller at the specified address, or about all IPM controllers known to the Shelf Manager, if *<IPMB-address>* is omitted.

This command can operate in standard mode (both options *-v* and *-x* are omitted), in verbose mode (only option *-v* is present) or in verbose extended mode (only option *-x* is present or both options *-v* and *-x* are present).

The following information is shown for the IPM controller in standard mode:

- IPMB address of the controller, as two hexadecimal digits
- Entity ID and Entity Instance for the IPM controller.
- Maximum possible FRU device ID for the IPM controller
- PICMG extension version. This version should be 2.X for PICMG 3.0-compliant IPM controllers.
- Current hot swap state, previous hot swap state and cause of the last state change for FRU device 0 of the IPM controller (which represents the IPM controller itself). The hot swap states M0-M7 are defined in the PICMG 3.0 specification as follows:
 - M0 – Not Installed
 - M1 – Inactive
 - M2 – Activation Request
 - M3 – Activation in Progress
 - M4 – FRU Active
 - M5 – Deactivation Request
 - M6 – Deactivation in Progress
 - M7 – Communication Lost

The following additional information is shown for the IPM controller in verbose mode:

- Information returned by the “Get Device ID” IPMI command, including manufacturer ID, product ID, device ID, device firmware revision (in both major-minor format and three-part format) and supported IPMI version
- Device ID string from the controller SDR
- Power state notification attribute from the controller SDR, as a hexadecimal number
- Global initialization attribute from the controller SDR, as a hexadecimal number
- Device capabilities attribute from the controller SDR, as a hexadecimal number

- Whether the controller provides Device SDRs
- Supported features mask, with a textual explanation of each bit
- The list of HPM.1 components of the target IPM controller, with their versions and descriptions
- The number of the client HPM.2 session that the Shelf Manager has established to the target IPM controller (if any)
- The HPM.2 and HPM.3 capabilities of the target IPM controller (if any)
- The list of ports subject to E-Keying, with their states (Enabled/Disabled), including both PICMG and AXIe ports

The verbose extended mode differs from the extended mode in that the information about E-Keyed ports is shown in a different, more detailed format.

This command shows information about IPM controllers in state M1, if they were known previously to the Shelf Manager.

This command can also be issued on the backup Shelf Manager; in that case, the information is only reported for IPM controllers that are local to the backup Shelf Manager.

3.44.3 Examples

Get information about the IPM controller at address 9Ch.

```
# clia ipmc 9c
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
9c: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x08
```

```
    PICMG Version 2.3
```

```
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last  
    State Change Cause: Normal State Change (0x0)
```

```
#
```

Get verbose information about the IPM controller at address 84h.

```
# clia ipmc -v 84
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
84: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x04
```

```
    PICMG Version 2.3
```

```
    Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last  
    State Change Cause: Normal State Change (0x0)
```

```
    Device ID: 0x12, Revision: 0, Firmware: 1.20 (ver 1.2.0), IPMI ver 2.0
```

```
    Manufacturer ID: 00400a, Product ID: bada, Auxiliary Rev: 00000000
```

```
    Device ID String: "BMR-A2F-ATCA-BTR"
```

```
    Global Initialization: 0xc, Power State Notification: 0xc, Device  
    Capabilities: 0x2d
```

```
    Controller provides Device SDRs
```

```
    Supported features: 0x2d
```

```
    "Sensor Device" "SEL Device" "FRU Inventory Device" "IPMB Event  
    Generator"
```

```
    HPM.1 Components:
```

```
    0: "A2F-AMCc F/W": Version 1.20, Aux 00000000
```

```
1: "A2F-AMCc B/L": Version 1.20, Aux 00000000
2: "A2F-AMCc F/I": Version 1.20, Aux 00000000
4: "A2F-AMCc IAP": Version 2.30, Aux 00000000
HPM.2 Session: 8; Channel: 5; State: Established
HPM.2 Capabilities:
  SOL Extensions
  Extended Inactive State Management: 20W, ON
  Version Change Sensor for LAN Configuration
  Dynamic Sessions
HPM.2 Channels: 5
HPM.2 LAN Parameters: start at 192 (0xc0), revision 1
HPM.2 SOL Parameters: start at 192 (0xc0), revision 1
HPM.3 Capable: Parameters: start at 205 (0xcd), revision 1
Links:
84: Base Interface (0x00), Channel: 1
   Link: Disabled Ports: 1
84: Base Interface (0x00), Channel: 2
   Link: Disabled Ports: 1
84: Fabric Interface (0x01), Channel: 1
   Link: Disabled Ports: 1
84: Fabric Interface (0x01), Channel: 2
   Link: Disabled Ports: 1
84: Update Channel Interface (0x02), Channel: 1
   Link: Disabled Ports: 1
```

#

Get verbose extended information about the IPM controller at address 84h.

```
# clia ipmc -x 84
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
84: Entity: (0xa0, 0x60) Maximum FRU device ID: 0x04
```

```
PICMG Version 2.3
```

```
Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last
State Change Cause: Normal State Change (0x0)
```

```
Device ID: 0x12, Revision: 0, Firmware: 1.20 (ver 1.2.0), IPMI ver 2.0
```

```
Manufacturer ID: 00400a, Product ID: bada, Auxiliary Rev: 00000000
```

```
Device ID String: "BMR-A2F-ATCA-BTR"
```

```
Global Initialization: 0xc, Power State Notification: 0xc, Device
Capabilities: 0x2d
```

```
Controller provides Device SDRs
```

```
Supported features: 0x2d
```

```
"Sensor Device" "SEL Device" "FRU Inventory Device" "IPMB Event
Generator"
```

```
HPM.1 Components:
```

```
0: "A2F-AMCc F/W": Version 1.20, Aux 00000000
```

```
1: "A2F-AMCc B/L": Version 1.20, Aux 00000000
```

```
2: "A2F-AMCc F/I": Version 1.20, Aux 00000000
4: "A2F-AMCc IAP": Version 2.30, Aux 00000000
HPM.2 Session: 8; Channel: 5; State: Established
HPM.2 Capabilities:
    SOL Extensions
    Extended Inactive State Management: 20W, ON
    Version Change Sensor for LAN Configuration
    Dynamic Sessions
HPM.2 Channels: 5
HPM.2 LAN Parameters: start at 192 (0xc0), revision 1
HPM.2 SOL Parameters: start at 192 (0xc0), revision 1
HPM.3 Capable: Parameters: start at 205 (0xcd), revision 1
Links:
84: Base Interface (0x00), Channel: 1
    Link Type: PICMG 3.0 Base Interface 10/100/1000 BASE-T
    Link Type Extension: 0 (10/100/1000 BASE-T)
    Link Grouping ID: 0x01
    Link Ports: 1
84: Base Interface (0x00), Channel: 2
    Link Type: PICMG 3.0 Base Interface 10/100/1000 BASE-T
    Link Type Extension: 0 (10/100/1000 BASE-T)
    Link Grouping ID: 0x01
    Link Ports: 1
84: Fabric Interface (0x01), Channel: 1
    Link Type: PICMG 3.1 Ethernet Fabric Interface
    Link Type Extension: 0 (1000BASE-BX)
    Link Grouping ID: 0x00
    Link Ports: 1
84: Fabric Interface (0x01), Channel: 2
    Link Type: PICMG 3.1 Ethernet Fabric Interface
    Link Type Extension: 0 (1000BASE-BX)
    Link Grouping ID: 0x00
    Link Ports: 1
84: Update Channel Interface (0x02), Channel: 1
    Link Type: OEM GUID-based (0xf0)
    Link Type Extension: 0
    Link Grouping ID: 0x00
    Link Ports: 1
```

Get verbose information about the IPM controller at address 10h (the physical Shelf Manager).

```
# clia ipmc -v 10
```

```
Pigeon Point Shelf Manager Command Line Interpreter
10: Entity: (0xf0, 0x60) Maximum FRU device ID: 0x08
    PICMG Version 2.3
```



Hot Swap State: M4 (Active), Previous: M3 (Activation In Process), Last State Change Cause: Normal State Change (0x0)

Device ID: 0x00, Revision: 0, Firmware: 3.70 (ver. 3.7.0), IPMI ver 2.0

Manufacturer ID: 00400a, Product ID: 0000, Auxiliary Rev: 00000000

Device ID String: "ShMM-500"

Global Initialization: 0x0, Power State Notification: 0x0, Device Capabilities: 0x29

Controller provides Device SDRs

Supported features: 0x29

"Sensor Device" "FRU Inventory Device" "IPMB Event Generator"

Links:

10: Base Interface (0x00), Channel: 1

Link: Disabled Ports: 1

10: Base Interface (0x00), Channel: 2

Link: Disabled Ports: 1

3.45 localaddress

3.45.1 Syntax

localaddress

3.45.2 Purpose

This command shows the IPMB address of the current Shelf Manager, based on its hardware address (as opposed to its generic BMC address 20h). These addresses will be different between redundant Shelf Managers (while the BMC address is shared between them).

This command can also be issued on the backup Shelf Manager.

3.45.3 Examples

```
# clia localaddress
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Local IPMB Address = 0xFC
```

```
#
```

3.46 md5hash

3.46.1 Syntax

md5hash

3.46.2 Purpose

This command shows the MD5 hashes of the HPDL and SDR modules for the carrier and for the chassis. They can be compared with known values to make sure that the Shelf Manager is using the expected versions of HPDL and SDR modules.

This command can also be issued on the backup Shelf Manager. In that case, hash values are shown only for the carrier HPDL and SDRs

3.46.3 Examples

```
# clia md5hash
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Carrier HPDL MD5 hash: 1D9B77363B591D5864AA7841C79907EE  
Carrier SDRs MD5 hash: F8C3DE715E2CAE8029CFC1EA22A7D60F  
Chassis HPDL MD5 hash: B0919527455532A7003D35681C9869D1  
Chassis SDRs MD5 hash: AB2EA6A13F74758B5294DBFE679E3703  
#
```

3.47 minfanlevel

3.47.1 Syntax

```
minfanlevel [<level>]
```

```
minfanlevel <IPMB-address> <fru_id> [<level>]†
```

3.47.2 Purpose

This command shows or sets the minimum fan level. Under normal conditions, the cooling management algorithm gradually decreases the level for the fans in the system while thermal conditions stay normal. However, the cooling management algorithm won't try to decrease the fan level below the minimum level specified by the configuration parameter

MIN_FAN_LEVEL, or by this command.

The default value for the minimum fan level is 1. Setting the minimum fan level to a higher value does not prevent the fan level from being set below that value via the command *clia setfanlevel* or via the ATCA command "Set Fan Level" submitted over RMCP. The minimum fan level affects only the automatic management of the fan level by the cooling management facility.

This command without parameters shows the current minimum fan level.

This command with an integer parameter sets the minimum fan level to the value of the parameter.

In the shelves where zoned cooling is implemented, an alternative variant of this command is available that includes the parameters *<IPMB-address>* and *<fru_id>*. This syntax allows setting of the minimum fan level on a per-zone basis. The *<IPMB-address>* and *<fru_id>* in that case designate the Fan tray FRU for which the minimum fan level is set or queried. The command without parameters in such shelves shows the current minimum fan levels for all fan trays; the command with a single *<level>* parameter in such systems sets the same minimum fan level to all fan trays.

3.47.3 Examples

In a shelf that does not implement zoned cooling:

```
# clia minfanlevel 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Minimal Fan Level is set to 3
```

```
# clia minfanlevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Minimal Fan Level is 3  
Dynamic Minimum Fan Level is 3
```

In a shelf with zoned cooling:

```
# clia minfanlevel
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

[†] This variant of the syntax is valid only for shelves that implement zoned cooling

Minimal Fan Level is 3

20: FRU # 3

Dynamic Minimum Fan Level is 3

20: FRU # 4

Dynamic Minimum Fan Level is 3

20: FRU # 5

Dynamic Minimum Fan Level is 3

clia minfanlevel 5

Pigeon Point Shelf Manager Command Line Interpreter

Minimal Fan Level is set to 5 for all fan trays

clia minfanlevel

Pigeon Point Shelf Manager Command Line Interpreter

Minimal Fan Level is 5

20: FRU # 3

Dynamic Minimum Fan Level is 5

20: FRU # 4

Dynamic Minimum Fan Level is 5

20: FRU # 5

Dynamic Minimum Fan Level is 5

clia minfanlevel 20 4 7

Pigeon Point Shelf Manager Command Line Interpreter

Minimal Fan Level for (20, 4) is set to 7

clia minfanlevel 20 4

Pigeon Point Shelf Manager Command Line Interpreter

Minimal Fan Level is 5

20: FRU # 4

Dynamic Minimum Fan Level is 7

3.48 networkelementid

3.48.1 Syntax

```
networkelementid [-i <index>] ["<id>"]
```

3.48.2 Purpose

This command is carrier-specific and is not necessarily supported on all ShMM carriers.

This command shows or sets a Network Element Identifier if this parameter is supported by the current carrier. The superuser (UID 0) privilege is required for setting a Network Element Identifier.

Up to three Network Element Identifiers are supported for a single shelf. The index of the Network Element Identifier to retrieve or set is specified by the command line parameter *<index>*. This parameter can take values 1, 2 or 3; if omitted, the default index value is 1. The Network Element Identifiers are stored in a redundant mode, in two different physical locations each. This command, if used for read, alerts the user if the redundant copies mismatch and, if one and only one of the redundant copies is corrupted, updates it from the intact one. If used for update, this command updates both redundant copies with the same value.

The Network Element Identifier specified as the command line parameter *<id>* must be in the format defined by the specific carrier.

If no parameter is specified in the command line, the current first Network Element Identifier is displayed.

Note: Starting from release 3.6.1, the Shelf Manager maintains checksum information for the Network Element Identifiers. For compatibility, the Shelf Manager correctly reads Network Element Identifiers irrespective of whether they have a checksum or not. The checksum information is written for a specific Network Element Identifier when it is set; after that, the Shelf Manager verifies the checksum when the corresponding Network Element Identifier is read, and alerts the user in the case of a mismatch.

3.48.3 Examples

```
#clia networkelementid
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Network Element ID1: "0123456789A"
```

```
#clia networkelementid "01234567890"
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Network Element ID1 is set successfully to "01234567890"
```

Retrieve the second Network Element Identifier for this shelf:

```
#clia networkelementid -i 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Network Element ID2: "0123456789A"
```



Retrieve the first Network Element Identifier. The signature in Shelf FRU 1 is invalid, the signature in Shelf FRU 2 is correct. The invocation of the command restores the redundancy.

```
# clia networkelementid -i 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Network Element ID1: "XYZ"
```

```
Warning: Signature failed for Shelf FRU 1.
```

```
Network Element ID1 is set successfully to "XYZ"
```

3.49 poll

3.49.1 Syntax

poll

3.49.2 Purpose

This command initiates re-discovery of IPM controllers on IPMB-0 by sending the “Get Device ID” command to all IPMB addresses.

This command is mostly useful in PICMG 2.x shelves, where Hot Swap state machine support for IPM controllers is optional and a new IPM controller on IPMB may not be immediately recognized by the Shelf Manager. The command *poll* causes the Shelf Manager to recognize new IPM controllers.

In AdvancedTCA shelves, this command is not necessary, because a new IPM controller is recognized by the Shelf Manager automatically when it sends its first Hot Swap event. Nevertheless, this command can be used in AdvancedTCA shelves if an IPMB-0 population rediscovery cycle is needed.

3.49.3 Examples

```
# clia poll
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
IPMB polling thread started
```

3.50 sel

3.50.1 Syntax

```
sel [-v] [ <IPMB-address> [<record-count> [starting-entry] ] ]
```

```
sel clear [ <IPMB-address> ]
```

```
sel info [ <IPMB-address> ]
```

<IPMB-address> can be replaced by the *board* <N> or *shm* <N> abbreviations.

3.50.2 Purpose

This command shows the contents of the SEL on the specified IPM controller (at IPMB address 20h by default). The optional parameter <record-count> can be specified that indicates how many records, starting from the record number <starting-entry> in the SEL are shown. The optional parameter <starting-entry> is the entry number of the first SEL record to show, relative to the beginning of the SEL. Both <record-count> and <starting-entry> must be within the range from 1 to the total number of records in the SEL. If the optional parameter <starting-entry> is absent, the command shows the last <record-count> records in the SEL. If both the optional parameters <record-count> and <starting-entry> are absent, the command shows all the records in the SEL. The <starting-entry> is independent of the RecordID field of the SEL record.

For each SEL record, the following information fields are shown:

- Record ID
- Record type (currently only events are supported, for which the word “Event” is shown)
- Timestamp (for timestamped records) in the local time zone defined by the *TZ* environment variable
- Source address parameters: IPMB address, LUN and channel number
- Type and number of the sensor that generated the event
- Event/reading type code
- 3 bytes of event data, in raw and processed (if available) formats.

The command *sel clear* clears the SEL on the specified IPM controller (at IPMB address 20h by default).

The *-v* option makes the SEL entries output more user-friendly.

3.50.3 Examples

Reading the SEL on the Shelf Manager:

```
# clia sel info
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: SEL version: 1.5
```

```
    Number of log entries: 43
```

```
    Free space: 15680 bytes
```

```
    Last addition timestamp: Nov 19 17:12:47 2003
```

```
    Last erase timestamp: Oct 31 23:59:59 2003
```


Supported operations: 0x0f

#

clia sel 20 5

Pigeon Point Shelf Manager Command Line Interpreter

0x0027: Event: at Nov 19 17:12:42 2003; from:(0x9c,0,0); sensor:(0xf0,0);
event:0x6f(asserted): HotSwap: FRU 0 M4->M6, Cause=0x1

0x0028: Event: at Nov 19 17:12:42 2003; from:(0x9c,0,0); sensor:(0xf0,0);
event:0x6f(asserted): HotSwap: FRU 0 M6->M1, Cause=0x0

0x0029: Event: at Nov 19 17:12:46 2003; from:(0x9c,0,0); sensor:(0xf0,0);
event:0x6f(asserted): HotSwap: FRU 0 M1->M2, Cause=0x2

0x002A: Event: at Nov 19 17:12:46 2003; from:(0x9c,0,0); sensor:(0xf0,0);
event:0x6f(asserted): HotSwap: FRU 0 M2->M3, Cause=0x1

0x002B: Event: at Nov 19 17:12:47 2003; from:(0x9c,0,0); sensor:(0xf0,0);
event:0x6f(asserted): HotSwap: FRU 0 M3->M4, Cause=0x0

#

clia sel b4 5

Pigeon Point Shelf Manager Command Line Interpreter

0x00A4: Event: at Nov 19 01:24:25 2003; from:(0x20,0,0); sensor:(0x02,4);
event:0x1(asserted): "Lower Non-Critical", Threshold: 0xb3, Reading: 0xb3

0x00B8: Event: at Nov 19 00:04:11 2003; from:(0x20,0,0); sensor:(0x02,4);
event:0x1(asserted): "Lower Non-Critical", Threshold: 0xb3, Reading: 0xb3

0x00CC: Event: at Nov 19 00:36:32 2003; from:(0x20,0,0); sensor:(0x02,7);
event:0x1(asserted): "Lower Non-Critical", Threshold: 0xae, Reading: 0x94

0x00E0: Event: at Nov 19 00:36:32 2003; from:(0x20,0,0); sensor:(0x02,7);
event:0x1(asserted): "Lower Critical", Threshold: 0xac, Reading: 0x94

0x00F4: Event: at Nov 19 00:02:37 2003; from:(0x20,0,0); sensor:(0x01,2);
event:0x1(asserted): "Upper Critical", Threshold: 0x13, Reading: 0x1c

clia sel -v board 3 5

Pigeon Point Shelf Manager Command Line Interpreter

0x00A4: Event: at: Nov 19 01:24:25 2003; from IPM Controller: 0x20, LUN: 0,
Channel: 0

"Voltage" (0x02) sensor # 4

"Threshold" (0x01) event Asserted

"Lower Non-Critical Going Low"

Reading value: 0xb3

Threshold value: 0xb3

0x00B8: Event: at: Nov 19 00:04:11 2003; from IPM Controller: 0x20, LUN: 0,
Channel: 0

"Voltage" (0x02) sensor # 4

"Threshold" (0x01) event Asserted

"Lower Non-Critical Going Low"

Reading value: 0xb3

Threshold value: 0xb3

0x00CC: Event: at: Nov 19 00:36:32 2003; from IPM Controller: 0x20, LUN: 0,
Channel: 0

"Voltage" (0x02) sensor # 7

"Threshold" (0x01) event Asserted

"Lower Non-Critical Going Low"

Reading value: 0x94

Threshold value: 0xae

0x00E0: Event: at: Nov 19 00:36:32 2003; from IPM Controller: 0x20, LUN: 0, Channel: 0

"Voltage" (0x02) sensor # 7

"Threshold" (0x01) event Asserted

"Lower Critical Going Low"

Reading value: 0x94

Threshold value: 0xac

0x00F4: Event: at: Nov 19 00:02:37 2003; from IPM Controller: 0x20, LUN: 0, Channel: 0

"Temperature" (0x01) sensor # 2

"Threshold" (0x01) event Asserted

"Upper Critical Going High"

Reading value: 0x1c

Threshold value: 0x13

#

Getting 5 sel entries, starting with entry # 15 (0x0f).

cli sel 20 5 15

Pigeon Point Shelf Manager Command Line Interpreter

0x000F: Event: at Nov 19 16:49:21 2003; from:(0x20,0,0); sensor:(0xf0,3); event:0x6f(asserted): HotSwap: FRU 2 M2->M3, Cause=0x1

0x0010: Event: at Nov 19 16:49:22 2003; from:(0x20,0,0); sensor:(0xf0,2); event:0x6f(asserted): HotSwap: FRU 1 M2->M3, Cause=0x1

0x0011: Event: at Nov 19 16:49:22 2003; from:(0x20,0,0); sensor:(0xf0,2); event:0x6f(asserted): HotSwap: FRU 1 M3->M4, Cause=0x0

0x0012: Event: at Nov 19 16:49:22 2003; from:(0xfc,0,0); sensor:(0xf0,0); event:0x6f(asserted): HotSwap: FRU 0 M3->M4, Cause=0x0

0x0013: Event: at Nov 19 16:49:22 2003; from:(0x20,0,0); sensor:(0xf0,3); event:0x6f(asserted): HotSwap: FRU 2 M3->M4, Cause=0x0

#

Clearing the SEL:

cli sel clear

Pigeon Point Shelf Manager Command Line Interpreter

SEL clear: issued successfully

SEL clearing completed

cli sel

Pigeon Point Shelf Manager Command Line Interpreter

SEL is empty

#

3.51 sendamc

3.51.1 Syntax

```
sendamc [-x] <addr> <AMC-address> [<lun>:]<netfn> <command-code>  
[<parameter1> ...<parameterN>]
```

3.51.2 Purpose

This command allows the user to send an IPMI command to an Advanced Management Controller (AMC) that resides behind its correspondent IPM controller in a transparent way. All the parameters of this command are hexadecimal numbers in the range 00h – FFh. The prefix “0x” is not required. The target controller is specified by the *<AMC-address>* parameter. If it is greater than 70h, this is the actual AMC address on IPMB-L. If it is less than 70h, it is the FRU device ID that represents the corresponding AMC. The NetFn code of the command is specified by the *<netfn>* parameter. The target LUN of the command on the IPMB-L is specified by the *<lun>* parameter. (The default is LUN 0; if specified, *<lun>* is separated from *<netfn>* with a colon and no spaces.) The code of the command is specified by the *<command-code>* parameter. The request data bytes of the command are represented by *<parameter1>*, *<parameter2>*, etc.

If the option *-x* is specified, the Shelf Manager sends the command to the target AMC over a previously established HPM.2 session between the Shelf Manager and that AMC’s MMC. If no such HPM.2 session exists, an error is reported. When sent over an HPM.2 session, the command may have up to 150 bytes in the request and up to 241 bytes in the response.

The command reports the completion code of the IPMI command and the response data are displayed as hexadecimal bytes.

3.51.3 Examples

Send the “Get Device ID” command to the target MMC (IPMB address 84h, FRU ID 1). The NetFn of the command is 06h, the code of the command is 01h. Since this command doesn’t require request data, no *<parameter1>*, *<parameter2>*, ... are specified.

```
# clia sendamc 84 1 6 1  
Pigeon Point Shelf Manager Command Line Interpreter  
Completion code: 0x0 (0)  
Response data: 34 80 01 20 51 29 0A 40 00 EF BE  
#
```

Send the “Get Device ID” command to the target MMC (IPMB address 84h, AMC address 72h). The NetFn of the command is 06h, the code of the command is 01h. LUN 0 is explicitly specified. Since this command doesn’t require request data, no *<parameter1>*, *<parameter2>*, ... are specified.

```
# clia sendamc 84 72 0:6 1  
Pigeon Point Shelf Manager Command Line Interpreter  
Completion code: 0x0 (0)  
Response data: 34 80 01 20 51 29 0A 40 00 EF BE  
#
```



Send the “Read FRU Data” command over an HPM.2 session to an HPM.2 compliant MMC (on the AMC designated by IPMB address 84h, FRU ID 4), reading 128 bytes of FRU data.

```
# clia sendamc -x 84 4 a 11 0 0 0 80
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Completion code: 0x0 (0)
```

```
Response data: 80 01 00 00 01 0B 16 00 DD 01 0A 19 E0 E5 66 D4 50 69 67 65 6F
6E 20 50 6F 69 6E 74 20 53 79 73 74 65 6D 73 D0 42 4D 52 2D 41 32 46 2D 41 4D
43 6D 20 42 54 52 CA 50 50 53 30 30 30 30 30 30 31 C2 41 20 CC 66 72 75 2D 69
6E 66 6F 2E 69 6E 66 C1 00 00 00 00 00 00 00 E0 01 0B 19 D4 50 69 67 65 6F 6E
20 50 6F 69 6E 74 20 53 79 73 74 65 6D 73 D0 42 4D 52 2D 41 32 46 2D 41 4D 43
6D 20 42 54
```

3.52 sendcmd

3.52.1 Syntax

```
sendcmd [-x] <IPMB-address> [<lun>:]<netfn> <command-code>  
[<parameter1> ...<parameterN>]
```

3.52.2 Purpose

This command allows the user to send an IPMI command to an IPM controller in a transparent way. All the parameters of this command are hexadecimal numbers in the range 0 – FF. The prefix “0x” is not required. The target controller is specified by the *<IPMB-address>* parameter. The NetFn code of the command is specified by the *<netfn>* parameter. The target LUN of the command is specified by the *<lun>* parameter. (The default is LUN 0; if specified, *<lun>* is separated from *<netfn>* with a colon and no spaces.) The code of the command is specified by the *<command-code>* parameter. The request data bytes of the command are represented by *<parameter1>*, *<parameter2>*, etc.

If the option *-x* is specified, the Shelf Manager sends the command to the target AMC over a previously established HPM.2 session between the Shelf Manager and that AMC’s MMC. If no such HPM.2 session exists, an error is reported. When sent over an HPM.2 session, the command may have up to 150 bytes in the request and up to 248 bytes in the response.

The command reports the completion code resulting from the IPMI command and the response data, all are displayed as hexadecimal bytes.

3.52.3 Examples

Send the “Get Device ID” command to the Shelf Manager (IPMB address 20h). The NetFn of the command is 06h, the code of the command is 01h. Since this command doesn’t require request data, no *<parameter1>*, *<parameter2>*, ... are specified.

```
# clia sendcmd 20 6 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Completion code: 0x0 (0)
```

```
Response data: 00 80 02 30 51 BF 0A 40 00 00 00
```

```
#
```

Send the same command as above, but with LUN 0 explicitly specified.

```
# clia sendcmd 20 0:6 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Completion code: 0x0 (0)
```

```
Response data: 00 80 02 30 51 BF 0A 40 00 00 00
```

```
#
```

Send the “Read FRU Data” command over an HPM.2 session to an HPM.2-compliant MMC, reading 128 bytes of FRU data.

```
# clia sendcmd -x 84 a 11 0 0 0 80
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Completion code: 0x0 (0)
```



Response data: 80 01 00 00 01 08 11 00 E5 01 07 19 00 26 70 C3 50 50 53 D0 42
4D 52 2D 41 32 46 2D 41 54 43 41 2D 42 54 52 CA 50 50 53 30 30 30 30 30 30 31
C2 41 20 CC 66 72 75 2D 69 6E 66 6F 2E 69 6E 66 C1 52 01 09 19 C3 50 50 53 DA
42 4D 52 2D 41 32 46 2D 41 54 43 41 2D 42 54 52 20 28 63 61 72 72 69 65 72 29
C6 30 30 30 30 30 30 C6 52 65 76 20 31 41 C7 30 30 30 30 30 30 31 C0 CC 66 72
75 2D 69 6E

3.53 sensor

3.53.1 Syntax

```
sensor [-v] [ <IPMB-address> [<sensor-name> | [<lun>:]<sensor-  
number> ] ]  
sensor [-v] board <N> [<sensor-name> | [<lun>:]<sensor-number> ]  
]  
sensor [-v] shm <N> [<sensor-name> | [<lun>:]<sensor-number> ] ]  
sensor <IPMB-address> -f <fru_id>  
sensor <IPMB-address> -f amc <amc_number>  
sensor board <N> -f <fru_id>  
sensor board <N> -f amc <amc_number>  
sensor shm <N> -f <fru_id>  
sensor shm <N> -f amc <amc_number>
```

3.53.2 Purpose

This command shows information about specific sensor(s). The target sensor is selected by its IPM controller's IPMB address and by sensor number or by sensor name (device ID string from the sensor SDR, enclosed in double quotes). If neither sensor name nor sensor number is specified, information about all sensors on the specified IPM controller is shown. If no parameters are specified, information about all known sensors is shown.

This command also shows information about event-only sensors (a new category of sensors defined in the IPMI 2.0 specification; these sensors have special reduced SDRs and support event generation only).

The option *-f* allows the user to select all sensors that belong to a specific FRU, designated either with its *<fru_id>* or, if it is an AMC, with the *amc <amc_number>* notation.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, information about sensors with the specified sensor number on all LUNs is shown. *<lun>* can take the value 0, 1 or 3 (LUN 2 is reserved.)

Sensor names are not qualified with LUN numbers, since it is assumed that sensor names will normally be unique within the controller. However, if there are several sensors with the same name within the controller, information is shown about all of them.

The following information is shown for each sensor in standard mode:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR) and the LUN by which the sensor can be accessed
- The sensor type and event/reading type code
- The Entity ID, Entity Instance of the related entity (the FRU device ID if the sensor is associated with a FRU)

In verbose mode, additional information about the sensor may be shown depending on the sensor category (threshold-based, discrete or event-only).

For threshold-based sensors, the following information is shown:

- Assertion mask
- Deassertion mask
- Settable/readable mask for sensor thresholds
- Sensor units: base and modified
- Unit percentage, modifier and rate
- Analog format and flags
- Linearization parameters, M, B, K1, K2 coefficients
- Tolerance and accuracy coefficients
- Nominal, normal maximum, normal minimum, maximum and minimum values
- Upper thresholds: non-critical, critical and non-recoverable
- Lower thresholds: non-critical, critical and non-recoverable
- Hysteresis values: positive and negative.

For discrete sensors, the following information is shown:

- Assertion mask
- Deassertion mask
- Settable/readable mask for sensor states

For event-only sensors, no additional information is shown.

This command can also be issued on the backup Shelf Manager; in that case, the information is only shown for sensors that are local to the backup Shelf Manager.

3.53.3 Examples

Get standard information about sensor "FAN 4" on IPM controller FEh.

```
# clia sensor fe "FAN 4"
Pigeon Point Shelf Manager Command Line Interpreter
fe: LUN: 0, Sensor # 14 ("FAN 4")
    Type: Threshold (0x01), "Fan" (0x04)
    Belongs to entity: (0xd0, 0) [FRU # 0]
#
```

Get verbose information about sensor 2 on IPM controller 9Ch.

```
# clia sensor -v 9c 2
Pigeon Point Shelf Manager Command Line Interpreter
9c: LUN: 0, Sensor # 2 ("emulated temp")
    Type: Threshold (0x01), "Temperature" (0x01)
    Belongs to entity: (0xd0, 0) [FRU # 0]
    Assertion Mask: 0x7a95
        Lower Non-Critical Going Low
```


Lower Critical Going Low
Lower Non-Recoverable Going Low
Upper Non-Critical Going High
Upper Critical Going High
Upper Non-Recoverable Going High
Upper non-critical threshold is comparison returned
Upper critical threshold is comparison returned
Upper non-recoverable threshold comparison is returned
Deassertion Mask: 0x7a95
Lower Non-Critical Going Low
Lower Critical Going Low
Lower Non-Recoverable Going Low
Upper Non-Critical Going High
Upper Critical Going High
Upper Non-Recoverable Going High
Upper non-critical threshold is comparison returned
Upper critical threshold is comparison returned
Upper non-recoverable threshold comparison is returned
Settable / Readable Mask: 0x3f3f
Lower Non-Critical Threshold is Readable
Lower Critical Threshold is Readable
Lower Non-Recoverable Threshold is Readable
Upper Non-Critical Threshold is Readable
Upper Critical Threshold is Readable
Upper Non-Recoverable Threshold is Readable
Lower Non-Critical Threshold is Settable
Lower Critical Threshold is Settable
Lower Non-Recoverable Threshold is Settable
Upper Non-Critical Threshold is Settable
Upper Critical Threshold is Settable
Upper Non-Recoverable Threshold is Settable
Unit Percentage: OFF (0), Unit Modifier: none (0), Unit Rate: none (0)
Analog Format: 2's complement (signed) (2)
Base Unit: degrees C (1), Modifier Unit: unspecified (0)
Linearization: linear (0), M = 1, B = 0, K1 = 0, K2 = 0
Tolerance = 0, Accuracy = 0, Accuracy EXP = 0
Analog Flags: 0x0
Nominal: 0 (0x00), Normal max: 0 (0x00), Normal min: 0 (0x00)
Sensor max: 127 (0x7f), Sensor min: 128 (0x80)
Upper Thresholds:
Non-Critical: 70 (0x46) Critical: 80 (0x50) Non-Recoverable: 90 (0x5a)
Lower Thresholds:
Non-Critical: 3 (0x03) Critical: 0 (0x00) Non-Recoverable: 251 (0xfb)

Hysteresis:

Positive: 2 (0x02), Negative 2 (0x02)

#

Same as above, but explicitly specifying the LUN for the sensor.

cli **sensor -v 9c 0:2**

Pigeon Point Shelf Manager Command Line Interpreter

9c: LUN: 0, Sensor # 2 ("emulated temp")

Type: Threshold (0x01), "Temperature" (0x01)

Belongs to entity: (0xd0, 0) [FRU # 0]

Assertion Mask: 0x7a95

Lower Non-Critical Going Low

Lower Critical Going Low

Lower Non-Recoverable Going Low

Upper Non-Critical Going High

Upper Critical Going High

Upper Non-Recoverable Going High

Upper non-critical threshold is comparison returned

Upper critical threshold is comparison returned

Upper non-recoverable threshold comparison is returned

Deassertion Mask: 0x7a95

Lower Non-Critical Going Low

Lower Critical Going Low

Lower Non-Recoverable Going Low

Upper Non-Critical Going High

Upper Critical Going High

Upper Non-Recoverable Going High

Upper non-critical threshold is comparison returned

Upper critical threshold is comparison returned

Upper non-recoverable threshold comparison is returned

Settable / Readable Mask: 0x3f3f

Lower Non-Critical Threshold is Readable

Lower Critical Threshold is Readable

Lower Non-Recoverable Threshold is Readable

Upper Non-Critical Threshold is Readable

Upper Critical Threshold is Readable

Upper Non-Recoverable Threshold is Readable

Lower Non-Critical Threshold is Settable

Lower Critical Threshold is Settable

Lower Non-Recoverable Threshold is Settable

Upper Non-Critical Threshold is Settable

Upper Critical Threshold is Settable

Upper Non-Recoverable Threshold is Settable

Unit Percentage: OFF (0), Unit Modifier: none (0), Unit Rate: none (0)

```
Analog Format: 2's complement (signed) (2)
Base Unit: degrees C (1), Modifier Unit: unspecified (0)
Linearization: linear (0), M = 1, B = 0, K1 = 0, K2 = 0
Tolerance = 0, Accuracy = 0, Accuracy EXP = 0
Analog Flags: 0x0
Nominal: 0 (0x00), Normal max: 0 (0x00), Normal min: 0 (0x00)
Sensor max: 127 (0x7f), Sensor min: 128 (0x80)
Upper Thresholds:
    Non-Critical: 70 (0x46) Critical: 80 (0x50) Non-Recoverable: 90
(0x5a)
Lower Thresholds:
    Non-Critical: 3 (0x03) Critical: 0 (0x00) Non-Recoverable: 251 (0xfb)
Hysteresis:
    Positive: 2 (0x02), Negative 2 (0x02)
```

#

Get standard information about sensors that belong to FRU #1 on IPM controller 20h.

```
# # clia sensor 20 -f 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 2 ("FRU 1 HOT_SWAP")
```

```
    Type: Discrete (0x6f), "Hot Swap" (0xf0)
```

```
    Belongs to entity (0xf2, 96): [FRU # 1]
```

```
20: LUN: 0, Sensor # 194 ("Shelf EEPROM 1")
```

```
    Type: Discrete (0x6f), "Entity Presence" (0x25)
```

```
    Belongs to entity (0xf2, 96): [FRU # 1]
```

Get verbose information about an event-only sensor.

```
# clia sensor -v 0x82 128
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
82: LUN: 0, Sensor # 128 ("Memory")
```

```
    Type: Discrete (0x6f), "Memory" (0x0c)
```

```
    Belongs to entity (0xa0, 96): [FRU # 0]
```

```
    This is an Event-Only Sensor
```

3.54 sensordata

3.54.1 Syntax

```
sensordata [-v] [-t] [-d <state>] [ <IPMB-address> [<sensor-name> | [<lun>:]<sensor-number> ] ]  
sensordata [-v] [-t] [-d <state>] board <N> [<sensor-name> | [<lun>:]<sensor-number> ] ]  
sensordata [-v] [-t] [-d <state>] shm <N> [<sensor-name> | [<lun>:]<sensor-number> ] ]  
sensordata [-v] [-t] [-d <state>] <IPMB-address> -f <fru_id>  
sensordata [-v] [-t] [-d <state>] <IPMB-address> -f amc <amc_number>  
sensordata [-v] [-t] [-d <state>] board <N> -f <fru_id>  
sensordata [-v] [-t] [-d <state>] board <N> -f amc <amc_number>  
sensordata [-v] [-t] [-d <state>] shm <N> -f <fru_id>  
sensordata [-v] [-t] [-d <state>] shm <N> -f amc <amc_number>
```

3.54.2 Purpose

This command shows the actual value of the specified sensor(s) (for a threshold-based sensor) or the currently asserted states (for a discrete sensor). The target sensor is selected by its IPM controller's IPMB address and by sensor number or by sensor name (device ID string from the sensor SDR, enclosed in double quotes). If neither sensor name nor sensor number is specified, values of all sensors on the specified IPM controller are shown. If no parameters are specified, values of all known sensors are shown.

The option *-f* allows the user to select all sensors that belong to a specific FRU, designated either with its *<fru_id>* or, if it is an AMC, with the *amc <amc_number>* notation.

The option *-d* allows the user to select discrete sensors that have the state *<state>* (which is a decimal number in the range of 0 to 14) set in their state masks.

If the option *-t* is specified, information is displayed only for threshold-based sensors that have at least one of their thresholds crossed.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, information about sensors with the specified sensor number on all LUNs is shown. *<lun>* can take the value 0, 1 or 3 (LUN 2 is reserved.)

Sensor names are not qualified with LUN numbers, since it is assumed that sensor names will normally be unique within the controller. However, if there are several sensors with the same name within the controller, information is shown about all of them.

The following information is shown for each sensor:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR) and the LUN by which the sensor can be accessed

- The sensor type and event/reading type code
- The sensor value (for threshold-based sensors) or the mask of currently asserted states (for discrete sensors) in raw form
- The threshold crossing status, in hexadecimal format and with decoding.

The value/asserted states are shown both in raw and processed form. In processed form, the analog value are converted according to M, B and R and shown together with the unit name (e.g., 27 degrees). The discrete value is annotated according to the event/reading code type (e.g. for the event/reading code 2, the asserted state 0 is shown as “Transition to Idle”) and also according to the sensor type if the event/reading code is “Sensor-specific” and the sensor type is known to the Shelf Manager. The processed value is not shown if the sensor is in the state “Initial Update In Progress/Sensor Reading Unavailable” (since the processed value does not make sense in that state).

This command can also be issued on the backup Shelf Manager; in that case, the information is only shown for sensors that are local to the backup Shelf Manager.

3.54.3 Examples

Get sensor data values for a temperature sensor “Local Temp” on IPM controller FEh.

```
# clia sensordata FE "Local Temp"
Pigeon Point Shelf Manager Command Line Interpreter
fe: LUN: 0, Sensor # 3 ("Local Temp")
    Type: Threshold (0x01), "Temperature" (0x01)
    Status: 0xc0
        All event messages enabled from this sensor
        Sensor scanning enabled
        Initial update completed
    Raw data: 22 (0x16)
    Processed data: 22.000000 degrees C
    Current State Mask: 0x00
#
```

Get sensor data values for a discrete (Hot Swap) sensor (#0) on IPM controller 9Ch.

```
# clia sensordata 9c 0
Pigeon Point Shelf Manager Command Line Interpreter
9c: LUN: 0, Sensor # 0 ("FRU 0 HOT_SWAP")
    Type: Discrete (0x6f), "Hot Swap" (0xf0)
    Status: 0xc0
        All event messages enabled from this sensor
        Sensor scanning enabled
        Initial update completed
    Sensor reading: 0x00
    Current State Mask 0x0010
#
```

Get sensor data values for the same sensor, but qualifying it explicitly with the LUN.

```
# clia sensordata 9c 0:0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
9c: LUN: 0, Sensor # 0 ("FRU 0 HOT_SWAP")
```

```
    Type: Discrete (0x6f), "Hot Swap" (0xf0)
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
        Initial update completed
```

```
    Sensor reading: 0x00
```

```
    Current State Mask 0x0010
```

```
#
```

Get sensor data values for sensors that belong to FRU #1 on IPM controller 20h.

```
# clia sensordata 20 -f 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 2 ("FRU 1 HOT_SWAP")
```

```
    Type: Discrete (0x6f), "Hot Swap" (0xf0)
```

```
    Belongs to entity (0xf2, 0x60): FRU # 1
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
        Initial update completed
```

```
    Sensor reading: 0x00
```

```
    Current State Mask 0x0010
```

```
20: LUN: 0, Sensor # 194 ("Shelf EEPROM 1")
```

```
    Type: Discrete (0x6f), "Entity Presence" (0x25)
```

```
    Belongs to entity (0xf2, 0x60): FRU # 1
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
        Initial update completed
```

```
    Sensor reading: 0x00
```

```
    Current State Mask 0x0001
```

```
        Entity Present
```

Get sensor data values for discrete sensors on IPM controller 20h that have state #1 set in their state masks.

```
# clia sensordata -d 1 20
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
20: LUN: 0, Sensor # 138 ("SHM Redundancy")
```

```
    Type: Discrete (0x0b), "Management Subsystem Health" (0x28)
```

```
    Belongs to entity (0xf0, 0x01): FRU # 0
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
Initial update completed
Sensor reading: 0x00
Current State Mask 0x0002
Redundancy Lost
```

Get the current state of the Reboot Reason sensor on the first physical Shelf Manager.

```
#
# cli sensordata 10 129
Pigeon Point Shelf Manager Command Line Interpreter
10: LUN: 0, Sensor # 129 ("Reboot Reason")
    Type: Discrete (0x6f), "OEM reserved" (0xdd)
    Belongs to entity (0xf0, 0x60): FRU # 0
    Status: 0xc0
        All event messages enabled from this sensor
        Sensor scanning enabled
        Initial update completed
    Sensor reading: 0x00
    Current State Mask 0x0400
        Reboot caused by ShMM power cycle
#
```

3.55 sensorread

3.55.1 Syntax

sensorread <IPMB-address> [*<lun>:*]*<sensor-number>*

3.55.2 Purpose

This command shows the raw value of the specified sensor. The only difference between the commands *sensorread* and *sensordata* is that the command *sensorread* does not check the presence of the target IPM controller or the validity of the sensor number, but just sends the “Get Sensor Reading” request directly via IPMB. This command does not retrieve the SDR of the sensor and thus it cannot process the obtained data.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, LUN 0 is used. *<lun>* can take values 0, 1 or 3. (LUN 2 is reserved.)

The following information is shown for each sensor:

- IPMB address of the owning IPM controller
- Sensor number, sensor name (device ID string from the SDR) and the LUN by which the sensor can be accessed
- The sensor type and event/reading type code
- The sensor value (for threshold-based sensors) or the mask of currently asserted states (for discrete sensors), in raw form.

This command can also be issued on the backup Shelf Manager; in that case, the raw values are only shown for sensors that are local to the backup Shelf Manager.

3.55.3 Examples

Get sensor data values for sensor 4 on IPM controller FCh. Notice that the *sensorread* command provides only unprocessed sensor values. Also notice the command example with an explicit LUN.

```
# cli sensordata fc 4
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fc: LUN: 0, Sensor # 4 ("3.3STBY voltage")
```

```
  Type: Threshold (0x01), "Voltage" (0x02)
```

```
  Status: 0xc0
```

```
    All event messages enabled from this sensor
```

```
    Sensor scanning enabled
```

```
    Initial update completed
```

```
  Raw data: 193 (0xc1)
```

```
  Processed data: 3.396800 Volts
```

```
  Current State Mask: 0x00
```

```
# cli sensorread fc 4
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
fc: LUN: 0, Sensor # 4
```




```
Raw data: 193 (0xc1)
Status: 0xc0
    All event messages enabled from this sensor
    Sensor scanning enabled
    Initial update completed
Threshold Sensor Status: 0x00
Discrete Sensor Current State Mask 0x0000
```

clia sensorread fc 0:4

```
Pigeon Point Shelf Manager Command Line Interpreter
fc: LUN: 0, Sensor # 4
Raw data: 193 (0xc1)
Status: 0xc0
    All event messages enabled from this sensor
    Sensor scanning enabled
    Initial update completed
Threshold Sensor Status: 0x00
Discrete Sensor Current State Mask 0x0000
```

3.56 session

3.56.1 Syntax

session [-v]

3.56.2 Purpose

This command shows information about active RMCP sessions. The information includes the following items:

- the maximum possible number of sessions and the number of currently active sessions;
- for each currently active session:
 - session handle
 - the user ID and name used during session activation
 - maximum session privilege level
 - the IPMI channel number and type
 - for LAN sessions, peer IP address and port number.

If the option `-v` is specified, detailed information about the active RMCP/RMCP+ sessions is added. The additional information includes session activity timestamp, authentication type and challenge string. If there are no active sessions, this information is provided for the last active session.

3.56.3 Examples

```
# cli session
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
32 sessions possible, 2 sessions currently active
```

```
Session: 1
```

```
    User: ID 1, Name: ""; Privilege Level: "Administrator"
```

```
    Channel: 1 ("LAN_802_3"); Peer IP address: 172.16.2.203, Port: 1764
```

```
Session: 2
```

```
    User: ID 1, Name: ""; Privilege Level: "Administrator"
```

```
    Channel: 1 ("LAN_802_3"); Peer IP address: 172.16.2.203, Port: 1765
```

```
#
```

```
# cli session -v
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
32 sessions possible, 1 sessions currently active
```

```
Session: 1,
```

```
    User: ID 1, Name: ""; Privilege Level: "Administrator"; Notifier: Off
```

```
    Channel: 1 ("LAN_802_3"); Peer IP address: 80.240.102.45, Port: 2556
```

```
    Session Activity Timestamp: Fri Feb 12 13:28:59
```

```
    Maximum Privilege Level: Administrator; Authentication type: None;
```

```
    Challenge: F7 42 2A 9B D3 77 20 90 B6 44 6E 3E 0A AC DB 89
```

```
# cli session -v
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```



32 sessions possible, 0 sessions currently active

Last active session:

Session: 1, RMCP

User: ID 1, Name: ""; Privilege Level: "Administrator"; Notifier: Off

Channel: 1 ("LAN_802_3"); Peer IP address: 80.240.102.45, Port: 2556

Session Activity Timestamp: Fri Feb 12 13:28:59 2010

Maximum Privilege Level: Administrator; Authentication type: None;

Challenge: 36 5A B7 B0 F5 64 54 92 BB AF 12 3E 43 7A 1E E0

3.57 setbootdev

3.57.1 Syntax

```
setbootdev <IPMB-0-address> <fru_id>| <IPMB-L-address> <boot-  
device>
```

3.57.2 Purpose

This command sets the system boot parameter for a designated IPM controller. The second parameter of the command should be set to 0 if the AdvancedMC access is not targeted. If the second parameter exceeds 70h it is treated as an IPMB-L address for an AMC address. Otherwise, the second parameter is treated as a FRU ID and converted to an IPMB-L address via AMC address mapping.

The *<boot-device>* parameter may be:

- 1 or *pxe* (Pre-Boot Execution Environment)
- 2 or *disk* (Default Hard Drive)
- 3 or *safe* (Default Hard Drive, Safe Mode)
- 4 or *diag* (Default Diagnostic Partition)
- 5 or *cd* (Default CD/DVD)
- 14 or *bios* (BIOS)
- 15 or *floppy* (Floppy/Primary Removable Media).

3.57.3 Examples

Set the system boot parameter for an IPM controller at IPMB-0 address 82h as *pxe* (Pre-Boot Execution Environment).

```
# clia setbootdev 82 0 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Set boot device option: status = 0x0 (0)
```

```
Boot device set to 1 (Force PXE)
```

```
Response data (raw): A2
```

3.58 setcommandpolicy

3.58.1 Syntax

```
setcommandpolicy enable <netfn> <command_code> [<channel>  
[<LUN>]]
```

```
setcommandpolicy disable <netfn> <command_code> [<channel>  
[<LUN>]]
```

The arguments *<channel>*, *<LUN>*, *<netfn>* and *<command_code>* can be used in hexadecimal or decimal forms. Any of these arguments is treated as hexadecimal if it includes a 0x prefix or a hexadecimal letter (A, B, C, D, E, and F); otherwise, the argument is treated as a decimal. All the arguments are case insensitive.

3.58.2 Purpose

This command allows enabling or disabling a specific command for execution by the Shelf Manager, using the IPMI 2.0 firmware firewall functionality. To discover what commands can be enabled or disabled, use the command *clia firewall info*. If no channel/LUN is specified, the policy change applies to the specified command for all channels and/or LUNs. Command and network function codes are defined in the IPMI specification.

3.58.3 Examples

Enable the command “Set LAN Configuration Parameters” (NetFn = 0Ch, command code = 01h) for all channels and LUNs.

```
# clia setcommandpolicy enable 0xC 0x1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x00,  
LUN 0, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x00,  
LUN 1, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x00,  
LUN 2, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (disabled previously) for channel 0x00,  
LUN 3, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x01,  
LUN 0, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x01,  
LUN 1, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x01,  
LUN 2, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x01,  
LUN 3, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x02,  
LUN 0, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x02,  
LUN 1, NetFn 0x0C...
```

```
Command 0x01(1) has been enabled (enabled previously) for channel 0x02,  
LUN 2, NetFn 0x0C...
```

Command 0x01(1) has been enabled (enabled previously) for channel 0x02, LUN 3, NetFn 0x0C...

Command 0x01(1) has been enabled (enabled previously) for channel 0x0F, LUN 0, NetFn 0x0C...

Command 0x01(1) has been enabled (enabled previously) for channel 0x0F, LUN 1, NetFn 0x0C...

Command 0x01(1) has been enabled (enabled previously) for channel 0x0F, LUN 2, NetFn 0x0C...

Command 0x01(1) has been enabled (enabled previously) for channel 0x0F, LUN 3, NetFn 0x0C...

#

Disable the command "Set LAN Configuration Parameters" (NetFn = 0Ch, command code = 01h) for channel 0 and LUN 1

clia setcommandpolicy disable 0xC 0x1 0 1

Pigeon Point Shelf Manager Command Line Interpreter

Command 0x01(1) has been disabled (enabled previously) for channel 0x00, LUN 1, NetFn 0x0C...

#

3.59 setextracted

3.59.1 Syntax

```
setextracted <IPMB-address> <fru_id>
setextracted shm <N>
setextracted board <N>
setextracted power_supply <N>
setextracted pem <N>
setextracted fan_tray <N>
setextracted <IPMB-address> amc <M>
setextracted board <N> amc <M>
```

3.59.2 Purpose

This command notifies the Shelf Manager that the specified FRU has been physically extracted from the shelf. If the specified FRU is in state M7, the Shelf Manager places it in state M0 (FRU physically absent).

3.59.3 Examples

```
# cli setextracted 9c 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
Set FRU extracted state successfully
```

```
# cli setextracted 96 amc 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
Set FRU extracted state successfully
```

```
#
```

3.60 setfanlevel

3.60.1 Syntax

```
setfanlevel <IPMB-address> <fru_id> <level>
setfanlevel shm <N> <level>
setfanlevel board <N> <level>
setfanlevel power_supply <N> <level>
setfanlevel pem <N> <level>
setfanlevel fan_tray <N> <level>
setfanlevel all <level>
```

3.60.2 Purpose

This command sets a new level for the fan controlled by the FRU specified in the command parameters.

The version of this command with an *all* qualifier attempts to set the same level for all known fans in the shelf.

3.60.3 Examples

Set fan level for the fan controlled by FRU #2 at IPMB address 20h to 5.

```
# clia setfanlevel 20 2 5
Pigeon Point Shelf Manager Command Line Interpreter
20: FRU # 2 Set Fan Level to: 5
#
```

Set fan level to 4 for all known fans in the shelf:

```
# clia setfanlevel all 4
Pigeon Point Shelf Manager Command Line Interpreter
72: FRU # 0 Set Fan Level to: 4
76: FRU # 0 Set Fan Level to: 4
#
```


3.61 setfanpolicy

3.61.1 Syntax

```
setfanpolicy <fan tray addr> <fan tray fru_id> ENABLE|DISABLE  
[timeout] [-s <addr>|<site_type> <fru_id>|<site_number>]
```

3.61.2 Purpose

This command enables or disables Shelf Manager control over fan trays for cooling management purposes. This control is enabled by default; it can be disabled temporarily or for an indefinite period of time. In addition, for shelves with zoned cooling management, control can be enabled or disabled with respect to a specific FRU; in that case, the Shelf Manager does not react to thermal events from that FRU by changing the fan level of the specified fan.

The parameters *<fan tray addr>* and *<fan tray fru_id>* specify a fan tray. If the DISABLE policy for the fan tray is specified, the additional parameter *<timeout>* may be used to specify the duration of the policy. The *<timeout>* parameter is treated in seconds, but rounded to 5 second units in accordance with the PICMG 3.0 specification. The value of the *<timeout>* parameter may not be greater than 21 minutes (1260 seconds) and the minimum value of *<timeout>* is 5 seconds. If the *<timeout>* variable is not specified, the DISABLE period is assumed to be infinite.

The flag *-s* precedes the parameters that define a site covered by the fan tray.

The *<site_type>* parameter can accept one of the following values: *Board, PEM, ShelfFRU, ShelfManager, FanTray, FanFilterTray, Alarm, Mezzanine, PMC, RTM*.

If a numeric argument is expected to be treated as a hexadecimal, the “0x” prefix should be used, otherwise the error will be returned.

3.61.3 Examples

Disable Shelf Manager control over the fan for 60 seconds with respect to a specific FRU. The fan tray is at IPMB address 20h, FRU ID 3. The designated FRU site (which is assumed to be cooled by that fan tray) is at IPMB address 12h, FRU ID 0.

```
# clia setfanpolicy 0x20 3 DISABLE 60 -s 0x12 0  
Pigeon Point Shelf Manager Command Line Interpreter  
Fan policy updated successfully
```

Disable Shelf Manager control over the fan for infinite time with respect to a specific site. The fan tray is at IPMB address 20h, FRU ID 3. The site covered by the fan tray is defined by Site Type “PICMG Board” and Site Number 7.

```
# clia setfanpolicy 0x20 3 DISABLE -s board 7  
Pigeon Point Shelf Manager Command Line Interpreter  
Fan policy updated successfully
```

Enable fan policy for the fan tray at IPMB address 20h, FRU ID 3, and for all sites covered by this fan.

```
# clia setfanpolicy 0x20 3 ENABLE  
Pigeon Point Shelf Manager Command Line Interpreter
```



Fan policy updated successfully

3.62 setfruledstate

3.62.1 Syntax

```
setfruledstate <IPMB-address> <fru_id> <LedId>| ALL <LedOp>  
[<LedColor>]
```

where <IPMB-address> <fru_id> can be replaced with any of the following alternatives:

- *board* <N>
- *shm* <N>
- *power_supply* <N>
- *pem* <N>
- *fan_tray* <N>
- <IPMB-address> *amc* <M>
- *board* <N> *amc* <M>

3.62.2 Purpose

This command allows the user to set the state of a specific LED or all LEDs for the given FRU. The first argument <IPMB-address> is the IPMB-address of an IPM controller. The second argument <fru_id> is the FRU device ID. The third argument can be either an LED ID (a numerical value) or *ALL*. In the latter case, the specified operation applies to all LEDs.

The argument <LedOP> specifies the operation applied to the FRU(s), based on the PICMG 3.0 specification. The operations are defined as follows:

- *ON* – turn on the LED
- *OFF* – turn off the LED
- *LOCAL* – revert to local control of the LED
- *BLINK* – cause the LED to blink, repeatedly turning it on for <onTime> milliseconds and then turning it off for <offTime> milliseconds
- *TEST* – run a lamp test for <onTime> milliseconds.

For the *TEST* operation <onTime> must be less than 12800 ms (12.8 sec); for the *BLINK* operation both <onTime> and <offTime> values must be within 10 – 2500 ms range.

The optional parameter <LedColor> designates a color, either via a symbolic name or a decimal value. Symbolic names of colors correspond to decimal values in accordance with the PICMG 3.0 specification, as listed below. (If the parameter is not specified, the default LED color is used.)

- *BLUE* = 1
- *RED* = 2
- *GREEN* = 3
- *AMBER* = 4

- *ORANGE* = 5
- *WHITE* = 6
- *NONE* = 14 (doesn't change color).

This command can also be issued on the backup Shelf Manager; in that case, the FRU LED state can only be set for FRU LEDs that are local to the backup Shelf Manager.

3.62.3 Examples

Turn off LED #1 of FRU #0 of IPM controller at IPMB address 20h.

```
# clia setfruledstate 20 0 1 OFF
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Setting FRU's led state completed successfully, status = 0x0
```

Enable local control for LED #1 of FRU #0 of IPM controller at IPMB address 20h.

```
# clia setfruledstate 20 0 1 LOCAL
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Setting FRU's led state completed successfully, status = 0x0
```

Enable blinking on LED #1 of FRU #0 of IPM controller at IPMB address 20h. The blinking is in the default color. The on duration is 100 ms and the off duration is 200 ms.

```
# clia setfruledstate 20 0 0 BLINK 100 200
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Setting FRU's led state completed successfully, status = 0x0
```

3.63 setfunctionpolicy

3.63.1 Syntax

```
setfunctionpolicy <EnableDisableMask> <netfn> <command_code>  
[<channel> [<LUN>]]
```

The arguments *<channel>*, *<LUN>*, *<netfn>* and *<command_code>* can be used in hexadecimal or decimal forms. Any of these arguments is treated as hexadecimal if it includes a 0x prefix or a hexadecimal letter (A, B, C, D, E, and F); otherwise, the argument is treated as a decimal. All the arguments are case insensitive.

3.63.2 Purpose

This command allows enabling or disabling specific subfunctions of a specific command for execution, using the IPMI 2.0 firmware firewall functionality. To discover what subfunctions can be enabled or disabled, use the command *clia firewall info*. An attempt to disable a non-existent function is silently ignored; an attempt to enable a non-existent function results in an error message.

3.63.3 Examples

Enable functions 0, 6 and 9 and disable all other (existing) functions of the command “Set PEF Configuration Parameters” (NetFn = 04h, command code = 12h) for all channels and LUNs. For this specific command, this means allowing the change of only the following PEF configuration parameters: PEF Control, Event Filter Table and Alert Policy Table.

```
# clia setfunctionpolicy 0x241 0x4 0x12
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x00, LUN 0, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x00, LUN 1, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x00, LUN 2, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x00, LUN 3, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x01, LUN 0, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x01, LUN 1, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x01, LUN 2, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x01, LUN 3, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x02, LUN 0, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x02, LUN 1, command 0x12, NetFn 0x04...
```

```
Command functions 0x0000000000000241 have been set (0x0000000000003FFF  
previously) for channel 0x02, LUN 2, command 0x12, NetFn 0x04...
```

Command functions 0x0000000000000241 have been set (0x0000000000003FFF previously) for channel 0x02, LUN 3, command 0x12, NetFn 0x04...

Command functions 0x0000000000000241 have been set (0x0000000000003FFF previously) for channel 0x0F, LUN 0, command 0x12, NetFn 0x04...

Command functions 0x0000000000000241 have been set (0x0000000000003FFF previously) for channel 0x0F, LUN 1, command 0x12, NetFn 0x04...

Command functions 0x0000000000000241 have been set (0x0000000000003FFF previously) for channel 0x0F, LUN 2, command 0x12, NetFn 0x04...

Command functions 0x0000000000000241 have been set (0x0000000000003FFF previously) for channel 0x0F, LUN 3, command 0x12, NetFn 0x04...

#

Enable functions 1, 13 and 15 and disable all other (existing) functions for the command “Set LAN Configuration Parameters” (NetFn = 0Ch, command code = 01h) for channel 0 and LUN 1. This means allowing only the change of volatile destination type and volatile destination address for the channel 1 (LAN), for the commands arriving from IPMB (channel 0) on LUN 0.

clia setfunctionpolicy 0xA002 0xC 0x1 0 1

Pigeon Point Shelf Manager Command Line Interpreter

Command functions 0x000000000000A002 have been set (0x0000000001FFFFFF previously) for channel 0x00, LUN 0, command 0x01, NetFn 0x0C...

3.64 sethysteresis

3.64.1 Syntax

```
sethysteresis <IPMB-address> [<lun>:] <sensor_id> | <sensor_name>  
> (pos | neg) <value>
```

3.64.2 Purpose

This command sets the value for the specified hysteresis for the specified sensor. The sensor must be a threshold-based sensor. It must support the designated threshold hysteresis and the hysteresis must be settable.

The command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. The command sets the positive hysteresis if the *pos* argument is present and sets the negative hysteresis if the *neg* argument is present. The *<value>* is always treated as a raw value.

This command can also be issued on the backup Shelf Manager; in that case, the hysteresis values can only be set for sensors that are local to the backup Shelf Manager.

3.64.3 Examples

Set positive hysteresis for sensor #2 of the IPM controller at IPMB address FCh.

```
# clia sethysteresis FC 2 pos 10
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Positive hysteresis set successfully to 0xA, previous: 0x0
```

3.65 setipmbstate

3.65.1 Syntax

setipmbstate <IPMB-address> A|B [<link>] 1|0 (in radial IPMB-0 environment)

setipmbstate <IPMB-address> A|B 1|0 (in bused IPMB-0 environment)

3.65.2 Purpose

This command enables/disables an IPMB link on the target IPM controller. The second argument defines the bus (IPMB-A or IPMB-B) to be enabled/disabled. The last argument defines the operation to be performed: 1 – to enable link, 0 – to disable link.

The command works differently in bused and radial context. In a bused environment, and in radial shelf for target IPM controllers other than an IPMB Hub, the argument <link> is not used. For an IPMB hub controller in a radial shelf, the argument <link> is optional.

If <link> is present, the command enables/disables the specific radial IPMB link (1 to 95). If <link> is omitted, the command enables/disables all the links on the IPMB hub.

This command can also be issued on the backup Shelf Manager; in that case, an IPMB link can only be enabled/disabled for an IPM controller that is local to the backup Shelf Manager.

3.65.3 Examples

Disable IPMB-A link on the IPM controller at IPMB address 92h

```
# clia setipmbstate 92 A 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Command executed successfully
```

Enable radial IPMB link 3, bus B on the Shelf Manager (which is an IPMB hub):

```
# clia setipmbstate 20 B 3 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Command executed successfully
```


3.66 setlanconf

3.66.1 Syntax

```
setlanconf <IPMB-address> <channel> <parameter-name>
<additional-parameters>
```

```
setlanconf <IPMB-address> <channel> <parameter-number>
<additional-parameters>
```

3.66.2 Purpose

This command sets the value of the specified LAN configuration parameter for the specified channel on an IPM controller at the specified address. The IPMB address, the channel number, the configuration parameter name or number, and the parameter value should be explicitly specified.

The following table lists the names and numbers of LAN configuration parameters supported by the *setlanconf* command:

Table 17: Names and numbers of LAN configuration parameters supported by the setlanconf command

PARAMETER NAME	NUMBER	DESCRIPTION
<code>auth_enables</code>	2	Five 8-bit values that contain authentication type enable flags for the Callback, User, Operator, Administrator and OEM privilege levels for the LAN channel.
<code>ip</code>	3	A string value that contains the IP address assigned to the LAN channel in dotted decimal notation.
<code>ip_source</code>	4	A value that encodes the source of the assigned IP address.
<code>subnet_mask</code>	6	A string value that contains the subnet mask assigned to the LAN channel in dotted decimal notation.
<code>ipv4_hdr_param</code>	7	Three 8-bit values that contain various IPv4 header parameters for sending RMCP packets: <ul style="list-style-type: none"> • Time-to-live • IP header flags (bits [7:5]) • Precedence (bits [7:5]) and type of service (bits [4:1])
<code>arp_control</code>	10	Two flags that control ARP behavior on the LAN channel: <ul style="list-style-type: none"> • Enable responding to ARP requests

PARAMETER NAME	NUMBER	DESCRIPTION
		<ul style="list-style-type: none"> Enable sending Gratuitous ARPs
<code>arp_interval</code>	11	The Gratuitous ARP interval in a fixed-point format (where the integral part represents seconds and the fractional part represents milliseconds)
<code>dft_gw_ip</code>	12	A string value that contains the IP address of the default gateway in dotted decimal notation.
<code>backup_gw_ip</code>	14	A string value that contains the IP address of the backup gateway in dotted decimal notation.
<code>community</code>	16	A string value (up to 18 symbols) that is put into the “Community String” field in PET Traps.
<code>destination_type</code>	18	<p>The destination type identified by the specified set selector. Set selector (destination selector) must be specified for this parameter. Each destination type entry contains the following fields:</p> <ul style="list-style-type: none"> destination table entry selector (0-15) alert acknowledge flag alert acknowledge timeout / retry interval in seconds (1-256) number of retries (0-7)
<code>destination_address</code>	19	<p>The destination addresses associated with the specified set selector. Set selector (destination selector) must be specified for this parameter. Each destination address entry contains the following fields:</p> <ul style="list-style-type: none"> destination table entry selector (0-15) <p>For an IPv4 target address (regular case):</p> <ul style="list-style-type: none"> gateway selector: 0 – use default, 1 – use backup IP address (string in dotted decimal format) MAC address (string of 6 hexadecimal byte values delimited by ‘:’ symbols) <p>For an IPv6 target address:</p>

PARAMETER NAME	NUMBER	DESCRIPTION
		<ul style="list-style-type: none"> IPv6 address in the canonical string format
<code>vlan_id</code>	20	The flag that indicates whether Virtual LANs are enabled for the channel, and the Virtual LAN ID (a number in the range 1 to 4095, or the value 0, indicating that Virtual LAN IDs are not used for the channel)
<code>vlan_priority</code>	21	A number in the range 0 to 7 that specifies the packet Priority field, according to 802.1q
<code>cs_priv_levels</code>	24	The maximum privilege level associated with the Cipher Suite that is identified by the specified set selector.
<code>bad_password_threshold</code>	26	Bad Password Threshold parameters; a designated user is locked out on a designated channel, after a specified number of RMCP connection attempts with an invalid password..
<code>ipv6_addr_enables</code>	51	IPv6/IPv4 addressing enables for the IPMI LAN channel.
<code>ipv6_traffic_class</code>	52	IPv6 header static traffic class for the IPMI LAN channel.
<code>ipv6_hop_limit</code>	53	IPv6 header static hop limit for the IPMI LAN channel.
<code>ipv6_flow_label</code>	54	IPv6 header flow label for the IPMI LAN channel.
<code>ipv6_addresses</code>	56	IPv6 static addresses for the IPMI LAN channel.
<code>ipv6_static_duid</code>	58	IPv6 DHCPv6 static DUIDs for the IPMI LAN channel.
<code>ipv6_dynamic_duid</code>	61	IPv6 DHCPv6 dynamic DUIDs for the IPMI LAN channel.
<code>ipv6_dhcpv6_timing</code>	63	IPv6 DHCPv6 timing configuration parameters for the IPMI LAN channel.
<code>ipv6_router_config</code>	64	IPv6 router address configuration control for the IPMI LAN channel.
<code>ipv6_router1_ip</code>	65	IP address of the first IPv6 static router for the IPMI LAN channel.
<code>ipv6_router1_mac</code>	66	MAC address of the first IPv6 static router

PARAMETER NAME	NUMBER	DESCRIPTION
		for the IPMI LAN channel.
<code>ipv6_router1_prefix_length</code>	67	Length of the prefix for the first IPv6 static router for the IPMI LAN channel.
<code>ipv6_router1_prefix_value</code>	68	Value of the prefix for the first IPv6 static router for the IPMI LAN channel.
<code>ipv6_router2_ip</code>	69	IP address of the second IPv6 static router for the IPMI LAN channel.
<code>ipv6_router2_mac</code>	70	MAC address of the second IPv6 static router for the IPMI LAN channel.
<code>ipv6_router2_prefix_length</code>	71	Length of the prefix for the second IPv6 static router for the IPMI LAN channel.
<code>ipv6_router2_prefix_value</code>	72	Value of the prefix for the second IPv6 static router for the IPMI LAN channel.
<code>ipv6_nd_slaac_timing</code>	80	IPv6 ND/SLAAC timing configuration parameters for the IPMI LAN channel.
<code>hpm2_br_control</code>	N/A	Two parameters that define LAN Bridging Control
<code>hpm2_act_if_group</code>	N/A	The Active Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_def_if_group</code>	N/A	The Default Redundancy Group and Interface Group for the IPMI LAN channel.
<code>hpm2_rd_timeout</code>	N/A	The timeout period used by the IPM controller for managing failovers between Interface Groups.
<code>hpm2_def_rd_timeout</code>	N/A	The default timeout period used by the IPM controller for managing failovers between Interface Groups.
<code>hpm3_dhcp_value</code>	N/A	The DHCP option value as a sequence of bytes, representing the option number, followed by the block number, followed by up to 16 value bytes

3.66.3 `auth_enables`

3.66.3.1 Syntax

```
setlanconf <IPMB-address> <channel> auth_enables <value1>
<value2> <value3> <value4> <value5>
```

```
setlanconf <IPMB-address> <channel> 2 <value1> <value2> <value3>
<value4> <value5>
```

3.66.3.2 Purpose

This command sets the value of the LAN parameter *auth_enables*. This parameter indicates which authentication types are currently enabled by the IPM controller for each of five supported privilege levels (Callback, User, Operator, Administrator and OEM) and is represented by a sequence of five bytes, each corresponding to the respective privilege level, treated as a bit mask with the following meaning of the bits:

- 0x01 None
- 0x02 MD2
- 0x04 MD5
- 0x10 Straight password/key
- 0x20 OEM proprietary

Parameters *<value1>* to *<value5>* should represent the values of these bytes, in hexadecimal.

3.66.3.3 Examples

```
# clia setlanconf 82 2 auth_enables 0 1 1 1 0
Pigeon Point Shelf Manager Command Line Interpreter
Authentication Type Enables set successfully
#
```

3.66.4 ip

3.66.4.1 Syntax

```
setlanconf <IPMB-address> <channel> ip <value>
setlanconf <IPMB-address> <channel> 3 <value>
```

3.66.4.2 Purpose

This command sets the IP address used by the channel. The value should represent an IP address in dotted decimal notation.

3.66.4.3 Examples

```
# clia setlanconf 82 2 ip 172.16.2.203
Pigeon Point Shelf Manager Command Line Interpreter
IP set successfully
#
```

3.66.5 ip_source

3.66.5.1 Syntax

```
setlanconf <IPMB-address> <channel> ip_source <value>
setlanconf <IPMB-address> <channel> 4 <value>
```

3.66.5.2 Purpose

This command sets the IP address source used by the channel. The numeric value should represent the IP address source in accordance with the IPMI 2.0 specification:

- 0 Unspecified
- 1 Static address (manually configured)
- 2 Address obtained by Shelf Manager running DHCP
- 3 Address loaded by BIOS or system software
- 4 Address obtained by IPM controller running other address assignment protocol

3.66.5.3 Examples

```
# clia setlanconf 82 2 ip_source 2
Pigeon Point Shelf Manager Command Line Interpreter
IP Address Source set successfully
#
```

3.66.6 subnet_mask

3.66.6.1 Syntax

```
setlanconf <IPMB-address> <channel> subnet_mask <value>
setlanconf <IPMB-address> <channel> 6 <value>
```

3.66.6.2 Purpose

This command sets the IP subnet mask used by the channel. The value should represent a subnet mask in dotted decimal notation.

3.66.6.3 Examples

```
# clia setlanconf 82 2 subnet_mask 255.255.255.0
Pigeon Point Shelf Manager Command Line Interpreter
Subnet Mask set successfully
#
```

3.66.7 ipv4_hdr_param

3.66.7.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv4_hdr_param <value1>
<value2> <value3>
setlanconf <IPMB-address> <channel> 7 <value1> <value2> <value3>
```

3.66.7.2 Purpose

This command sets the IPv4 header parameters for the IPM controller. They are represented as 3 single-byte values in hexadecimal notation: <value1>, <value2> and <value3>. The content of the bytes conforms to section 23.2 of the IPMI 2.0 specification and contains the following attributes:

- Time-to-live in byte 1

- IP header flags (bits [7:5]) in byte 2
- Precedence (bits [7:5]) and type of service (bits [4:1]) in byte 3

3.66.7.3 Examples

```
# clia setlanconf 82 2 ipv4_hdr_param 37 E0 11
Pigeon Point Shelf Manager Command Line Interpreter
IPv4 Header Parameters set successfully
#
```

3.66.8 arp_control

3.66.8.1 Syntax

```
setlanconf <IPMB-address> <channel> arp_control <value>
setlanconf <IPMB-address> <channel> 10 <value>
```

3.66.8.2 Purpose

This command sets the current value of the LAN parameter *arp_control*. This parameter indicates additional ARP support provided by the IPM controller, and is represented by a single byte, treated as a bit mask with the following meaning of the bits:

- 0x01 Enable Shelf Manager-generated Gratuitous ARPs
- 0x02 Enable Shelf Manager-generated ARP responses

Other bits are reserved and should be set to 0.

3.66.8.3 Examples

```
# clia setlanconf 82 1 arp_control 3
Pigeon Point Shelf Manager Command Line Interpreter
BMC-generated ARP control set successfully
#
```

3.66.9 arp_interval

3.66.9.1 Syntax

```
setlanconf <IPMB-address> <channel> arp_interval <value>
setlanconf <IPMB-address> <channel> 11 <value>
```

3.66.9.2 Purpose

This command sets the current ARP interval used by the channel. The value should represent the number of seconds/milliseconds in fixed-point numeric format (with a possible fractional part). Due to the definition of this parameter in IPMI, it is truncated to the largest time interval that is divisible by 500 milliseconds.

3.66.9.3 Examples

```
# clia setlanconf 82 2 arp_interval 3.5
Pigeon Point Shelf Manager Command Line Interpreter
Gratuitous ARP interval set successfully
```

#

3.66.10 dft_gw_ip

3.66.10.1 Syntax

```
setlanconf <IPMB-address> <channel> dft_gw_ip <value>
setlanconf <IPMB-address> <channel> 12 <value>
```

3.66.10.2 Purpose

This command sets the IP address of the default gateway used by the channel. The value should represent an IP address in dotted decimal notation.

3.66.10.3 Examples

```
# clia setlanconf 82 2 dft_gw_ip 172.16.2.100
Pigeon Point Shelf Manager Command Line Interpreter
Default Gateway Address set successfully
#
```

3.66.11 backup_gw_ip

3.66.11.1 Syntax

```
setlanconf <IPMB-address> <channel> backup_gw_ip <value>
setlanconf <IPMB-address> <channel> 14 <value>
```

3.66.11.2 Purpose

This command sets the IP address of the backup gateway used by the channel. The value should represent an IP address in dotted decimal notation.

3.66.11.3 Examples

```
# clia setlanconf 82 2 backup_gw_ip 172.16.2.100
Pigeon Point Shelf Manager Command Line Interpreter
Backup Gateway Address set successfully
#
```

3.66.12 community

3.66.12.1 Syntax

```
setlanconf <IPMB-address> <channel> community <value>
setlanconf <IPMB-address> <channel> 16 <value>
```

3.66.12.2 Purpose

This command sets the community string parameter used in PET traps. The value should be a string enclosed in double quotes.

3.66.12.3 Examples

```
# clia setlanconf 82 2 community "Community"
Pigeon Point Shelf Manager Command Line Interpreter
```



```
Community string set successfully
```

```
#
```

3.66.13 destination_type

3.66.13.1 Syntax

```
setlanconf <IPMB-address> <channel> destination_type <set-selector> <value1> <value2> <value3>
```

```
setlanconf <IPMB-address> <channel> 18 <set-selector> <value1> <value2> <value3>
```

3.66.13.2 Purpose

This command sets the element of the destination table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. Values *<value1>*, *<value2>* and *<value3>* supply information about the new destination according to section 23.2 of the IPMI 2.0 specification. The following information is supplied:

- the alert destination type (PET Trap or OEM destination; whether the alert should be acknowledged)
- alert acknowledge timeout
- retry count

3.66.13.3 Examples

```
# clia setlanconf 82 2 destination_type 2 80 3 5
Pigeon Point Shelf Manager Command Line Interpreter
Destination Type set successfully
#
```

3.66.14 destination_address

3.66.14.1 Syntax

```
setlanconf <IPMB-address> <channel> destination_address <set-selector> <gateway-sel> <IP-address> <MAC-address>
```

```
setlanconf <IPMB-address> <channel> 19 <set-selector> <gateway-sel> <IP-address> <MAC-address>
```

```
setlanconf <IPMB-address> <channel> destination_address <set-selector> <IPv6-address>
```

```
setlanconf <IPMB-address> <channel> 19 <set-selector> <IPv6-address>
```

3.66.14.2 Purpose

This command sets the element of the destination address table with the index *<set-selector>*. Indexes are 0-based. Selector 0 is used to address the volatile destination. The command parameters supply the necessary information.

For a regular IPv4-based destination address, the following information is supplied:

- *<gateway-sel>* - gateway to use: 0 for default gateway, 1 for backup gateway

- *<IP-address>* - the destination IP address in dotted-decimal notation
- *<MAC-address>* - the destination MAC address, six hexadecimal bytes separated by colons.

For an IPv6-based destination address, the following information is supplied:

- *<IPv6-address>* - the IPv6 destination address, in the canonical string format.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.14.3 Examples

```
# clia setlanconf 82 2 destination_address 2 0 172.16.2.100 90:93:93:93:93:93
Pigeon Point Shelf Manager Command Line Interpreter
Destination Addresses set successfully
#
# clia setlanconf 20 1 destination_address 0 3ffe:302:11:2::7f
Pigeon Point Shelf Manager Command Line Interpreter
Destination Addresses set successfully
#
```

3.66.15 vlan_id

3.66.15.1 Syntax

```
setlanconf <IPMB-address> <channel> vlan_id disabled
setlanconf <IPMB-address> <channel> vlan_id enabled <value>
setlanconf <IPMB-address> <channel> 20 disabled
setlanconf <IPMB-address> <channel> 20 enabled <value>
```

3.66.15.2 Purpose

This command enables or disables Virtual LAN support for the channel, and if enabled, specifies the Virtual LAN ID to use. If the parameter *disabled* is specified, the VLAN ID in the LAN configuration parameters for the specified IPM controller is set to 0.

3.66.15.3 Examples

```
# clia setlanconf 82 2 vlan_id enabled 4
Pigeon Point Shelf Manager Command Line Interpreter
VLAN ID set successfully
#
```

3.66.16 vlan_priority

3.66.16.1 Syntax

```
setlanconf <IPMB-address> <channel> vlan_priority <value>
setlanconf <IPMB-address> <channel> 21 <value>
```

3.66.16.2 Purpose

This command sets the VLAN priority for the channel, that is, the value of the Priority field used in VLAN 802.1q network packet headers.

3.66.16.3 Examples

```
# clia setlanconf 82 2 vlan_priority 1
Pigeon Point Shelf Manager Command Line Interpreter
VLAN priority set successfully
#
```

3.66.17 cs_priv_levels

3.66.17.1 Syntax

```
setlanconf <IPMB-address> <channel> cs_priv_levels <set-selector> <value>
setlanconf <IPMB-address> <channel> 24 <set-selector> <value>
```

3.66.17.2 Purpose

This command sets the maximum privilege level for the Cipher Suite that is identified by the *<set-selector>*. Standard Cipher Suite IDs are defined in the IPMI 2.0 specification, section 22.15.2 and are in the range from 0 to 14. The parameter *<value>* specifies the desired maximum privilege level.

3.66.17.3 Examples

Set the maximum privilege level “Operator” for Cipher Suite 2:

```
# clia setlanconf 82 2 cs_priv_levels 2 3
Pigeon Point Shelf Manager Command Line Interpreter
Cipher Suite Privilege Levels set successfully
#
```

3.66.18 bad_password_threshold

3.66.18.1 Syntax

```
setlanconf <IPMB-address> <channel> bad_password_threshold
<event> <threshold> [ <interval1> [ <interval2> ] ]
setlanconf <IPMB-address> <channel> 26 <event> <threshold> [
<interval1> [ <interval2> ] ]
```

3.66.18.2 Purpose

This command sets the current Bad Password Threshold parameters, which are used to track RMCP connection attempts with an invalid password on the specified channel. The following information is set:

- The numeric parameter *<event>*, with allowed values 0 and 1, indicates whether an “Invalid password disable” event is sent on behalf of the Session Audit sensor in the failure

case; the event is sent if the parameter value is *1* and is not sent if the parameter value is *0*.

- The numeric parameter *<threshold>* specifies the Bad Password Threshold
- The numeric parameter *<interval1>* specifies the Attempt Count Reset Interval (in seconds); after that interval, the accumulated count of bad password attempts is automatically reset to 0. The value must be divisible by 10.
- The numeric parameter *<interval2>* specifies the User Lockout Interval (in seconds); this is the interval that the user remains disabled after being disabled because the Bad Password Threshold value was reached. The value must be divisible by 10.

3.66.18.3 Examples

```
# clia setlanconf 20 1 bad_password_threshold 1 3 600 600
Pigeon Point Shelf Manager Command Line Interpreter
Bad Password Threshold set successfully
```

3.66.19 ipv6_addr_enables

3.66.19.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_addr_enables <value>
setlanconf <IPMB-address> <channel> 51 <value>
```

3.66.19.2 Purpose

This command sets the IPv6/IPv4 addressing enables on the target channel. The value must be numeric; the following values are allowed:

- *0* = Disable IPv6 addressing
- *1* = Enable IPv6 addressing only; IPv4 addressing is disabled (this value not supported if the target is the Shelf Manager)
- *2* = Enable IPv6 and IPv4 addressing simultaneously

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.19.3 Examples

```
# clia setlanconf 20 1 ipv6_addr_enables 2
Pigeon Point Shelf Manager Command Line Interpreter
IPv4/IPv6 Addressing Enables set successfully
```

3.66.20 ipv6_traffic_class

3.66.20.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_traffic_class <value>
setlanconf <IPMB-address> <channel> 52 <value>
```

3.66.20.2 Purpose

This command sets the IPv6 traffic class used for transmitting Alert packets on the target channel. The value must be numeric and in the range 0-255.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.20.3 Examples

```
# clia setlanconf 20 1 ipv6_traffic_class 0
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Header Static Traffic Class set successfully
```

3.66.21 ipv6_hop_limit

3.66.21.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_hop_limit <value>
setlanconf <IPMB-address> <channel> 53 <value>
```

3.66.21.2 Purpose

This command sets the IPv6 hop limit used for outgoing packets on the channel in the following two circumstances:

- If the router returns “unspecified” (00h) as the hop limit
- When a static router configuration is used.

The value must be numeric and in the range 0-255.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.21.3 Examples

```
# clia setlanconf 20 1 ipv6_hop_limit 32
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Header Static Hop Limit set successfully
```

3.66.22 ipv6_flow_label

3.66.22.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_flow_label <byte1>
<byte2> <byte3>
setlanconf <IPMB-address> <channel> 54 <byte1> <byte2> <byte3>
```

3.66.22.2 Purpose

This command sets the IPv6 header flow label used for outgoing packets on the channel.

The value consists of three hexadecimal bytes.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.22.3 Examples

```
# clia setlanconf 20 1 ipv6_flow_label a0 a0 a0
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Header Static Flow Label set successfully
```

3.66.23 ipv6_addresses

3.66.23.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_addresses <index>
<address>
setlanconf <IPMB-address> <channel> 56 <index> <address>
setlanconf <IPMB-address> <channel> ipv6_addresses <index>
disable
setlanconf <IPMB-address> <channel> 56 <index> disable
```

3.66.23.2 Purpose

This command sets one of the static IPv6 address used by the channel on the target IPMC. The index is 0-based and must be less than the maximum number of static IP addresses for the target channel (which is reported in the parameter *ipv6_status*). The address must be in the canonical format for IPv6 addresses and include the prefix length after the slash (/). To disable the static IPv6 address with the specified index, use the literal *disable* instead of the address.

Only a ShMM-700 based Shelf Manager supports this LAN configuration parameter as the target of the request.

3.66.23.3 Examples

```
# clia setlanconf 20 1 ipv6_addresses 1 3ffe:302:11:2::26/64
Pigeon Point Shelf Manager Command Line Interpreter
Static IPv6 Address set successfully
# clia setlanconf 20 1 ipv6_addresses 2 disable
Pigeon Point Shelf Manager Command Line Interpreter
Static IPv6 Address set successfully
#
```

3.66.24 ipv6_static_duid

3.66.24.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_static_duid <index>
<length> <byte-string>
setlanconf <IPMB-address> <channel> 58 <index> <length> <byte-
string>
```

3.66.24.2 Purpose

This command sets the Nth static DUID (which corresponds to the Nth static IPv6 address used by the channel) on the target IPMC. The index is 0-based and must be less than the maximum

number of static IP addresses for the target channel (which is reported in the parameter *ipv6_status*). The DUID is specified by an opaque sequence of bytes, represented as a string, each byte represented by two successive hexadecimal characters (e.g. "0E000100011C512D3D0015F2678217"). The first byte must be equal to the length of the remaining part. The remaining part can have up to 127 bytes and must follow the conventions of RFC3315.

The Shelf Manager, when used as a target of this command, provides predefined read-only DUIDs that conform to the HPM.3 specification. It does not support setting this LAN configuration parameter.

3.66.25 *ipv6_dynamic_duid*

3.66.25.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_dynamic_duid <index>  
<length> <byte-string>  
setlanconf <IPMB-address> <channel> 61 <index> <length> <byte-  
string>
```

3.66.25.2 Purpose

This command sets the Nth dynamic DUID (which corresponds to the Nth dynamic IPv6 address used by the channel) on the target IPMC. The index is 0-based and must be less than the maximum number of dynamic IP addresses for the target channel (which is reported in the parameter *ipv6_status*). The DUID is specified by an opaque sequence of bytes, represented as a string, each byte represented by two successive hexadecimal characters (e.g. "0E000100011C512D3D0015F2678217"). The first byte must be equal to the length of the remaining part.. The remaining part can have up to 127 bytes and must follow the conventions of RFC3315.

The Shelf Manager, when used as a target of this command, provides predefined read-only DUIDs that conform to the HPM.3 specification. It does not support setting this LAN configuration parameter.

3.66.26 *ipv6_dhcpv6_timing*

3.66.26.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_dhcpv6_timing <index>  
<byte1> ... <byteN>  
setlanconf <IPMB-address> <channel> 63 <index> <byte1> ... <byteN>
```

3.66.26.2 Purpose

This command sets the DHCPv6 timing parameters for the channel. The parameter *<index>* specifies the target interface if the timing configuration support is 'per interface' and must be 0 if the timing configuration support is 'global'. The subsequent parameters are opaque byte values that correspond to the layout of the timing parameters as per Table 23-4a of the IPMI 2.0 rev 1.1 specification. Up to 22 bytes can be specified. All parameters are hexadecimal.

The Shelf Manager, when used as a target of this command, does not support changing the DHCPv6 timing parameters and therefore, it does not support setting this LAN configuration parameter.

3.66.27 `ipv6_router_config`

3.66.27.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router_config <value>
setlanconf <IPMB-address> <channel> 64 <value>
```

3.66.27.2 Purpose

This command sets the IPv6 router configuration on the target channel. The value must be numeric; the following values are allowed:

- 0 = Both static routers and dynamic router discovery are disabled (this value is not supported if the target is the Shelf Manager)
- 1 = Static routers are enabled, dynamic router discovery is disabled (this value is not supported if the target is the Shelf Manager)
- 2 = Static routers are disabled, dynamic router discovery is enabled
- 3 = Both static routers and dynamic router discovery are enabled

When the Shelf Manager is the target, dynamic router address configuration is always available and cannot be disabled.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.27.3 Examples

```
# clia setlanconf 20 1 ipv6_router_config 3
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router Address Control set successfully
```

3.66.28 `ipv6_router1_ip`

3.66.28.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router1_ip <address>
setlanconf <IPMB-address> <channel> 65 <address>
```

3.66.28.2 Purpose

This command sets the IPv6 address of the first static router used by the channel on the target IPMC. The address must be in the canonical format for IPv6 addresses. Use the empty address (: :) to disable the first static router.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.28.3 Examples

```
# clia setlanconf 20 1 ipv6_router1_ip 3ffe:302:11:2::11
```



```
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router IP Address set successfully
#
```

3.66.29 ipv6_router1_mac

3.66.29.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router1_mac <mac-
address>
setlanconf <IPMB-address> <channel> 66 <mac-address>
```

3.66.29.2 Purpose

This command sets the MAC address of the first static router used by the channel on the target IPMC. The address must be in the canonical six-byte hexadecimal format for MAC addresses (XX:XX:XX:XX:XX:XX). When the Shelf Manager is the target of this command, it does not support this parameter (since it is not actually needed for routing).

3.66.30 ipv6_router1_prefix_length

3.66.30.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router1_prefix_length
<value>
setlanconf <IPMB-address> <channel> 67 <value>
```

3.66.30.2 Purpose

This command sets the length of the prefix routed by the first static router that is used by the channel on the target IPMC. The prefix length must be a number in the range 0-255. For a default router, the routed prefix must be empty (: :) and its length must be 0.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.30.3 Examples

```
# clia setlanconf 20 1 ipv6_router1_prefix_length 80
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router Prefix Length set successfully
#
```

3.66.31 ipv6_router1_prefix_value

3.66.31.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router1_prefix_value
<value>
setlanconf <IPMB-address> <channel> 68 <value>
```

3.66.31.2 Purpose

This command sets the actual prefix routed by the first static router that is used by the channel on the target IPMC. The prefix must be in the canonical format for IPv6 addresses. For a default router, the routed prefix must be empty (: :) and its length must be 0.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.31.3 Examples

```
# clia setlanconf 20 1 ipv6_router1_prefix_value 3ffe:302:11:::
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router Prefix Value set successfully
#
```

3.66.32 ipv6_router2_ip

3.66.32.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router2_ip <address>
setlanconf <IPMB-address> <channel> 69 <address>
```

3.66.32.2 Purpose

This command sets the IPv6 address of the second static router used by the channel on the target IPMC. The address must be in the canonical format for IPv6 addresses. Use the empty address (: :) to disable the second static router.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.32.3 Examples

```
# clia setlanconf 20 1 ipv6_router2_ip 3ffe:302:11:2::12
Pigeon Point Shelf Manager Command Line Interpreter
IPv6 Router IP Address set successfully
#
```

3.66.33 ipv6_router2_mac

3.66.33.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router2_mac <mac-
address>
setlanconf <IPMB-address> <channel> 70 <mac-address>
```

3.66.33.2 Purpose

This command sets the MAC address of the second static router used by the channel on the target IPMC. The address must be in the canonical six-byte hexadecimal format for MAC addresses (XX:XX:XX:XX:XX:XX). When the Shelf Manager is the target of this command, it does not support this parameter (since it is not actually needed for routing).

3.66.34 `ipv6_router2_prefix_length`

3.66.34.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router2_prefix_length  
<value>
```

```
setlanconf <IPMB-address> <channel> 71 <value>
```

3.66.34.2 Purpose

This command sets the length of the prefix routed by the second static router that is used by the channel on the target IPMC. The prefix length must be a number in the range 0-255. For a default router, the routed prefix must be empty (: :) and its length must be 0.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.34.3 Examples

```
# clia setlanconf 20 1 ipv6_router2_prefix_length 0  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Router Prefix Length set successfully  
#
```

3.66.35 `ipv6_router2_prefix_value`

3.66.35.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_router2_prefix_value  
<value>
```

```
setlanconf <IPMB-address> <channel> 72 <value>
```

3.66.35.2 Purpose

This command sets the actual prefix routed by the second static router that is used by the channel on the target IPMC. The prefix must be in the canonical format for IPv6 addresses. For a default router, the routed prefix must be empty (: :) and its length must be 0.

A Shelf Manager supports this LAN configuration parameter as the target of the request only if it is ShMM-700 based.

3.66.35.3 Examples

```
# clia setlanconf 20 1 ipv6_router2_prefix_value ::  
Pigeon Point Shelf Manager Command Line Interpreter  
IPv6 Router Prefix Value set successfully  
#
```

3.66.36 `ipv6_nd_slaac_timing`

3.66.36.1 Syntax

```
setlanconf <IPMB-address> <channel> ipv6_nd_slaac_timing <index>  
<byte1> ... <byteN>
```

```
setlanconf <IPMB-address> <channel> 80 <index> <byte1> ... <byteN>
```

3.66.36.2 Purpose

This command sets the ND/SLAAC timing parameters for the channel. The parameter *<index>* specifies a specific interface if the timing configuration support is 'per interface' and must be *0* if the timing configuration support is 'global'. The subsequent parameters are opaque byte values that correspond to the layout of the timing parameters as per Table 23-4b of the IPMI 2.0 rev 1.1 specification. Up to 12 bytes can be specified. All parameters are hexadecimal.

The Shelf Manager, when used as a target of the command, does not support changing the ND/SLAAC timing parameters. Therefore, it does not support setting this LAN configuration parameter.

3.66.37 hpm2_br_control

3.66.37.1 Syntax

```
setlanconf <IPMB-address> <channel> hpm2_br_control 0|1 0|1
```

3.66.37.2 Purpose

This command enables or disables Implicit and Explicit LAN bridging of IPMI messages by the target IPM controller on the channel specified. The two arguments define the operation to be performed: *1* – to enable LAN Bridging, *0* – to disable LAN Bridging. The first argument enables or disables implicit bridging, the second argument enables or disables explicit bridging. This parameter applies only to an IPM controller that acts as a bridge between the command initiator and the target IPM controller, and to the IPMI LAN channel that is used for communication between the bridging entity and the target IPM controller.

3.66.37.3 Examples

Enable Implicit LAN Bridging and disable Explicit LAN Bridging.

```
# clia setlanconf 20 1 hpm2_br_control 1 0
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Bridging Control set successfully
#
```

3.66.38 hpm2_act_if_group

3.66.38.1 Syntax

```
setlanconf <IPMB-address> <channel> hpm2_act_if_group <rd_group>
<if_group>
```

3.66.38.2 Purpose

This command sets the Active Redundancy Group and Interface Group for the IPMI LAN channel. The parameter *<rd_group>*, which defines the Active Redundancy Group, is a number in the range 0 to 31, or the value 255, indicating that IPM controller-managed failover is not used. The parameter *<if_group>*, which defines the Active Interface Group, is a number in the range 0 to 31.

3.66.38.3 Examples

```
# clia setlanconf 20 1 act_if_group 1 0
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Active Interface Group set successfully
#
```

3.66.39 hpm2_def_if_group

```
setlanconf <IPMB-address> <channel> hpm2_def_if_group <rd_group>
<if_group>
```

3.66.39.1 Purpose

This command sets the Default Redundancy Group and Interface Group for the IPMI LAN channel. The parameter *<rd_group>*, which defines the Default Redundancy Group, is a number in the range 0 to 31, or the value 255, indicating that IPM controller-managed failover is not used. The parameter *<if_group>*, which defines the Default Interface Group, is a number in the range 0 to 31.

3.66.39.2 Examples

```
# clia setlanconf 20 1 def_if_group 12 3
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Interface Group set successfully
```

3.66.40 hpm2_rd_timeout

3.66.40.1 Syntax

```
setlanconf <IPMB-address> <channel> hpm2_rd_timeout <value>
```

3.66.40.2 Purpose

This command sets the Redundancy Timeout. The parameter *<value>* is the new value for the parameter in seconds. The range of the possible values is 0..255.

3.66.40.3 Examples

```
# clia setlanconf 20 1 rd_timeout 4
Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Redundancy Timeout set successfully
```

3.66.41 hpm2_def_rd_timeout

3.66.41.1 Syntax

```
setlanconf <IPMB-address> <channel> hpm2_def_rd_timeout <value>
```

3.66.41.2 Purpose

This command sets the Default Redundancy Timeout. The parameter *<value>* is the new value for the parameter in seconds. The range of the possible values is 0..255.

3.66.41.3 Examples

```
# clia setlanconf 20 1 def_rd_timeout 12
```

Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Default Redundancy Timeout set successfully

3.66.42 hpm3_dhcp_value

3.66.42.1 Syntax

```
setlanconf <IPMB-address> <channel> hpm3_dhcp_value <option  
number> <block number> <byte1> [<byte2> [ ..]]
```

3.66.42.2 Purpose

This command sets the HPM.3 DHCP Option value. All parameters are byte-sized values and must be in the range 0..255. The *<option number>* specifies the DHCP Option number to set. The *<block number>* specifies the 16-byte block number of the option value data. *<byte1>*,...,*<byteN>* define value bytes. There should be at least one value byte and no more than 16 value bytes. Hexadecimal values must be prefixed with "0x".

3.66.42.3 Examples

Set first 4 bytes of DHCP Option with DHCP option number = 6. Block number is 0; value bytes are 0xFF, 0xFF, 0xFF, 0x00.

```
# clia setlanconf 20 1 hpm3_dhcp_value 6 0 0xFF 0xFF 0xFF 0x00
```

Pigeon Point Shelf Manager Command Line Interpreter
HPM.3 DHCP Option value set successfully

3.67 setlanconfig

3.67.1 Syntax

```
setlanconfig <channel> <parameter-name> <additional-parameters>  
setlanconfig <channel> <parameter-number> <additional-  
parameters>
```

3.67.2 Purpose

This command sets the value of the specified LAN configuration parameter for the specified channel. The channel number, the configuration parameter name or number, and the parameter value should be explicitly specified. This command is identical to the CLI command *setlanconf* (see section 3.66) with the *<IPMB-address>* parameter set to 0x20.

The names and numbers of LAN configuration parameters supported by the *setlanconfig* command are the same as supported by the *setlanconf* command. More detailed information about each of the supported parameters can be found in section 3.66.

3.68 setlocked

3.68.1 Syntax

```
setlocked <IPMB-address> <fru_id> 0 | 1
setlocked board <N> 0 | 1
setlocked shm <N> 0 | 1
setlocked power_supply <N> 0 | 1
setlocked pem <N> 0 | 1
setlocked fan_tray <N> 0 | 1
setlocked <IPMB-address> amc <M> 0 | 1
setlocked board <N> amc <M> 0 | 1
```

3.68.2 Purpose

This command sets the Locked bit for the specified FRU to the specified state (0 for unlock or 1 for lock). The FRU is specified using the IPMB address of the owning IPM controller and the FRU device ID. FRU device ID 0 designates the IPM controller proper in PICMG 3.0 contexts.

The Activation-Locked Policy Bit controls, according to the PICMG 3.0 specification, whether the FRU is allowed to autonomously progress from state M1 to state M2. If the Locked bit is set, this transition is not allowed. When the Shelf Manager sends the “Deactivate” command to the FRU, the FRU transitions to the state M1 and sets the Locked bit, preventing subsequent state transitions.

This command can be used to re-activate a previously manually deactivated FRU by clearing the Locked bit for it.

This command can also be issued on the backup Shelf Manager; in that case, the Locked bit can only be set to the specified state for FRUs that are local to the backup Shelf Manager.

3.68.3 Examples

Clear the Locked bit for the IPM controller proper at address 9Ch, thus allowing it to reactivate.

```
# clia setlocked 9c 0 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Lock set successfully to 0x0
```

```
#
```


3.69 setpefconfig

3.69.1 Syntax

```
setpefconfig <parameter-name> <additional-parameters>
setpefconfig <parameter-number> <additional-parameters>
```

3.69.2 Purpose

This command sets a new value of the specified PEF configuration parameter. The following table lists the names and numbers of PEF configuration parameters that can be set via this command.

Table 18: Names and numbers of PEF configuration parameters supported by the setpefconfig command

PARAMETER NAME	NUMBER	DESCRIPTION
control	1	An 8-bit value that represents control flags for PEF (enable PEF, enable PEF startup delay, etc.)
action_control	2	An 8-bit value that represents action global control flags for PEF (enable reset, enable power down, etc.)
startup_delay	3	Time to delay PEF after system power-ups and resets, in seconds
alert_startup_delay	4	Time to delay alerts after system power-ups and resets, in seconds

PARAMETER NAME	NUMBER	DESCRIPTION
<code>event_filter</code>	6	<p>An event filter table entry identified by the specified set selector. Consists of the following 19 numeric values, in hexadecimal, encoded according to the definition in table 17-2 of the IPMI 2.0 specification:</p> <ul style="list-style-type: none"> • filter configuration • event filter action • alert policy number • event severity • generator ID byte 1 • generator ID byte 2 • sensor type • sensor number • event trigger (event/reading type) • event data 1 event offset mask • event data 1 AND mask • event data 1 compare 1 • event data 1 compare 2 • event data 2 AND mask • event data 2 compare 1 • event data 2 compare 2 • event data 3 AND mask • event data 3 compare 1 • event data 3 compare 2
<code>event_filter_data1</code>	7	The first byte of the event filter table entry identified by the specified set selector.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>alert_policy</code>	9	An alert policy table entry identified by the specified set selector. Consists of the following 5 numeric values, in hexadecimal, encoded according to the definition in Table 17-4 of IPMI 2.0: <ul style="list-style-type: none"> • policy number (4 bit value) • policy (4 bit value); includes the enable/disable bit • channel number (4 bit value) • destination selector (4 bit value) • alert string set/selector
<code>system-guid</code>	10	A GUID used to fill in the GUID field in the PET trap
<code>alert_string_key</code>	12	An alert string key identified by the specified set selector. Consists of two 8-bit values: event filter number and alert string set.
<code>alert_string</code>	13	An alert string identified by the specified set selector.
<code>oem_filter</code>	97	An OEM filter table entry identified by the specified set selector. Consists of the following 3 numeric values: <ul style="list-style-type: none"> • Byte 1: SEL Record Type Range Low boundary • Byte 2: SEL Record type Range high boundary • Byte 3: Alert policy number that will be invoked for SEL entries that have record types matching the range above.

PARAMETER NAME	NUMBER	DESCRIPTION
<code>pet_format</code>	98	<p>Format of the Platform Event Traps that are sent by the Shelf Manager as the Alert action initiated by event processing in the Platform Event Filtering facility. The values are defined as follows:</p> <ul style="list-style-type: none"> • 0 = the default IPMI format defined by IPMI Platform Event Trap Format v1.0 specification. • 1 = plain text format; all the event details are sent as plain ASCII text in a single variable. • 2 = multi-variable format; each event field is encoded as a separate variable.

3.69.3 control

3.69.3.1 Syntax

```
setpefconfig control <value>
setpefconfig 1 <value>
```

3.69.3.2 Purpose

This command sets a new value of the PEF parameter *control*. This parameter is a single byte, treated as a bit mask with the following meaning for the bits:

- 0x01 Enable PEF
- 0x02 Enable generation of event messages for PEF actions
- 0x04 Enable PEF startup delays on system power-ups and resets
- 0x08 Enable PEF Alert Startup delays

Other bits are reserved and should be set to 0. The value should be entered in hexadecimal.

3.69.3.3 Examples

```
# clia setpefconfig control 7
Pigeon Point Shelf Manager Command Line Interpreter
PEF control set successfully
#
```

3.69.4 action_control

3.69.4.1 Syntax

```
setpefconfig action_control <value>
setpefconfig 2 <value>
```

3.69.4.2 Purpose

This command sets a new value of the PEF parameter *action_control*. This parameter is a single byte, treated as a bit mask with the following meaning for the bits:

- 0x01 Enable alert action
- 0x02 Enable power down action
- 0x04 Enable reset action
- 0x08 Enable power cycle action
- 0x10 Enable OEM action
- 0x20 Enable diagnostic interrupt

Other bits are reserved and should be set to 0. The value should be entered in hexadecimal

3.69.4.3 Examples

```
# clia setpefconfig action_control 3f
Pigeon Point Shelf Manager Command Line Interpreter
PEF action control set successfully
#
```

3.69.5 startup_delay

3.69.5.1 Syntax

```
setpefconfig startup_delay <value>
setpefconfig 3 <value>
```

3.69.5.2 Purpose

This command sets the new value of the PEF parameter *startup_delay*. This parameter is a single byte, representing the number of seconds that the PEF facility delays at startup. The value is specified as a decimal number of seconds.

3.69.5.3 Examples

```
# clia setpefconfig startup_delay 45
Pigeon Point Shelf Manager Command Line Interpreter
PEF startup delay set successfully
#
```

3.69.6 alert_startup_delay

3.69.6.1 Syntax

```
setpefconfig alert_startup_delay <value>
setpefconfig 4 <value>
```

3.69.6.2 Purpose

This command sets the current value of the PEF parameter *alert_startup_delay*. This parameter is a single byte, representing the number of seconds that the alerting facility delays at startup. The value is specified as a decimal number of seconds.

3.69.6.3 Examples

```
# clia setpefconfig alert_startup_delay 45
Pigeon Point Shelf Manager Command Line Interpreter
Alert startup delay set successfully
#
```

3.69.7 event_filter

3.69.7.1 Syntax

```
setpefconfig event_filter <set-selector> <value1> ... <value19>
setpefconfig 6 <set-selector> <value1> ... <value19>
```

3.69.7.2 Purpose

This command sets the element of the event filter table with the index *<set-selector>*. Indexes are 1-based. The contents of the new element are specified by 19 numeric values *<value1>* to *<value19>*, in hexadecimal, encoded according to the definition in Table 17-2 of the IPMI 2.0 specification:

- filter configuration
- event filter action
- alert policy number
- event severity
- generator ID byte 1
- generator ID byte 2
- sensor type
- sensor number
- event trigger (event/reading type)
- event data 1 event offset mask
- event data 1 AND mask
- event data 1 compare 1
- event data 1 compare 2
- event data 2 AND mask
- event data 2 compare 1
- event data 2 compare 2
- event data 3 AND mask
- event data 3 compare 1
- event data 3 compare 2

3.69.7.3 Examples

Setting event filter 2 to trigger an alert action when an IPM controller at address 9Ch, FRU 0, reaches state M0 (the alert will be sent according with the Alert Policy #1):

```
# clia setpefconfig event_filter 2 80 1 1 10 9C FF F0 FF FF FF FF 0F FF 0 0 0
0 FF FF 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Event filter set successfully
```

```
#
```

3.69.8 event_filter_data1

3.69.8.1 Syntax

```
setpefconfig event_filter_data1 <set-selector> <value>
```

```
setpefconfig 7 <set-selector> <value>
```

3.69.8.2 Purpose

This command sets the first byte of the element of the event filter table with the index *<set-selector>*. Indexes are 1-based. This byte should be specified in hexadecimal. Bits in this byte have the following meaning:

- 0x80 This filter is enabled
- 0x40 This filter is pre-configured by the manufacturer and should not be altered by software

Other bits are reserved and should be 0.

This command can be used to quickly toggle the enabled/disabled state of an event filter, that is, turn it on and off without rewriting the whole table entry.

3.69.8.3 Examples

Turn on event filter 2.

```
# clia setpefconfig event_filter_data1 2 80
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Event filter data1 set successfully
```

```
#
```

Turn off event filter 2.

```
# clia setpefconfig event_filter_data1 2 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Event filter data1 set successfully
```

```
#
```

3.69.9 alert_policy

3.69.9.1 Syntax

```
setpefconfig alert_policy <set-selector> <value1> <value2>
<value3> <value4> <value5>
```

```
setpefconfig 9 <set-selector> <value1> <value2> <value3>  
<value4> <value5>
```

3.69.9.2 Purpose

This command sets an alert policy table entry identified by the specified set selector. The contents of the new element are specified by the following 5 numeric values *<value1>* to *<value5>*, in hexadecimal, encoded according to the definition in Table 17-4 of IPMI 2.0:

- policy number (4 bit value)
- policy (4 bit value); includes the enable/disable bit
- channel number (4 bit value)
- destination selector (4 bit value)
- alert string set/selector

3.69.9.3 Examples

The following example sets up the alert policy table entry 2 with the following attributes:

- Policy number = 5,
- Enabled,
- Policy = always send alert to this destination,
- Destination channel = 1,
- Destination selector = 1,
- Alert String selector = use string 1 for all events.

```
# clia setpefconfig alert_policy 2 5 8 1 1 1  
Pigeon Point Shelf Manager Command Line Interpreter  
Policy set successfully  
#
```

3.69.10 system_guid

3.69.10.1 Syntax

```
setpefconfig system_guid <guid-value>  
setpefconfig 10 <guid-value>  
setpefconfig system_guid none  
setpefconfig 10 none
```

3.69.10.2 Purpose

This command sets the current value of the PEF parameter *system_guid*. This parameter represents the GUID that is sent in a PET Trap PDU to an alert destination. This GUID may be defined as a separate GUID or as being equal to the System GUID.

The *<guid-value>* can be specified as an actual GUID, conforming to the standard GUID format “xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx”, or as a symbolic value *none*. In the first case,

the PEF facility uses the specified GUID in PET Traps. In the second case, the PEF facility defaults to the System GUID (the result of the IPMI “Get System GUID” command) for PET Traps.

3.69.10.3 Examples

```
# clia setpefconfig system_guid 23662F7F-BA1B-4b65-8808-94CA09C9BBB0
Pigeon Point Shelf Manager Command Line Interpreter
GUID set successfully
# clia setpefconfig system_guid none
Pigeon Point Shelf Manager Command Line Interpreter
Using the system GUID
#
```

3.69.11 alert_string_key

3.69.11.1 Syntax

```
setpefconfig alert_string_key <set-selector> <value1> <value2>
setpefconfig 12 <set-selector> <value1> <value2>
```

3.69.11.2 Purpose

This command sets the element of the alert string key table with the index *<set-selector>*. Indexes are 1-based. Set selector 0 can be used to designate the volatile alert string. Each key associates an event filter with an alert string for alert generation purposes, and consists of the event filter number and the alert string number. Both values are 8-bit values and are specified by the parameters *<value1>* and *<value2>* respectively, in hexadecimal.

3.69.11.3 Examples

```
# clia setpefconfig alert_string_key 2 10 11
Pigeon Point Shelf Manager Command Line Interpreter
Alert string keys set successfully
#
```

3.69.12 alert_string

3.69.12.1 Syntax

```
setpefconfig alert_string <set-selector> <string-value>
setpefconfig 13 <set-selector> <string-value>
```

3.69.12.2 Purpose

This command sets the element of the alert string table with the index *<set-selector>*. Indexes are 1-based. Index 0 can be used to designate the volatile alert string. The string value should be enclosed in double quotes (") and may contain special characters and line feeds inside.

3.69.12.3 Examples

```
# clia setpefconfig alert_string 2 "This string has
```

```
> a line feed inside."
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Alert string set successfully  
#
```

3.69.13 oem_filter

3.69.13.1 Syntax

```
setpefconfig oem_filter <set-selector> <value1> <value2>  
<value3>  
setpefconfig 97 <set-selector> <value1> <value2> <value3>
```

3.69.13.2 Purpose

The OEM filter table is a Pentair-defined OEM extension of the IPMI specification. It allows PEF to be applied, in addition to platform events, also to OEM timestamped and non-timestamped SEL entries (record type range C0h-FFh).

Each entry of the OEM filter table defines the range of record types (in the range of OEM record types), to which this OEM filter applies, and the alert policy number that is to be invoked when a record with the matching record type is placed in the SEL.

This command sets an OEM filter table entry, the number of which is identified by the specified set selector. The entry consists of the following 3 numeric values:

- Byte 1: SEL Record Type Range Low boundary
- Byte 2: SEL Record type Range high boundary
- Byte 3: Alert policy number that will be invoked for SEL entries that have record types matching the range above.

3.69.13.3 Examples

```
# clia getpefconfig oem_filter  
Pigeon Point Shelf Manager Command Line Interpreter  
Active OEM Filters:  
0x01: OEM range boundary 0xff:0xff, alert policy # 1  
#  
# clia setpefconfig oem_filter 4 0xdc 0xf3 5  
Pigeon Point Shelf Manager Command Line Interpreter  
OEM filter set successfully  
# clia getpefconfig oem_filter  
Pigeon Point Shelf Manager Command Line Interpreter  
Active OEM Filters:  
0x01: OEM range boundary 0xff:0xff, alert policy # 1  
0x04: OEM range boundary 0xdc:0xf3, alert policy # 5
```

3.69.14 pet_format

3.69.14.1 Syntax

```
setpefconfig pet_format <format>  
setpefconfig 98 <format>
```

3.69.14.2 Purpose

Specifies the format of the Platform Event Traps that are sent by the Shelf Manager as the Alert action initiated by event processing in the Platform Event Filtering facility. The values of *<format>* parameter are defined as follows:

- 0 = the default IPMI format defined by IPMI Platform Event Trap Format v1.0 specification.
- 1 = plain text format; all the event details are sent as plain ASCII text in a single variable.
- 2 = multi-variable format; each event field is encoded as a separate variable.

3.69.14.3 Examples

```
# clia setpefconfig pet_format 0  
Pigeon Point Shelf Manager Command Line Interpreter  
Platform Event Trap format set successfully  
#
```

3.70 setpowerlevel

3.70.1 Syntax

```
setpowerlevel <IPMB-address> <fru_id> [<pwr_lvl>|OFF] [COPY]  
<IPMB-address> <fru_id> can be replaced with any of the following alternatives:
```

- board <N>
- shm <N>
- power_supply <N>
- pem <N>
- fan_tray <N>

3.70.2 Purpose

This command allows controlling the power level of a FRU and results in the Shelf Manager issuing a “Set Power Level” command on IPMB-0 to the designated IPM controller. Since the Shelf Manager core is responsible for managing power levels and tracking the corresponding power budgets, this command must be used with extreme care, especially when specifying a non-zero power level. Users of this command must be thoroughly familiar with the AdvancedTCA power management architecture as defined in the AdvancedTCA specification.

The target FRU is specified by the IPMB address of its IPM controller, plus the FRU device ID. Alternatively, the board number or a dedicated Shelf Manager number can be used to designate the target FRU.

The third argument `<pwr_lvl>` is a power level. The power levels allowed are 0h to 14h, if available. A zero power level is equivalent to the keyword `OFF`; in that case, the command performs a power off of the designated FRU, if possible.

If no power level is specified, the command does not change the current power level of the FRU; this is equivalent to specifying 0xFF as the power level value. If specified, the power level is an index that selects one of the previously arranged power draw values for the designated FRU. Each power draw value corresponds to a maximum power draw (in Watts) that the FRU is authorized to use.

At any given time, an AdvancedTCA FRU that has been powered on has a set of up to 20 (14h) power draws that have been established between the FRU (actually, the IPM controller that represents the FRU) and the Shelf Manager. The `<pwr_lvl>` argument selects one of this set of power draws as the maximum power that the FRU is authorized to use.

Thereafter until another change is made, that FRU must not draw more than that authorized amount of power. The current and maximum power levels, plus the associated authorized power draw (in Watts) associated with the current power level, are available for any FRU via the `clia fru -v` command.

The optional parameter `COPY` specifies whether to “copy” desired power levels to present power levels (see the AdvancedTCA specification for background). If this parameter is not specified, the command does not copy desired to present power levels.

3.70.3 Examples

Turn off power for the board at 84h:

```
# clia setpowerlevel 84 0 OFF
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Operation completed with status = 0x0
```

3.71 setsensordata

3.71.1 Syntax

```
setsensordata <IPMB-address> <sensor-name> [reading [-r]
<value>] [assertion_<mask>] [deassertion_<mask>]
[ event_data <b1> <b2> <b3> | event_data_no_offset <b1> <b2>
<b3>]
```

```
setsensordata <IPMB-address> [<lun>:]<sensor-number> [reading [-r]
<value>] [assertion_<mask>] [deassertion_<mask>] [ event_data
<b1> <b2> <b3> | event_data_no_offset <b1> <b2> <b3>]
```

<IPMB-address> can be replaced with either of the following alternatives:

- *board* <N>
- *shm* <N>

3.71.2 Purpose

This command changes the reading, assertion/deassertion mask or event data bytes for the specified sensor. The sensor must be defined as settable, as defined in Addendum E372 to the IPMI 2.0 specification (that is, bit [7] must be set to 1 in the Sensor Initialization byte of the corresponding SDR).

The sensor is specified by the IPMB address of the owning IPM controller and the sensor name or number. Alternatively, the board number or the dedicated Shelf Manager number can be used to designate the target IPM controller.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. <lun> can take the value 0, 1 or 3. (LUN 2 is reserved.) If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. (For example, if the command specifies sensor 3 without explicit LUN qualification, and the target controller exposes sensor 3 on LUN 1 and another sensor 3 on LUN 3, the command is applied to the sensor 3 on LUN 1.)

The parameters of this command follow the conventions of the IPMI command “Set Sensor Reading and Event Status”, defined in the Addendum E372 to the IPMI 2.0 specification.

The clause *reading [-r] <value>* specifies the new reading for the sensor. If the option *-r* is supplied, the <value> is interpreted as a raw value. Otherwise it is interpreted as a processed value and translated to the raw value using the SDR data (linearization, M, B, etc).

The clauses *assertion <mask>* and *deassertion <mask>* specify the current assertion/deassertion condition masks for the sensor, as 16-bit values. Their meaning is defined as follows:

For threshold-based sensors:

- [15:12] – reserved, must be 0000
- [11] - 1b = assertion/deassertion condition for upper non-recoverable going high
- [10] - 1b = assertion/deassertion condition for upper non-recoverable going low
- [9] - 1b = assertion/deassertion condition for upper critical going high

- [8] - 1b = assertion/deassertion condition for upper critical going low
- [7] - 1b = assertion/deassertion condition for upper non-critical going high
- [6] - 1b = assertion/deassertion condition for upper non-critical going low
- [5] - 1b = assertion/deassertion condition for lower non-recoverable going high
- [4] - 1b = assertion/deassertion condition for lower non-recoverable going low
- [3] - 1b = assertion/deassertion condition for lower critical going high
- [2] - 1b = assertion/deassertion condition for lower critical going low
- [1] - 1b = assertion/deassertion condition for lower non-critical going high
- [0] - 1b = assertion/deassertion condition for lower non-critical going low

For discrete sensors:

- [15] – reserved, must be 0
- [14] - 1b = state 14 assertion/deassertion event occurred
- [13] - 1b = state 13 assertion/deassertion event occurred
- [12] - 1b = state 12 assertion/deassertion event occurred
- [11] - 1b = state 11 assertion/deassertion event occurred
- [10] - 1b = state 10 assertion/deassertion event occurred
- [9] - 1b = state 9 assertion/deassertion event occurred
- [8] - 1b = state 8 assertion/deassertion event occurred
- [7] - 1b = state 7 assertion/deassertion event occurred
- [6] - 1b = state 6 assertion/deassertion event occurred
- [5] - 1b = state 5 assertion/deassertion event occurred
- [4] - 1b = state 4 assertion/deassertion event occurred
- [3] - 1b = state 3 assertion/deassertion event occurred
- [2] - 1b = state 2 assertion/deassertion event occurred
- [1] - 1b = state 1 assertion/deassertion event occurred
- [0] - 1b = state 0 assertion/deassertion event occurred

The clauses *event_data* <b1> <b2> <b3> and *event_data_no_offset* <b1> <b2> <b3> are used to specify the event data bytes that are sent in the IPMI Platform Event request when the sensor generates an event. If the variant *event_data* is used, the event offset (the lower nibble of the event data byte 1) is taken from <b1>; if the variant *event_data_no_offset* is used, the even offset is generated automatically when the event happens, and the lower nibble of the byte <b1> is ignored.

This command can also be issued on the backup Shelf Manager; in that case, the command can apply only to sensors that are local to the backup Shelf Manager.

3.71.3 Examples

In the following examples, the settable sensor “Eth0 Front” has the type “Entity Presence” and both monitors and controls the state of the Ethernet connection on the front panel of the carrier board. The command *setsensordata* is issued to change the sensor state from “Entity Present” to “Entity Absent”, which effectively turns off the Ethernet connection on the front panel.

```
# clia sensordata 10 10
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
10: LUN: 0, Sensor # 10 ("Eth0 Front")
```

```
    Type: Discrete (0x6f), "Entity Presence" (0x25)
```

```
    Belongs to entity (0xf0, 0x60): FRU # 0
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
        Initial update completed
```

```
    Sensor reading: 0x00
```

```
    Current State Mask 0x0001
```

```
        Entity Present
```

```
#
```

```
# clia setsensordata 10 10 assertion 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
    Sensor data set successfully
```

```
#
```

```
# clia sensordata 10 10
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
10: LUN: 0, Sensor # 10 ("Eth0 Front")
```

```
    Type: Discrete (0x6f), "Entity Presence" (0x25)
```

```
    Belongs to entity (0xf0, 0x60): FRU # 0
```

```
    Status: 0xc0
```

```
        All event messages enabled from this sensor
```

```
        Sensor scanning enabled
```

```
        Initial update completed
```

```
    Sensor reading: 0x00
```

```
    Current State Mask 0x0002
```

```
        Entity Absent
```

3.72 setsensoreventenable

3.72.1 Syntax

```
setsensoreventenable <IPMB-address> <sensor-name> <global>  
[<assertion_events> [<deassertion_events>]]  
setsensoreventenable <IPMB-address> [<lun>:]<sensor-number>  
<global> [<assertion_events> [<deassertion_events>]]
```

<IPMB-address> can be replaced with any of the following alternatives:

- *board* <N>
- *shm* <N>

3.72.2 Purpose

This command changes the event enable mask for the specified sensor. The sensor is specified by the IPMB address of the owning IPM controller and the sensor name or number. Alternatively, the board number or the dedicated Shelf Manager number can be used to designate the target IPM controller.

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. <lun> can take value 0, 1 or 3. (LUN 2 is reserved.) If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. (For example, if the command specifies sensor 3 without explicit LUN qualification, and the target controller exposes sensor 3 on LUN 1 and another sensor 3 on LUN 3, the command is applied to the sensor 3 on LUN 1.)

The parameters of this command follow the conventions of the IPMI command “Set Sensor Event Enable”.

The parameter <global> directly corresponds to the second byte of the command request parameters and is a bit mask with the following meanings of the bits:

- [7] - 0b = disable all Event Messages from this sensor (optional; does not impact individual enable/disable status)
- [6] - 0b = disable scanning on this sensor (optional)
- [5:4] - 00b = do not change individual enables
- 01b = enable selected event messages
- 10b = disable selected event messages
- 11b = reserved
- [3:0] - reserved

The parameters <assertion_events> and <deassertion_events> are 16-bit bit masks representing individual events to enable or disable, as follows:

For threshold-based sensors:

- [15:12] – reserved, must be 0000
- [11] - 1b = select event for upper non-recoverable going high

- [10] - 1b = select event for upper non-recoverable going low
- [9] - 1b = select event for upper critical going high
- [8] - 1b = select event for upper critical going low
- [7] - 1b = select event for upper non-critical going high
- [6] - 1b = select event for upper non-critical going low
- [5] - 1b = select event for lower non-recoverable going high
- [4] - 1b = select event for lower non-recoverable going low
- [3] - 1b = select event for lower critical going high
- [2] - 1b = select event for lower critical going low
- [1] - 1b = select event for lower non-critical going high
- [0] - 1b = select event for lower non-critical going low

For discrete sensors:

- [15] – reserved, must be 0
- [14] - 1b = select event for state bit 14
- [13] - 1b = select event for state bit 13
- [12] - 1b = select event for state bit 12
- [11] - 1b = select event for state bit 11
- [10] - 1b = select event for state bit 10
- [9] - 1b = select event for state bit 9
- [8] - 1b = select event for state bit 8
- [7] - 1b = select event for state bit 7
- [6] - 1b = select event for state bit 6
- [5] - 1b = select event for state bit 5
- [4] - 1b = select event for state bit 4
- [3] - 1b = select event for state bit 3
- [2] - 1b = select event for state bit 2
- [1] - 1b = select event for state bit 1
- [0] - 1b = select event for state bit 0

This command can be used both to control individual event enables and to disable/enable sensor scanning and event generation globally.

In the first case, the two most significant bits of the parameter *<global>* should be set. Typical values are:

- 0xD0 to enable events specified by the masks *<assertion_events>* and *<deassertion_events>*
- 0xE0 to disable events specified by the masks *<assertion_events>* and *<deassertion_events>*

In the second case, the parameters `<assertion_events>` and `<deassertion_events>` can be omitted and the parameter `<global>` controls the global attributes of the sensor. Only bits 7 and 6 are used, bits 5:0 are set to 0 in that case. Typical values of the `<global>` parameter in that case are:

- 0 to disable both sensor scanning and event generation
- 0x40 to enable sensor scanning but disable event generation
- 0xC0 to enable both sensor scanning and event generation

However the combination of the two cases above is also possible. More information can be found in the section 35.10 of the IPMI 2.0 specification that is dedicated to the command “Set Sensor Event Enable”.

This command can also be issued on the backup Shelf Manager; in that case, the event enable mask is only set for sensors that are local to the backup Shelf Manager.

3.72.3 Examples

Enable the “Lower Non-Critical Going Low” event on the temperature sensor “Local Temp” on the IPM controller FEh.

```
# clia setsensoreventenable fe "Local Temp" 0xD0 0x01 0x00
Pigeon Point Shelf Manager Command Line Interpreter
    Event enable mask set successfully
#
# clia getsensoreventenable -v fe "Local Temp"
Pigeon Point Shelf Manager Command Line Interpreter
fe: LUN: 0, Sensor # 3 ("Local Temp")
    Type: Threshold (0x01), "Temperature" (0x01)
    Assertion event mask: 0x0001
        Assertion event for "Lower Non-Critical Going Low" enabled
    Deassertion event mask: 0x0000
#
```

Perform the same operation on the same sensor, but specify the sensor using LUN and sensor number:

```
# clia setsensoreventenable fe 0:3 0xD0 0x01 0x00
Pigeon Point Shelf Manager Command Line Interpreter
    Event enable mask set successfully
#
```

3.73 setsolconf

3.73.1 Syntax

```
setsolconf <IPMB-address> <channel> [<port number>] <parameter-name> <additional-parameters>
```

```
setsolconf <IPMB-address> <channel> <parameter-number> <additional-parameters>
```

3.73.2 Purpose

This command sets the value of the specified SOL (Serial-over-LAN) configuration parameter for the specified channel on an IPM controller. The IPMB address, the channel number, the parameter name and the parameter value should be explicitly specified. The System Serial Port *<port number>* should be specified for the HPM.2 extended SOL configuration parameters. The following table lists the names and numbers of SOL configuration parameters supported by the *setsolconf* command:

Table 19: Names and numbers of SOL configuration parameters supported by the setsolconf command

PARAMETER NAME	NUMBER	DESCRIPTION
enable	1	This parameter controls whether the SOL payload type can be activated
auth	2	The Privilege Level and two flags: Force Encryption and Force Authentication.
character	3	The SOL Character Accumulate Interval and Character Send Threshold
retry	4	The SOL Retry Count and Retry Interval
nv_bit_rate	5	The SOL Non-Volatile Bit Rate
bit_rate	6	The SOL Volatile Bit Rate
payload_port	8	The SOL Payload Port Number indicates the port number over which the SOL payload can be activated
hpm2_bit_rate	N/A	The HPM.2 Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
hpm2_nv_bit_rate	N/A	The HPM.2 Non-Volatile SOL Bit Rate and Physical UART Settings for a System Serial Port
hpm2_character	N/A	The HPM.2 Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port

PARAMETER NAME	NUMBER	DESCRIPTION
<code>hpm2_nv_character</code>	N/A	The HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold for a System Serial Port
<code>hpm2_retry</code>	N/A	The HPM.2 Volatile Retry Count and Retry Interval for a System Serial Port
<code>hpm2_nv_retry</code>	N/A	The HPM.2 Non-Volatile Retry Count and Retry Interval for a System Serial Port

3.73.3 enable

3.73.3.1 Syntax

```
setsolconf <IPMB-address> <channel> enable (0|1)
setsolconf <IPMB-address> <channel> 1 (0|1)
```

3.73.3.2 Purpose

This command sets the SOL Enable parameter, which controls whether a SOL payload type can be activated.

3.73.3.3 Examples

Set SOL Enable to 1; SOL payload type can be activated.

```
#cli> setsolconf 82 5 enable 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
SOL Enable is set successfully
```

3.73.4 auth

3.73.4.1 Syntax

```
setsolconf <IPMB-address> <channel> auth <level>
setsolconf <IPMB-address> <channel> 2 <level>
```

3.73.4.2 Purpose

This command sets the SOL Privilege Level and two flags: “Force SOL Payload Encryption” and “Force SOL Payload Authentication”, as a single byte. Encoding of the specific fields in this byte is defined in the section 26.3 of the IPMI 2.0 specification.

3.73.4.3 Examples

Sets SOL Privilege Level to Operator level.

```
#cli> setsolconf 82 5 auth 3
```

```
Pigeon Point Shelf Manager Command Line Interpreter
SOL Authentication is set successfully
```

3.73.5 character

3.73.5.1 Syntax

```
setsolconf <IPMB-address> <channel> character <interval>  
<threshold>  
setsolconf <IPMB-address> <channel> 3 <interval> <threshold>
```

3.73.5.2 Purpose

This command sets the SOL Character Accumulate Interval and Character Send Threshold. The parameter *<interval>* specifies the Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 5..1275. The parameter *<threshold>* specifies the Character Send Threshold.

3.73.5.3 Examples

Set the SOL Character Accumulate Interval to 15ms and the Character Send Threshold to 3 for channel 5 for the IPM controller at address 82h.

```
#cli setsolconf 82 5 character 15 3  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL Character Attributes are set successfully
```

3.73.6 retry

3.73.6.1 Syntax

```
setsolconf <IPMB-address> <channel> retry <retry count> <retry  
interval>  
setsolconf <IPMB-address> <channel> 4 <retry count> <retry  
interval>
```

3.73.6.2 Purpose

This command sets the SOL Retry Count and the SOL Retry Interval used by the channel. The parameter *<retry count>* has values in 0..7 range. If this parameter is set to 0, there will be no retries after a packet is transmitted. The parameter *<retry interval>* specifies the time that the IPM controller will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be multiple of 10 within the range 0..2550. If the parameter *<retry interval>* is 0, retries will sent back-to-back.

3.73.6.3 Examples

Set the SOL Retry Count to 4 and the SOL Retry Interval to 30 ms for channel 5 for the IPM controller at address 82h.

```
#cli setsolconf 82 5 retry 4 30  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL Retry Count and Interval are set successfully
```

3.73.7 `nv_bit_rate`

3.73.7.1 Syntax

```
setsolconf <IPMB-address> <channel> nv_bit_rate <bit rate>  
setsolconf <IPMB-address> <channel> 5 <bit rate>
```

3.73.7.2 Purpose

This command sets the SOL Non-Volatile Bit Rate used by the channel. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0.

3.73.7.3 Examples

Set the SOL Non-Volatile Bit Rate to 7 (38400 bps) for channel 5 for the IPM controller at address 82h.

```
#clia setsolconf 82 5 nv_bit_rate 8  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL Non-Volatile Bit Rate is set successfully
```

3.73.8 `bit_rate`

3.73.8.1 Syntax

```
setsolconf <IPMB-address> <channel> bit_rate <bit rate>  
setsolconf <IPMB-address> <channel> 6 <bit rate>
```

3.73.8.2 Purpose

This command sets the SOL Volatile Bit Rate used by the channel. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0.

3.73.8.3 Examples

Set the SOL Volatile Bit Rate to 7 (19200 bps) for channel 5 for the IPM controller at address 82h.

```
#clia setsolconf 82 5 bit_rate 7  
Pigeon Point Shelf Manager Command Line Interpreter  
SOL Volatile Bit Rate is set successfully
```

3.73.9 `payload_port`

3.73.9.1 Syntax

```
setsolconf <IPMB-address> <channel> payload_port  
setsolconf <IPMB-address> <channel> 8
```

3.73.9.2 Purpose

This command sets the SOL Payload Port Number.

3.73.9.3 Examples

Set the SOL Payload Port Number to 127 for channel 5 for the IPM controller at address 82h.

```
#clia setsolconf 82 5 payload_port 127
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
SOL Payload Port is set successfully
```

3.73.10 hpm2_bit_rate

3.73.10.1 Syntax

```
setsolconf <IPMB-address> <channel> hpm2_bit_rate <port  
selector> <bit rate> <uart settings>
```

3.73.10.2 Purpose

This command sets the HPM.2 Volatile SOL Bit Rate used by the channel. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0. The parameter *<uart settings>* is a byte value that defines Physical UARTSettings (see section 3.10.1 “HPM.2 SOL configuration parameters” in the HPM.2 specification).

3.73.10.3 Examples

Set HPM.2 Volatile SOL Bit Rate for System Serial Port 1 of channel 5 for the IPM controller at address 82h. The Volatile Bit Rate is set to 6, which corresponds to 9600 bps.

```
#clia setsolconf 82 5 hpm2_bit_rate 1 6 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
HPM.2 Bit Rate and UART Settings are set successfully
```

3.73.11 hpm2_nv_bit_rate

3.73.11.1 Syntax

```
setsolconf <IPMB-address> <channel> hpm2_nv_bit_rate <port  
selector> <bit rate> <uart settings>
```

3.73.11.2 Purpose

This command sets the HPM.2 Non-Volatile SOL Bit Rate used by the channel. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. Valid values for the parameter *<bit rate>* are 6 or 9600, 7 or 19200, 8 or 38400, 9 or 57600, 10 or 115200, or 0. The parameter *<uart settings>* is a byte value that defines Physical UARTSettings (see section 3.10.1 “HPM.2 SOL configuration parameters” in the HPM.2 specification).

3.73.11.3 Examples

Set HPM.2 Non-Volatile SOL Bit Rate for System Serial Port 1 of channel 5 for the IPM controller at address 82h. The Volatile Bit Rate is set to 7, which corresponds to 19200 bps.

```
# clia setsolconf 82 5 hpm2_nv_bit_rate 1 7 6
```

Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Bit Rate and UART Settings are set successfully

3.73.12 hpm2_character

3.73.12.1 Syntax

```
setsolconf <IPMB-address> <channel> hpm2_character <port  
selector> <interval> <threshold>
```

3.73.12.2 Purpose

This command sets the HPM.2 Volatile Character Accumulate Interval and Character Send Threshold. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<interval>* indicates Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 0..1275. The parameter *<threshold>* indicates Character Send Threshold. This parameter must be within the range 1..255. If both the parameters *<interval>* and *<threshold>* are 0, the global settings will be used.

3.73.12.3 Examples

Set HPM.2 Volatile Character Accumulate Interval to 5ms and Character Send Threshold to 2 for System Serial Port 1 of channel 5 for the IPM controller at address 82h.

```
# clia setsolconf 82 5 hpm2_character 1 5 2
```

Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Character Attributes are set successfully

3.73.13 hpm2_nv_character

3.73.13.1 Syntax

```
setsolconf <IPMB-address> <channel> hpm2_nv_character <port  
selector> <interval> <threshold>
```

3.73.13.2 Purpose

This command sets the HPM.2 Non-Volatile Character Accumulate Interval and Character Send Threshold. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<interval>* indicates Character Accumulate Interval (in ms) and must be a multiple of 5 within the range 0..1275. The parameter *<threshold>* indicates the Character Send Threshold. This parameter must be within the range 1..255. If both the parameters *<interval>* and *<threshold>* are 0, the global settings will be used.

3.73.13.3 Examples

Set HPM.2 Non-Volatile Character Accumulate Interval to 15ms and Character Send Threshold to 1 for System Serial Port 1 of channel 5 for the IPM controller at address 82h.

```
# clia setsolconf 82 5 hpm2_nv_character 1 15 1
```

Pigeon Point Shelf Manager Command Line Interpreter
HPM.2 Character Attributes are set successfully

3.73.14 hpm2_retry

3.73.14.1 Syntax

```
setsolconf <IPMB-address> channel> hpm2_retry <port selector>  
<retry count> <retry interval>
```

3.73.14.2 Purpose

This command sets the HPM.2 Volatile Retry Count and Retry Interval. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<retry count>* has values in 0..7 range. If this parameter is set to 0, there will be no retries after a packet is transmitted. The parameter *<retry interval>* indicates the time that the IPM controller will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be a multiple of 10 within the range 0..2550. If both the parameters *<retry count>* and *<retry interval>* are 0, the global settings will be used.

3.73.14.3 Examples

Set HPM.2 Volatile Retry Count to 3 and Retry Interval to 20ms for System Serial Port 1 of channel 5 for the IPM controller at address 82h.

```
# clia setsolconf 82 5 hpm2_retry 1 3 20  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Retry Count and Interval are set successfully
```

3.73.15 hpm2_nv_retry

3.73.15.1 Syntax

```
setsolconf <IPMB-address> <channel> hpm2_nv_retry <port  
selector> <retry count> <retry interval>
```

3.73.15.2 Purpose

This command sets the HPM.2 Non-Volatile Retry Count and Retry Interval. The *<port selector>* parameter indicates the System Serial Port to which the parameter applies. The parameter *<retry count>* has values in 0..7 range. If this parameter is set to 0, then there will be no retries after a packet is transmitted. The parameter *<retry interval>* indicates the time that the IPM controller will wait before the first retry and the time between retries when sending SOL packets to the remote console (in ms) and must be multiple of 10 within the range 0..2550. If both the parameters *<retry count>* and *<retry interval>* are 0, the global settings will be used.

3.73.15.3 Examples

Set HPM.2 Non-Volatile Retry Count to 5 and Retry Interval to 60ms for System Serial Port 1 of channel 5 for the IPM controller at address 82.

```
# clia setsolconf 82 5 hpm2_nv_retry 1 5 60  
Pigeon Point Shelf Manager Command Line Interpreter  
HPM.2 Retry Count and Interval are set successfully
```

3.74 setthreshold

3.74.1 Syntax

```
setthreshold <IPMB-address> <sensor-name> <threshold-type> [-r]  
<value>
```

```
setthreshold <IPMB-address> [<lun>:]<sensor-number> <threshold-  
type> [-r] <value>
```

<IPMB-address> can be replaced with any of the following alternatives:

- *board* <N>
- *shm* <N>

3.74.2 Purpose

This command changes the current threshold value for the specified threshold of the specified sensor. The sensor is specified by the IPMB address of the owning IPM controller and the sensor name or number. The target sensor must be a threshold-based sensor. The parameter <threshold-type> can be specified as one of the following symbolic values:

- *upper_non_recoverable* (can be abbreviated to *unr*)
- *upper_critical* (can be abbreviated to *uc*)
- *upper_non_critical* (can be abbreviated to *unc*)
- *lower_non_recoverable* (can be abbreviated to *lnr*)
- *lower_critical* (can be abbreviated to *lc*)
- *lower_non_critical* (can be abbreviated to *lnc*)

By default, the target value is specified in processed form (e.g. in Volts for voltage sensors or in Celsius degrees for temperature sensors). Option *-r* means that a raw value is used instead (usually a byte-size quantity, converted according to sensor-specific rules).

This command allows the user to qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. <lun> can take the value 0, 1 or 3. (LUN 2 is reserved.) If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. (For example, if the command specifies sensor 3 without explicit LUN qualification, and the target controller exposes sensor 3 on LUN 1 and another sensor 3 on LUN 3, the command is applied to the sensor 3 on LUN 1.)

This command can also be issued on the backup Shelf Manager; in that case, threshold values can only be set for sensors that are local to the backup Shelf Manager.

3.74.3 Examples

Set the upper non-critical threshold value for the temperature sensor “emulated temp” on IPM controller 9Ch to 99 degrees Celsius.

```
# clia threshold 9c 2
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
9c: LUN: 0, Sensor # 2 ("emulated temp")
```

```
    Type: Threshold (0x01), "Temperature" (0x01)
```

```
        Lower Non-Critical Threshold, Raw Data: 0x03, Processed Data:
3.000000 degrees C
        Lower Critical Threshold, Raw Data: 0x14, Processed Data: 20.000000
degrees C
        Lower Non-Recoverable Threshold, Raw Data: 0xfb, Processed Data: -
5.000000 degrees C
        Upper Non-Critical Threshold, Raw Data: 0x46, Processed Data:
70.000000 degrees C
        Upper Critical Threshold, Raw Data: 0x50, Processed Data: 80.000000
degrees C
        Upper Non-Recoverable Threshold, Raw Data: 0x5a, Processed Data:
90.000000 degrees C
#
# clia setthreshold 9c 0:2 unc 99
Pigeon Point Shelf Manager Command Line Interpreter
    Threshold set successfully
#
# clia threshold 9c 0:2
Pigeon Point Shelf Manager Command Line Interpreter
9c: LUN: 0, Sensor # 2 ("emulated temp")
    Type: Threshold (0x01), "Temperature" (0x01)
        Lower Non-Critical Threshold, Raw Data: 0x03, Processed Data:
3.000000 degrees C
        Lower Critical Threshold, Raw Data: 0x14, Processed Data: 20.000000
degrees C
        Lower Non-Recoverable Threshold, Raw Data: 0xfb, Processed Data: -
5.000000 degrees C
        Upper Non-Critical Threshold, Raw Data: 0x63, Processed Data:
99.000000 degrees C
        Upper Critical Threshold, Raw Data: 0x50, Processed Data: 80.000000
degrees C
        Upper Non-Recoverable Threshold, Raw Data: 0x5a, Processed Data:
90.000000 degrees C
#
```

3.75 shelf

3.75.1 Syntax

shelf <subcommand>

The following subcommands are supported.

- *address_table*
- *cooling_state*
- *fans_state*
- *power_distribution*
- *power_management*
- *pci_connectivity*
- *ha_connectivity*
- *h110_connectivity*
- *point-to-point_connectivity*
- *MaxCurrent* [feed] <Amps>
- *MinVoltage* [feed] <Volts>
- *Activation* <addr> <fru_id> 1|0
- *Deactivation* <addr> <fru_id> 1|0
- *BDSelGrounded* <slot number> 1|0
- *PwrCapability* <addr> <fru_id> <Watts>
- *PwrDelay* <addr> <fru_id> <10ths_of_second>
- *Allowance* <seconds>
- *PwrReorder* <addr1> <fru_id1> before|after <addr2> <fru_id2>
- *info_refresh*
- *info_check*
- *info_force_update*
- *shm_cfg_params*
- *board_lan_cfg_params*
- *cold_sensitive*

3.75.2 Purpose

The command *shelf* shows key Shelf FRU Information, plus selected current operating data for the shelf, and allows modifying some fields in the Shelf FRU Information. The type of the information this command shows or modifies is specified in the command parameter.

The following subsections describe the syntax of the *shelf* command for different applications of it.

3.75.3 Displaying Shelf FRU Information

3.75.3.1 Syntax

```
shelf [cooling_state | fans_state | address_table |
power_distribution | power_management | pci_connectivity |
ha_connectivity | h110_connectivity | point-to-
point_connectivity | shm_cfg_params | board_lan_cfg_params ]
```

3.75.3.2 Purpose

The variants of the *shelf* command show key Shelf FRU Information, plus selected current operating data for the shelf. The type of the information shown is specified in the subcommand.

The following table lists the subcommands and parameters used to display shelf information:

Table 20: Parameters supported by the shelf command

PARAMETER NAME	DESCRIPTION
cooling_state (can be abbreviated to cs)	Shows the current cooling state of the shelf: <ul style="list-style-type: none"> • Normal – all temperature sensors show normal operating temperature. • Minor Alert – at least one temperature sensor is in minor alert state. None of the sensors is in major or critical alert state. • Major Alert – at least one temperature sensor is in major alert state. None of the sensors is in critical alert state. • Critical Alert – at least one temperature sensor is in critical alert state.
fans_state (can be abbreviated to fs)	Shows the current state of the fan tachometers in the shelf: <ul style="list-style-type: none"> • Normal – all fan tachometer sensors show normal operating speed. • Minor Alert – at least one fan tachometer sensor is in minor alert state. None of the sensors is in major or critical alert state. • Major Alert – at least one fan tachometer sensor is in major alert state. None of the sensors is in critical alert state. • Critical Alert – at least one fan tachometer sensor is in critical alert state. In addition, a message is printed if any of the fan trays listed in the Address Table are not operational (missing or deactivated).

PARAMETER NAME	DESCRIPTION
address_table (can be abbreviated to at)	Shows the Address Table record in the Shelf FRU Information. The following information is provided: <ul style="list-style-type: none"> • Shelf Address (shown according to its type) • List of address table entries, showing Hardware Address, Site Type, and Site Number for each of them.
power_distribution (can be abbreviated to pd)	Shows the following information for each of the power feeds (mostly from the Shelf Power Distribution record of the Shelf FRU Information): <ul style="list-style-type: none"> • Maximum External Available Current • Maximum Internal Current • Minimum Expected Operating Voltage • Actual Power Available • Currently Used Power • List of FRUs connected to the feed, showing Hardware Address and FRU Device ID for each of them
power_management (can be abbreviated to pm)	Shows the Shelf Power Management record in the Shelf FRU Information. This record contains a list of FRU Power Descriptors. For each descriptor the following information is provided: <ul style="list-style-type: none"> • Hardware Address • FRU Device ID • Maximum FRU Power Capability • Shelf Manager Controlled Activation • Delay Before Next Power On
pci_connectivity (can be abbreviated to pcic)	Shows the Shelf PCI Connectivity record in the Shelf FRU Information. The following information is provided: <ul style="list-style-type: none"> • PCI Slot Descriptor • IDSEL Connection • Segment ID • Extended PCI Slot Descriptor • Geographic Address • Interface Number • System Slot Capable

PARAMETER NAME	DESCRIPTION
ha_connectivity (can be abbreviated to ha)	Shows the Shelf HAConnectivity record in the Shelf FRU Information. The following information is provided: <ul style="list-style-type: none"> • Radial Connectivity Support
h110_connectivity (can be abbreviated to h110c)	Shows the Shelf H110 Connectivity record in the Shelf FRU Information. The following information is provided: <ul style="list-style-type: none"> • Geographic Address • Segment ID
point-to-point_connectivity (can be abbreviated to ppc)	Shows the Shelf Point-to-Point Connectivity record in the Shelf FRU Information. The following information is provided: <ul style="list-style-type: none"> • Channel Type • Channel Count • Slot/ Hw Address • Channel Descriptor
shm_cfg_params	Shows the Pentair Shelf Manager Configuration Record(s) in the Shelf FRU Information in a human readable format.
board_lan_cfg_params	Shows the Pentair Board/AMC LAN Configuration Parameters Record(s) in the Shelf FRU Information in a human readable format.

For the subcommands *cooling_state*, *fans_state*, and *power_management*, the verbosity option *-v* is available. It should be entered before the subcommand: *clia shelf -v cooling_state*. In verbose mode, the subcommands *cooling_state* or *fans_state* will display the list of sensors (temperature or fan tachometers) that contribute to the current state. Each sensor is shown as a tuple (IPMB-address, sensor_number). The verbose variant of the *power_management* subcommand displays the amount of power currently assigned to each of the FRUs covered by FRU Power Descriptors in the Shelf FRU Information.

3.75.3.3 Examples

Get shelf cooling status.

```
# clia shelf cooling_state
Pigeon Point Shelf Manager Command Line Interpreter
Cooling state: "Normal"
#
```

Get shelf fan tachometer status (verbose).

```
# clia shelf -v fans_state
Pigeon Point Shelf Manager Command Line Interpreter
Fans state: "Major Alert"
Sensor(s) at this state: (0x7e,10) (0x7e,11) (0x7e,12) (0x7e,13)
```

(0x7e,14) (0x7e,15) (0x7e,16) (0x7e,17)

1 fan tray(s) (out of 3) are not operational

#

Get address table.

clia shelf address_table

Pigeon Point Shelf Manager Command Line Interpreter

```
Hw Addr: 41, Site # 1, Type: "AdvancedTCA Board" 00
Hw Addr: 42, Site # 2, Type: "AdvancedTCA Board" 00
Hw Addr: 43, Site # 3, Type: "AdvancedTCA Board" 00
Hw Addr: 44, Site # 4, Type: "AdvancedTCA Board" 00
Hw Addr: 45, Site # 5, Type: "AdvancedTCA Board" 00
Hw Addr: 46, Site # 6, Type: "AdvancedTCA Board" 00
Hw Addr: 47, Site # 7, Type: "AdvancedTCA Board" 00
Hw Addr: 48, Site # 8, Type: "AdvancedTCA Board" 00
Hw Addr: 49, Site # 9, Type: "AdvancedTCA Board" 00
Hw Addr: 4a, Site # 10, Type: "AdvancedTCA Board" 00
Hw Addr: 4b, Site # 11, Type: "AdvancedTCA Board" 00
Hw Addr: 4c, Site # 12, Type: "AdvancedTCA Board" 00
Hw Addr: 4d, Site # 13, Type: "AdvancedTCA Board" 00
Hw Addr: 4e, Site # 14, Type: "AdvancedTCA Board" 00
Hw Addr: 4f, Site # 15, Type: "AdvancedTCA Board" 00
Hw Addr: 50, Site # 16, Type: "AdvancedTCA Board" 00
```

#

Get power distribution information.

clia shelf power_distribution

Pigeon Point Shelf Manager Command Line Interpreter

Power Distribution:

Feed count: 1

Feed 00:

```
Maximum External Available Current: 50.0 Amps
Maximum Internal Current: Not specified
Minimum Expected Operating Voltage: -40.5 Volts
Actual Power Available: 2025.000 Watts
Currently Used Power: 160.000 Watts
Feed-to-FRU Mapping entries count: 16
FRU Addr: 41, FRU ID: fe
FRU Addr: 42, FRU ID: fe
FRU Addr: 43, FRU ID: fe
FRU Addr: 44, FRU ID: fe
FRU Addr: 45, FRU ID: fe
FRU Addr: 46, FRU ID: fe
FRU Addr: 47, FRU ID: fe
FRU Addr: 48, FRU ID: fe
```



```
FRU Addr: 49, FRU ID: fe
FRU Addr: 4a, FRU ID: fe
FRU Addr: 4b, FRU ID: fe
FRU Addr: 4c, FRU ID: fe
FRU Addr: 4d, FRU ID: fe
FRU Addr: 4e, FRU ID: fe
FRU Addr: 4f, FRU ID: fe
FRU Addr: 50, FRU ID: fe
```

#

Get power management information.

```
# clia shelf -v pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
PICMG Shelf Activation And Power Management Record (ID=0x12)
```

```
Version = 0
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 16
```

```
Hw Address: 41, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 70 Watts
```

```
Hw Address: 42, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
```

```
Hw Address: 43, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
```

```
Hw Address: 44, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
```

```
Hw Address: 45, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
```

```
Hw Address: 46, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
```

```
Hw Address: 47, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

```
Delay Before Next Power On: 0.0 seconds
```

```
Currently Assigned Power: 0 Watts
Hw Address: 48, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 49, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4a, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4b, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4c, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4d, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4e, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 4f, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0 Watts
Hw Address: 50, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 20 Watts
```

#

Get the Pentair Shelf Manager Configuration records.

```
# clia shelf shm_cfg_params
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
PPS Shelf Manager Configuration Record
```

```
CARRIER = ACB
```

```
ALLOW_CLEARING_CRITICAL_ALARM = TRUE
INITIAL_FAN_LEVEL = 8
MIN_FAN_LEVEL = 3
PROPAGATE_RMCP_ADDRESS = TRUE
###SWITCHOVER_TIMEOUT_ON_BROKEN_LINK = 10
IPMB_LINK_ISOLATION_TIMEOUT = 40
DEFAULT_RMCP_IP_ADDRESS2 = 172.16.2.168
GET_SHM_CONF_FROM_SHELF_FRU = TRUE
HPDL = TRUE
TIMESERVER = 192.168.1.253
TIMEPROTO = ntp
BOARD_LAN_PARAMETERS_CHANNEL_LIST = 1245
#
```

Get the Pentair Board/AMC LAN Configuration Parameter records.

```
#clia shelf board_lan_cfg_params
Pigeon Point Shelf Manager Command Line Interpreter
  PPS Board/AMC LAN Configuration Parameters Record
2 = 192.168.1.200, 255.255.255.0, 192.168.1.1
2, 1 = 192.168.1.201, 255.255.255.0, 192.168.1.1
#
```

3.75.4 Modifying Maximum External Available Current

3.75.4.1 Syntax

```
shelf maxcurrent [<feed>] <current>
```

3.75.4.2 Purpose

This command sets the Maximum External Available Current for the specified feed number and updates all known instances of Shelf FRU Information in the shelf. If the *<feed>* parameter is omitted, the value is set for the first feed (feed 0) in the Shelf FRU Information.

The parameter *<feed>* is a 0-based feed number in the Shelf FRU Information based on the sequential order of the descriptor for that feed.

The parameter *<current>* is the desired current value in Amps.

If, as the result of execution of this command, the currently used power exceeds the available power provided by the feed, some FRUs are deactivated until the currently used power becomes less than or equal to the available power. Deactivation takes place in the reverse order of activation (according to the Shelf Activation and Power Management Record).

3.75.4.3 Examples

Changing the Maximum Available External Current for Feed 0 from 50 A to 99 A.

```
# clia shelf pd
Pigeon Point Shelf Manager Command Line Interpreter
  PICMG Shelf Power Distribution Record (ID=0x11)
  Version = 0
```



Feed count: 1

Feed 00:

Maximum External Available Current: 50.0 Amps
Maximum Internal Current: Not specified
Minimum Expected Operating Voltage: -40.5 Volts
Actual Power Available: 2025.000 Watts
Currently Used Power: 240.000 Watts
Feed-to-FRU Mapping entries count: 16

- FRU Addr: 41, FRU ID: 0xfe
- FRU Addr: 42, FRU ID: 0xfe
- FRU Addr: 43, FRU ID: 0xfe
- FRU Addr: 44, FRU ID: 0xfe
- FRU Addr: 45, FRU ID: 0xfe
- FRU Addr: 46, FRU ID: 0xfe
- FRU Addr: 47, FRU ID: 0xfe
- FRU Addr: 48, FRU ID: 0xfe
- FRU Addr: 49, FRU ID: 0xfe
- FRU Addr: 4a, FRU ID: 0xfe
- FRU Addr: 4b, FRU ID: 0xfe
- FRU Addr: 4c, FRU ID: 0xfe
- FRU Addr: 4d, FRU ID: 0xfe
- FRU Addr: 4e, FRU ID: 0xfe
- FRU Addr: 4f, FRU ID: 0xfe
- FRU Addr: 50, FRU ID: 0xfe

clia shelf maxcurrent 0 99

Pigeon Point Shelf Manager Command Line Interpreter
Updating Shelf FRU Info
Cached information updated

clia shelf pd

Pigeon Point Shelf Manager Command Line Interpreter
PICMG Shelf Power Distribution Record (ID=0x11)
Version = 0

Feed count: 1

Feed 00:

Maximum External Available Current: 99.0 Amps
Maximum Internal Current: Not specified
Minimum Expected Operating Voltage: -40.5 Volts
Actual Power Available: 4009.500 Watts
Currently Used Power: 240.000 Watts
Feed-to-FRU Mapping entries count: 16

- FRU Addr: 41, FRU ID: 0xfe
- FRU Addr: 42, FRU ID: 0xfe
- FRU Addr: 43, FRU ID: 0xfe
- FRU Addr: 44, FRU ID: 0xfe

```
FRU Addr: 45, FRU ID: 0xfe
FRU Addr: 46, FRU ID: 0xfe
FRU Addr: 47, FRU ID: 0xfe
FRU Addr: 48, FRU ID: 0xfe
FRU Addr: 49, FRU ID: 0xfe
FRU Addr: 4a, FRU ID: 0xfe
FRU Addr: 4b, FRU ID: 0xfe
FRU Addr: 4c, FRU ID: 0xfe
FRU Addr: 4d, FRU ID: 0xfe
FRU Addr: 4e, FRU ID: 0xfe
FRU Addr: 4f, FRU ID: 0xfe
FRU Addr: 50, FRU ID: 0xfe
```

#

3.75.5 Modifying Minimum Expected Operating Voltage

3.75.5.1 Syntax

```
shelf minvoltage [<feed>] <voltage>
```

3.75.5.2 Purpose

This command sets the Minimum Expected Operating Voltage for the specified feed number and updates all known Shelf FRU Information instances in the shelf. If the *<feed>* parameter is omitted, the value is set for the first feed (feed 0) in the Shelf FRU Information.

The parameter *<feed>* is a 0-based feed number in the Shelf FRU Information based on the sequential order of the description of that feed.

The parameter *<voltage>* is the desired value.

If, as the result of execution of this command, the currently used power exceeds the available power provided by the feed, some FRUs are deactivated until the currently used power becomes less than or equal to the available power. Deactivation takes place in the reverse order of activation (according to the Shelf Activation and Power Management Record).

3.75.5.3 Examples

Changing the Minimum Expected Operating Voltage for the Feed 0 -40.5 to -59

```
# clia shelf pd
```

```
Pigeon Point Shelf Manager Command Line Interpreter
PICMG Shelf Power Distribution Record (ID=0x11)
  Version = 0
  Feed count: 1
  Feed 00:
    Maximum External Available Current: 50.0 Amps
    Maximum Internal Current: Not specified
    Minimum Expected Operating Voltage: -40.5 Volts
    Actual Power Available: 2025.000 Watts
    Currently Used Power: 240.000 Watts
```

Feed-to-FRU Mapping entries count: 16

FRU Addr: 41, FRU ID: 0xfe
FRU Addr: 42, FRU ID: 0xfe
FRU Addr: 43, FRU ID: 0xfe
FRU Addr: 44, FRU ID: 0xfe
FRU Addr: 45, FRU ID: 0xfe
FRU Addr: 46, FRU ID: 0xfe
FRU Addr: 47, FRU ID: 0xfe
FRU Addr: 48, FRU ID: 0xfe
FRU Addr: 49, FRU ID: 0xfe
FRU Addr: 4a, FRU ID: 0xfe
FRU Addr: 4b, FRU ID: 0xfe
FRU Addr: 4c, FRU ID: 0xfe
FRU Addr: 4d, FRU ID: 0xfe
FRU Addr: 4e, FRU ID: 0xfe
FRU Addr: 4f, FRU ID: 0xfe
FRU Addr: 50, FRU ID: 0xfe

#

cli shelf minvoltage 0 -59

Pigeon Point Shelf Manager Command Line Interpreter

Updating Shelf FRU Info

Cached information updated

#

cli shelf pd

Pigeon Point Shelf Manager Command Line Interpreter

PICMG Shelf Power Distribution Record (ID=0x11)

Version = 0

Feed count: 1

Feed 00:

Maximum External Available Current: 50.0 Amps

Maximum Internal Current: Not specified

Minimum Expected Operating Voltage: -59.0 Volts

Actual Power Available: 2950.000 Watts

Currently Used Power: 240.000 Watts

Feed-to-FRU Mapping entries count: 16

FRU Addr: 41, FRU ID: 0xfe
FRU Addr: 42, FRU ID: 0xfe
FRU Addr: 43, FRU ID: 0xfe
FRU Addr: 44, FRU ID: 0xfe
FRU Addr: 45, FRU ID: 0xfe
FRU Addr: 46, FRU ID: 0xfe
FRU Addr: 47, FRU ID: 0xfe
FRU Addr: 48, FRU ID: 0xfe
FRU Addr: 49, FRU ID: 0xfe

```
FRU Addr: 4a, FRU ID: 0xfe
FRU Addr: 4b, FRU ID: 0xfe
FRU Addr: 4c, FRU ID: 0xfe
FRU Addr: 4d, FRU ID: 0xfe
FRU Addr: 4e, FRU ID: 0xfe
FRU Addr: 4f, FRU ID: 0xfe
FRU Addr: 50, FRU ID: 0xfe
```

```
#
```

3.75.6 Modifying Shelf Manager Controlled Activation Flag

3.75.6.1 Syntax

```
shelf activation <hardware addr> <fru_id> [1|0]
shelf activation board <N> [1|0]
shelf activation board all [1|0]
shelf activation power_supply <N> [1|0]
shelf activation pem <N> [1|0]
shelf activation fan_tray <N> [1|0]
```

3.75.6.2 Purpose

These variants of the *shelf* command display or change the Shelf Manager Controlled Activation field for the specified FRU of the specified IPM controller. The command modifies the Shelf Manager Controlled Activation flag only for already existing entries in the Shelf Activation and Power Management record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager. Thus, the new value of the Shelf Manager Controlled Activation field becomes effective immediately without the need to restart the Shelf Manager.

The parameter *<hardware addr>* is the 7-bit hardware address in hexadecimal format.

The parameter *<fru_id>* is a FRU ID in hexadecimal format; 0xFE means all FRUs at that hardware address. The final parameter enables (when the value is *1*) or disables (when the value is *0*) Shelf Manager Controlled Activation for the specified FRU of the specified IPM controller.

3.75.6.3 Examples

Enabling Shelf Manager Controlled Activation on an IPM controller with hardware address 42h (IPMB address 84h).

```
# cli shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
PICMG Shelf Activation And Power Management Record (ID=0x12)
```

```
Version = 0
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 16
```

```
Hw Address: 41, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
```

```
Shelf Manager Controlled Activation: Enabled
```

Delay Before Next Power On: 0.0 seconds
Hw Address: 42, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 43, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 44, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 45, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 46, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 47, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 48, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 49, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4a, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4b, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4c, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4d, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4e, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4f, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 50, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds

#

cli shelf activation 42 0xfe 0

Pigeon Point Shelf Manager Command Line Interpreter

Updating Shelf FRU Info, address: 0x42, FRU ID # 254

Cached information updated

Wrote Information to the Shelf FRU

#

cli shelf pm

Pigeon Point Shelf Manager Command Line Interpreter

PICMG Shelf Activation And Power Management Record (ID=0x12)

Version = 0

Allowance for FRU Activation Readiness: 10 seconds

FRU Activation and Power Description Count: 16

Hw Address: 41, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 42, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Disabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 43, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 44, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 45, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 46, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 47, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 48, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 49, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

Delay Before Next Power On: 0.0 seconds

Hw Address: 4a, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Enabled

```
Delay Before Next Power On: 0.0 seconds
Hw Address: 4b, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4c, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4d, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4e, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 4f, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
Hw Address: 50, FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Delay Before Next Power On: 0.0 seconds
```

#

3.75.7 Modifying Shelf Manager Controlled Deactivation flag

3.75.7.1 Syntax

```
shelf deactivation <hardware addr> <fru_id> [1|0]
shelf deactivation board <N> [1|0]
shelf deactivation board all [1|0]
shelf deactivation power_supply <N> [1|0]
shelf deactivation pem <N> [1|0]
shelf deactivation fan_tray <N> [1|0]
```

3.75.7.2 Purpose

These variants of the *shelf* command display or change the Shelf Manager Controlled Deactivation field for the specified FRU of the specified IPM controller. The command modifies the Shelf Manager Controlled Deactivation flag only for already existing entries in the Shelf Deactivation and Power Management record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager. Thus, the new value of the Shelf Manager Controlled Deactivation field becomes effective immediately without the need to restart the Shelf Manager.

The parameter *<hardware addr>* is the 7-bit hardware address in hexadecimal format.

The parameter *<fru_id>* is a FRU ID in hexadecimal format; 0xFE means all FRUs at that hardware address.

The final parameter enables (when the value is *0*) or disables (when the value is *1*) Shelf Manager Controlled Deactivation for the specified FRU of the specified IPM controller. Note the unusual use of a zero parameter value to enable a function; this is the approach used in the ATCA specification for this function. The approach is preserved here for consistency.

3.75.7.3 Examples

Enabling Shelf Manager Controlled Deactivation on an IPM controller with hardware address 42h (IPMB address 84h).

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2s
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Auto-Activation: Disabled
```

```
Shelf Manager Controlled Auto-Deactivation: Enabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Auto-Activation: Disabled
```

```
Shelf Manager Controlled Auto-Deactivation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
#
```

```
# clia shelf deactivation 42 0xfe 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Updating Shelf FRU Info
```

```
Cached information updated
```

```
#
```

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Auto-Activation: Disabled
```

```
Shelf Manager Controlled Auto-Deactivation: Enabled Delay
```

```
Before Next Power On: 2.2 seconds
```

```
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Auto-Activation: Disabled
```

```
Shelf Manager Controlled Auto-Deactivation: Enabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
#
```

3.75.8 Modifying Shelf Manager BDSelGrounded flag

3.75.8.1 Syntax

```
shelf bdselgrounded <slot number>[1|0]
```

```
shelf bdselgrounded board <N> [1|0]
```

```
shelf bdselgrounded board all [1|0]
```

3.75.8.2 Purpose

These variants of the *shelf* command allow specifying whether the BD_SEL# signal is grounded for a slot. Some shelves may have BD_SEL# lines grounded for some slots, while operational for other slots. If BD_SEL# line is grounded, it is not possible for the Shelf Manager to discover if a board is present in the slot or turn on/off power for this slot. In the case of a grounded BD_SEL# line, the Shelf Manager uses a different control algorithm for the slot; thus it is important to have this information.

The BD SEL# Grounded flags for slots are stored in Shelf FRU Information in the HA Connectivity record. The command modifies this flag only for already existing entries in that record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager.

The parameter *<slot number>* is the ordinary number that may be specified in either decimal or hexadecimal form.

3.75.8.3 Examples

Configuring normal BD SEL# signal operation for slot 2.

```
# clia shelf bdselgrounded board all
```

Pigeon Point Shelf Manager Command Line Interpreter

```
Slot # 1, "Normal BD_SEL# operation"  
Slot # 2, "BD_SEL# is grounded for this slot by hardware"  
Slot # 3, "Normal BD_SEL# operation"  
Slot # 4, "Normal BD_SEL# operation"  
Slot # 5, "Normal BD_SEL# operation"  
Slot # 6, "BD_SEL# is grounded for this slot by hardware"  
Slot # 7, "Normal BD_SEL# operation"  
Slot # 8, "Normal BD_SEL# operation"  
Slot # 9, "Normal BD_SEL# operation"  
Slot # 10, "Normal BD_SEL# operation"  
Slot # 11, "Normal BD_SEL# operation"  
Slot # 12, "Normal BD_SEL# operation"  
Slot # 13, "Normal BD_SEL# operation"  
Slot # 14, "Normal BD_SEL# operation"  
Slot # 15, "Normal BD_SEL# operation"  
Slot # 16, "BD_SEL# is grounded for this slot by hardware"  
Slot # 17, "Normal BD_SEL# operation"  
Slot # 18, "Normal BD_SEL# operation"  
Slot # 19, "Normal BD_SEL# operation"
```

```
Slot # 20, "Normal BD_SEL# operation"
Slot # 21, "BD_SEL# is grounded for this slot by hardware"
#
# clia shelf bdselgrounded b 2 0
Pigeon Point Shelf Manager Command Line Interpreter

Updating Shelf FRU Info, slot # 2
Wrote Information to the Shelf FRU
#
# clia shelf bdselgrounded board all
Pigeon Point Shelf Manager Command Line Interpreter
Slot # 1, "Normal BD_SEL# operation"
Slot # 2, "Normal BD_SEL# operation"
Slot # 3, "Normal BD_SEL# operation"
Slot # 4, "Normal BD_SEL# operation"
Slot # 5, "Normal BD_SEL# operation"
Slot # 6, "BD_SEL# is grounded for this slot by hardware"
Slot # 7, "Normal BD_SEL# operation"
Slot # 8, "Normal BD_SEL# operation"
Slot # 9, "Normal BD_SEL# operation"
Slot # 10, "Normal BD_SEL# operation"
Slot # 11, "Normal BD_SEL# operation"
Slot # 12, "Normal BD_SEL# operation"
Slot # 13, "Normal BD_SEL# operation"
Slot # 14, "Normal BD_SEL# operation"
Slot # 15, "Normal BD_SEL# operation"
Slot # 16, "BD_SEL# is grounded for this slot by hardware"
Slot # 17, "Normal BD_SEL# operation"
Slot # 18, "Normal BD_SEL# operation"
Slot # 19, "Normal BD_SEL# operation"
Slot # 20, "Normal BD_SEL# operation"
Slot # 21, "BD_SEL# is grounded for this slot by hardware"
#
```

3.75.9 Modifying Maximum FRU Power Capability

3.75.9.1 Syntax

```
shelf pwrcapability <hardware addr> <fru_id> <value>
shelf pwrcapability shm <N> <value>
shelf pwrcapability board <N> <value>
shelf pwrcapability power_supply <N> <value>
shelf pwrcapability pem <N> <value>
shelf pwrcapability fan_tray <N> <value>
```

3.75.9.2 Purpose

These variants of the *shelf* command change the Maximum FRU Power Capability field for the specified FRU of the specified IPM controller.

Note: Never set the Maximum FRU Power Capability field to a larger value than is safe for your shelf environment.

The command modifies this field only for already existing entries in the Shelf Activation and Power Management record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager. Thus, the new value of the Maximum FRU Power Capability field becomes effective immediately without the need to restart the Shelf Manager.

The parameter *<hardware addr>* is a 7-bit hardware address in hexadecimal format.

The parameter *<fru_id>* is a FRU ID in hexadecimal format; 0xFE means all FRUs at that hardware address.

The parameter *<value>* is the new value for the field in Watts. The range of the possible values is 0..65535.

If, as the result of execution of this command, the currently used power for the slot exceeds the power limit for that slot, some (or all) FRUs associated with the slot are deactivated until the currently used power becomes less than or equal to the power limit. If several FRUs are associated with the slot, deactivation takes place in the reverse order of FRU IDs.

3.75.9.3 Examples

Setting Maximum FRU Power Capability on an IPM controller with hardware address 42h (IPMB address 84h) to 150 Watts.

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
#
```

```
# clia shelf pwrcapability 42 0xfe 150
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Updating Shelf FRU Info
```

```
Cached information updated
```

```
#
```

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

Power Management:

Allowance for FRU Activation Readiness: 10 seconds

FRU Activation and Power Description Count: 2

Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts

Shelf Manager Controlled Activation: Disabled

Delay Before Next Power On: 2.2 seconds

Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 150 Watts

Shelf Manager Controlled Activation: Disabled

Delay Before Next Power On: 2.2 seconds

#

3.75.10 Modifying Delay Before Next Power On

3.75.10.1 Syntax

```
shelf pwrdelay <hardware addr> <fru_id> <value>
```

```
shelf pwrdelay shm <N> <value>
```

```
shelf pwrdelay board <N> <value>
```

```
shelf pwrdelay power_supply <N> <value>
```

```
shelf pwrdelay pem <N> <value>
```

```
shelf pwrdelay fan_tray <N> <value>
```

3.75.10.2 Purpose

These variants of the *shelf* command change the Delay Before Next Power On field for the specified FRU of the specified IPM controller. The command modifies this field only for already existing entries in the Shelf Activation and Power Management record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager. Thus the new value of the Delay Before Next Power On field becomes effective immediately without the need to restart the Shelf Manager.

The parameter *<hardware addr>* is a 7-bit hardware address in hexadecimal format.

The parameter *<fru_id>* is a FRU ID in hexadecimal format; 0xFE means ALL FRUs at that hardware address.

The parameter *<value>* is the new value for the field in tenths of a second. The range of the possible values is 0..63.

3.75.10.3 Examples

Setting Delay Before Next Power On for an IPM controller with hardware address 42h (IPMB address 84h) to 5 seconds.

```
# cli shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
#
# clia shelf pwrdelay 42 0xfe 50
Pigeon Point Shelf Manager Command Line Interpreter
Updating Shelf FRU Info
Cached information updated
#
# clia shelf pm
Pigeon Point Shelf Manager Command Line Interpreter
Power Management:
Allowance for FRU Activation Readiness: 10 seconds
FRU Activation and Power Description Count: 2
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 5.0 seconds
#
```

3.75.11 Modifying Allowance for FRU Activation Readiness

3.75.11.1 Syntax

```
shelf allowance <value>
```

3.75.11.2 Purpose

This variant of the *shelf* command changes the Allowance for FRU Activation Readiness parameter.

The parameter <value> is the new value for the parameter in seconds.

The range of the possible values is 0..255.

3.75.11.3 Examples

Setting Allowance for FRU Activation Readiness to 5 seconds.

```
# clia shelf pm
Pigeon Point Shelf Manager Command Line Interpreter

Power Management:
Allowance for FRU Activation Readiness: 10 seconds
FRU Activation and Power Description Count: 2
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```



```
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
#
# clia shelf allowance 5
Pigeon Point Shelf Manager Command Line Interpreter
Updating Shelf FRU Info
# clia shelf pm
Pigeon Point Shelf Manager Command Line Interpreter
Power Management:
Allowance for FRU Activation Readiness: 5 seconds
FRU Activation and Power Description Count: 2
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
Shelf Manager Controlled Activation: Disabled
Delay Before Next Power On: 2.2 seconds
#
```

3.75.12 Reorder the FRU Activation and Power Descriptors

3.75.12.1 Syntax

```
shelf pwrreorder <hardware addr 1> <fru_id 1> before/after
<hardware addr 2> <fru_id 2>
```

As usual, <hardware addr x> <fru_id x> can be replaced with any the following alternatives:

- *shm* <N>
- *board* <N>
- *power_supply* <N>
- *pem* <N>
- *fan_tray* <N>

3.75.12.2 Purpose

This variant of the *shelf* command changes the order of the FRU Activation and Power Descriptors in the Shelf FRU Information. The command can reorder only the already existing descriptors. The current implementation is also limited to reordering the descriptors only inside a single Shelf Activation and Power Management record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager. Thus, the new order of the descriptors becomes effective immediately without the need to restart the Shelf Manager.

The parameter *<hardware addr 1>* is a 7-bit hardware address in hexadecimal format of the descriptor that needs to be moved to a new place.

The parameter *<fru_id 1>* is a FRU ID in hexadecimal format of the descriptor that needs to be moved to a new place; 0xFE means all FRUs at that hardware address.

The parameter *<hardware addr 2>* is the 7-bit hardware address in hexadecimal format of the descriptor, before or after which the *<hardware addr 1>* *<fru_id 1>* descriptor should be placed.

The parameter *<fru_id 2>* is a FRU ID in hexadecimal format of the descriptor, before or after which the *<hardware addr 1>* *<fru_id 1>* descriptor should be placed.

3.75.12.3 Examples

Placing the descriptor for an IPM controller with hardware address 42h (IPMB address 84h) before the descriptor for an IPM controller with hardware address 41h (IPMB address 82h).

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
#
```

```
# clia shelf pwrreorder 42 0xfe before 41 0xfe
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Updating Shelf FRU Info
```

```
Cached information updated
```

```
#
```

```
# clia shelf pm
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Power Management:
```

```
Allowance for FRU Activation Readiness: 10 seconds
```

```
FRU Activation and Power Description Count: 2
```

```
Hw Address: 42, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
Hw Address: 41, FRU ID: fe, Maximum FRU Power Capabilities: 200 Watts
```

```
Shelf Manager Controlled Activation: Disabled
```

```
Delay Before Next Power On: 2.2 seconds
```

```
#
```

3.75.13 Refresh the Shelf FRU Information

3.75.13.1 Syntax

```
shelf info_refresh
```

3.75.13.2 Purpose

This command causes the Shelf Manager to re-read the previously found sources of Shelf FRU Information in the shelf and reassess which of the sources contain valid Shelf FRU Information. Assuming that valid Shelf FRU Information is confirmed, all of the Shelf FRU Information storage devices and the cached master copy of the Shelf FRU Information are updated with the contents of the new Shelf FRU Information.

As specified by PICMG 3.0, the Shelf Manager tries to find possible Shelf FRU Information storage devices during initialization. If the Shelf Manager finds at least two FRU Information devices that contain valid Shelf FRU Information, the Shelf Manager performs an “election” to determine which Shelf FRU Information sources to use.

This election is based on validating the data the storage devices contain and comparing the contents. After a successful election, the Shelf Manager creates a cached master copy of the Shelf FRU Information (in volatile memory) which is used for any updating of Shelf FRU Information sources and is treated as the sole source of the Shelf FRU Information. Thus, all Shelf FRU Information related operations work with the master copy and changes of the master copy are automatically propagated to all Shelf FRU Information source devices as incremental updates.

However, dynamic reconfiguration is not supported. If the new Shelf FRU Information is different from the previous Shelf FRU Information, the changes will become fully effective only after the restart of the shelf.

3.75.13.3 Examples

Successful refresh: two matching sources of the Shelf FRU Information.

```
# clia shelf info_refresh
Pigeon Point Shelf Manager Command Line Interpreter
Read 0x20 # 2, size = 1024
Read 0x20 # 1, size = 1024
Found 2 Matching Shelf FRU Info
0x20 # 2, size = 1024 (data size = 775), "Valid" Shelf FRU, "Matching"
0x20 # 1, size = 1024 (data size = 775), "Valid" Shelf FRU, "Matching"
Shelf FRU Info was not changed
#
```

Unsuccessful refresh: both data sources contain non-matching or invalid data.

```
# clia shelf info_refresh
Pigeon Point Shelf Manager Command Line Interpreter
Read 0x20 # 2, size = 1024
Read 0x20 # 1, size = 1024
No Matching Shelf FRU Info found
0x20 # 2, size = 1024 (data size = 293), "Invalid" Shelf FRU, "Non-Matching"
```

```
0x20 # 1, size = 1024 (data size = 529), "Valid" Shelf FRU, "Non-Matching"  
Refresh was not done because system found only 1 (of 2) Matching Shelf FRU  
info  
#
```

3.75.14 Check the Shelf FRU Information for validity

3.75.14.1 Syntax

```
shelf info_check
```

3.75.14.2 Purpose

This command causes the Shelf Manager to re-read the previously found sources of Shelf FRU Information in the shelf. Both sources, if found, are checked for internal validity and, if internally valid, compared for identical content. The cached master copy of the Shelf FRU Information does not participate in the comparison and no Shelf FRU update action is taken. The command shows the results of the check in its output and updates the state of the Shelf FRU Redundancy sensor. The sensor is forced to generate an event that reflects its current state even if the sensor state has not changed.

3.75.14.3 Examples

Successful check: two valid and matching sources of the Shelf FRU Information.

```
# clia shelf info_check  
Pigeon Point Shelf Manager Command Line Interpreter  
Read 0x20 # 1, size = 8192  
Read 0x20 # 2, size = 8192  
2 equal and valid Shelf FRU Information sources found  
#
```

Unsuccessful check: one of the data sources contains invalid data.

```
# clia shelf info_check  
Pigeon Point Shelf Manager Command Line Interpreter  
Read 0x20 # 1, size = 8192  
Read 0x20 # 2, size = 8192  
Shelf FRU Information source at 0x20 # 1 is invalid  
#
```

Unsuccessful check: both data sources are valid but they mismatch.

```
# clia shelf info_check  
Pigeon Point Shelf Manager Command Line Interpreter  
Read 0x20 # 1, size = 8192  
Read 0x20 # 2, size = 8192  
The Shelf FRU Information sources are valid but all different  
#
```

3.75.15 Updating the Shelf FRU Information storage devices

3.75.15.1 Syntax

```
shelf info_force_update
```

3.75.15.2 Purpose

This command causes a check of the Shelf FRU Information source devices and copying the contents of the Shelf FRU Information master copy to all of them. This command is useful in the case of a conflict between the Shelf FRU Information master copy and the non-volatile source devices, where the conflict is not resolved automatically (for example both EEPROMs and the master copy are different from each other).

In that case, the operator can forcibly synchronize the EEPROMs with the contents of the master copy, using this command. Also, this command clears the error condition that has occurred due to the original conflict; that is, after this command has been issued, subsequent updates to the Shelf FRU Information will resume being propagated to the EEPROMs.

This command initiates an update of the Shelf FRU Information source devices in an asynchronous fashion.

3.75.15.3 Examples

```
# clia shelf info_force_update  
Pigeon Point Shelf Manager Command Line Interpreter  
Starting the Shelf FRU Info source device update  
#
```

3.75.16 Modifyng Enable flag for an entry in the Pentair Cold-Sensitive FRU List record

3.75.16.1 Syntax

```
shelf cold_sensitive <hardware addr> <fru_id> [1|0]  
shelf cold_sensitive power_supply <N> [1|0]  
shelf cold_sensitive pem <N> [1|0]  
shelf cold_sensitive fan_tray <N> [1|0]  
shelf cold_sensitive board <M> amc <N> [1|0]  
shelf cold_sensitive <addr> amc <N> [1|0]  
shelf cold_sensitive board <N> [1|0]
```

3.75.16.2 Purpose

This variant of the *shelf* command changes the Enable flag for the specified FRU of the specified IPM controller in the Pentair Cold-Sensitive FRU List record. The command modifies this flag only for already existing entries in the Cold-Sensitive FRU List record. This command also updates the cached version of the Shelf FRU Information used by the Shelf Manager.

The parameter <hardware addr> is a 7-bit hardware address in hexadecimal format.

The parameter <fru_id> is a FRU ID in hexadecimal format; a value of 0xFE indicates all FRUs at that hardware address.

The final parameter enables (when the value is *1*) or disables (when the value is *0*) the entry in the Cold-Sensitive FRU List record for the specified FRU of the specified IPM controller.

3.75.16.3 Examples

Enable an entry in the Cold-Sensitive FRU List record

```
# clia shelf cold_sensitive 0x41 0xfe 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Updating Shelf FRU Info
```

```
Cached information updated
```

Disable an entry in the Cold-Sensitive FRU List record

```
# clia shelf cold_sensitive 0x41 0xfe 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Updating Shelf FRU Info
```

```
Cached information updated
```

3.76 shelfaddress

3.76.1 Syntax

shelfaddress [*<up to 20 characters of the shelf address>*]
shelfaddress -x *<byte1>* ... *<byteN>*

3.76.2 Purpose

This command gets or sets the Shelf Address field of the Address Table within Shelf FRU Information.

Without the option *-x*, the new shelf address is specified by a double quoted string that can contain any ASCII characters and can be as long as 20 characters.

If the option *-x* is specified, the new shelf address is specified as a sequence of hexadecimal bytes separated with spaces. Up to 20 bytes can be specified, each byte is represented with two hexadecimal digits (the "0x" prefix is optional).

The shelf address is stored with a type indicator that differentiates between text and binary data. If the shelf address is specified as text, it is stored as text. If the shelf address is specified in hexadecimal, it is stored as binary data.

When the shelf address is displayed using this command, it is printed as text or as a sequence of hexadecimal bytes, depending on the type indicator.

3.76.3 Examples

```
# cli shelfaddress
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Shelf Address Info: "1234"
```

```
#
```

```
# cli shelfaddress "NEW SHELF ADDRESS"
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Shelf Address Info set successfully
```

```
#
```

```
# cli shelfaddress
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Shelf Address Info: "NEW SHELF ADDRESS"
```

```
#
```

```
# cli shelfaddress -x 01 02 03 04 05
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Shelf Address Info set successfully
```

```
#
```

```
# cli shelfaddress
```

```
Pigeon Point Shelf Manager Command Line Interpreter  
Shelf Address Info: " 0x01 0x02 0x03 0x04 0x05 "
```

```
#
```

3.77 shmstatus

3.77.1 Syntax

shmstatus

3.77.2 Purpose

This command returns the Shelf Manager status in redundant configurations: Active or Backup. In verbose mode, the command reports a more detailed picture: status of the Shelf FRU Information, status of the RMCP interface and state of the backup Shelf Manager (if the Shelf Manager being queried is the active one). The ready for operation flag is a parameter that shows as “Yes”:

- on the active Shelf Manager if it finds valid Shelf FRU Information and successfully initializes its RMCP interface.
- on the backup Shelf Manager if it successfully received the redundancy state information from the active Shelf Manager.
- The status flag “Started as Backup” indicates that the current Shelf Manager was started as a backup Shelf Manager; if it is active, it became active as the result of a switchover and received redundancy information from another Shelf Manager before that. Absence of this flag on the active Shelf Manager means that this Shelf Manager started originally as the active Shelf Manager and did not receive any redundancy information from another Shelf Manager. This distinction may be important when Shelf FRU Information changes; in that case, it may be necessary to restart both Shelf Managers so that all previously existing redundancy information is discarded.

3.77.3 Examples

```
# cli shmstatus -v
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
Host: "Active"
```

```
Ready For Operation: Yes
```

```
Detailed State Flags: "Shelf FRU Found" "RMCP Up" "Backup Healthy"
```

```
#
```


3.78 showunhealthy

3.78.1 Syntax

showunhealthy

3.78.2 Purpose

This command shows the list of FRUs that appear to have a problem. In the PICMG 3.0 context, this list includes FRUs for which the cause of last hot swap state change is “Communication Lost”, “Communication lost due to local failure”, “Unexpected deactivation”. In CompactPCI shelves, this command checks Board, Fan Tray and Power Supply healthy status bits as well.

For each FRU, the following information is shown: IPMB address and FRU device ID, Current Hot Swap state, previous hot swap state and cause of the last state change.

3.78.3 Examples

Show the list of unhealthy components in the system.

```
# cli showunhealthy
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
There are no unhealthy components in the shelf.
```

```
#
```

3.79 switchover

3.79.1 Syntax

```
switchover [-force] [-clear-hpdl]
```

3.79.2 Purpose

This command initiates switchover of the redundant Shelf Manager instances. This command can be executed on either the active or the backup instance of the Shelf Manager.

This command with the option *-clear-hpdl* makes the newly active Shelf Manager to re-read shelf-level HPDL and SDR information from the Shelf FRU Information. By default, starting from release 3.2.0, the shelf-level HPDL description and shelf-level SDRs are passed to the backup Shelf Manager over the redundancy interface. During a switchover, the newly active Shelf Manager uses this information, which allows it to accelerate the activation of the Shelf Manager services (such as pseudo-radial IPMB). However, during upgrades, shelf-level HPDL and SDR information may change, and in that case, it may be necessary to re-read this information from the Shelf FRU Information storage, using the command *switchover* with the option *-clear-hpdl*.

This command with the option *-force* can be executed only on the backup instance of the Shelf Manager and performs a forced switchover. That is, the backup Shelf Manager immediately turns on the hardware Active bit and becomes active without any negotiations with the active Shelf Manager. The active Shelf Manager (if still alive) immediately reboots in that case. In this switchover mode, the newly active Shelf Manager also re-reads shelf-level HPDL and SDR information from the Shelf FRU Information (so the option *-force* implicitly assumes the option *-clear-hpdl*).

3.79.3 Examples

Initiate the switchover from either the active or backup instance.

```
# cli switchover
```

```
    This Shelf Manager is now active, but is shutting down to trigger a  
    switchover.
```

```
#
```

3.80 terminate

3.80.1 Syntax

```
terminate [-reboot]  
terminate [-reboot-both]
```

3.80.2 Purpose

This command terminates the Shelf Manager. Also, it causes the ShMM to unconditionally reboot if the option *-reboot* is specified.

If the option *-reboot-both* is specified, both the active and the backup Shelf Managers are simultaneously rebooted. This option can be used only on the active Shelf Manager.

If both options *-reboot* and *-reboot-both* are omitted, this command terminates the Shelf Manager without rebooting the ShMM.

3.80.3 Examples

Terminate the Shelf Manager without rebooting the ShMM.

```
# cli terminate  
    Terminating the Shelf Manager.  
#
```

3.81 user

3.81.1 Syntax

user [*<subcommand>*]

The following subcommands are supported:

- *add*
- *delete*
- *enable*
- *name*
- *passwd*
- *channel*

3.81.2 Purpose

The *user* command shows information about the RMCP user accounts on the Shelf Manager and provides a simple way to add, delete and modify the user accounts.

The following subsections describe the syntax of the *user* command for different applications of this command.

3.81.3 Displaying user information

3.81.3.1 Syntax

user [*-v*] [*<user id>*]

3.81.3.2 Purpose

This command shows information about users. When it is launched with a *-v* option, it also shows information about disabled users. (By default, only enabled users are listed.) If the optional User ID is specified, only information about the user with that ID is shown.

The following items of information are shown:

- user ID;
- user name;
- channel access information for each IPMI channel: the maximum privilege level of that user on that channel, and channel access flags

If the channel access information is the same for several channels, the output is coalesced and the range of channels is shown.

3.81.3.3 Examples

```
# cli user -v
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
```

```
Channels 0-15 Privilege level: "Administrator"
```

```
Flags: "IPMI Messaging"
```

```
# clia user -v
Pigeon Point Shelf Manager Command Line Interpreter
1: ""
    Channels 0-15 Privilege level: "Administrator"
        Flags: "IPMI Messaging"
7: "TEST1" Disabled
    Channels 0-15 Privilege level: "NO ACCESS"
```

3.81.4 Adding a new user

3.81.4.1 Syntax

```
user add <user id> <user name> <channel access flags> <privilege level> <password>
```

3.81.4.2 Purpose

This command adds a new user to the system. It sets the same maximum privilege level and channel access flags for all channels, as specified in the command. The command returns an error if the specified user does not exist. Command parameters have the following meaning:

- *<user id>* - is a valid user ID;
- *<user name>* - is a user name (which is truncated to the 16 characters without notice);
- *<channel access flags>* - is the first byte of the SetUserInfo commands (only bits 4,5,6 are meaningful)
 - bit 6 – IPMI messaging enabled,
 - bit 5 – Link authentication enabled,
 - bit 4 – Restricted to callback
- *<privilege level>* - is the user privilege level
- *<password>* - is a password (which is truncated to the 16 characters without notice)

3.81.4.3 Examples

Adding user 9 with the name “root”, administrator privilege level and password “PICMG guru”.

```
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
1: ""
    Channels 0-15 Privilege level: "Administrator"
        Flags: "IPMI Messaging"
# clia user add 9 "root" 0x40 4 "PICMG guru"
Pigeon Point Shelf Manager Command Line Interpreter
    User 9 added successfully
# clia user
Pigeon Point Shelf Manager Command Line Interpreter
1: ""
    Channels 0-15 Privilege level: "Administrator"
        Flags: "IPMI Messaging"
```

```
9: "root"  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"
```

3.81.5 Deleting a user

3.81.5.1 Syntax

```
user delete <user id>
```

3.81.5.2 Purpose

This command deletes the user specified by the *<user id>*.

3.81.5.3 Examples

Deleting the user with user ID = 10.

```
# clia user  
Pigeon Point Shelf Manager Command Line Interpreter  
1: ""  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"  
9: "root"  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"  
10: "root2"  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"  
  
# clia user delete 10  
Pigeon Point Shelf Manager Command Line Interpreter  
User 10 deleted successfully  
  
# clia user  
Pigeon Point Shelf Manager Command Line Interpreter  
1: ""  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"  
9: "root"  
    Channels 0-15 Privilege level: "Administrator"  
    Flags: "IPMI Messaging"
```

3.81.6 Enabling and disabling a user

3.81.6.1 Syntax

```
user enable <user id> 1 | 0
```

3.81.6.2 Purpose

This command enables or disables a user by user ID. The last command parameter specifies the requested action, as follows:

- 0 - disable the specified user
- 1 - enable the specified user

3.81.6.3 Examples

Disabling and enabling user with user ID 9.

```
# clia user
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
9: "root"
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
```

```
# clia user enable 9 0
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
User 9 disabled successfully
```

```
# clia user -v
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
9: "root" Disabled
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
```

```
# clia user enable 9 1
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
User 9 enabled successfully
```

```
# clia user
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
9: "root"
    Channels 0-15 Privilege level: "Administrator"
    Flags: "IPMI Messaging"
```

3.81.7 Modifying a user name

3.81.7.1 Syntax

```
user name <user id> <user name>
```

3.81.7.2 Purpose

This command is used to modify the user name for the specified user. (The user is specified by a user ID.) The command parameters have the following meanings:

- *<user id>* - is a valid user ID ;
- *<user name>* - is a user name (which will be truncated to 16 characters without notice)

3.81.7.3 Examples

Changing the name of user 9 to “newby”.

```
# cli user
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
```

```
Channels 0-15 Privilege level: "Administrator"
```

```
Flags: "IPMI Messaging"
```

```
9: "root"
```

```
Channels 0-15 Privilege level: "Administrator"
```

```
Flags: "IPMI Messaging"
```

```
# cli user name 9 newby
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
User 9, name changed successfully
```

```
# cli user
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
```

```
Channels 0-15 Privilege level: "Administrator"
```

```
Flags: "IPMI Messaging"
```

```
9: "newby"
```

```
Channels 0-15 Privilege level: "Administrator"
```

```
Flags: "IPMI Messaging"
```

3.81.8 Modifying a user’s password

3.81.8.1 Syntax

```
user passwd <user id> <password>
```

3.81.8.2 Purpose

This command is used to modify the password for the specified user. (The user is specified by the user ID.) The command parameters have the following meanings:

- *<user id>* - is the valid user ID;
- *<password>* - is the user password (which will be truncated to 16 characters without any notice)

3.81.8.3 Examples

Changing the password of user ID 9 to “RIP”

```
# cli user
```

```
Pigeon Point Shelf Manager Command Line Interpreter
```

```
1: ""
```

```
Channels 0-15 Privilege level: "Administrator"
```



```
Flags: "IPMI Messaging"
9: "newby"
Channels 0-15 Privilege level: "Administrator"
Flags: "IPMI Messaging"
# clia user passwd 9 RIP
Pigeon Point Shelf Manager Command Line Interpreter
User 9, password changed successfully
# clia user

Pigeon Point Shelf Manager Command Line Interpreter
1: ""
Channels 0-15 Privilege level: "Administrator"
Flags: "IPMI Messaging"
9: "newby"
Channels 0-15 Privilege level: "Administrator"
Flags: "IPMI Messaging"
```

3.81.9 Modify channel access settings

3.81.9.1 Syntax

user channel <user id> <channel number> <flags> <privilege level>

3.81.9.2 Purpose

This command is used to modify the channel access setting for a specified channel and user. (The user is specified by the user ID.) The command parameters have the following meanings:

- <user id> - is the valid user ID;
- <channel number> - is the channel number;
- <flags> - is the first byte of the “Set User Info” commands (only bits 4,5,6 are meaningful)
 - bit 6 – IPMI messaging enabled,
 - bit 5 – Link authentication enabled,
 - bit 4 – Restricted to callback
- <privilege level> - is the user privilege level

3.81.9.3 Examples

Changing the maximum privilege level for user 9 on channel 5 to “User”

```
# clia user 9
Pigeon Point Shelf Manager Command Line Interpreter
9: "newby"
Channels 0-15 Privilege level: "Administrator"
Flags: "IPMI Messaging"
# clia user channel 9 5 0x60 2
```

Pigeon Point Shelf Manager Command Line Interpreter

User 9, channel 5 access updated successfully

cli **user 9**

Pigeon Point Shelf Manager Command Line Interpreter

9: "newby"

Channels 0-4 Privilege level: "Administrator"

Flags: "IPMI Messaging"

Channel 5 Privilege level: "User"

Flags: "Link Authentication" "IPMI Messaging"

Channels 6-15 Privilege level: "Administrator"

Flags: "IPMI Messaging"

3.82 variable

3.82.1 Syntax

variable

variable <name>|<indexed-name>

variable <name>|<indexed-name> <value>

variable <name> *total*

An indexed name can designate a single array item or a range of array items:

<indexed-name> := <name>'[' <number> ']'

<indexed-name> := <name>'[' <number> ':' <number> ']'

3.82.2 Purpose

This command shows or sets the value of the HPDL variable specified by <name>. If the command is issued without parameters, the fully qualified names and values of all known HPDL variables in the shelf are shown.

When issued without <value>, the command shows the current value of the variable. This value is an integer. It is shown both in decimal and hexadecimal notation. If the variable is an array, values of all elements of the array are shown. Also, an indexed notation (e.g. '\$VAR[2]') can be used to get the value of a single array element.

Including a <value> parameter allows setting the specified variable to a new value. For arrays, the indexed notation must be used to address a single element of the array.

An extended indexed notation (with two indices separated by a colon) can be used to show a range of elements in an array or assign a single value to a range of elements in an array. An example of the extended notation is '\$VAR[2:4]'.

If the variable is an array, it is also possible to get the sum of all array elements using the *total* keyword. The indexed notation is not applicable in this case.

Since the variable name normally contains a \$ character according to HPDL rules, it must be enclosed in single quotes in a Linux shell command line, to prevent interpretation of the \$ character by the shell.

The variable name may be qualified by the names of the containing scopes (fully qualified as in 'BTC_700.Carrier_FRU.\$VAR' or partially qualified as in 'Carrier_FRU.\$VAR') or may be left unqualified. In the latter case, the command interpreter looks for the variable definition across the entire HPDL module, starting from the top of the object hierarchy, and uses the first definition it finds.

3.82.3 Examples

Assume that the carrier HPDL definition file contains the following lines defining a single scalar variable \$VAR and a vector \$VEC of 10 elements (where indexing starts from 0):

```
CARRIER BTC_700 {  
...  
    FRUS {  
        FRU Carrier_FRU {
```

```
...
    INITIAL_ACTION $VAR = 0, VECTOR( $VEC, 10 );
...
}
}
...
}
```

Then the following command gets the initial value of the variable *\$VAR*:

```
# clia variable '$VAR'
Pigeon Point Shelf Manager Command Line Interpreter
$VAR == 0 (0x0)
#
```

Changing the value of the variable and reading it back using the qualified names (partial and full):

```
# clia variable '$VAR' 2
Pigeon Point Shelf Manager Command Line Interpreter
Operation complete
# clia variable 'Carrier_FRU.$VAR'
Pigeon Point Shelf Manager Command Line Interpreter
Carrier_FRU.$VAR == 2 (0x2)
# clia variable 'BTC_700.Carrier_FRU.$VAR'
Pigeon Point Shelf Manager Command Line Interpreter
BTC_700.Carrier_FRU.$VAR == 2 (0x2)
```

Changing several items of the array *\$VEC*, using indexed expressions:

```
# clia variable '$VEC[0]' 1
Pigeon Point Shelf Manager Command Line Interpreter
Operation complete
# clia variable '$VEC[1]' 2
Pigeon Point Shelf Manager Command Line Interpreter
Operation complete
# clia variable '$VEC[2]' 3
Pigeon Point Shelf Manager Command Line Interpreter
Operation complete
# clia variable '$VEC[3:9]' 4
Pigeon Point Shelf Manager Command Line Interpreter
Operation complete
```

Showing the values of all elements of the vector *\$VEC*:

```
# clia variable '$VEC'
Pigeon Point Shelf Manager Command Line Interpreter
$VEC: 10 items
$VEC[0] == 1 (0x1)
$VEC[1] == 2 (0x2)
$VEC[2] == 3 (0x3)
```

```
$VEC[3] == 4 (0x4)
$VEC[4] == 4 (0x4)
$VEC[5] == 4 (0x4)
$VEC[6] == 4 (0x4)
$VEC[7] == 4 (0x4)
$VEC[8] == 4 (0x4)
$VEC[9] == 4 (0x4)
```

Showing the sum of the values in the vector *\$VEC*:

```
# cli variable '$VEC' total
Pigeon Point Shelf Manager Command Line Interpreter
TOTAL($VEC) == 34 (0x22)
#
```

Showing all variables in the module :

```
# cli variable
Pigeon Point Shelf Manager Command Line Interpreter
BTC_700.Carrier_FRU.$VAR == 2 (0x2)
BTC_700.Carrier_FRU.$VEC: 10 items
BTC_700.Carrier_FRU.$VEC[0] == 1 (0x1)
BTC_700.Carrier_FRU.$VEC[1] == 2 (0x2)
BTC_700.Carrier_FRU.$VEC[2] == 3 (0x3)
BTC_700.Carrier_FRU.$VEC[3] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[4] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[5] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[6] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[7] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[8] == 4 (0x4)
BTC_700.Carrier_FRU.$VEC[9] == 4 (0x4)
```

3.83 version

3.83.1 Syntax

version

3.83.2 Purpose

This command shows the version information for the Shelf Manager software. This command can also be issued on the backup Shelf Manager.

3.83.3 Examples

clia version

```
Pigeon Point Shelf Manager Command Line Interpreter
Pigeon Point Shelf Manager ver. 3.7.0
All Pentair brands and logos are the property of Pentair or
its affiliated companies worldwide.
Copyright (c) 2002-2017 Pentair Technical Products, Inc
All rights reserved
Build date/time: Aug 15, 2017 16:39:37
Carrier: GENERIC
Carrier subtype: 0; subversion: 0
#
```

If the shelf is HPDL-based, this command also shows the information about the cooling management library that is currently used, its version information and the product ID strings from the carrier and chassis HPDL modules:

clia version

```
Pigeon Point Shelf Manager Command Line Interpreter
Pigeon Point Shelf Manager ver. 3.7.0
All Pentair brands and logos are the property of Pentair or
its affiliated companies worldwide.
Copyright (c) 2002-2017 Pentair Technical Products, Inc
All rights reserved
Build date/time: Aug 15 2017 16:50:22
Carrier: HPDL/ACB
Carrier subtype: 0; subversion: 0
Cooling Management Library: libcooling_acb.so; Version: 3.5.0
Carrier Product ID: ACB-IV
Chassis Product ID: Standard 14-slot
#
```

Starting with release 2.6.4, support for an optional fourth level of the version number has been added to the Shelf Manager. This is a number in the range from 1 to 127. This number is defined for a specific build of the Shelf Manager; by default, the fourth level is absent. If a specific build of the Shelf Manager has the fourth level of the version defined, the output of this command looks like this:

clia version



Pigeon Point Shelf Manager Command Line Interpreter

Pigeon Point Shelf Manager ver. 3.7.0

All Pentair brands and logos are the property of Pentair or
its affiliated companies worldwide.

Copyright (c) 2002-2017 Pentair Technical Products, Inc

All rights reserved

Build date/time: Aug 15, 2017 16:39:37

Carrier: GENERIC

Carrier subtype: 0; subversion: 0

#

4 Web interface

The Web interface can be used to communicate with the intelligent management controllers of the shelf, with boards, and with the Shelf Manager itself remotely over the network, using a Web browser. The Web interface is based on the Command Line Interface (CLI) and is essentially a front-end to the CLI.

In redundant configurations, the external IP address is always maintained by the active Shelf Manager and is switched over to the backup Shelf Manager when the general switchover takes place. Therefore, the client always communicates to the active Shelf Manager via the Web interface in redundant configurations.

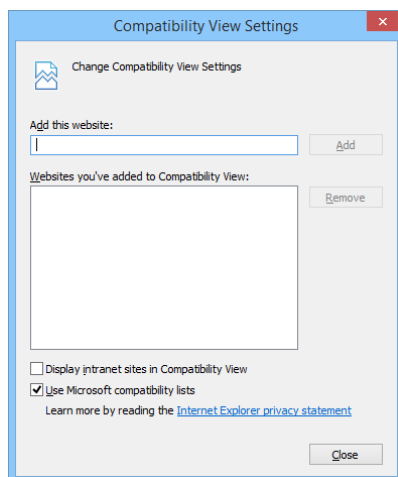
4.1 Starting the Web interface

Before using the Web interface, the following prerequisites should be satisfied on the ShMM:

- one of the Ethernet interfaces should be configured and up
- the Web server `boa/httpd` should be running
- the Shelf Manager software (`shelfman`) should be running.

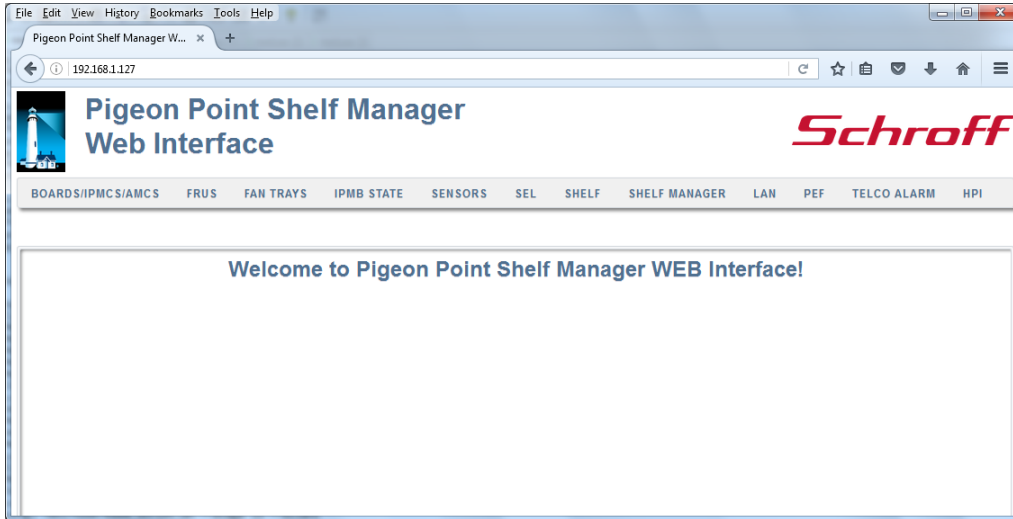
To use the Web interface, start any Web browser (Mozilla Firefox, Chrome or something else) and point it to URL `http://<Shelf-Manager-IP-Address>`. In the case of redundant Shelf Manager instances for a single shelf, the IP address should be the one exported outside the shelf and used for RMCP access to the Shelf Manager (instances). For example, if the Shelf Manager IP address is 192.168.1.204, the URL looks like `http://192.168.1.204`. The main page shows up in the browser and provides a menu of choices.

Note: Internet Explorer version 10 or higher is supported. For proper rendering of the web interface, compatibility view must be turned off for the Shelf Manager URL (in Settings -> Compatibility View Settings for Internet Explorer 11):



To fill a field of a Web form with a parameter value that includes the space symbol the user should enclose the value in backslashed quotes.

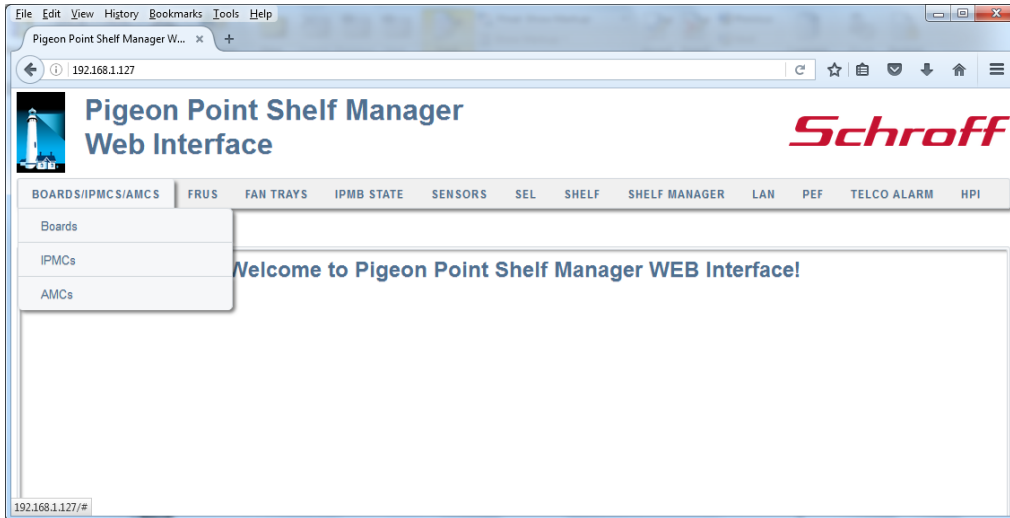
The main page of the Web interface contains a multilevel menu with drop-down lists of items; , each of the menu items corresponds to one of the commands available through the Web interface. These commands and the corresponding pages are described in detail in subsequent sections. Descriptions of the command line interface elsewhere in this document can also be very helpful as the web interface provides essentially the same functionality via a Web browser.



4.2 Boards/IPMCs/AMCs

This drop-down list consists of the following items:

- Boards
- IPMCs
- AMCs



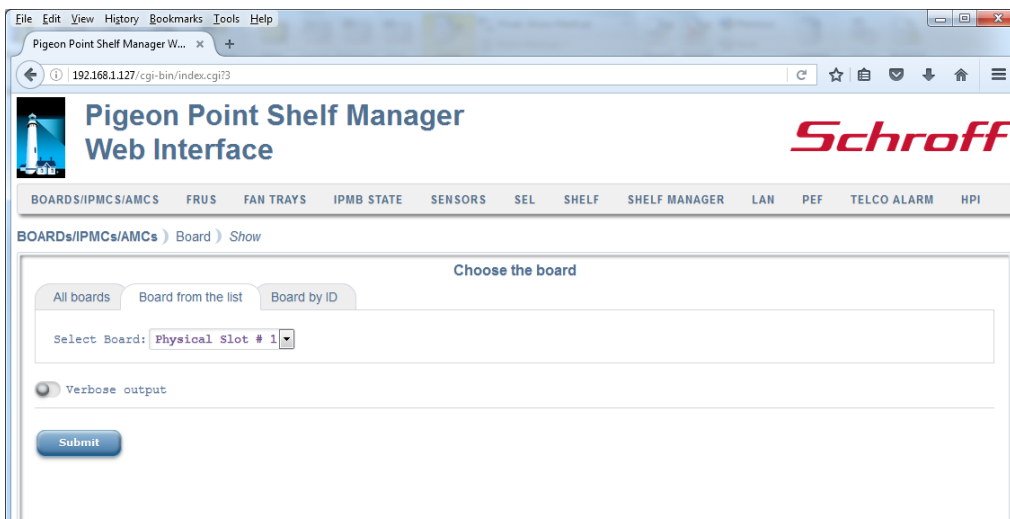
4.2.1 Boards

The "Boards" drop-down list consists of two items:

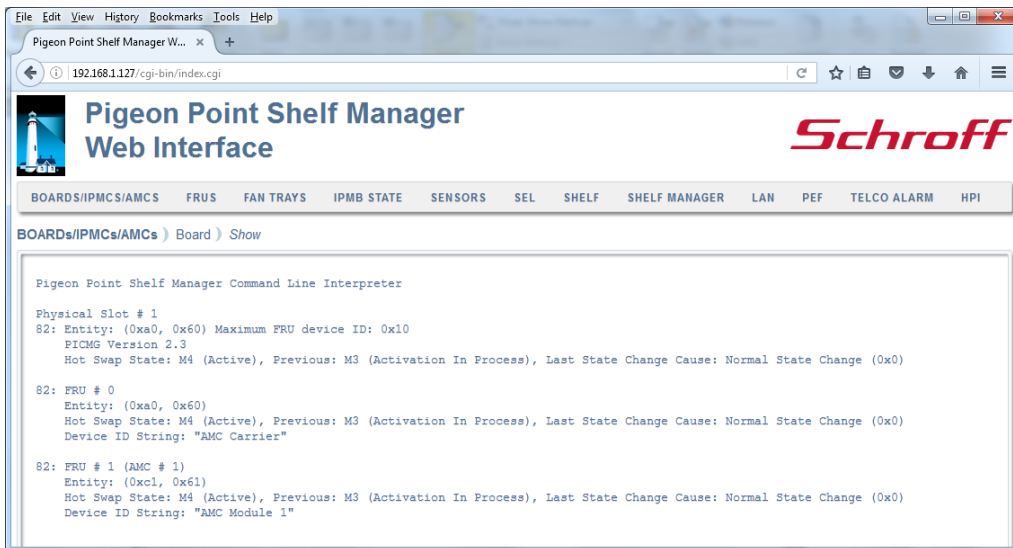
- Show
- Reset

4.2.1.1 Show

The "Show" page allows the user to view board information, specifying the board physical slot number and output verbosity mode. One of the options for the physical slot number is "all boards".

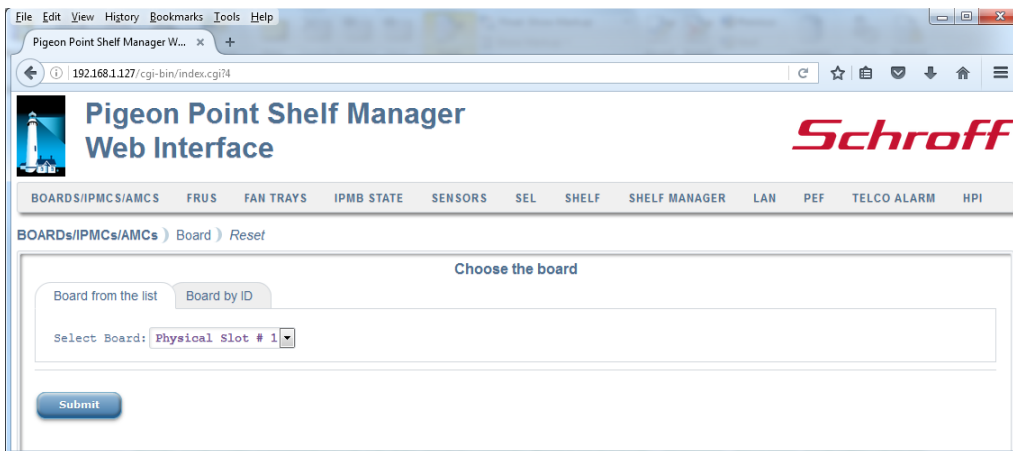


After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *board*.

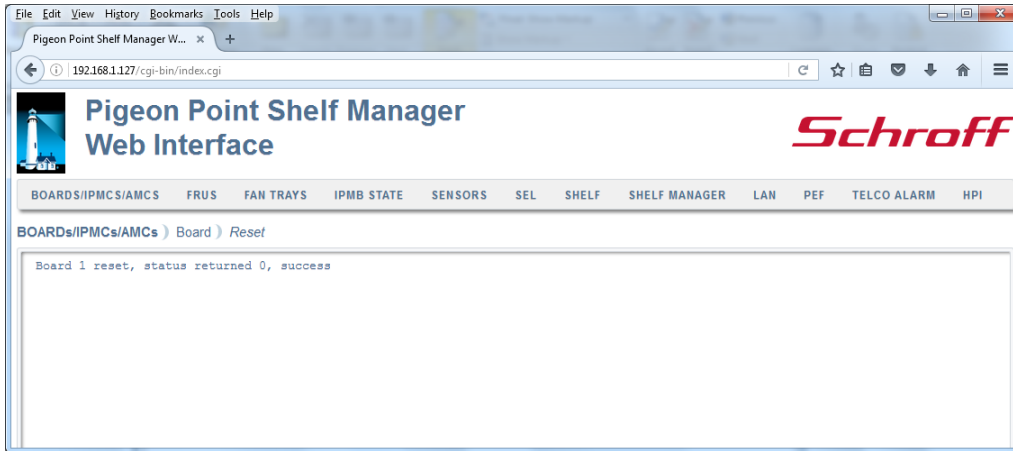


4.2.1.2 Reset

The “Reset” page allows the user to request a reset action for a board in a specific physical slot. The target slot number must be specified.



After the user chooses the target slot number and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *boardreset*.



4.2.2 IPMCs

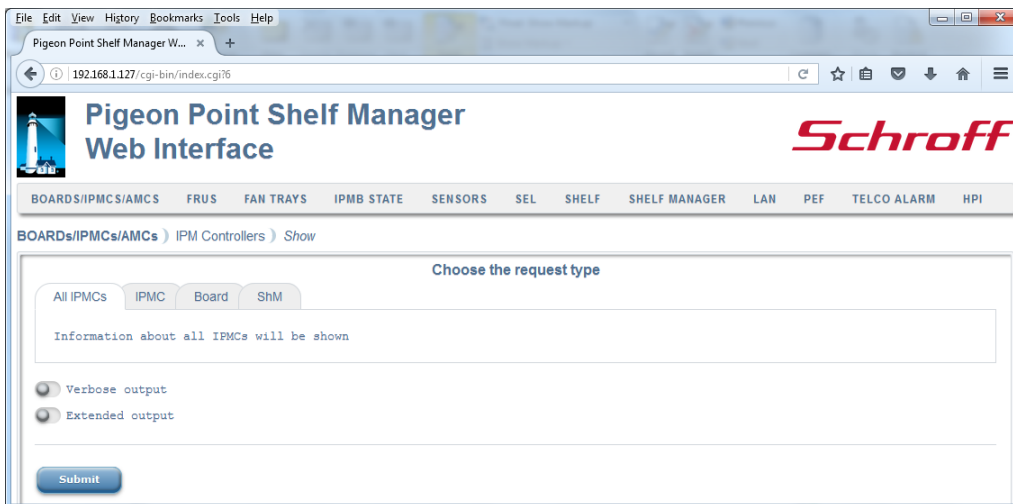
The “IPMCs” drop-down list consists of three items:

- Show
- Poll
- Send IPMI Command

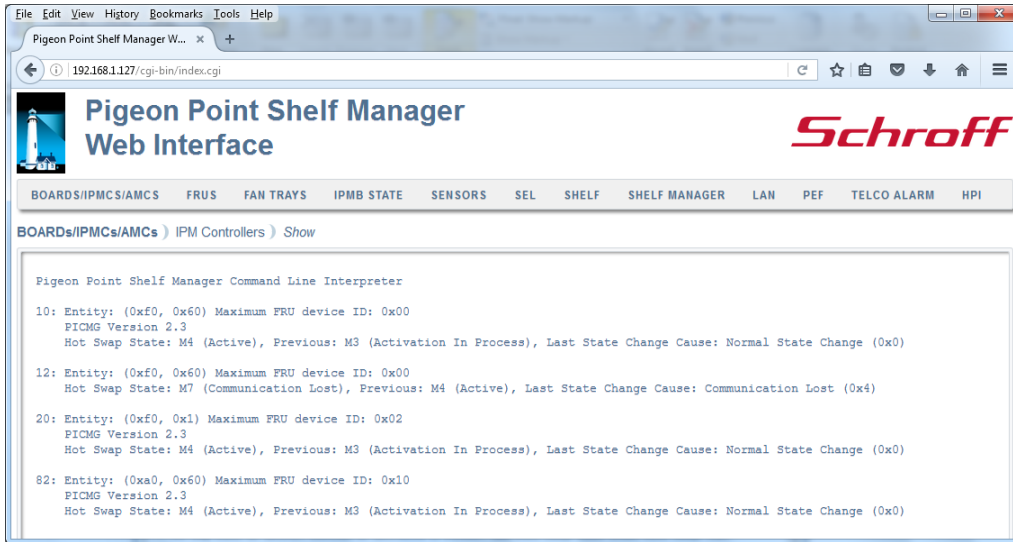
4.2.2.1 Show

The “Show” page allows the user to specify the IPM controller address and verbosity mode for the IPM controller information request.

The address field may be left blank; in that case, information about all known IPM controllers is provided.

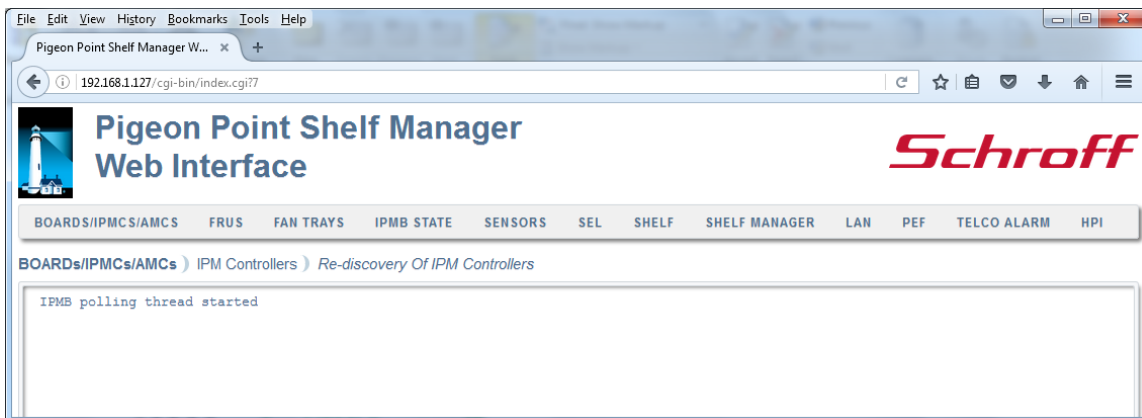


After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `ipmc`.



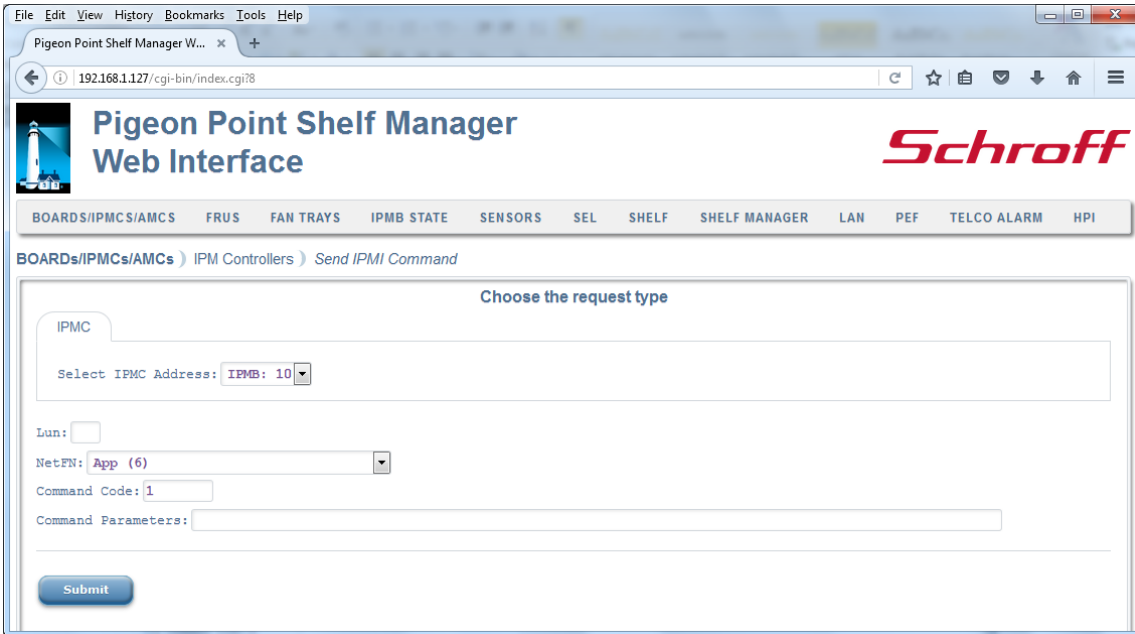
4.2.2.2 Poll

The “Poll” command does not have any parameters and initiates re-discovery of IPM controllers on IPMB-0 by sending the “Get Device ID” command to all possible IPMB addresses. This command is essentially equal to the CLI command `poll`.



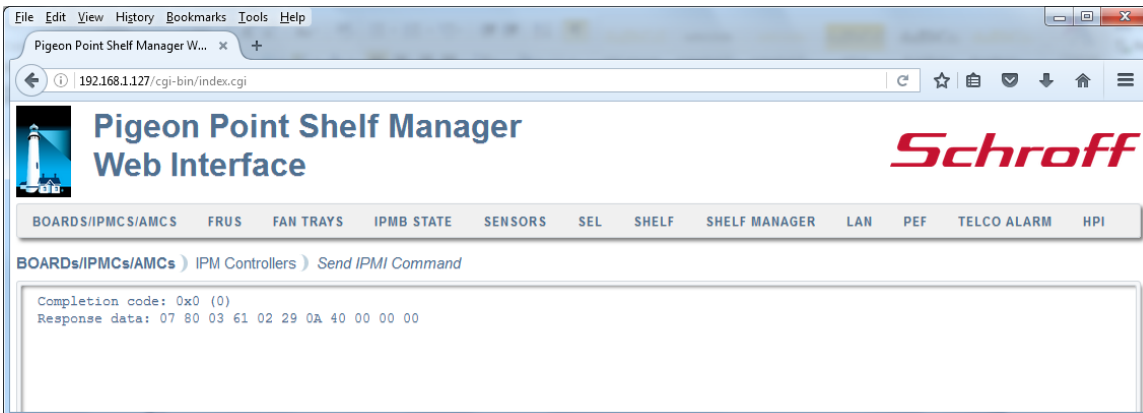
4.2.2.3 Send IPMI Command

The “Send IPMI Command” page allows the user to send an arbitrary IPMI command to an IPM controller in a transparent way.



The screenshot shows the 'Pigeon Point Shelf Manager Web Interface' with the 'Send IPMI Command' form. The form includes a 'Choose the request type' section with a dropdown menu set to 'IPMB: 10'. Below this are fields for 'Lun:' (checkbox), 'NetFn:' (dropdown menu set to 'App (6)'), 'Command Code:' (text input with '1'), and 'Command Parameters:' (text input). A 'Submit' button is located at the bottom left of the form.

After the user chooses the IPMC address, the LUN (which defaults to 0), NetFn and enters the Command Code and Command Parameters, then clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The command code and parameters should be specified as hexadecimal bytes (with the bytes for each parameter separated by spaces). The output is essentially equal to the output produced by the CLI command *sendcmd*.



The screenshot shows the result page of the IPMI command. The output is displayed in a text area:

```
Completion code: 0x0 (0)
Response data: 07 80 03 61 02 29 0A 40 00 00 00
```

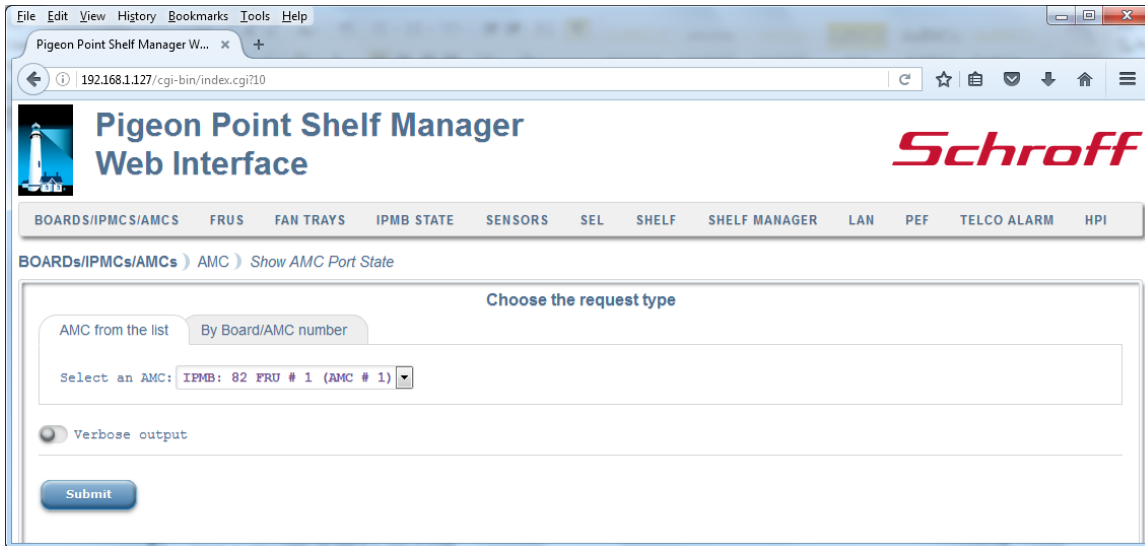
4.2.3 AMCs

The “AMCs” drop-down list consists of two items:

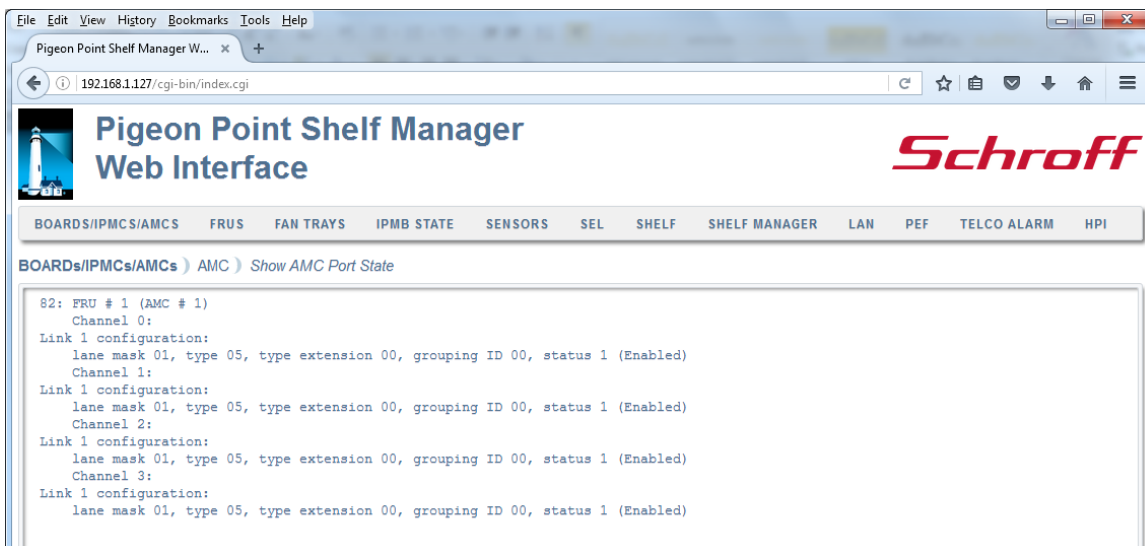
- Show AMC Port State
- Send IPMI Command to AMC

4.2.3.1 Show AMC Port State

The “Show AMC Port State” page shows AMC port state information for a specific AMC. This command is essentially equal to the CLI command *amcportstate*.

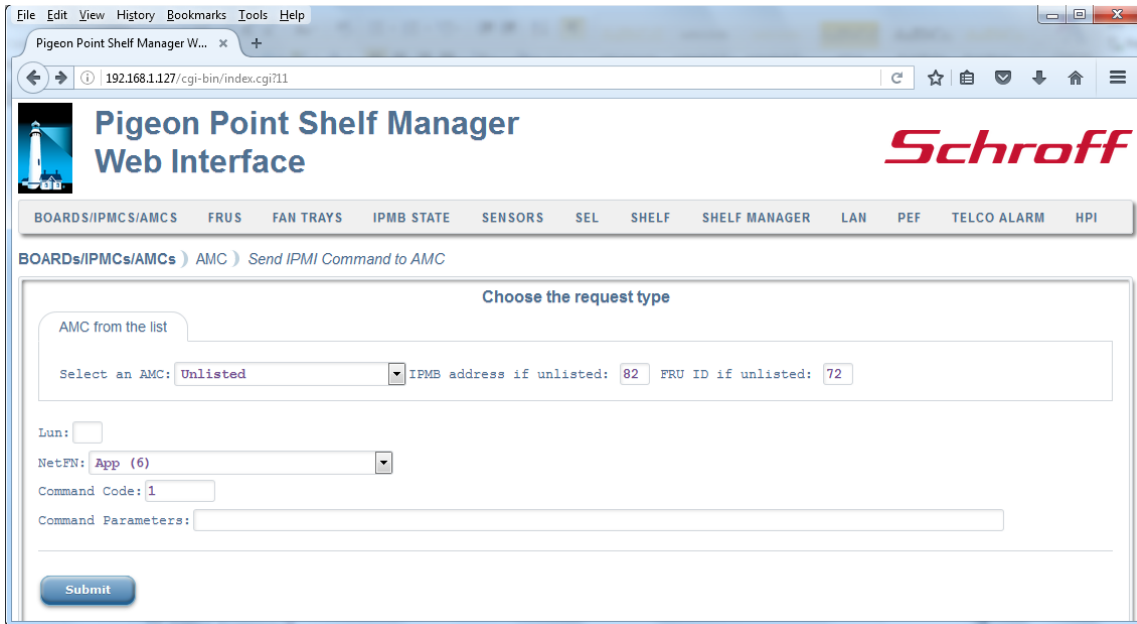


The user chooses the AMC and verbosity of the output and then clicks the “Submit” button. A result page, similar to the one below, appears and shows the state of AMC ports. The AMC can be chosen from a drop-down list or the carrier IPM controller IPMB address and the FRU ID can be specified explicitly.



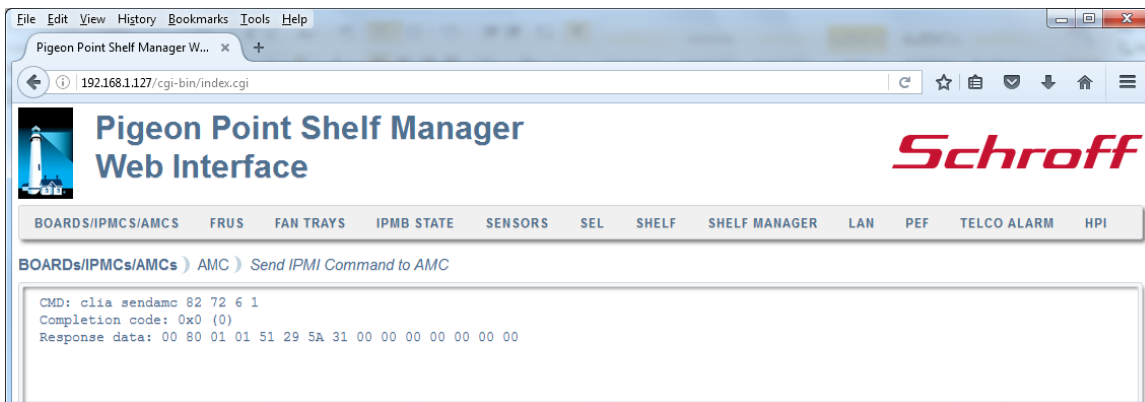
4.2.3.2 Send IPMI Command to AMC

The “Send IPMI Command to AMC” page allows the user to send an IPMI command to an AMC in a transparent way.



After the user chooses the AMC, NetFn and enters the Command Code and Command Parameters, then clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The AMC can be chosen from a drop-down list or the carrier IPM controller IPMB address and the FRU ID can be specified explicitly. The command code and parameters are specified as hexadecimal bytes (with the bytes for each parameter separated by spaces).

This command is essentially equal to the CLI command *sendamc*.

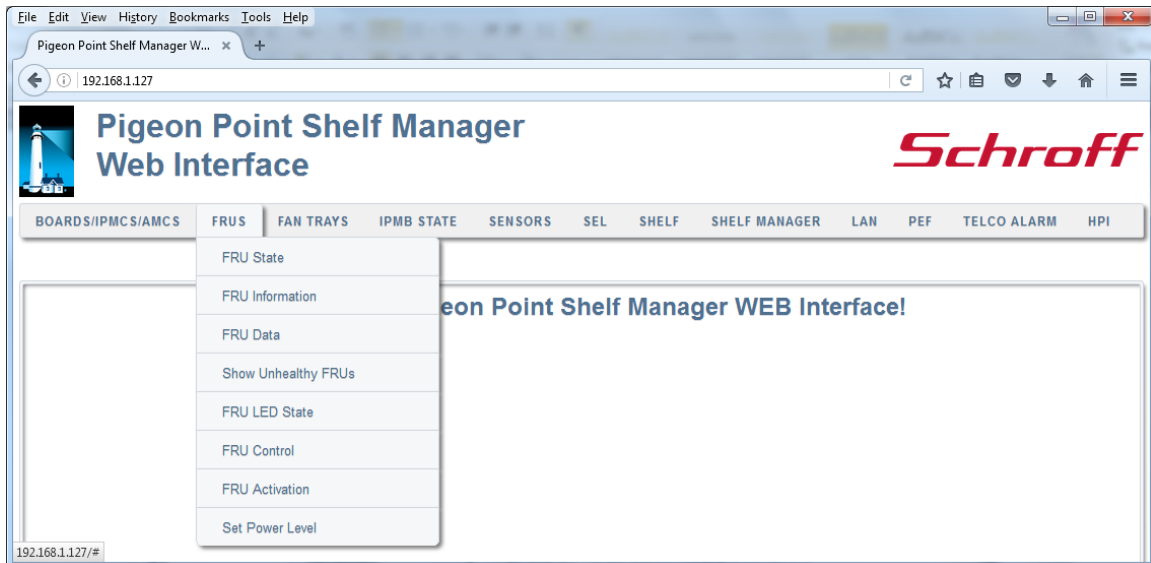


4.3 FRUs

This drop-down list consists of the following items:

- FRU State
- FRU Information
- FRU Data
- Show Unhealthy FRUs
- FRU LED State
- FRU Control

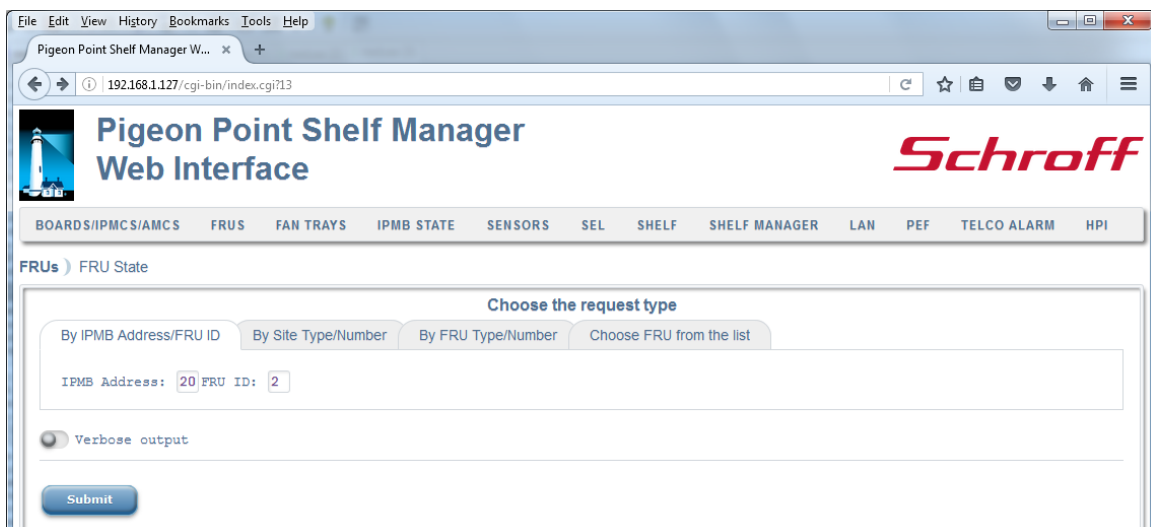
- FRU Activation
- Set Power Level



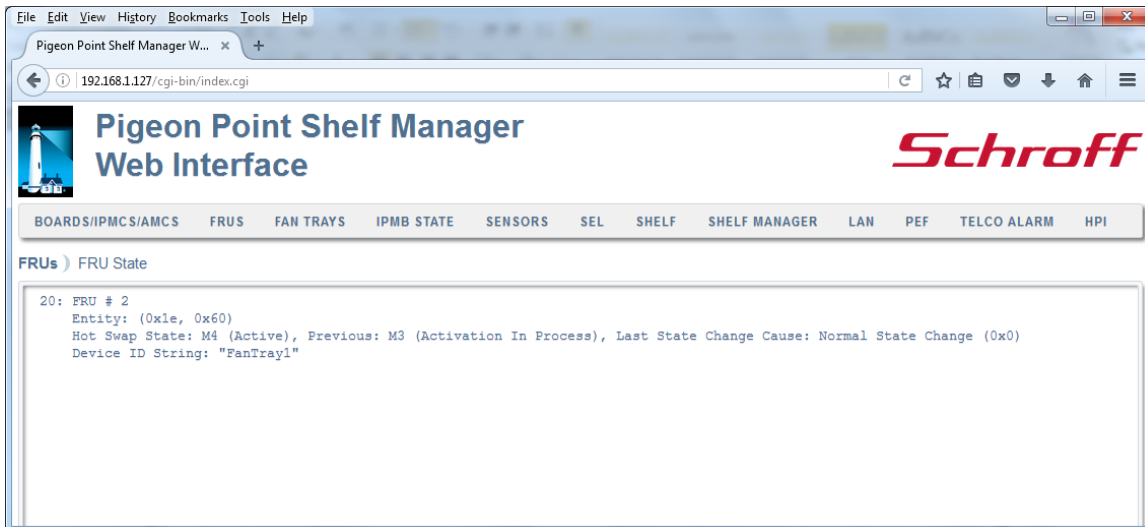
4.3.1 FRU State

The “FRU State” page allows the user to specify the IPM controller address, FRU device ID or site type, and verbosity mode for the FRU information request. Some of the fields may be left blank; in that case:

- if all of the fields are left blank, information about all known FRUs is provided
- if only the IPM controller address is specified, information about all FRUs of the specified IPM controller is provided.

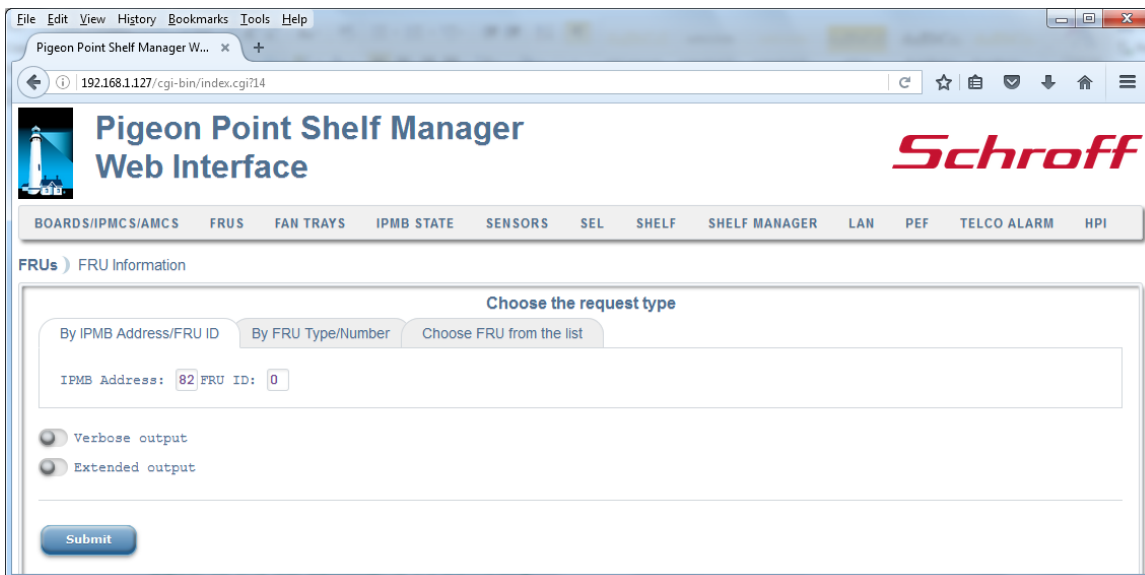


After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *fru*.



4.3.2 FRU Information

The “FRU Information” page allows the user to get the FRU Information in a parsed format. The user should specify the IPM controller address and the FRU device ID or the site type and the site number. Also, the user can change the verbosity level and request an additional hexadecimal dump of the data.



After the user specifies all necessary information and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *fruinfo*.



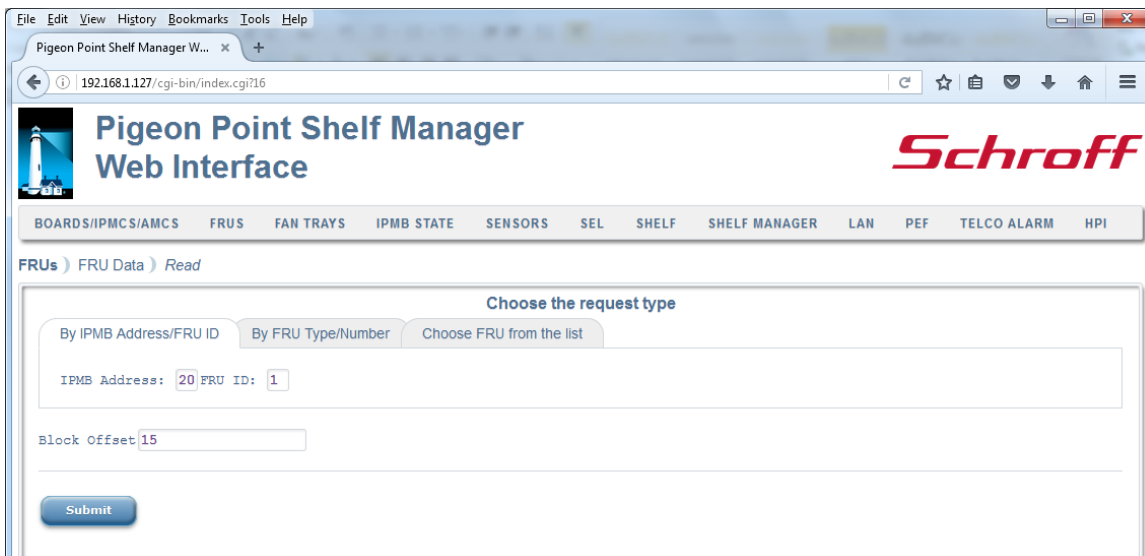
4.3.3 FRU Data

The “FRU Data” drop-down list consists of two items:

- Read
- Write

4.3.3.1 Read

The “Read” page allows the user to request the FRU Information data in raw form. The user can specify the IPM controller address, FRU device ID or site type and the block offset.

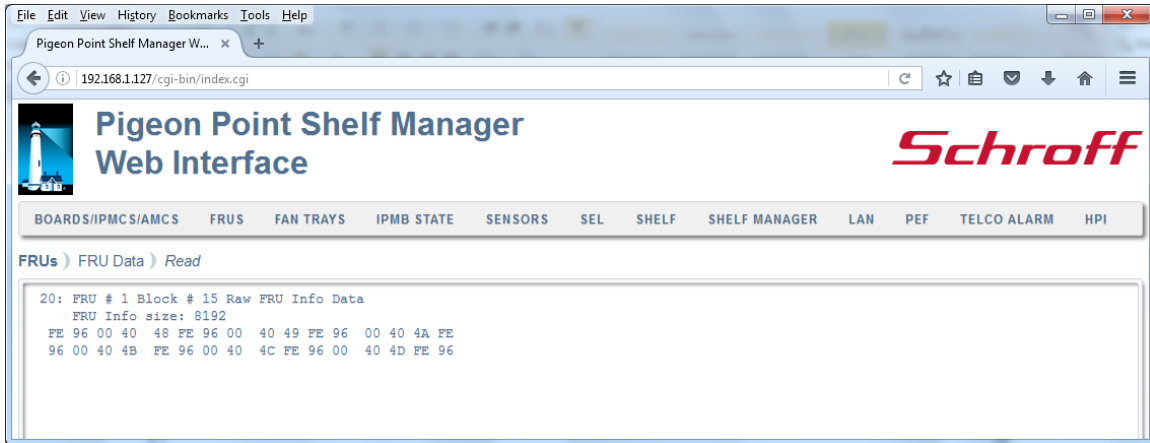


After the user specifies all necessary information and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *frudata*.

If the target FRU is fully identified, a result page shows a hexadecimal dump of the entire FRU Information for the target FRU.

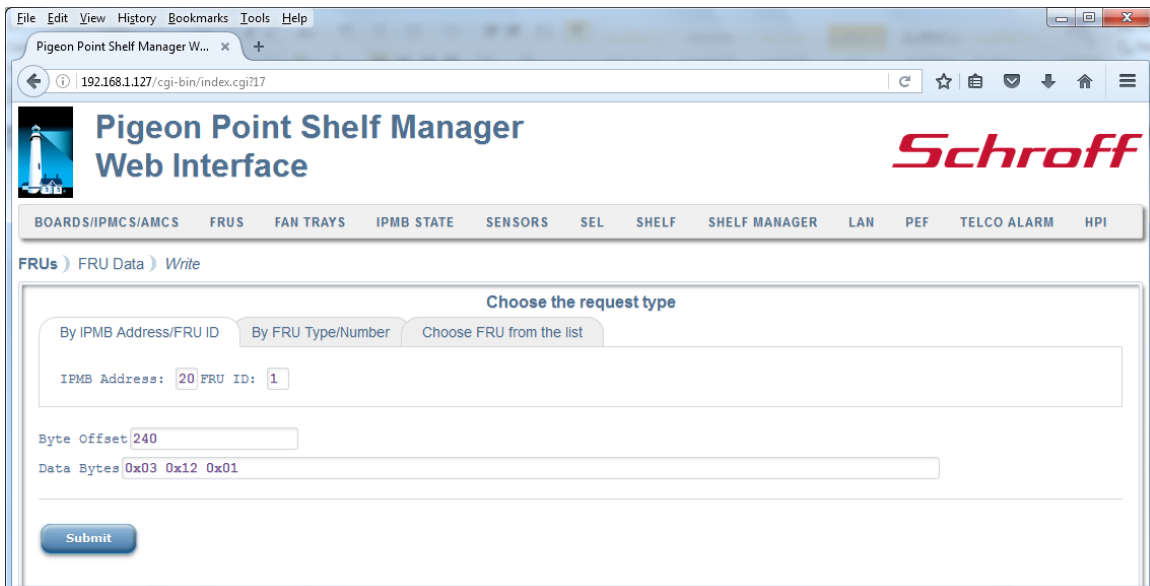
If only the IPM controller address is specified, a result page shows the FRU Information sizes for all FRUs managed by that IPM controller.

If no input parameters are specified, a result page shows the FRU Information sizes for all FRUs in the shelf.

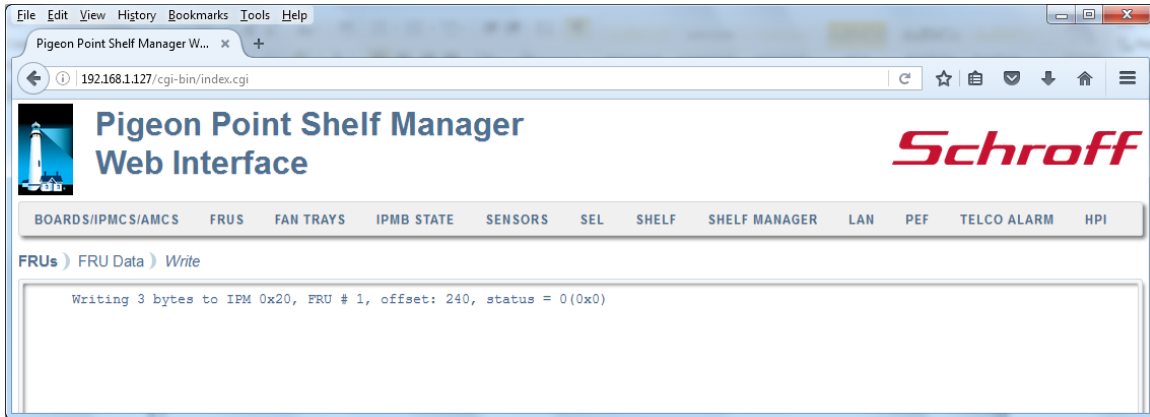


4.3.3.2 Write

The “Write” page enables the user to modify the FRU Information data in raw form. The user should specify the IPM controller address, the FRU device ID or the site type and site number, plus the byte offset and data bytes. No more than 16 data bytes (in hexadecimal) are allowed. Data bytes are separated by spaces.

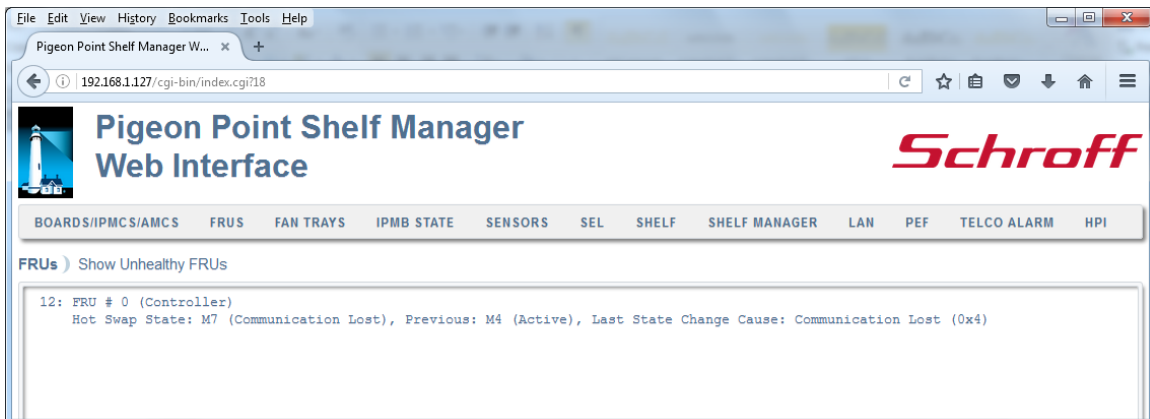


After the user specifies all necessary information and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *frudata* in write mode.



4.3.4 Show Unhealthy FRUs

The “Show Unhealthy FRUs” command does not have parameters and allows the user to obtain information about unhealthy system components. Usually a result page reports “There are no unhealthy components in the shelf” as in the example below, but may sometimes show unhealthy components. The output is essentially equal to the output produced by the CLI command *showunhealthy*.



4.3.5 FRU LED State

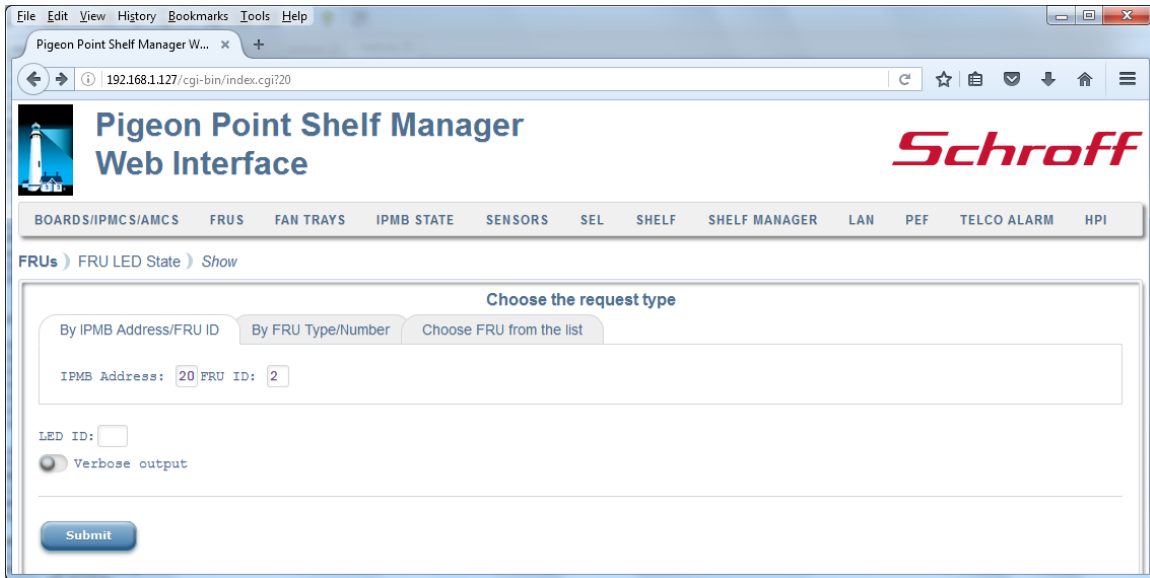
The “FRU LED State” drop-down list consists of two items:

- Show
- Set

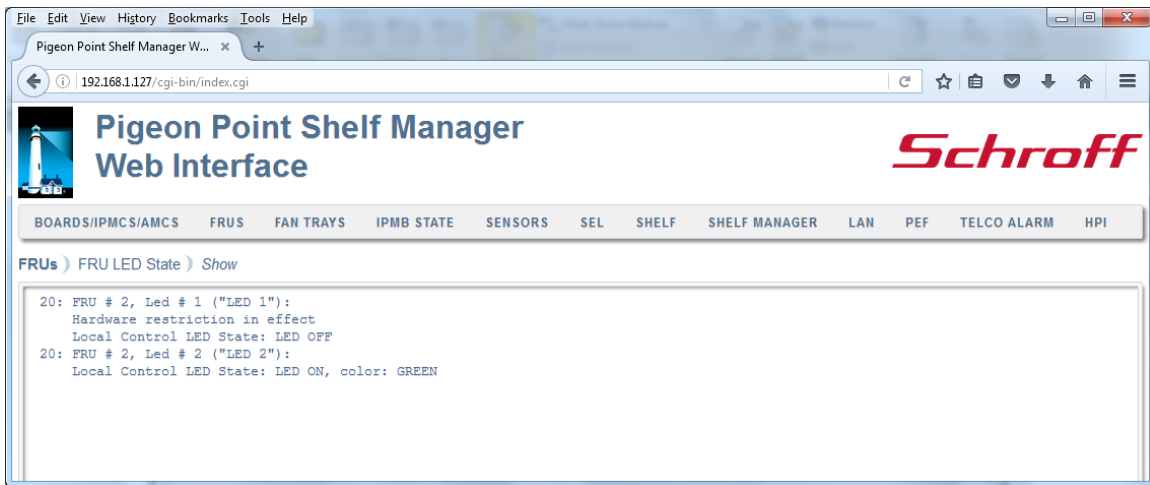
4.3.5.1 Show

The “Show” page allows the user to obtain the current FRU LED state on all levels of control that are enabled for the LED(s). In verbose mode, information about the colors supported by the LED(s) is also shown. Information can be shown about a specific LED or all LEDs for the given FRU if the corresponding fields are specified.

Some of the fields may be left blank. In that case, if FRU ID is omitted, information is shown about all LEDs on all FRUs managed by the given IPM controller. If the IPMB address is also omitted, information is shown about all LEDs of all known FRUs in the shelf.

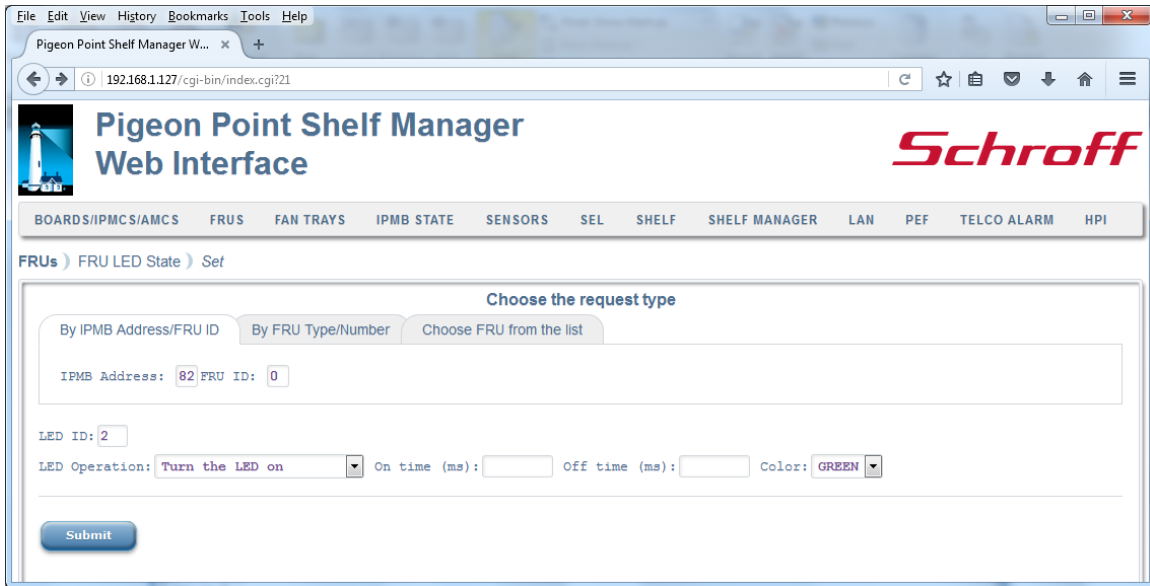


After the user fills in the request information and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command *getfruledstate*.



4.3.5.2 Set

The “Set” page allows the user to set the state of a specific LED or all LEDs for the given FRU.



Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. The “LED ID” field must be filled with either an LED ID (a numerical value) or *ALL*. In the latter case, the specified operation applies to all LEDs.

One of the following operations must be chosen:

- Turn the LED on
- Turn the LED off
- Revert to local control – revert the LED to local control
- Cause the LED to blink - cause the LED to blink, repeatedly turning it on for a period of time specified in “On Time” field (in milliseconds) and then turning it off for a period of time specified in “Off Time” field (in milliseconds)
- Run a lamp test – run a lamp test for a period of time specified in “On Time” field (in milliseconds).

For the lamp test operation, the value in the “On Time” field must be less than 12800 ms (12.8 sec); for the LED blink operation, values in both the “On Time” and “Off Time” fields must be within the 10 – 2500 ms range.

The optional parameter “LED Color” specifies a color, via a symbolic name. If the parameter is not specified, the default LED color is used. The possible values of “LED Color” are below:

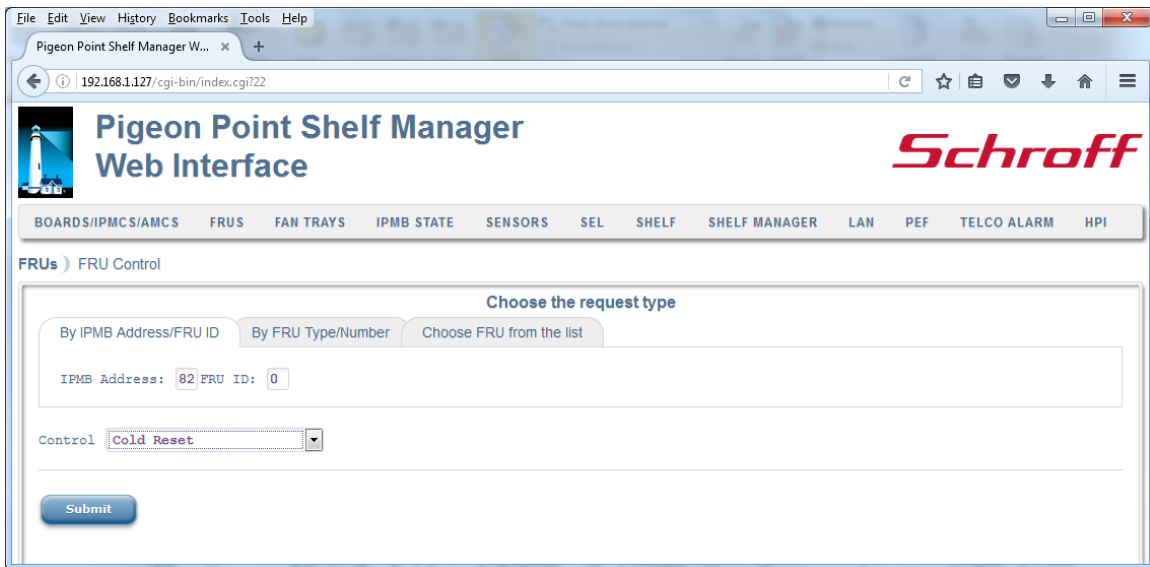
- BLUE
- RED
- GREEN
- AMBER
- ORANGE
- WHITE
- NONE

After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *setfruledstate*.



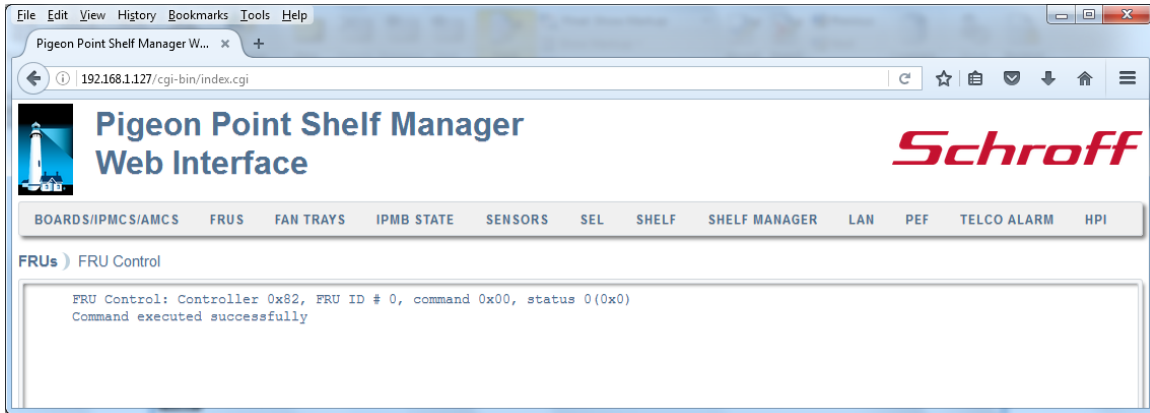
4.3.6 FRU Control

The “FRU Control” page enables the user to send the “FRU Control” command to the specified FRU, performing the specified operation on the FRU payload.



Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from the list of known FRUs in the shelf. Also, the user should choose the FRU Control operation.

After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. This command is essentially equal to the CLI command *frucontrol*.



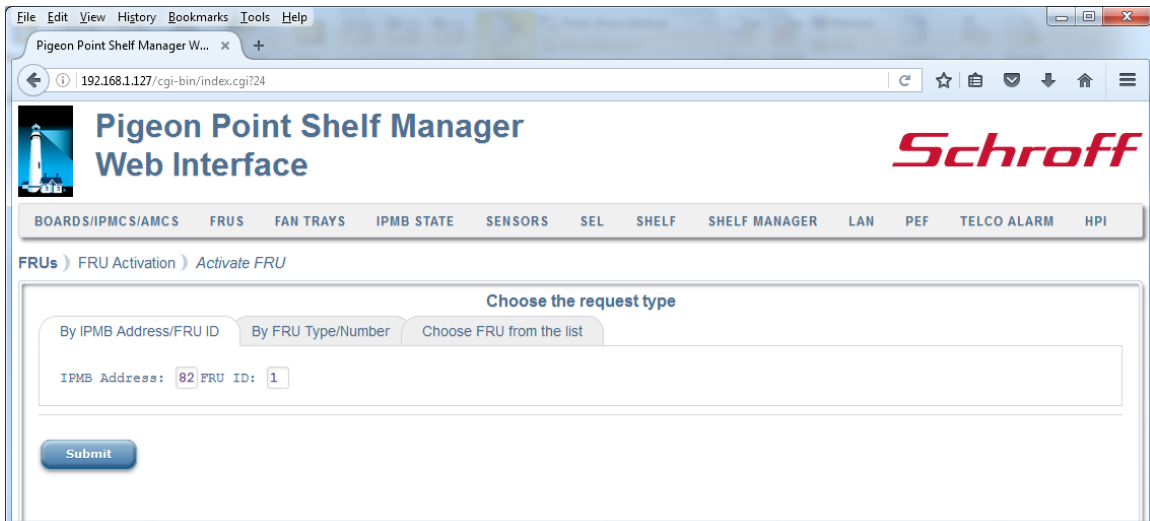
4.3.7 FRU Activation

The “FRU Activation” drop-down list consists of the following items:

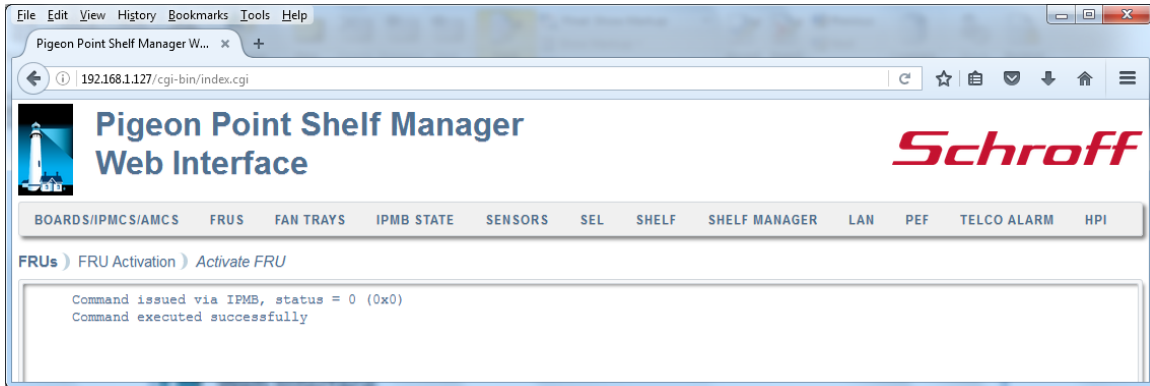
- Activate FRU
- Deactivate FRU
- Set FRU Extracted
- Set FRU Activation Locked Bit
- Clear FRU Activation Locked Bit

4.3.7.1 Activate FRU

The “Activate FRU” page allows the user to request activation of the specified FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.

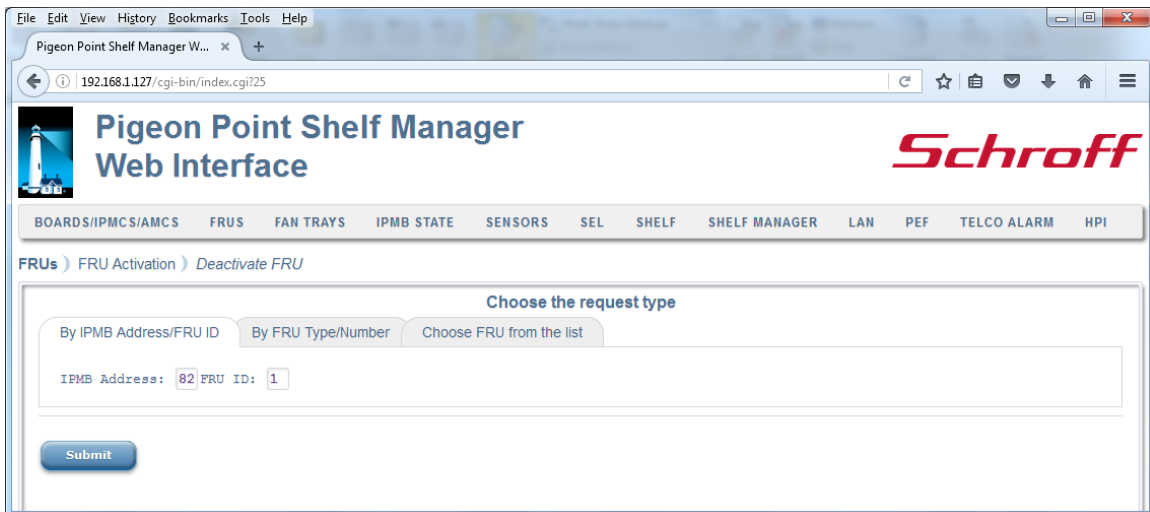


After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command *activate*.

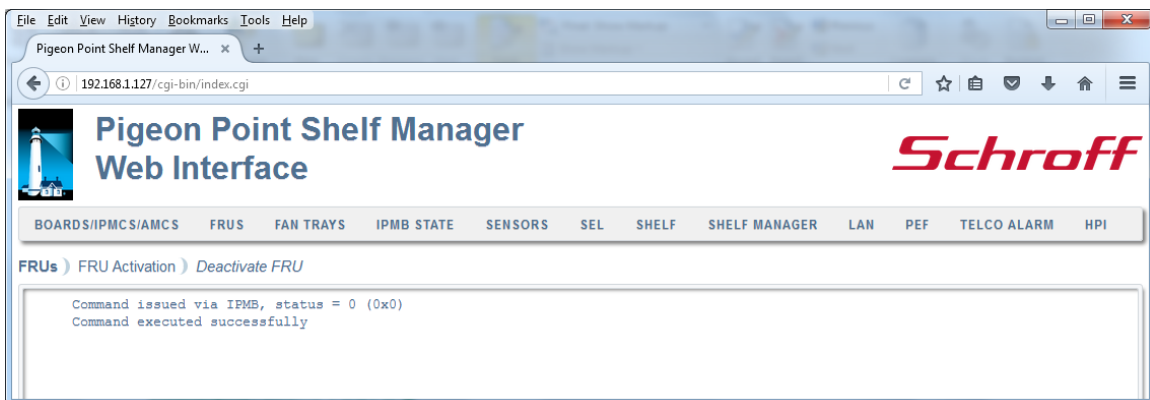


4.3.7.2 Deactivate FRU

The “Deactivate FRU” page allows the user to request deactivation of the specified FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.

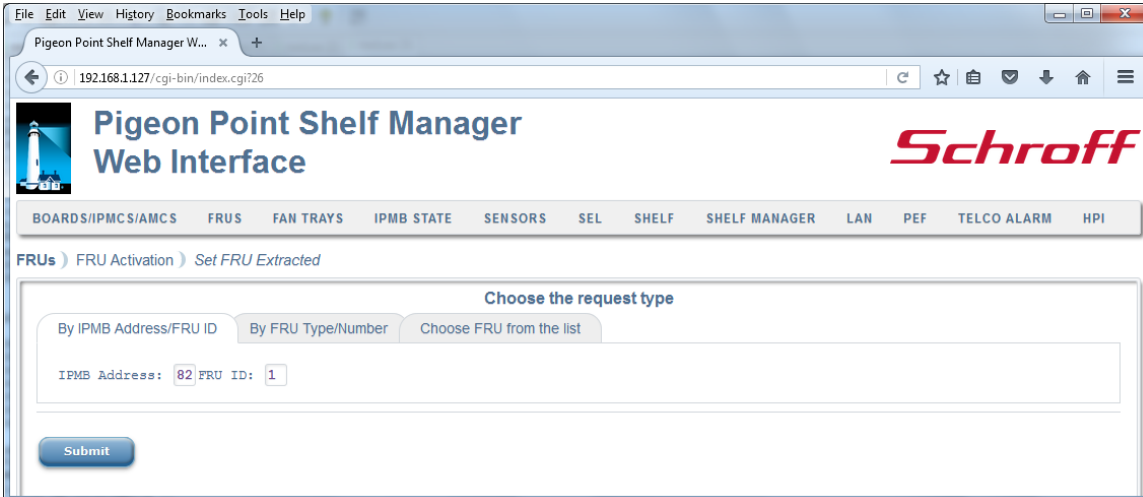


After the user fills in all fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command *deactivate*.



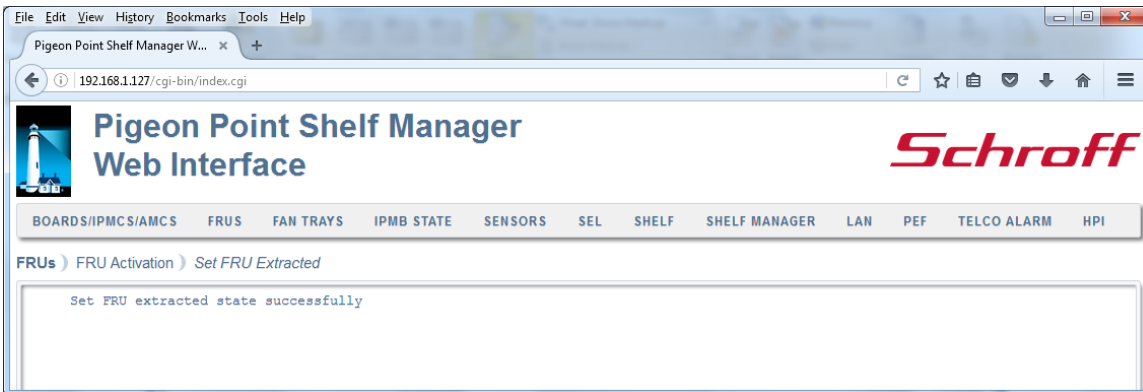
4.3.7.3 Set FRU Extracted

The “Set FRU Extracted” page allows the user to notify the Shelf Manager that the specified FRU has been physically extracted from the shelf. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.



The screenshot shows a web browser window with the URL `192.168.1.127/cgi-bin/index.cgi?26`. The page title is "Pigeon Point Shelf Manager Web Interface" and the Schroff logo is visible in the top right. A navigation menu includes "BOARDS/IPMCS/AMCS", "FRUS", "FAN TRAYS", "IPMB STATE", "SENSORS", "SEL", "SHELF", "SHELF MANAGER", "LAN", "PEF", "TELCO ALARM", and "HPI". The breadcrumb trail is "FRUs > FRU Activation > Set FRU Extracted". The main content area has a heading "Choose the request type" and three radio buttons: "By IPMB Address/FRU ID" (selected), "By FRU Type/Number", and "Choose FRU from the list". Below the radio buttons are two input fields: "IPMB Address: 82" and "FRU ID: 1". A "Submit" button is located at the bottom left of the form.

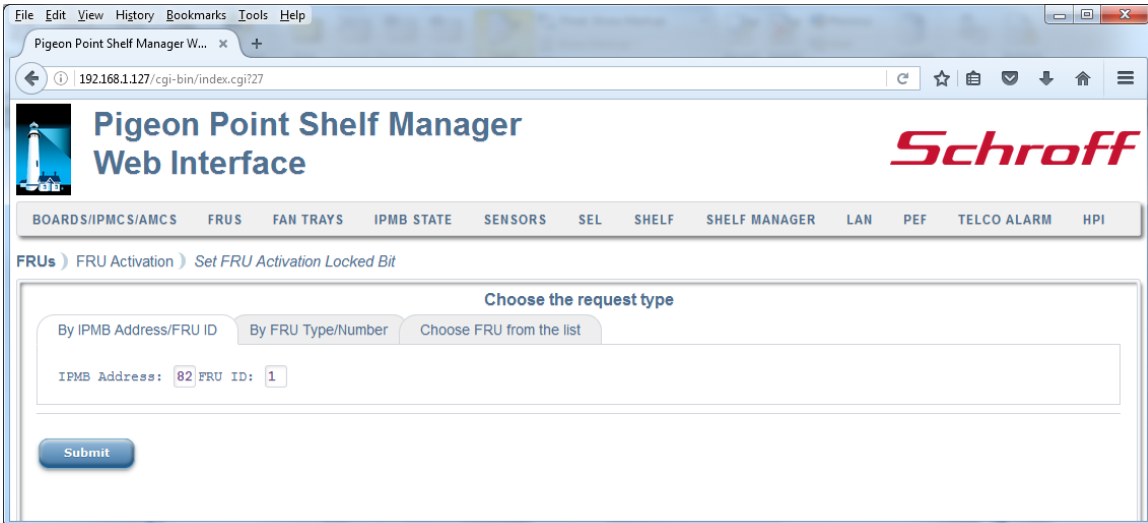
After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command `setextracted`.



The screenshot shows the same web browser window as the previous one. The breadcrumb trail is "FRUs > FRU Activation > Set FRU Extracted". The main content area displays the message "Set FRU extracted state successfully" in a monospaced font.

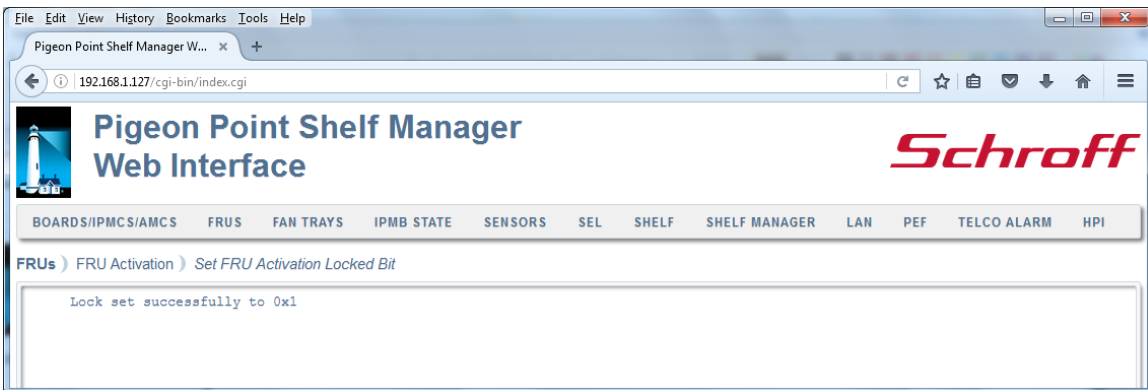
4.3.7.4 Set FRU Activation Locked Bit

The “Set FRU Activation Locked Bit” page enables the user to set the “activation locked” bit for the specified FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.



The screenshot shows a web browser window with the URL `192.168.1.127/cgi-bin/index.cgi?27`. The page title is "Pigeon Point Shelf Manager Web Interface" and the Schroff logo is in the top right. A navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The breadcrumb trail is: FRUs > FRU Activation > Set FRU Activation Locked Bit. The main content area has a heading "Choose the request type" and three tabs: "By IPMB Address/FRU ID", "By FRU Type/Number", and "Choose FRU from the list". The "By IPMB Address/FRU ID" tab is active, showing input fields for "IPMB Address: 82" and "FRU ID: 1". A "Submit" button is located below the fields.

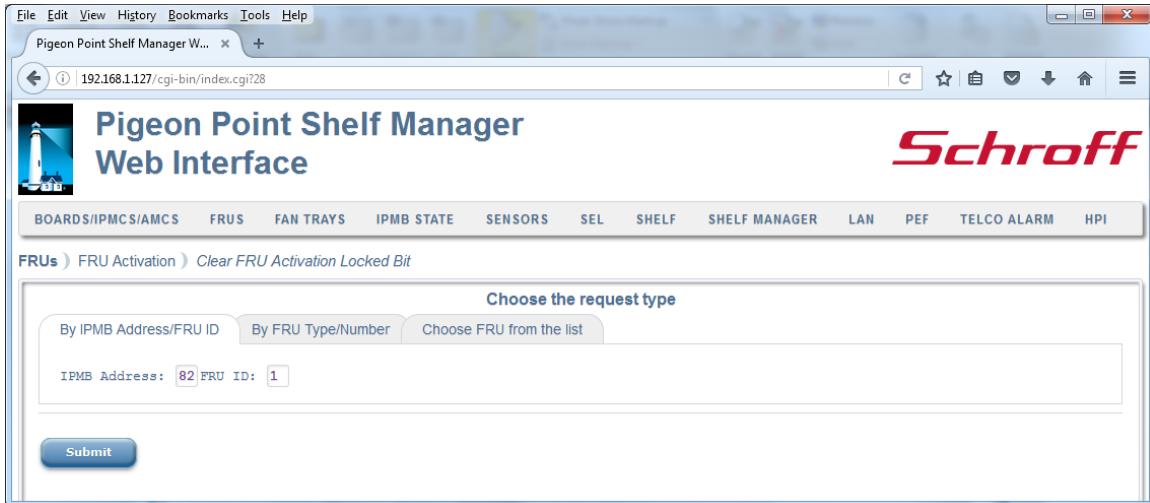
After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command `setlocked` with `<value>=1`.



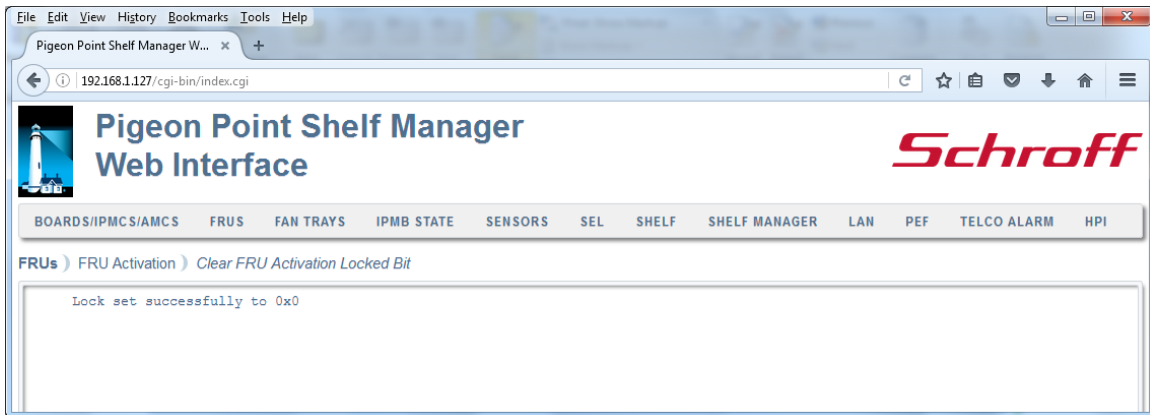
The screenshot shows the same web browser window as above, but the main content area now displays the message: "Lock set successfully to 0x1". The rest of the page layout, including the navigation menu and breadcrumb trail, remains the same.

4.3.7.5 Clear FRU Activation Locked Bit

The “Clear FRU Activation Locked Bit” page enables the user to clear the “activation locked” bit for the specified FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.

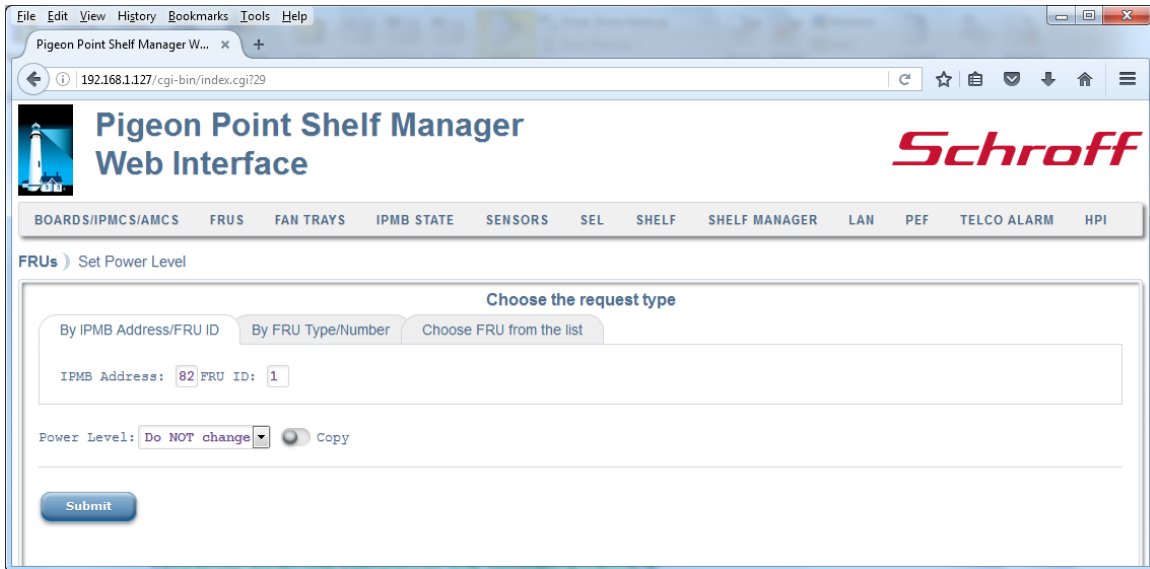


After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command `setlocked` with `<value>=0`.

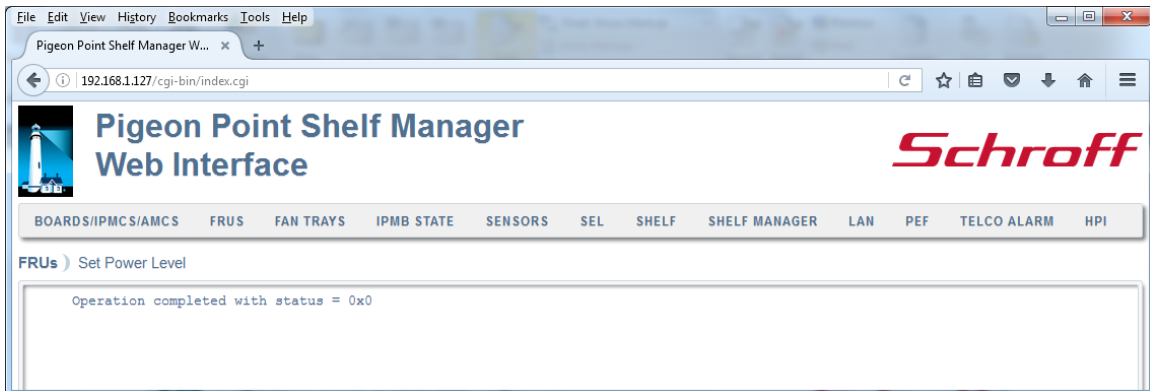


4.3.8 Set Power Level

The “Set Power Level” page enables the user to control the power level of a FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. Also the user specifies the new power level and whether to copy the desired power levels to present levels.



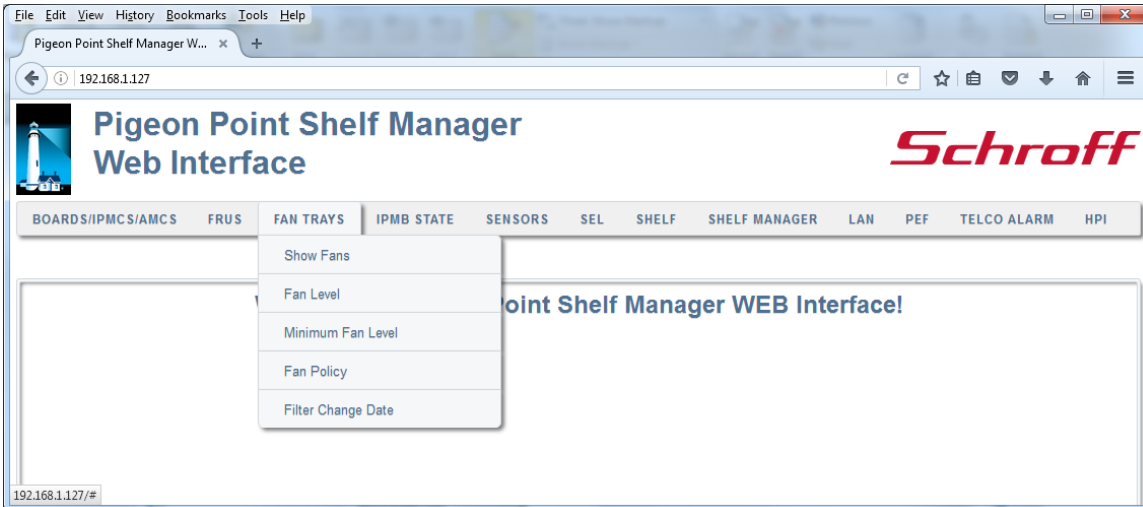
After the user fills in all the fields and clicks the “Submit” button, the request is executed and a result page is produced, similar to the one below. This command is essentially equal to the CLI command `setpowerlevel`.



4.4 Fan Trays

This drop-down list consists of the following items:

- Show Fans
- Fan Level
- Minimum Fan Level
- Fan Policy
- Filter Change Date



4.4.1 Show Fans

The “Show Fans” command displays fan information. The output is essentially equal to the output produced by the CLI command *fans*.



4.4.2 Fan Level

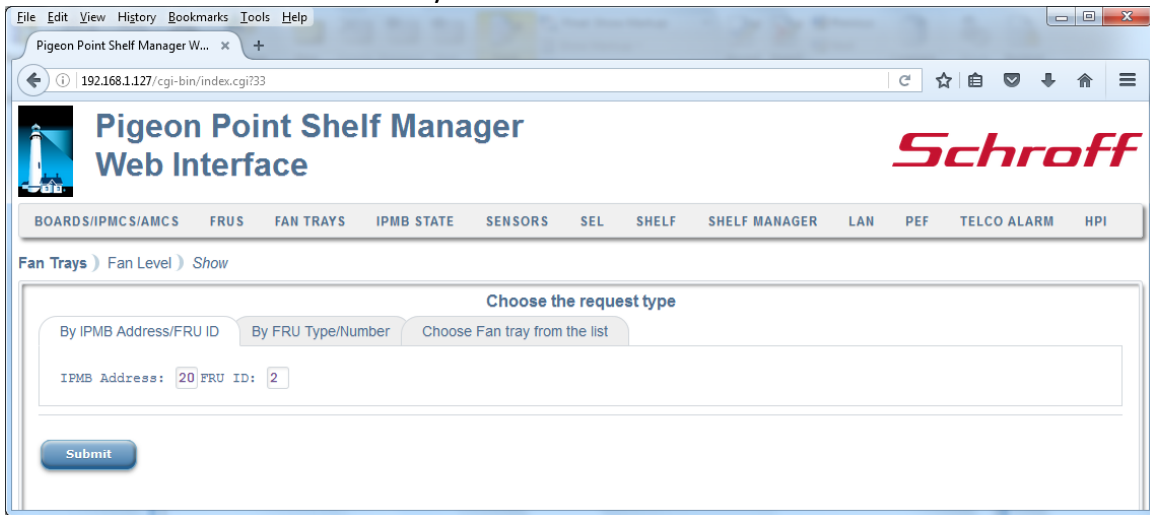
The “Fan Level” drop-down list consists of two items:

- Show
- Set

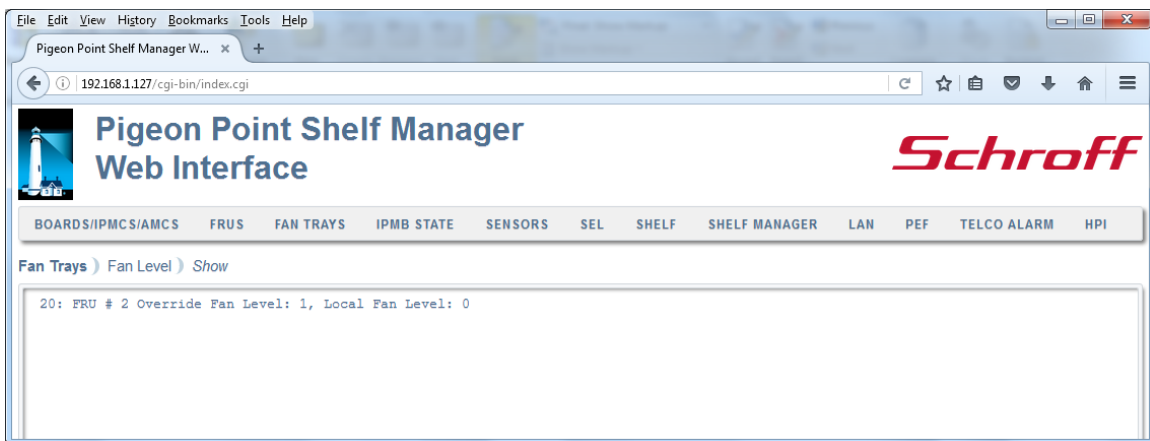
4.4.2.1 Show

The “Show” page allows the user to retrieve the fan level of the target fan tray, specified as a FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. If FRU identification is omitted, fan level

information for all known fan trays in the shelf is shown.

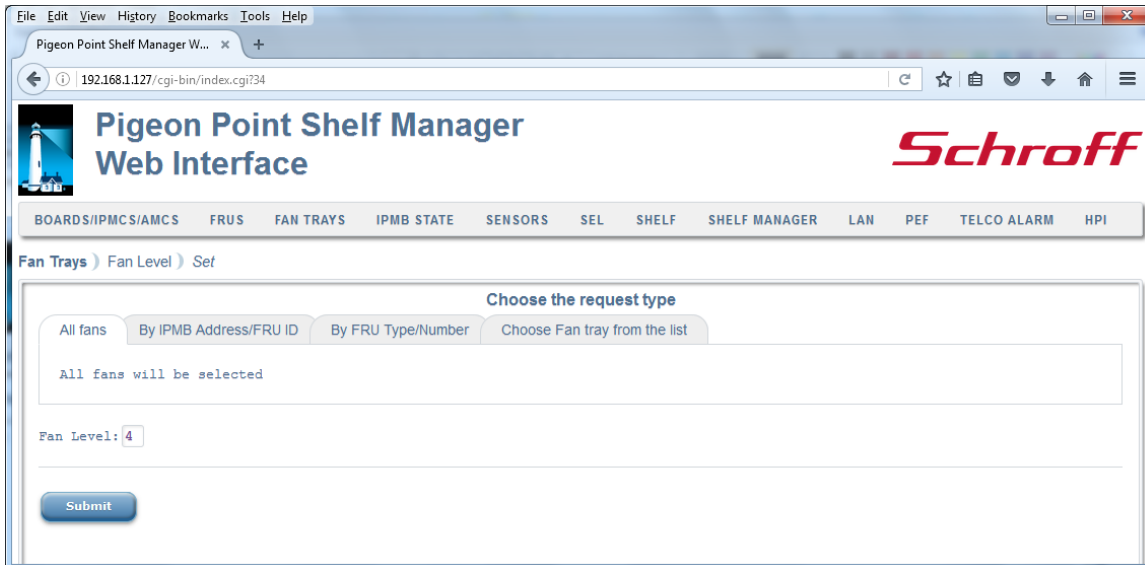


After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `getfanlevel`.

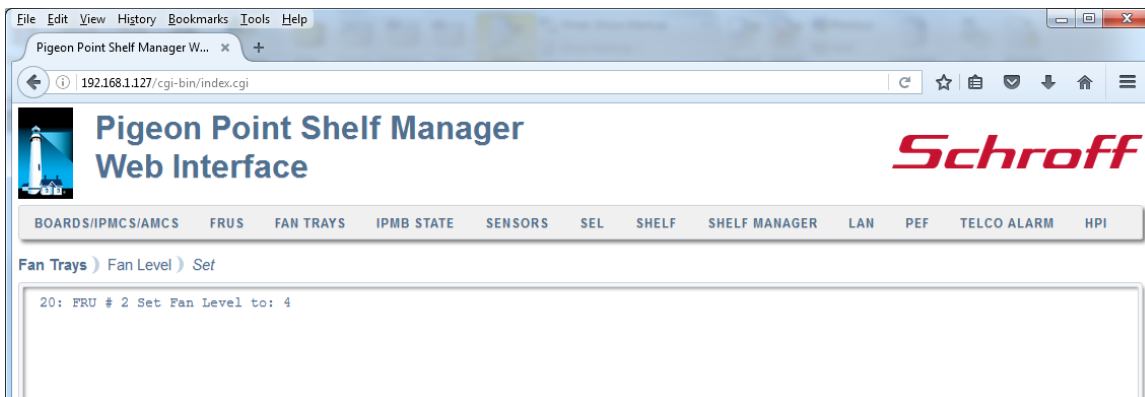


4.4.2.2 Set

The “Set” page allows the user to set the fan level of a target fan tray, specified as a FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. Alternatively, using the tab “All fans”, the user can apply the requested fan level to all known fan trays in the shelf.



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `setfanlevel`.



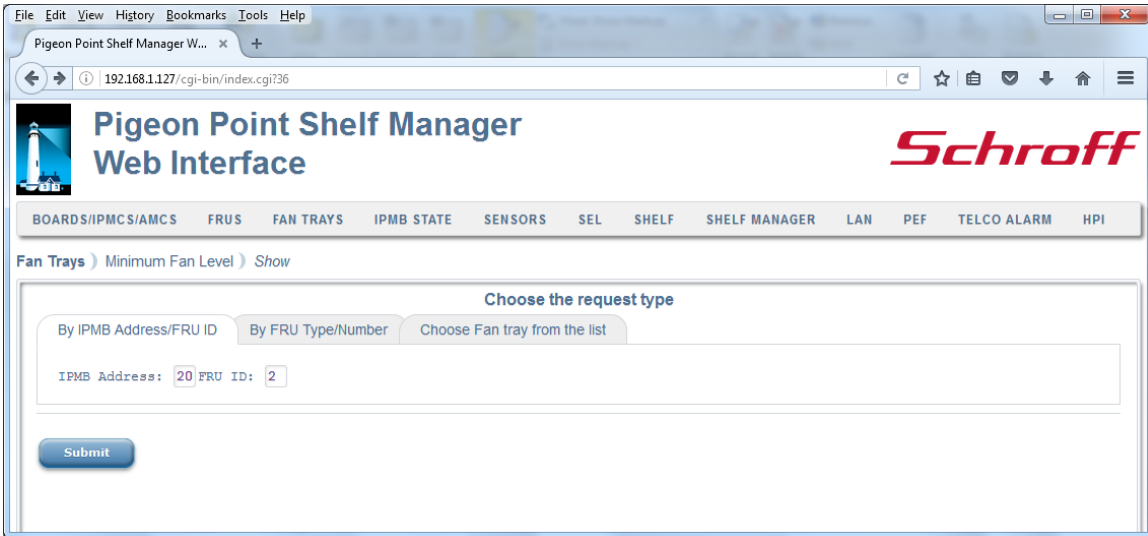
4.4.3 Minimum Fan Level

The “Minimum Fan Level” drop-down list consists of two items:

- Show
- Set

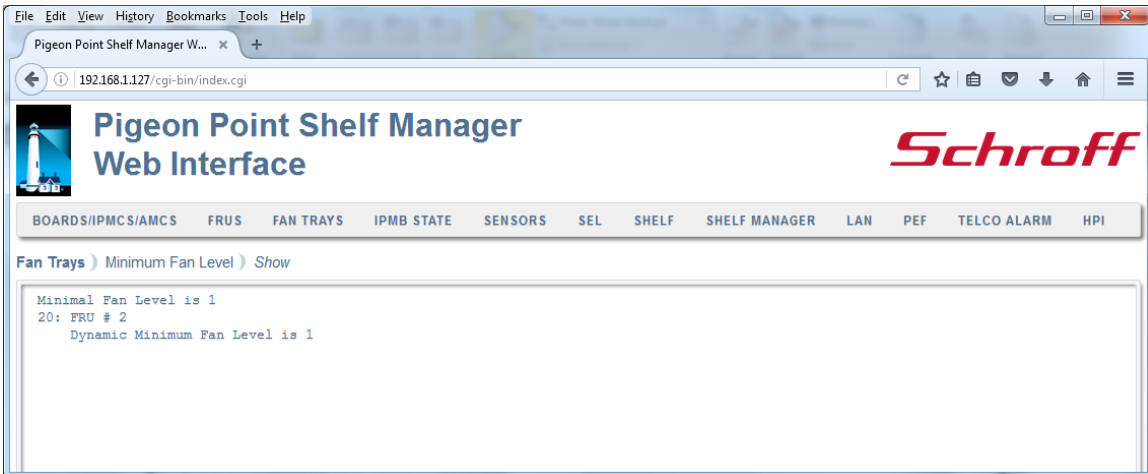
4.4.3.1 Show

The “Show” page allows the user to retrieve the minimum fan level of the target fan tray, specified as a FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. In addition, the global minimum fan level is shown. If FRU identification is omitted, minimum fan level for all known fan trays in the shelf is shown.



The screenshot shows the 'Pigeon Point Shelf Manager Web Interface' with the 'Fan Trays' section selected. The page title is 'Pigeon Point Shelf Manager Web Interface' and the Schroff logo is visible. The navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The 'Fan Trays' section is expanded to show 'Minimum Fan Level' with a 'Show' link. Below this is a form titled 'Choose the request type' with three tabs: 'By IPMB Address/FRU ID', 'By FRU Type/Number', and 'Choose Fan tray from the list'. The 'By IPMB Address/FRU ID' tab is active, showing input fields for 'IPMB Address: 20' and 'FRU ID: 2'. A 'Submit' button is located below the form.

After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `minfanlevel` in “get” mode.

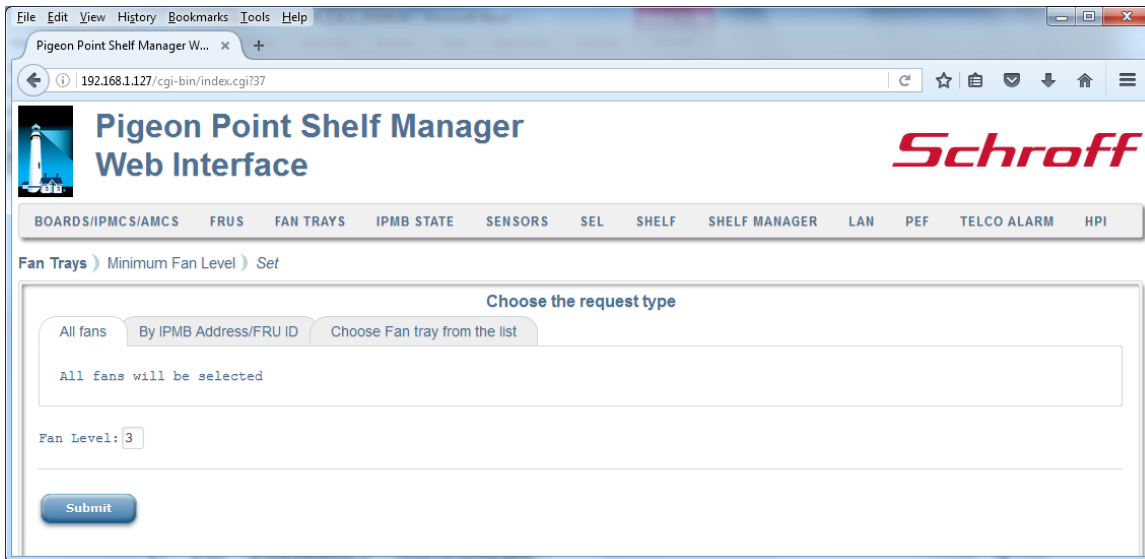


The screenshot shows the same 'Pigeon Point Shelf Manager Web Interface' with the 'Fan Trays' section selected. The 'Minimum Fan Level' section is expanded to show the result of the 'Set' operation. The output is displayed in a text area:

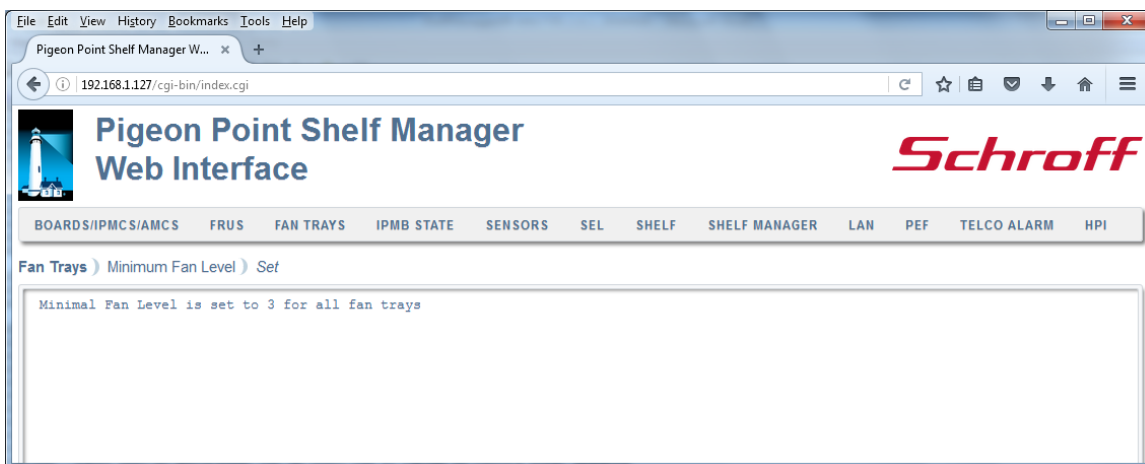
```
Minimal Fan Level is 1
20: FRU # 2
    Dynamic Minimum Fan Level is 1
```

4.4.3.2 Set

The “Set” page allows the user to set the minimum fan level for the target fan tray, specified as a FRU. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. Alternatively, using the tab “All fans”, the user can apply the requested minimum fan level to all known fan trays in the shelf.



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `minfanlevel` in “set” mode.



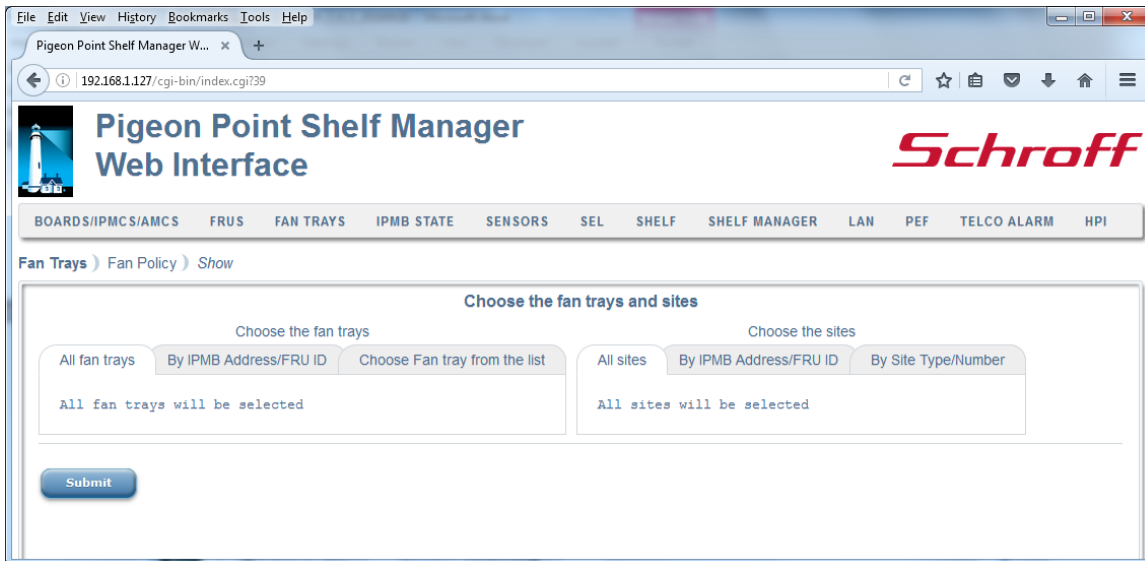
4.4.4 Fan Policy

The “Fan Policy” drop-down list consists of two items:

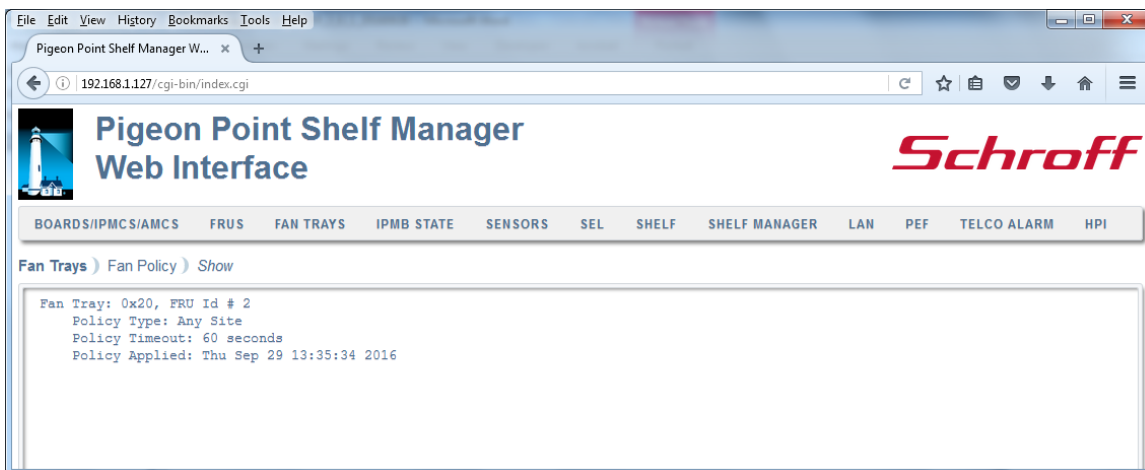
- Show
- Set

4.4.4.1 Show

The “Show” page allows the user to retrieve information about Fan Tray(s) control mode and/or FRU coverage by the specified Fan Tray(s). Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf.

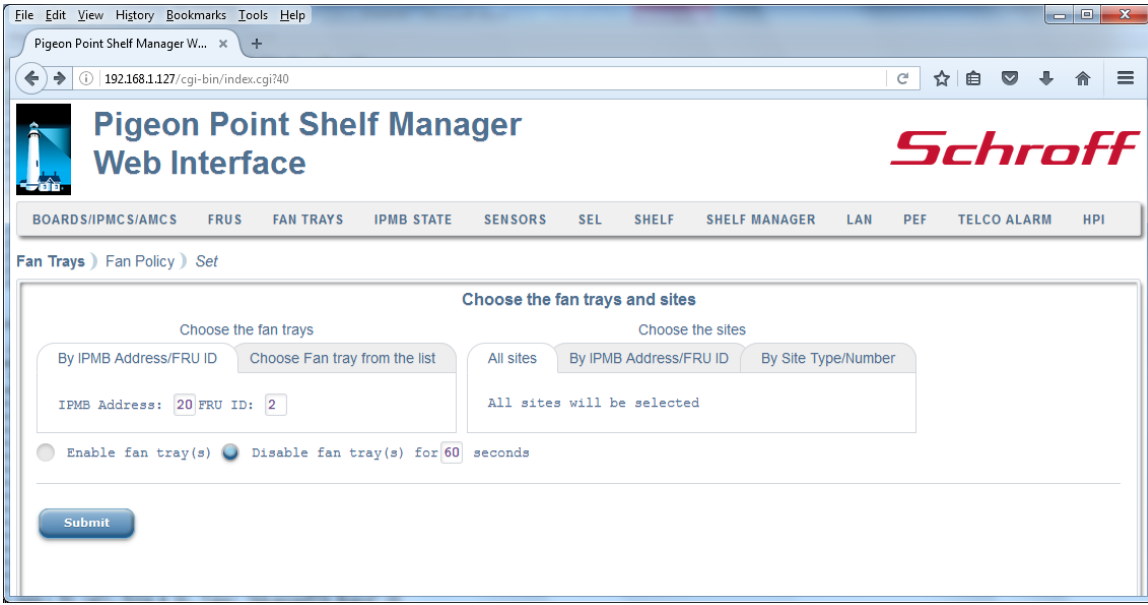


After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `getfanpolicy`.



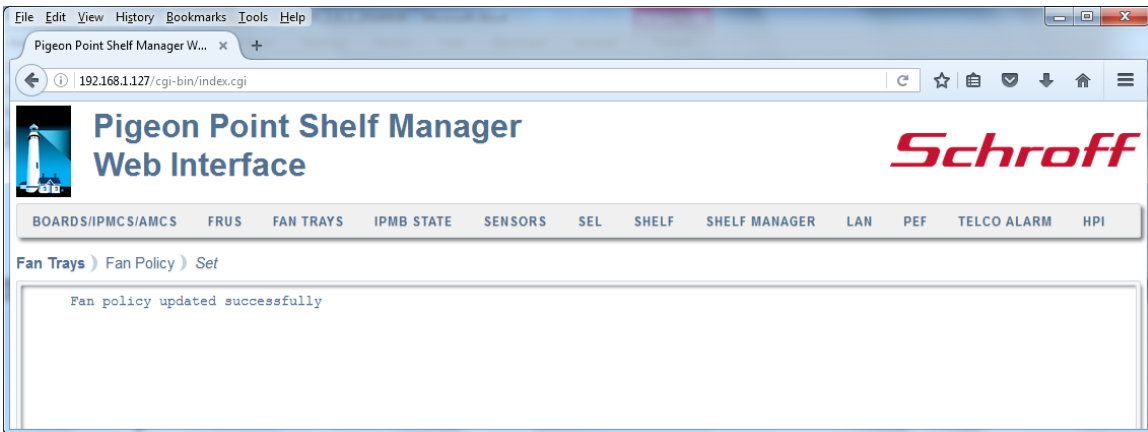
4.4.4.2 Set

The “Set” page allows the user to enable or disable Shelf Manager control over fan trays for cooling management purposes. Either the IPMB address of the IPM controller and the FRU device ID or the site type and site number of the target FRU should be specified, or the user can choose the target FRU from a drop-down list of known FRUs in the shelf. If disabling Shelf Manager control, the user should also specify the duration of the time interval during which the control is to be disabled; after the time interval expires, the Shelf Manager resumes its control automatically.



The screenshot shows a web browser window with the URL `192.168.1.127/cgi-bin/index.cgi?40`. The page title is "Pigeon Point Shelf Manager Web Interface" and the Schroff logo is in the top right. A navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The breadcrumb trail is "Fan Trays > Fan Policy > Set". The main content area is titled "Choose the fan trays and sites" and contains two sections: "Choose the fan trays" and "Choose the sites". Under "Choose the fan trays", there are two tabs: "By IPMB Address/FRU ID" (selected) and "Choose Fan tray from the list". Below this, there are input fields for "IPMB Address: 20" and "FRU ID: 2". Under "Choose the sites", there are three tabs: "All sites" (selected), "By IPMB Address/FRU ID", and "By Site Type/Number". Below this, it says "All sites will be selected". At the bottom of the form, there are two radio buttons: "Enable fan tray(s)" (selected) and "Disable fan tray(s) for 60 seconds". A "Submit" button is located at the bottom left of the form area.

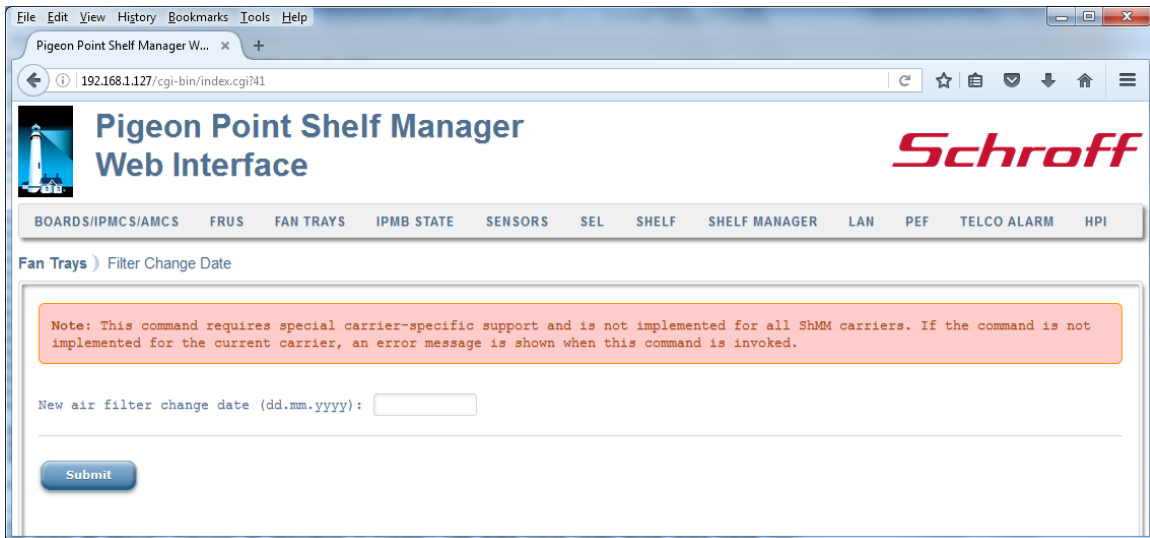
After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `setfanpolicy`.



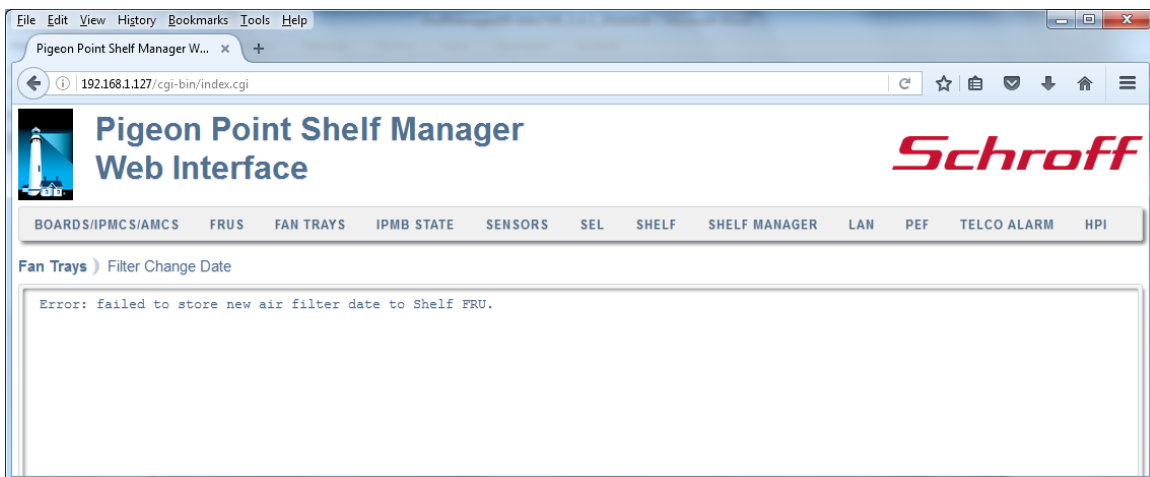
The screenshot shows the same web browser window as the previous one, but the main content area now displays the message "Fan policy updated successfully". The rest of the page, including the navigation menu and breadcrumb trail, remains the same.

4.4.5 Filter Change Date

The “Filter Change Date” page enables the user to set the date when the Air Filter must be replaced (the filter expiration date). This command is not available in all Shelf Manager configurations.



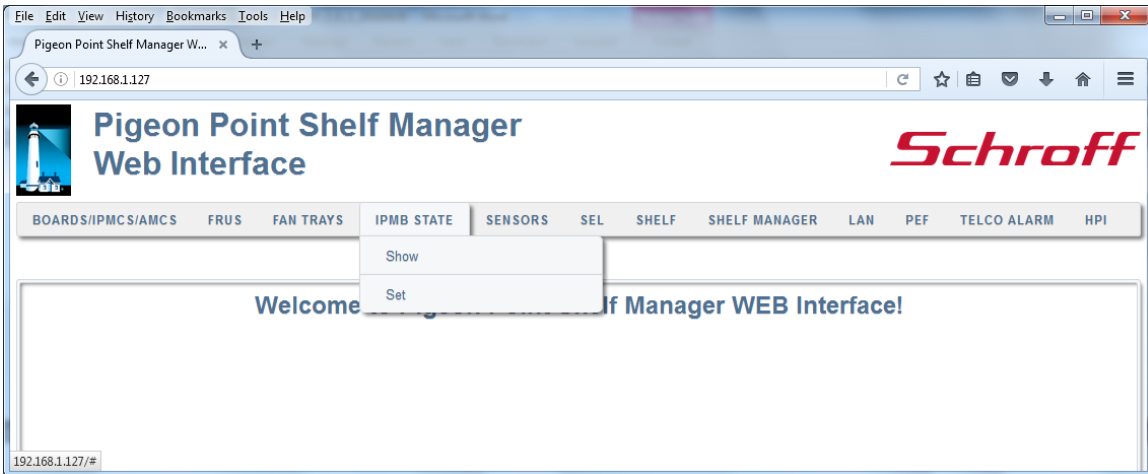
After the user fills in the field and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `airfilterreplaced`.



4.5 IPMB State

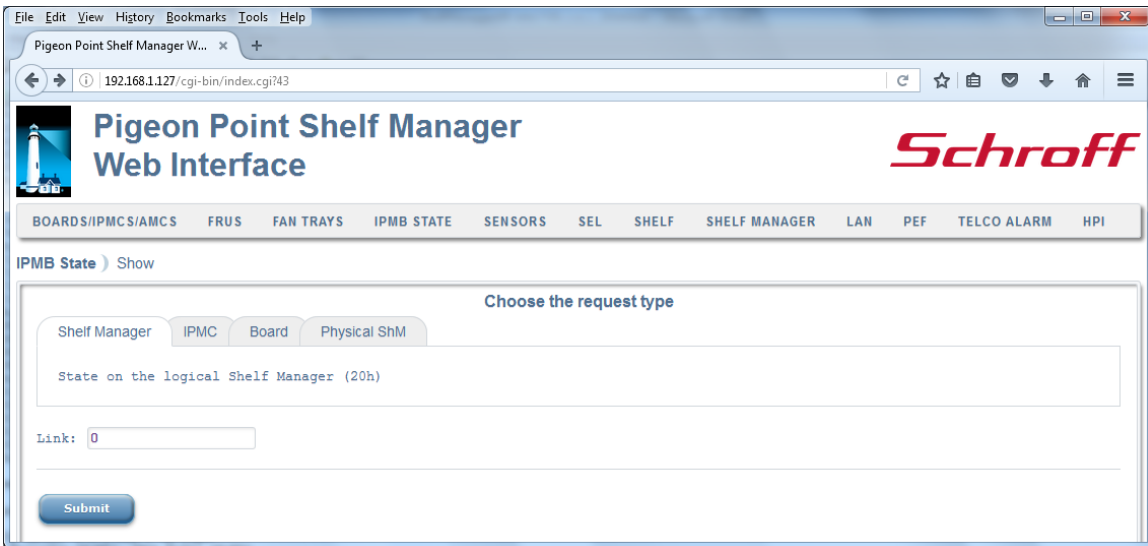
This drop-down list consists of the following items:

- Show
- Set

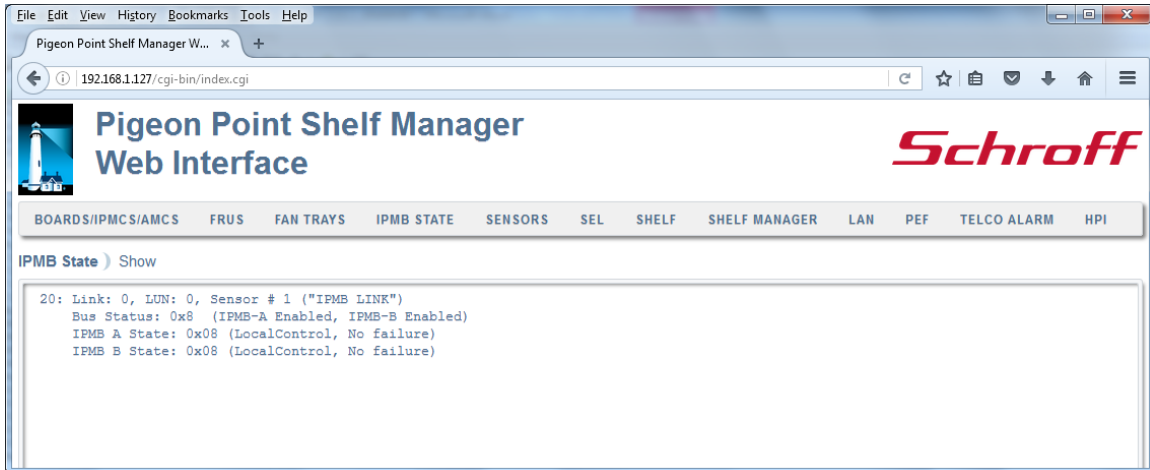


4.5.1 Show

The “Show” page allows the user to obtain the current state of IPMB-0 on the target IPM controller. The target IPM Controller must be specified by its IPMB address, board site number, physical Shelf Manager site number, or as the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)



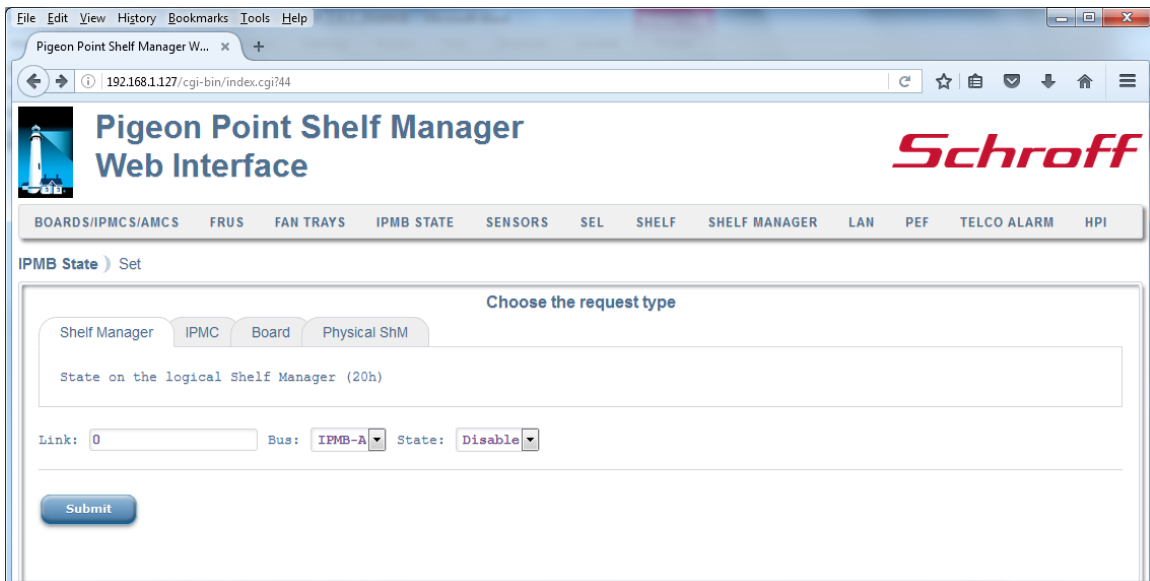
After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *getipmbstate*.



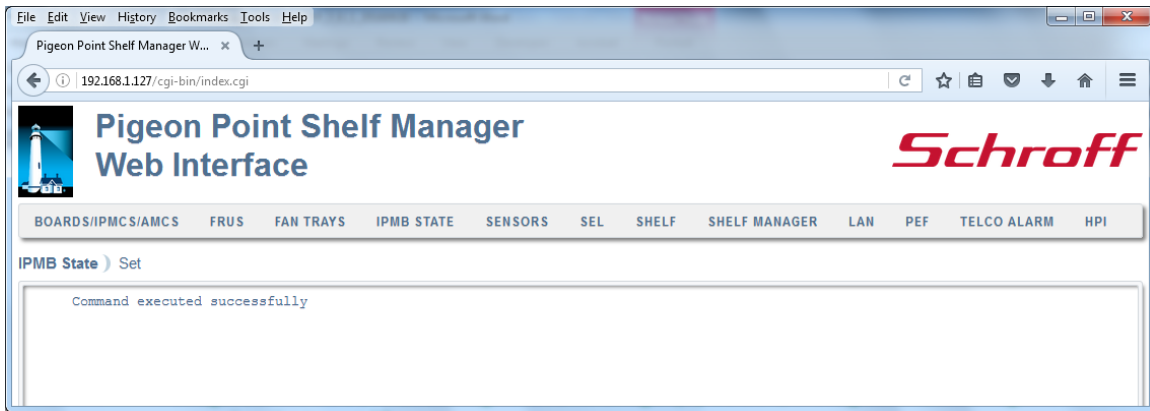
4.5.2 Set

The “Set” page allows the user to enable/disable an IPMB link on the target IPM controller. The target IPM Controller must be specified by its IPMB address, board site number, physical Shelf Manager site number, or as the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)

The field “Bus” defines the bus link (IPMB-A or IPMB-B) to be enabled/disabled. The field “State” defines the operation to be performed: “Enable” – to enable the IPMB link, “Disable” – to disable the IPMB link. In a bused environment, or in a radial environment where the target IPM controller is not an IPMB hub, the field “Link” must be left empty.



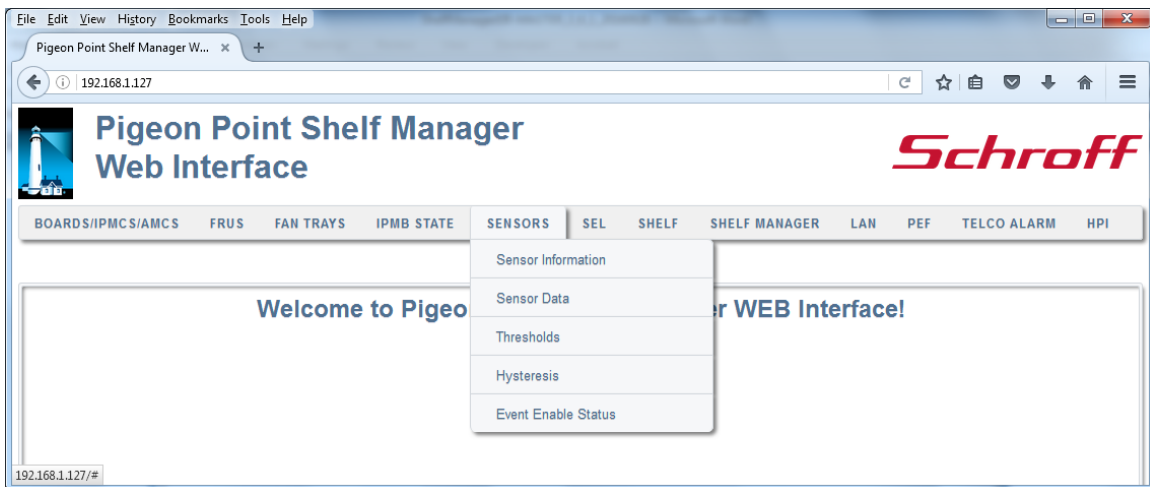
After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `setipmbstate`.



4.6 Sensors

This drop-down list consists of the following items:

- Sensor Information
- Sensor Data
- Thresholds
- Hysteresis
- Event Enable Status



4.6.1 Sensor Information

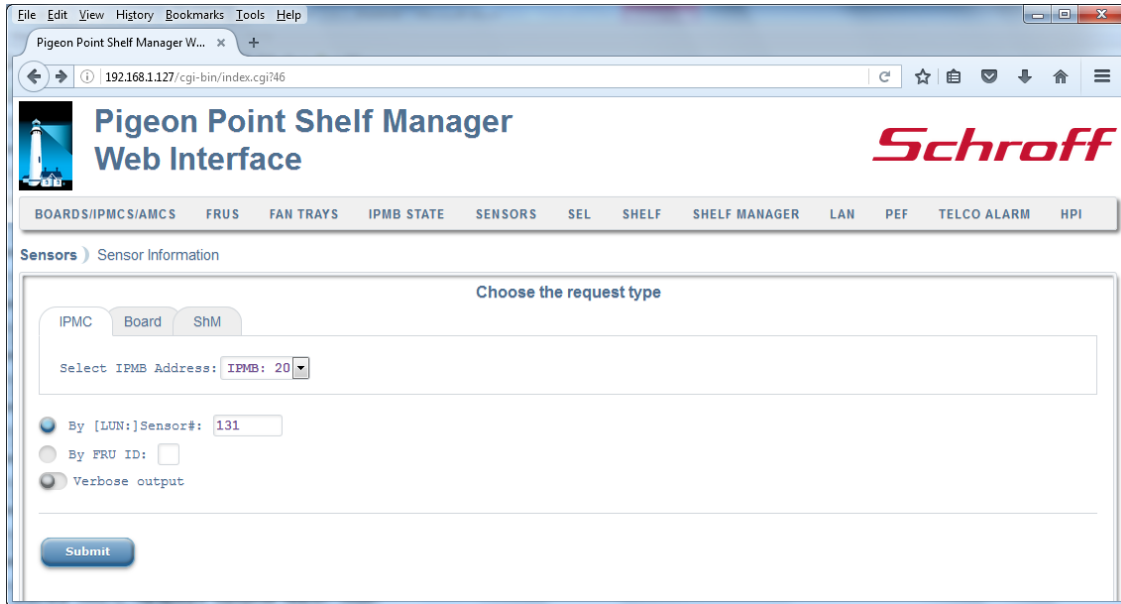
The "Sensor Information" page allows the user to specify the IPM controller address, sensor number, and verbosity mode for the sensor information request. Some of the fields may be left blank; in that case:

- if all of the fields are left blank, information about all known sensors on all IPM controllers is provided
- if only the IPM controller address is specified, information about all sensors of the specified IPM controller is provided.

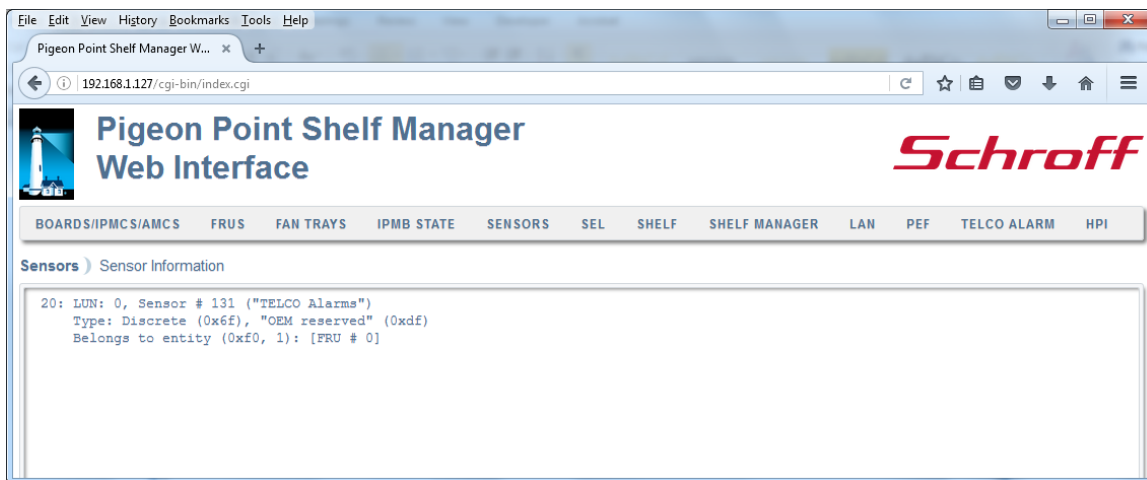
In the field "[LUN:]Sensor #", the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present. If the user specifies only the sensor number, information is returned about known sensors with the

specified sensor number on all LUNs. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)

If the radio button “By FRU ID:” is selected, a FRU ID should be specified; the operation then applies to all sensors associated with the specified FRU.



After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `sensor`.



4.6.2 Sensor Data

The “Sensor Data” drop-down list consists of the following items:

- Show
- Show Raw Values
- Set

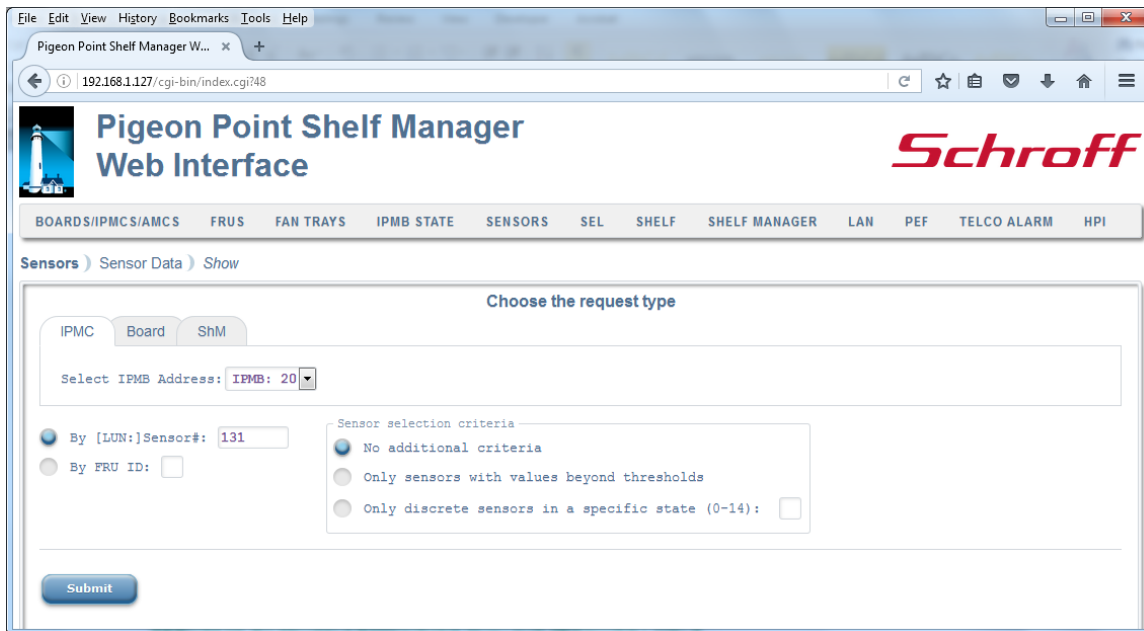
4.6.2.1 Show

The “Show” page allows the user to specify the IPM controller address and the sensor number for the sensor data request. If only the IPM controller address is specified, data from all sensors of the specified IPM controller is provided.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present. If the user specifies only the sensor number, information is returned about known sensors with the specified sensor number on all LUNs. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)

If the radio button “By FRU ID:” is selected, a FRU ID should be specified; the operation then applies to all sensors associated with the specified FRU.

Also, in this command, additional sensor selection criteria can be applied: the user can choose to show threshold-based sensors that have values beyond specified thresholds or discrete sensors that are in a specific state.



The screenshot shows a web browser window with the address bar displaying `192.168.1.127/cgi-bin/index.cgi?48`. The page title is "Pigeon Point Shelf Manager Web Interface" and the Schroff logo is visible in the top right. A navigation menu includes "BOARDS/IPMCS/AMCS", "FRUS", "FAN TRAYS", "IPMB STATE", "SENSORS", "SEL", "SHELF", "SHELF MANAGER", "LAN", "PEF", "TELCO ALARM", and "HPI". The "SENSORS" menu item is selected, and the breadcrumb path is "Sensors > Sensor Data > Show".

The main content area is titled "Choose the request type" and contains the following form elements:

- Three tabs: "IPMC", "Board", and "ShM".
- A dropdown menu labeled "Select IPMB Address:" with "IPMB: 20" selected.
- Two radio buttons for request type: "By [LUN:]Sensor#: 131" (selected) and "By FRU ID:" (unselected).
- A "Sensor selection criteria" section with three radio buttons: "No additional criteria" (selected), "Only sensors with values beyond thresholds" (unselected), and "Only discrete sensors in a specific state (0-14):" (unselected).
- A "Submit" button at the bottom left.

After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `sensordata`.



4.6.2.2 Show Raw Values

The “Show Raw Values” page allows the user to request the raw value of the specified sensor. If only the IPM controller address is specified, data from all sensors of the specified IPM controller is provided.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present. If the user specifies only the sensor number, information is returned about known sensors with the specified sensor number on all LUNs. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *sensorread*.

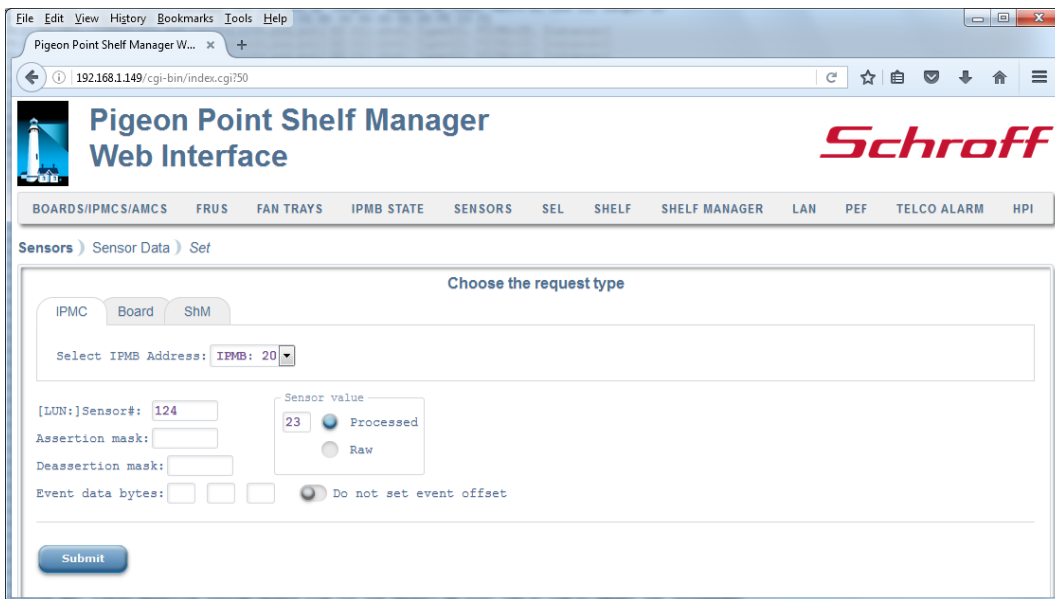


4.6.2.3 Set

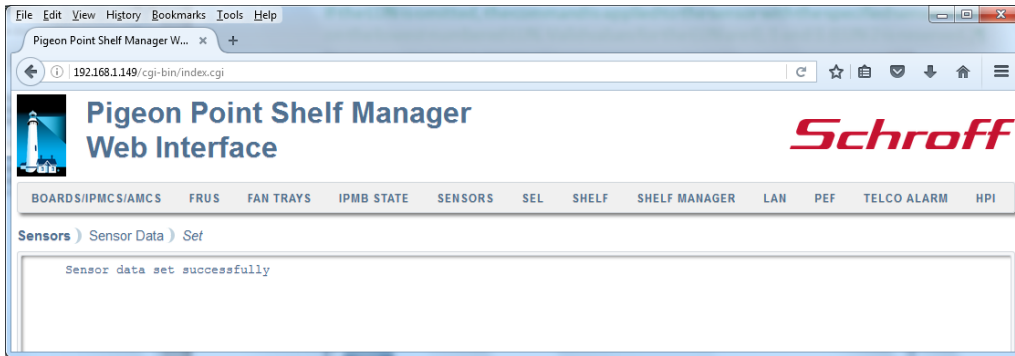
The “Set” page allows the user to change the reading, assertion/deassertion mask and event data bytes for the specified sensor. The sensor is identified by the IPM controller address and the sensor number. The target sensor must be defined as settable in the corresponding SDR.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present.

If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `setsensordata`.



4.6.3 Thresholds

The “Thresholds” drop-down list consists of two items:

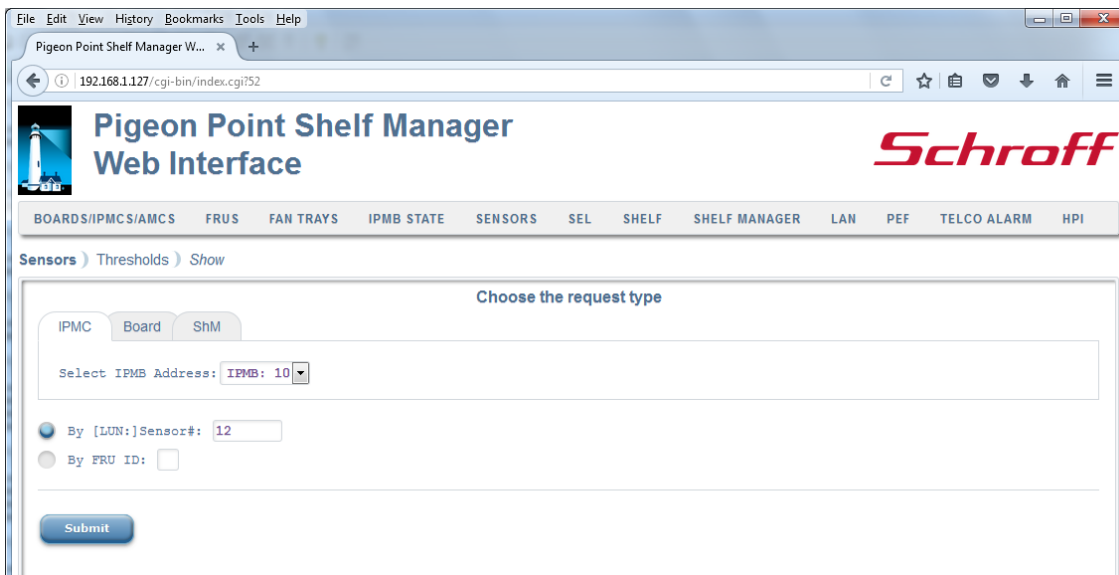
- Show
- Set

4.6.3.1 Show

The “Show” page allows the user to specify the IPM controller address and the sensor number for a threshold information request. If only the IPM controller address is specified, threshold information for all sensors of the specified IPM controller is provided.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present. If the user specifies only the sensor number, information is returned about known sensors with the specified sensor number on all LUNs. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)

If the radio button “By FRU ID:” is selected, a FRU ID should be specified; the operation then applies to all sensors associated with the specified FRU.



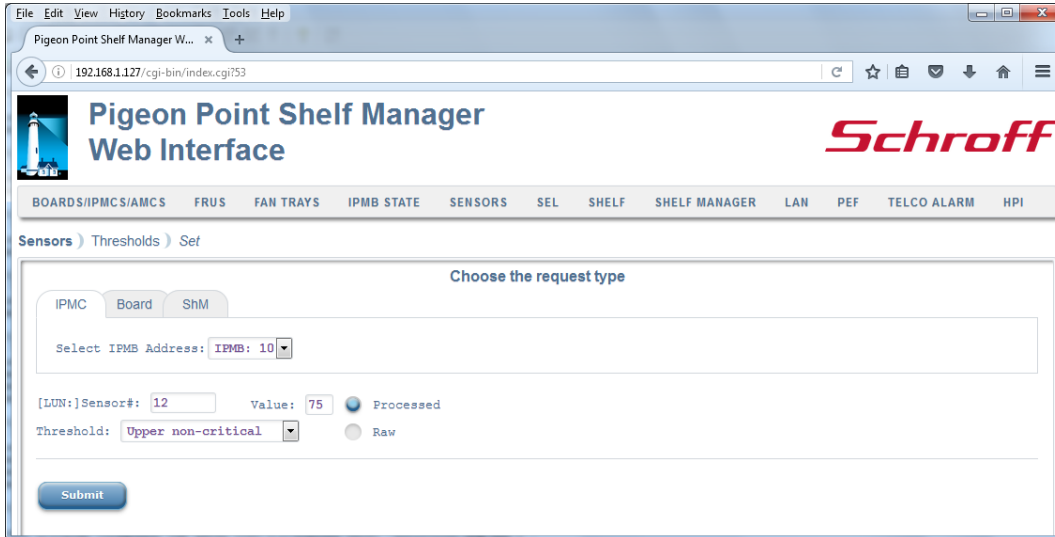
After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `getthreshold`.



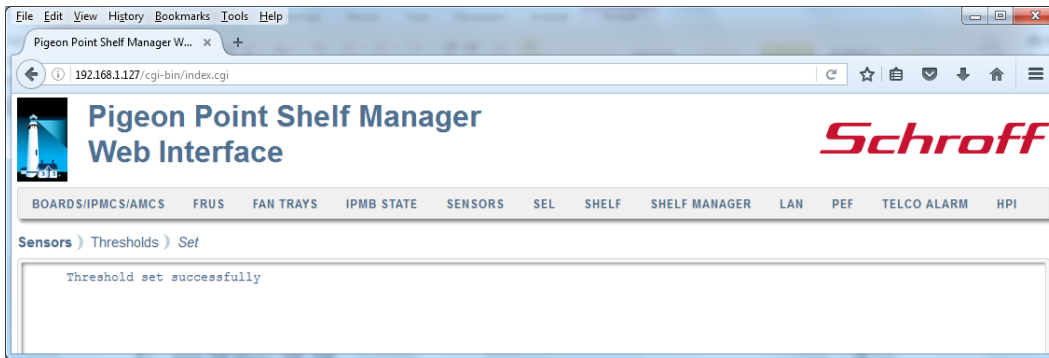
4.6.3.2 Set

The “Set” page allows the user to set thresholds for the specified sensor, The sensor is identified by the IPM controller address and the sensor number . All fields must be filled in. The new threshold value supplied by the user should be either a raw byte value or a processed numeric value.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN (optional) and sensor number, separated by a colon if the LUN is present. If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *setthreshold*.



4.6.4 Hysteresis

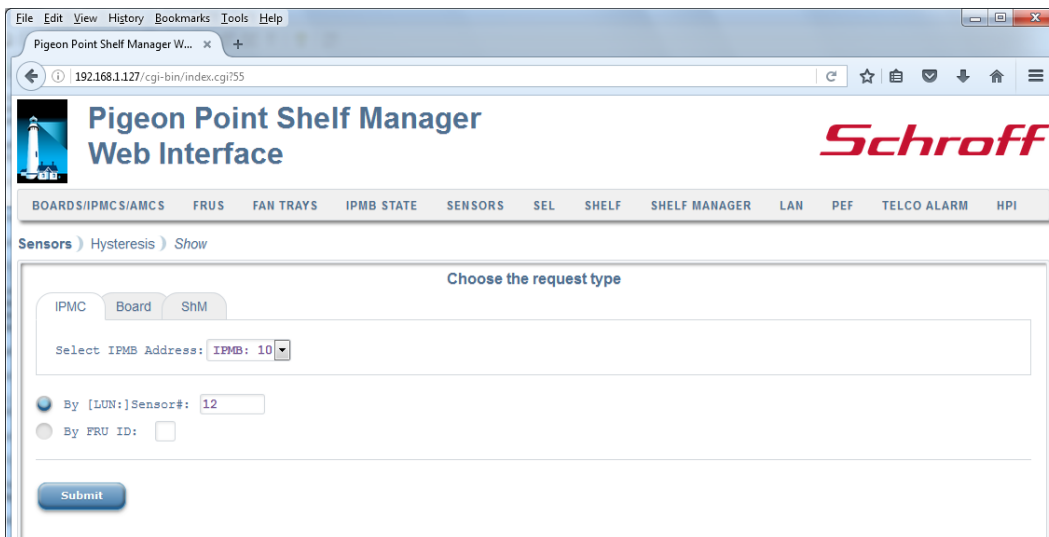
The “Hysteresis” drop-down list consists of two items:

- Show
- Set

4.6.4.1 Show

The “Show” page allows the user to retrieve the positive-going and negative-going hysteresis for the specified sensor. In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN and sensor number. The LUN is optional; if specified, it is separated from the sensor number with a colon. If the user specifies only the sensor number, information is returned about known sensors with the specified sensor number on all LUNs. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)

If the radio button “By FRU ID:” is selected, a FRU ID should be specified; the operation then applies to all sensors associated with the specified FRU.



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *gethysteresis*.

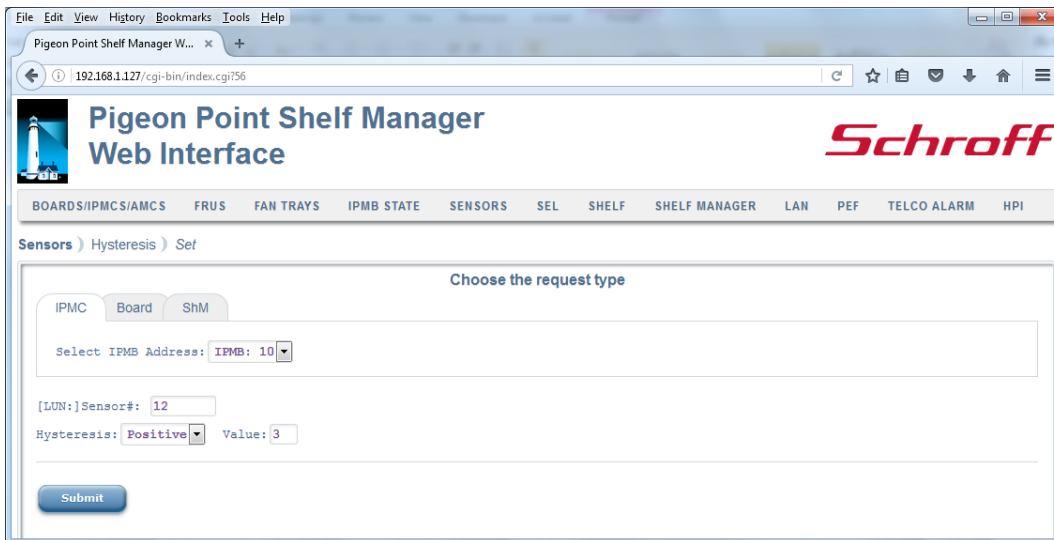


4.6.4.2 Set

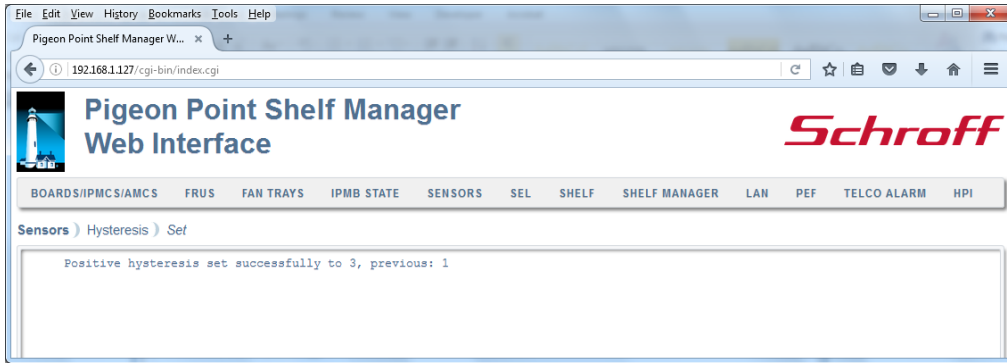
The “Set” page allows the user to set the value of the positive-going or negative-going hysteresis for the specified sensor. The user should identify the IPM controller address and the sensor number and the hysteresis to be set. All fields must be filled in. The new hysteresis value supplied by the user should be a raw byte value.

In the field “[LUN:]Sensor #”, the user can identify the target sensor by specifying the sensor LUN and sensor number.

In the last case, the LUN is optional; if specified, it is separated from the sensor number with a colon. If the LUN is omitted, the command is applied to the sensor with the specified sensor number on the lowest numbered LUN. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command *sethysteresis*.



4.6.5 Event Enable Status

The “Event Enable Status” drop-down list consists of two items:

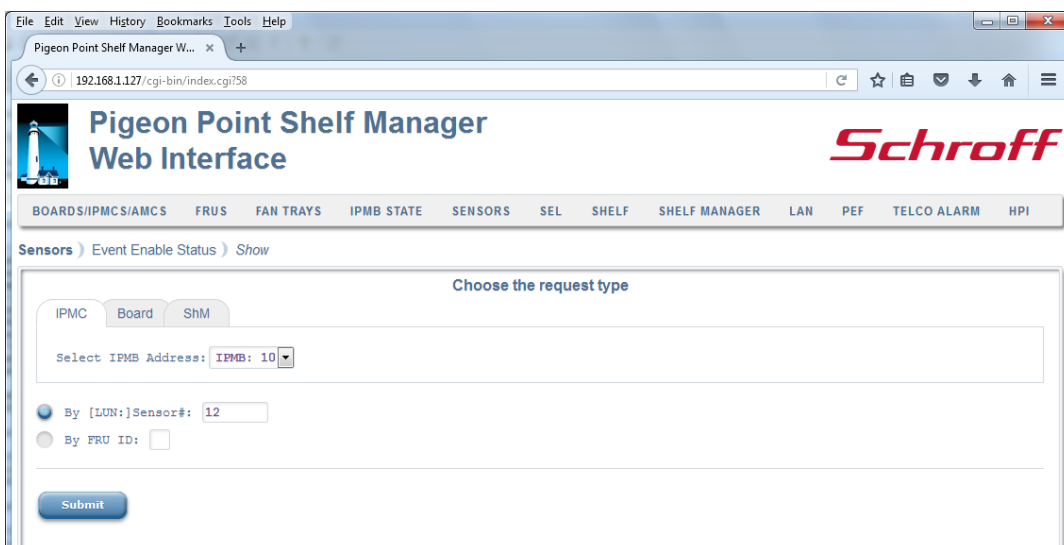
- Show
- Set

4.6.5.1 Show

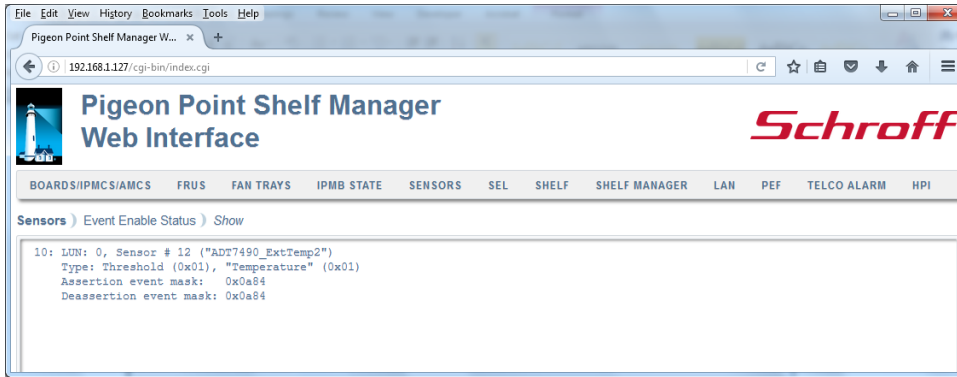
The “Show” page allows to the user to obtain the current event enable mask values of the specified sensor(s).

The IPMB address of the IPM controller should be selected. Alternatively, the board number or dedicated Shelf Manager number can be used to designate the target IPM controller. The user may qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. If the LUN is omitted, information about sensors with the specified sensor number on all LUNs is shown.

If the radio button “By FRU ID:” is selected, a FRU ID should be specified; the operation then applies to all sensors associated with the specified FRU.



After the user fills in the request information and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command *getsensoreventenable*.

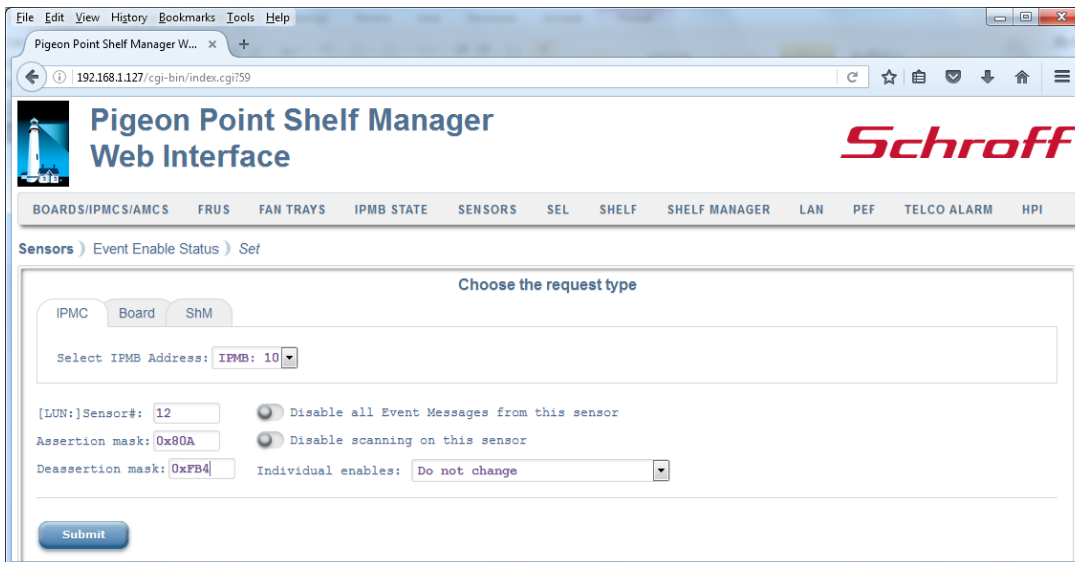


4.6.5.2 Set

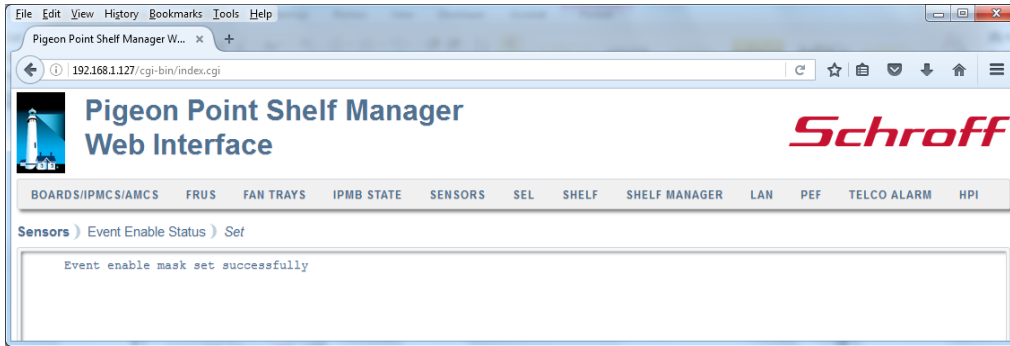
The “Set” page allows the user to change the event enable mask for the specified sensor. The sensor is specified by the IPMB address of the owning IPM controller and the sensor number. Alternatively, the board number or dedicated Shelf Manager number can be used to designate the target IPM controller.

The user can qualify the sensor number with the Logical Unit Number (LUN) if the target controller supports sensors on multiple LUNs. In the latter case, the LUN is optional; if specified, it is separated from the sensor number with a colon. Valid values for the LUN are 0, 1 and 3. (LUN 2 is reserved.)

If the LUN is omitted, the request is applied to the sensor with the specified sensor number on the lowest numbered LUN.



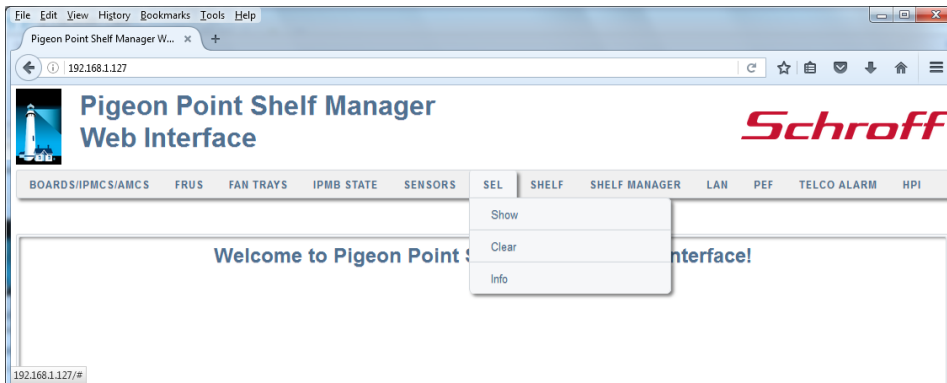
After the user fills in the request information and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command *setsensoreventenable*.



4.7 SEL

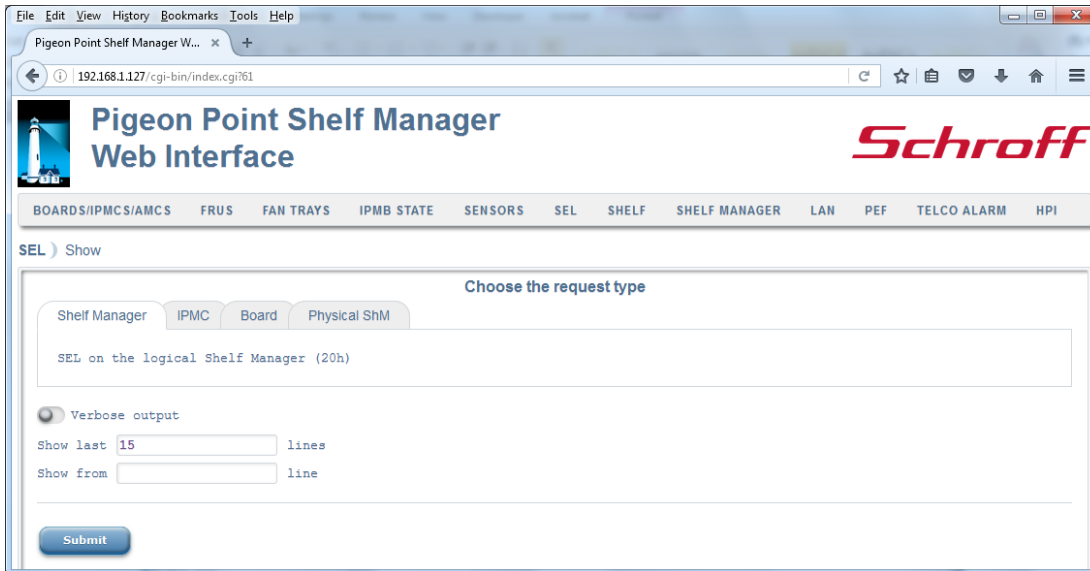
This drop-down list consists of the following items:

- Show
- Clear
- Info

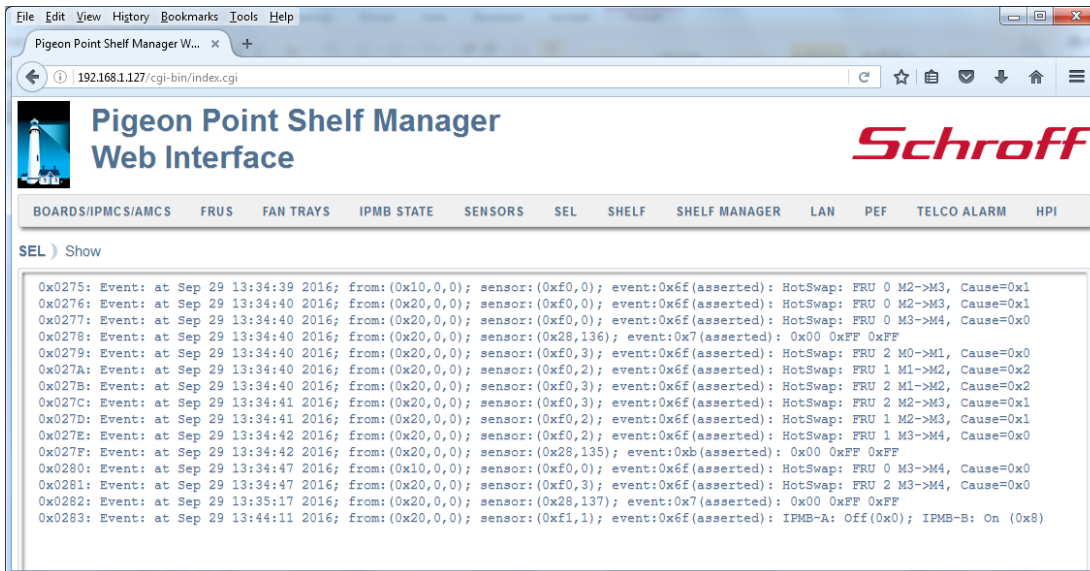


4.7.1 Show

The “Show” page allows the user to retrieve system event log information. The target IPM controller should be specified (by default, the logical Shelf Manager is assumed as the target). Optionally, the number of SEL entries to be displayed and the starting position in the SEL can be specified.



After the user fills in the desired fields and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `sel`.

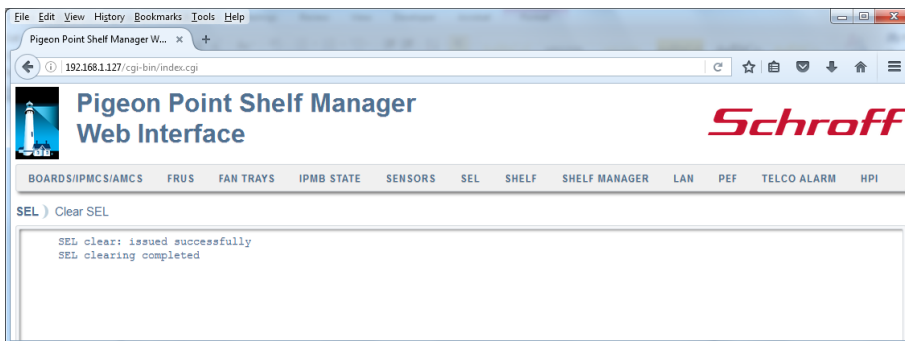


4.7.2 Clear

The “Clear” page allows the user to clear the event log. The target IPM controller should be specified (by default, the logical Shelf Manager is assumed as the target).

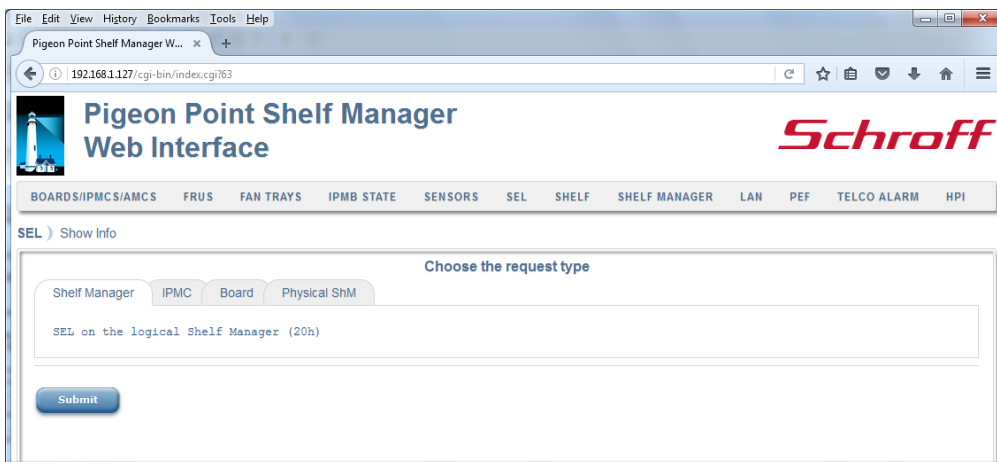


After the user chooses the desired option and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `sel clear`.

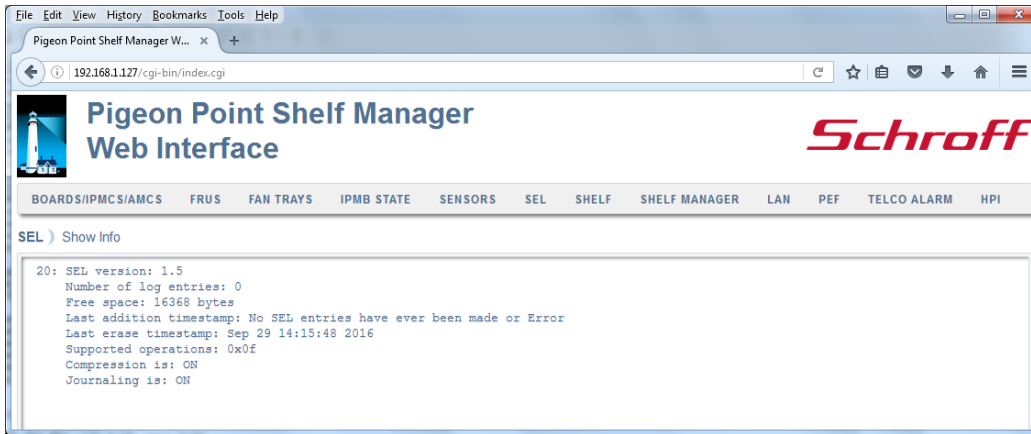


4.7.3 Info

The “Info” page allows the user to retrieve information about the system event log (including the log size, the timestamp of last write, etc.). The target IPM controller should be specified (by default, the logical Shelf Manager is assumed as the target.)



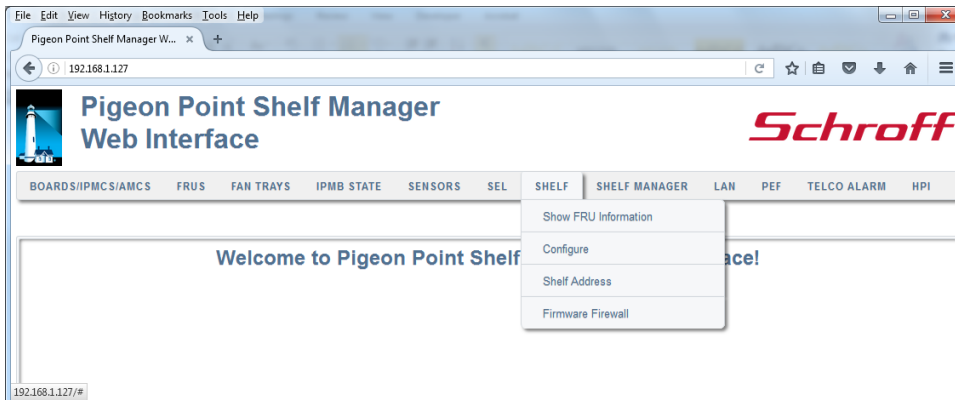
After the user chooses the desired option and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. The output is essentially equal to the output produced by the CLI command `sel info`.



4.8 Shelf

This drop-down list consists of the following items:

- Show FRU Information
- Configure
- Shelf Address
- Firmware Firewall



4.8.1 Show FRU Information

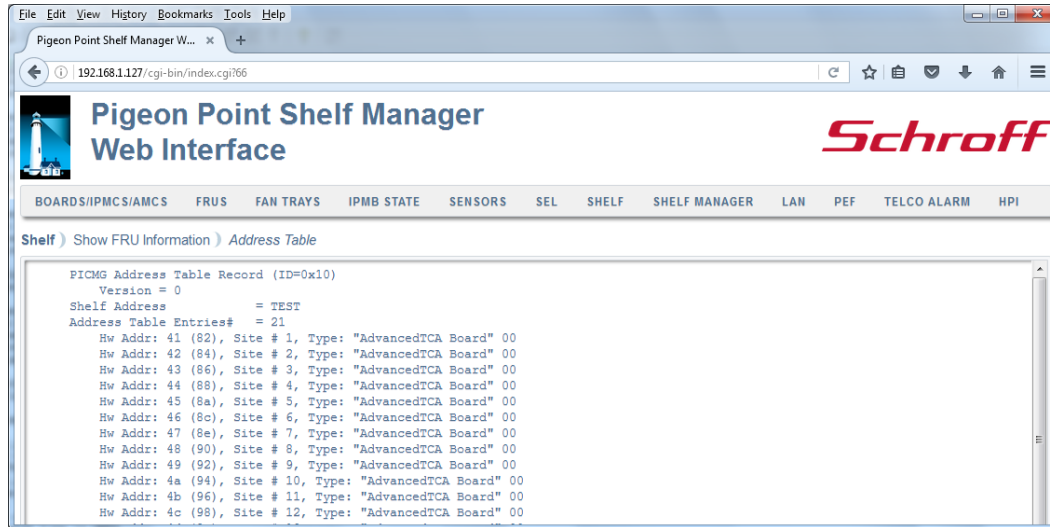
The "Show FRU Information" drop-down list consists of the following items:

- Address Table
- Cooling & Fans State
- Power Distribution
- Power Management
- Connectivity
- Shelf Manager Configuration
- Board LAN Configuration

None of these commands ask for parameters and all of them immediately produce result pages.

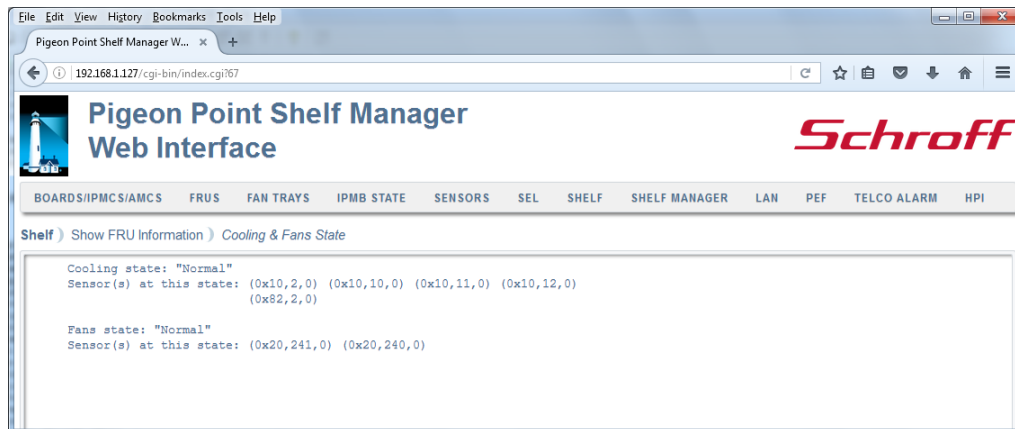
4.8.1.1 Address Table

A result page for the “Address Table” command shows the Address Table record in the Shelf FRU Information. It displays the output produced by the CLI command `shelf address_table`.



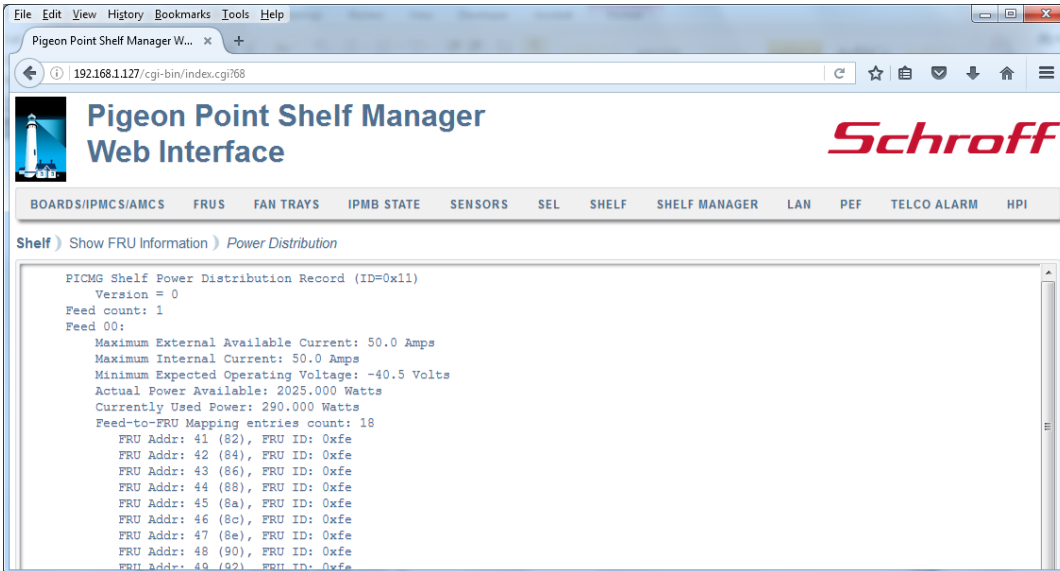
4.8.1.2 Cooling & Fans State

The result page for the “Cooling & Fans State” command displays the output produced by the CLI commands `shelf -v cooling_state` and `shelf -v fan_state`.



4.8.1.3 Power Distribution

The result page for the “Power Distribution” command shows the Shelf Power Distribution record in the Shelf FRU Information. It displays the output produced by the CLI command `shelf power_distribution`.



The screenshot shows the Pigeon Point Shelf Manager Web Interface. The browser address bar displays `192.168.1.127/cgi-bin/index.cgi?68`. The page title is "Pigeon Point Shelf Manager Web Interface" with the Schreff logo on the right. A navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The main content area shows "Shelf > Show FRU Information > Power Distribution". The output is as follows:

```
PICMG Shelf Power Distribution Record (ID=0x11)
Version = 0
Feed count: 1
Feed 00:
Maximum External Available Current: 50.0 Amps
Maximum Internal Current: 50.0 Amps
Minimum Expected Operating Voltage: -40.5 Volts
Actual Power Available: 2025.000 Watts
Currently Used Power: 290.000 Watts
Feed-to-FRU Mapping entries count: 18
FRU Addr: 41 (82), FRU ID: 0xfe
FRU Addr: 42 (84), FRU ID: 0xfe
FRU Addr: 43 (86), FRU ID: 0xfe
FRU Addr: 44 (88), FRU ID: 0xfe
FRU Addr: 45 (8a), FRU ID: 0xfe
FRU Addr: 46 (8c), FRU ID: 0xfe
FRU Addr: 47 (8e), FRU ID: 0xfe
FRU Addr: 48 (90), FRU ID: 0xfe
FRU Addr: 49 (92), FRU ID: 0xfe
```

4.8.1.4 Power Management

The result page for the “Power Management” command shows the Shelf Power Management Table record in the Shelf FRU Information. It displays the output produced by the CLI command `shelf power_management`.

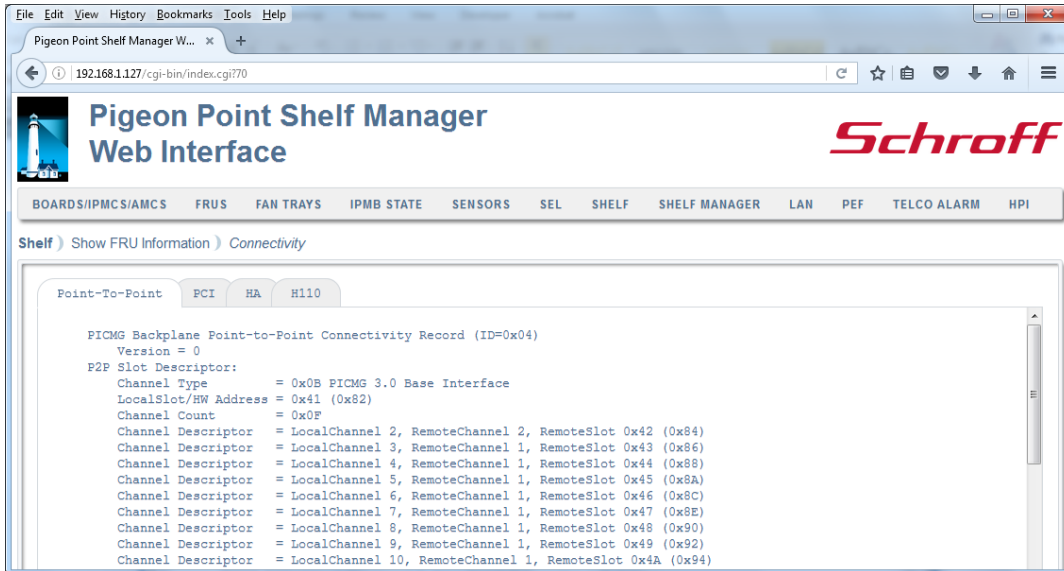


The screenshot shows the Pigeon Point Shelf Manager Web Interface. The browser address bar displays `192.168.1.127/cgi-bin/index.cgi?69`. The page title is "Pigeon Point Shelf Manager Web Interface" with the Schreff logo on the right. A navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The main content area shows "Shelf > Show FRU Information > Power Management". The output is as follows:

```
PICMG Shelf Activation And Power Management Record (ID=0x12)
Version = 1
Allowance for FRU Activation Readiness: 10 seconds
FRU Activation and Power Description Count: 19
Hw Address: 41 (82), FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Shelf Manager Controlled Deactivation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 20.0 Watts
Hw Address: 42 (84), FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Shelf Manager Controlled Deactivation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0.0 Watts
Hw Address: 43 (86), FRU ID: 0xfe, Maximum FRU Power Capabilities: 150 Watts
Shelf Manager Controlled Activation: Enabled
Shelf Manager Controlled Deactivation: Enabled
Delay Before Next Power On: 0.0 seconds
Currently Assigned Power: 0.0 Watts
```

4.8.1.5 Connectivity

The result page for the “Connectivity” command shows in separate tabs the Shelf Point-to-Point Connectivity record, the Shelf PCI Connectivity record, the Shelf HA Connectivity record and the Shelf H110 Connectivity record in the Shelf FRU Information. These several tabs display the output produced by the CLI commands `shelf point-to-point_connectivity`, `shelf pci_connectivity`, `shelf ha_connectivity`, `shelf h110_connectivity`.



4.8.1.6 Shelf Manager Configuration

The result page for the “Shelf Manager Configuration” command shows the Pentair Shelf Manager Configuration record in the Shelf FRU Information. It displays the output produced by the CLI command `shelf shm_cfg_params`.



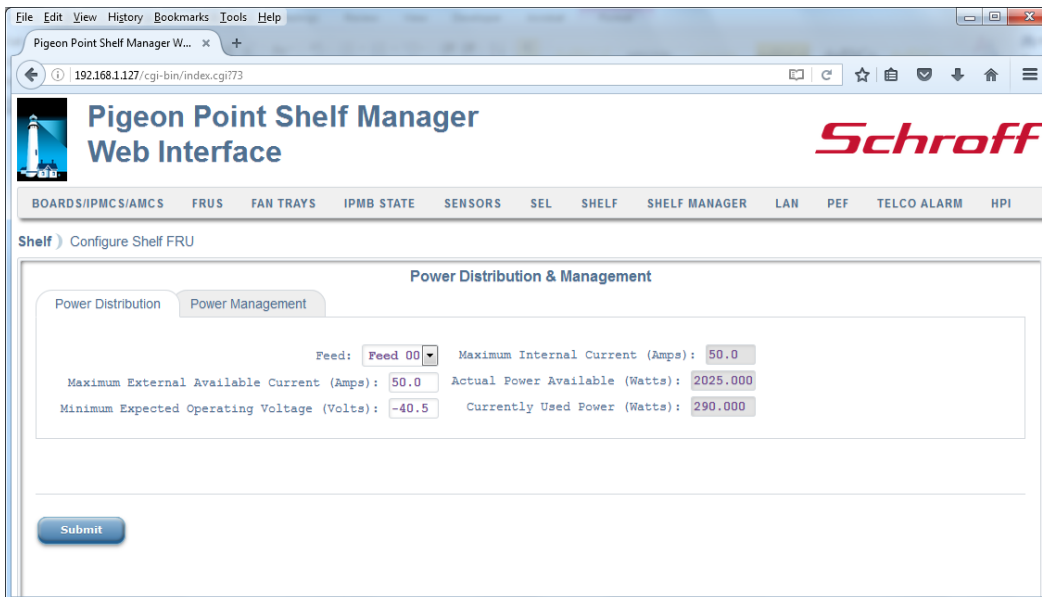
4.8.1.7 Board LAN Configuration

The result page for the “Board LAN Configuration” command shows the Pentair Board/AMC LAN Configuration record in the Shelf FRU Information. It displays the output produced by the CLI command `shelf board_lan_cfg_params`.

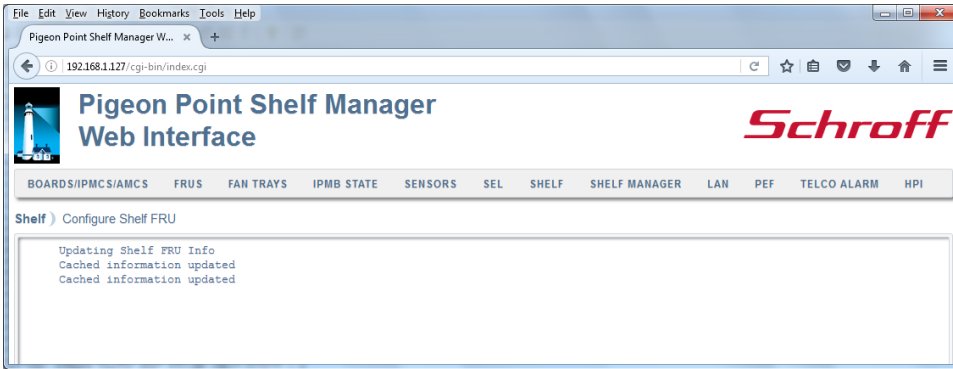


4.8.2 Configure

The “Configure” page allows the user to edit certain information in the Shelf Power Management and Shelf Power Distribution records within the Shelf FRU Information and update the Shelf FRU Information accordingly.

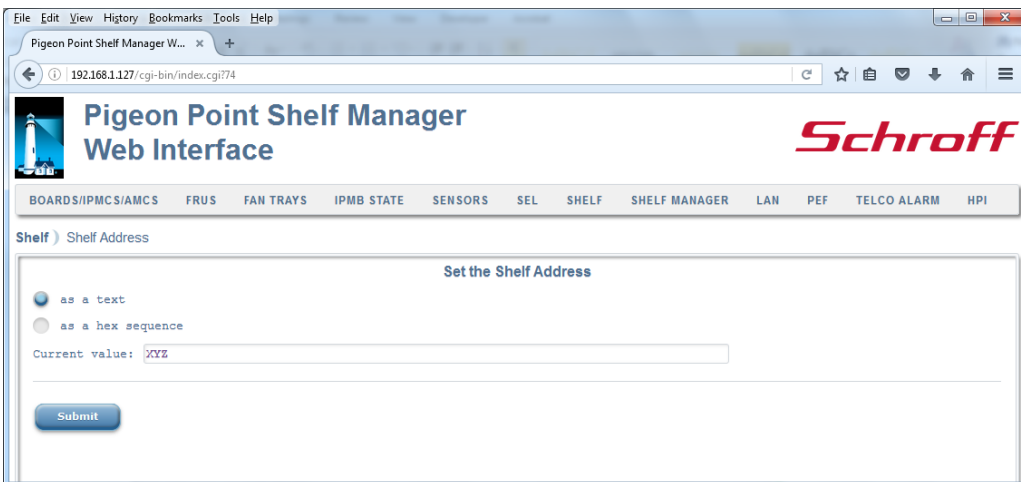


After the user changes fields on the page and clicks the “Submit” button, the modification request is executed and a result page is generated, indicating success or failure of the requested modifications. The CLI commands *shelf activation*, *shelf allowance*, *shelf deactivation*, *shelf maxcurrent*, *shelf minvoltage*, *shelf pwrcapability*, *shelf pwrdelay* are used to perform the modifications.

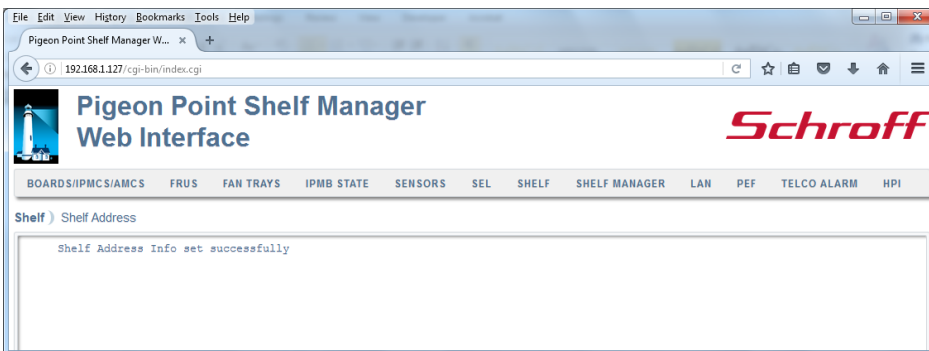


4.8.3 Shelf Address

The “Shelf Address” page shows the shelf address (which is stored in the Address Table within the Shelf FRU Information) and enables the user to modify it.



The output is essentially the same as the output produced by the CLI command *shelfaddress*.



4.8.4 Firmware Firewall

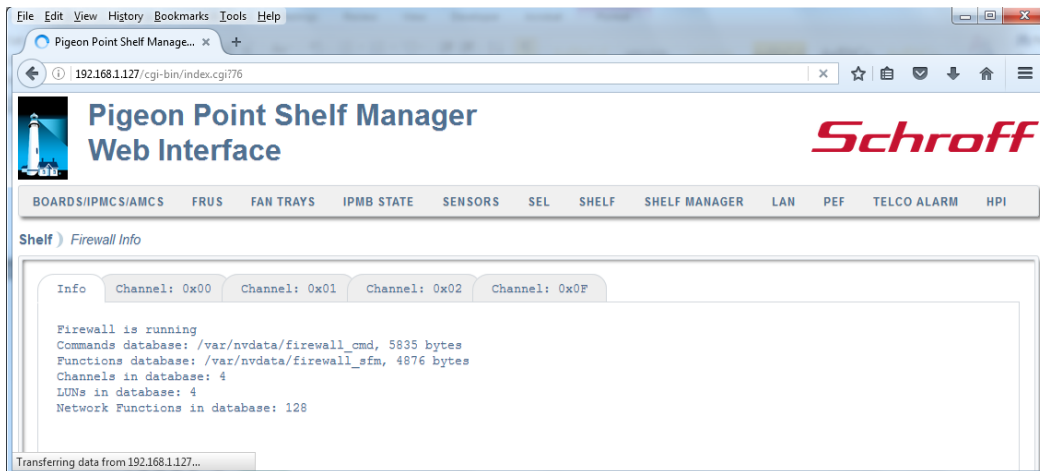
The “Firmware Firewall” drop-down list consists of the following items:

- Info
- Start
- Stop
- Command Policy

- Set Function Policy

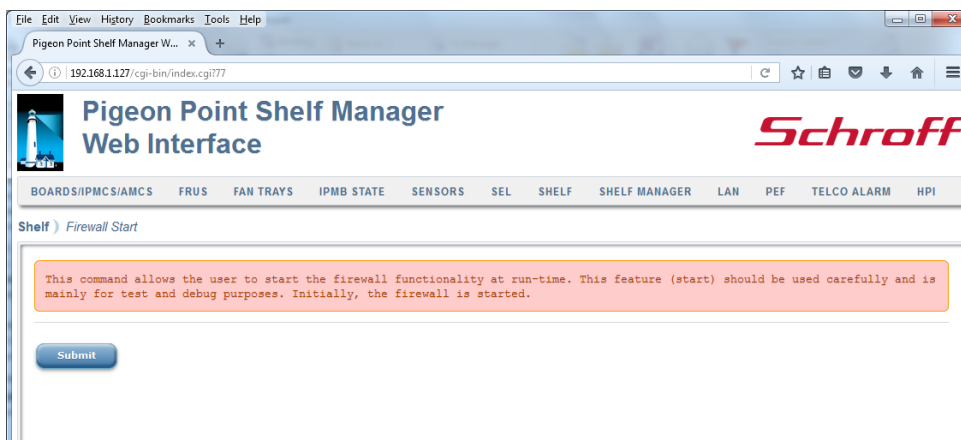
4.8.4.1 Info

The “Info” page shows the current firewall status. This command is essentially equal to the CLI command `firewall info`.

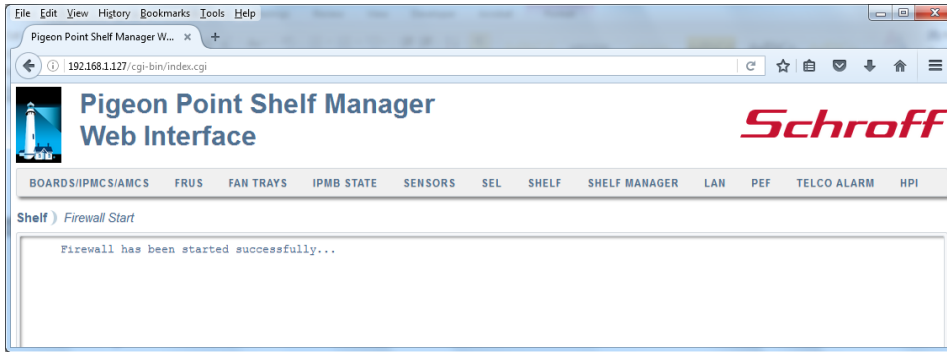


4.8.4.2 Start

The “Start” page enables the user to start the firewall functionality at run-time. This feature should be used carefully and is mainly for test and debug purposes. Initially, the firewall is started.

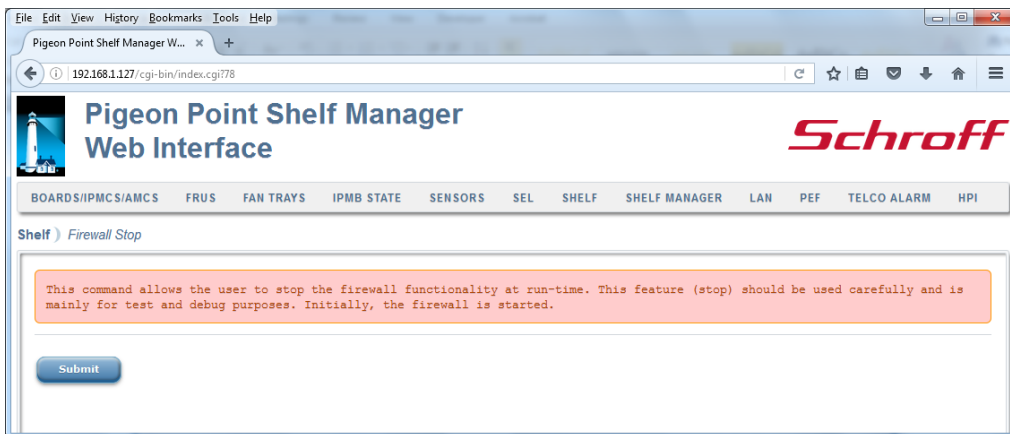


The output is essentially equal to the output produced by the CLI command `firewall start`.

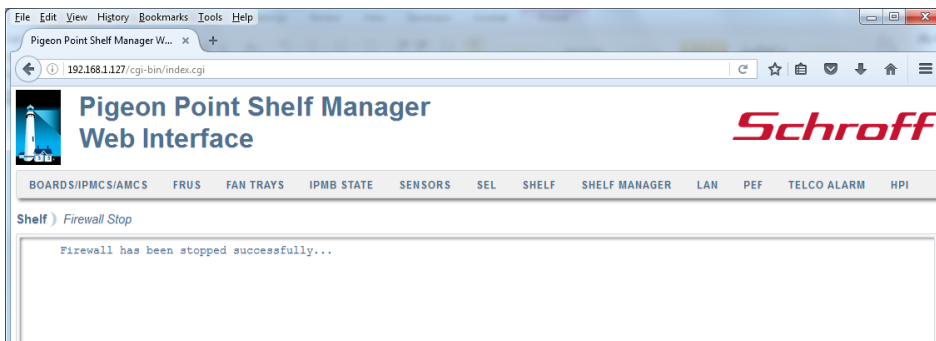


4.8.4.3 Stop

The “Stop” page enables the user to stop the firewall functionality at run-time. This feature should be used carefully and is mainly for test and debug purposes. Initially, the firewall is started.

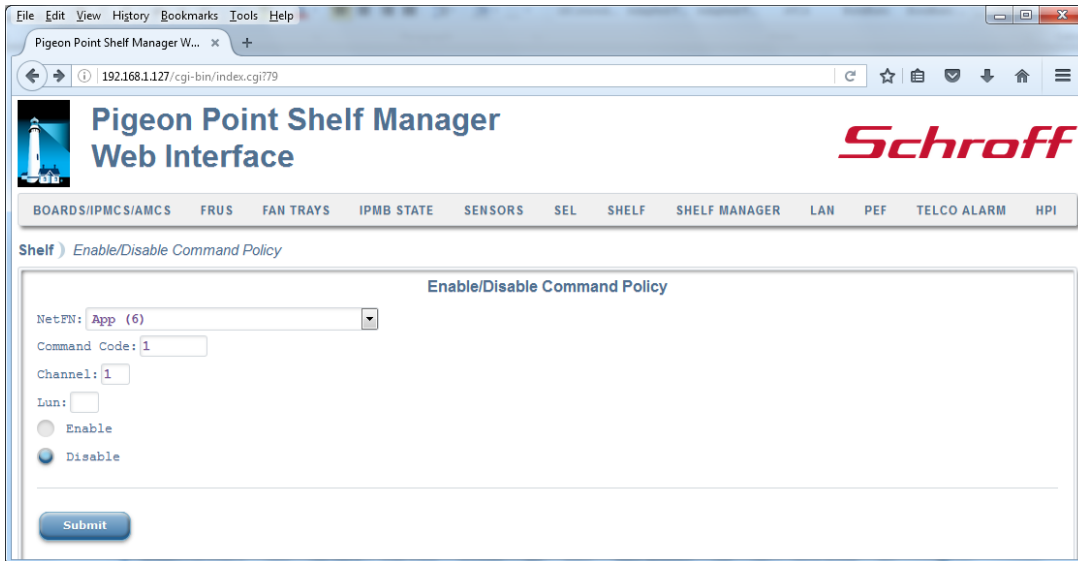


The output is essentially equal to the output produced by the CLI command *firewall stop*.

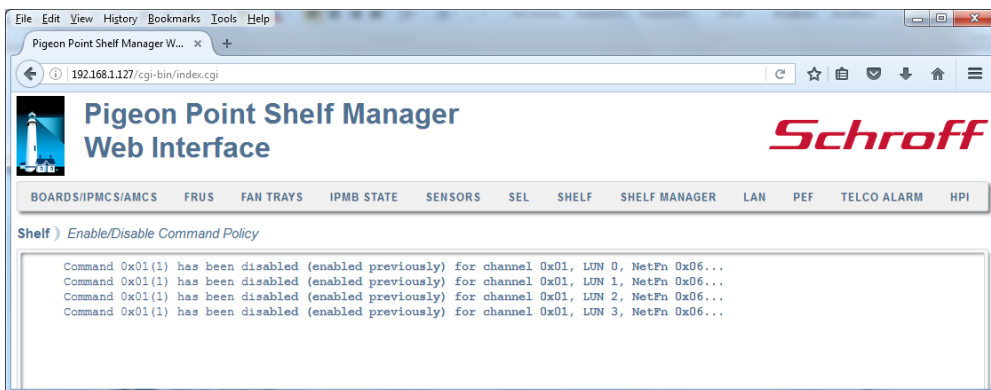


4.8.4.4 Command Policy

The “Command Policy” page allows the user to enable/disable a certain command for execution by the Shelf Manager, using the IPMI 2.0 firmware firewall functionality. If the “Channel” field is left blank, the action is applied to all channels.



The output is essentially equal to the output produced by the CLI command *setcommandpolicy*.

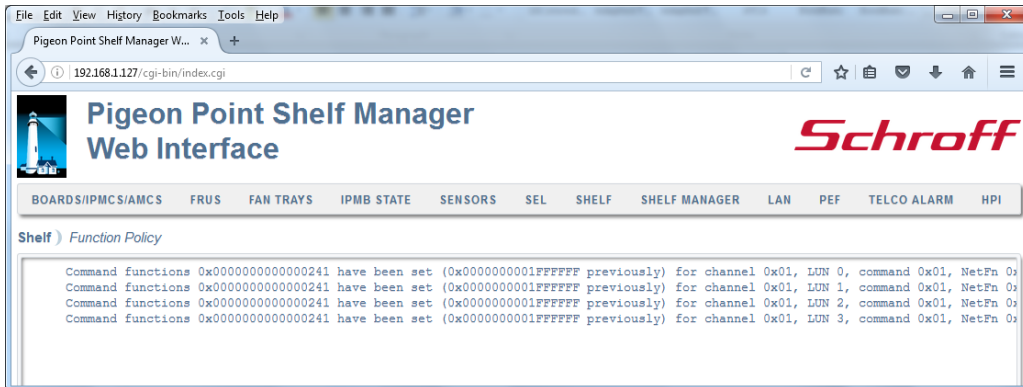


4.8.4.5 Set Function Policy

The “Set Function Policy” page allows the user to enable or disable specific subfunctions of a specific command for execution, using the IPMI 2.0 firmware firewall functionality.



The output is essentially equal to the output produced by the CLI command *setfunctionpolicy*.



4.9 Shelf Manager

This drop-down list consists of the following items:

- Version
- Status
- Local Address
- Sessions
- Configuration Parameters
- Control
- HPDL Variables
- MIB Files



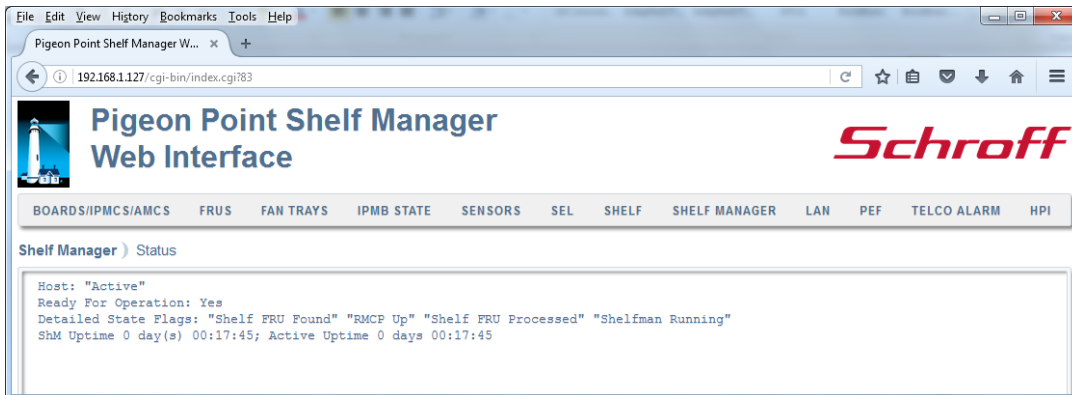
4.9.1 Version

The “Version” command does not have any parameters; its result page shows information about the software version of the Shelf Manager. The output is essentially equal to the output produced by the CLI command *version*.



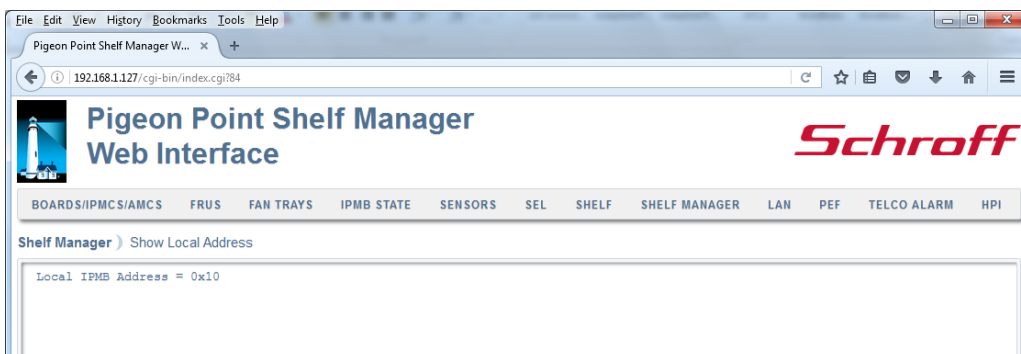
4.9.2 Status

The “Status” command does not have any parameters; its result page shows the Shelf Manager status in redundant configurations: Active or Backup. Also, the page shows status of the Shelf FRU Information, status of the RMCP interface and state of the backup Shelf Manager. The output is essentially equal to the output produced by the CLI command `shmstatus -v`.



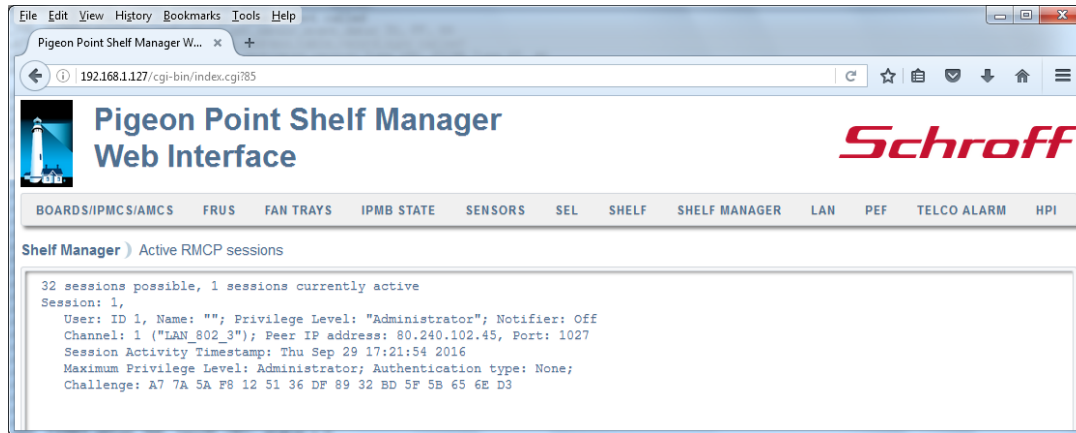
4.9.3 Local Address

The “Local Address” command does not have any parameters; its result page shows the IPMB address of the current Shelf Manager, based on its hardware address. The output is essentially equal to the output produced by the CLI command `localaddress`.



4.9.4 Sessions

The “Sessions” command does not have any parameters; its result page shows information about active RMCP sessions. The output is essentially equal to the output produced by the CLI command `session -v`.



4.9.5 Configuration Parameters

The “Configuration Parameters” command does not have any parameters; its result page shows all known Shelf Manager configuration parameters, with their current values. The output is essentially equal to the output produced by the CLI command `getConfigparam`.



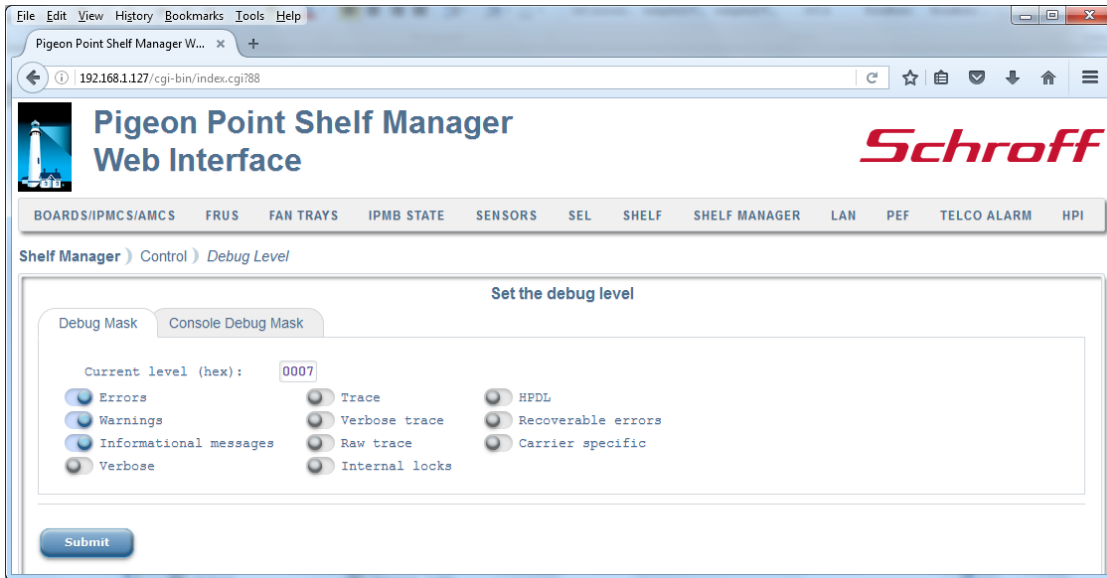
4.9.6 Control

The “Control” drop-down list consists of two items:

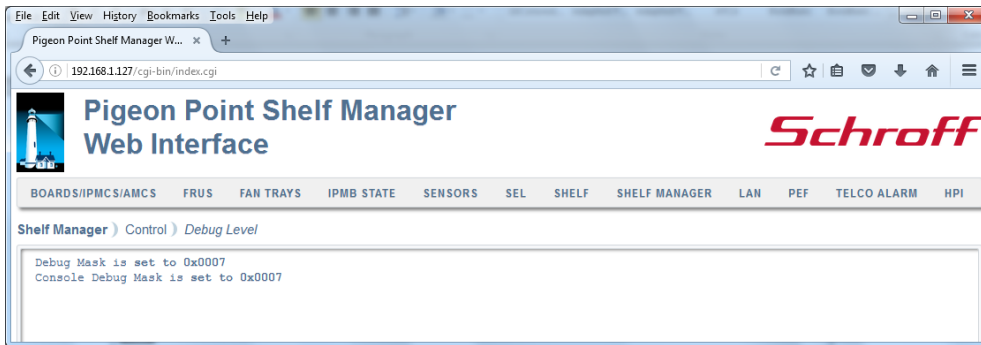
- Debug Level
- Switchover

4.9.6.1 Debug Level

The “Debug Level” page shows the current debug levels for the Shelf Manager (for both the system log and the console), and enables the user to set them to new values.

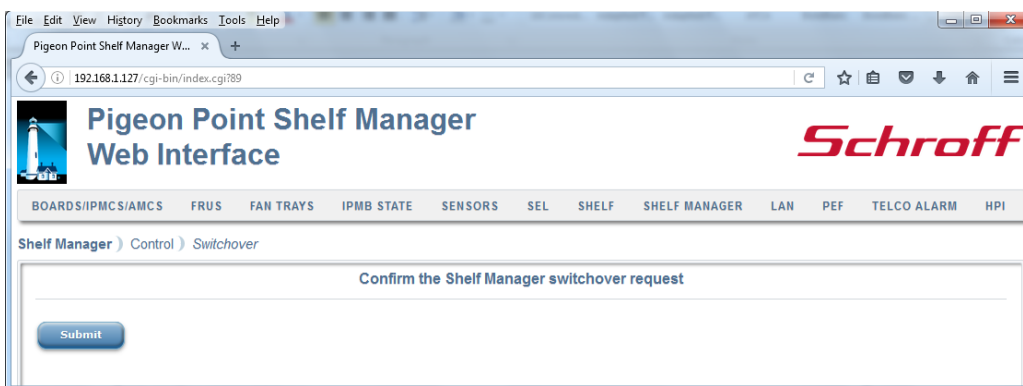


The output is essentially equal to the output produced by the CLI command *debuglevel*.



4.9.6.2 Switchover

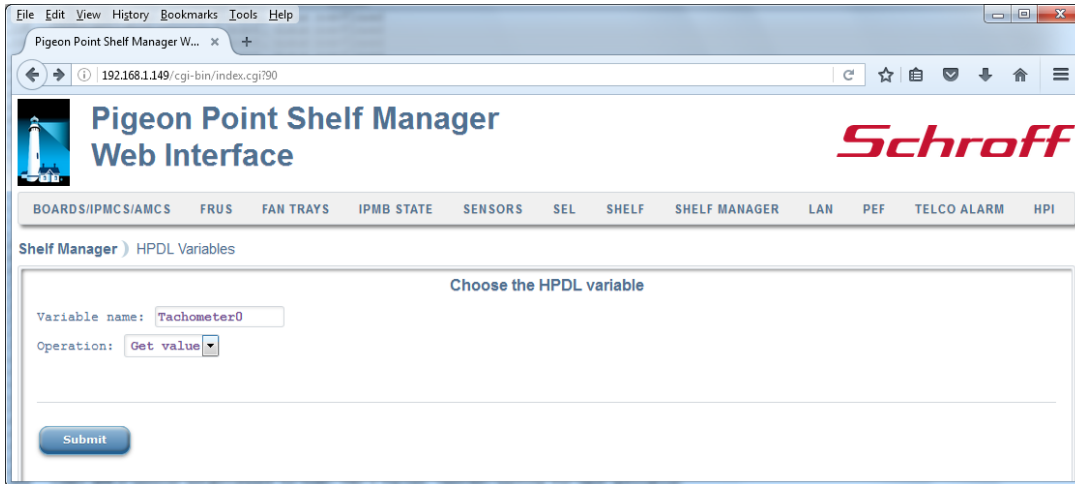
The “Switchover” page allows the user to initiate a switchover from the Active to the Backup Shelf Manager.



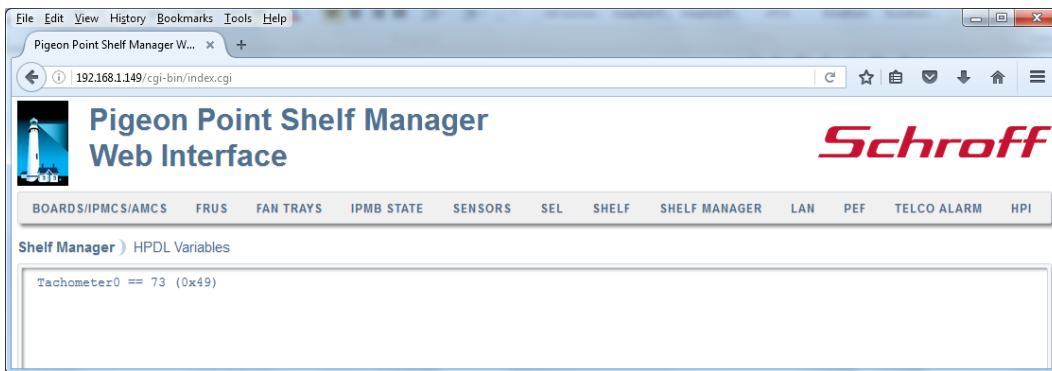
After the user clicks the “Submit” button, the Shelf Manager switchover request is executed. The browser may report an error at this point if the switchover to the other Shelf Manager happens before the Web server produces a result page.

4.9.7 HPDL Variables

The “HPDL Variables” page enables the user to show or set the value of the HPDL variable specified by its name. Also, the user can request the total (arithmetic sum) of all elements in a specified array.

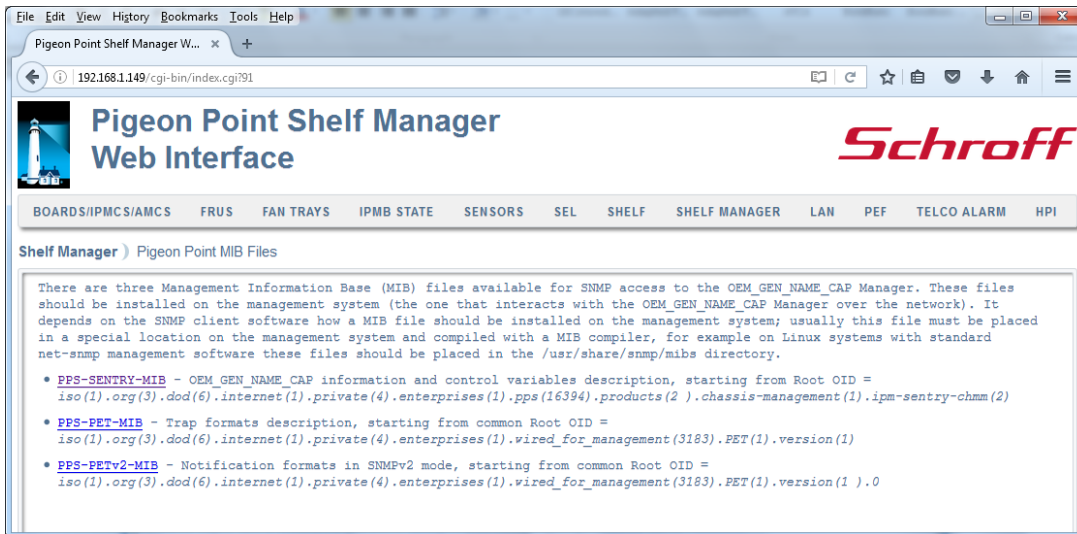


After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated. The output is essentially equal to the output produced by the CLI command *variable* with appropriate parameters.

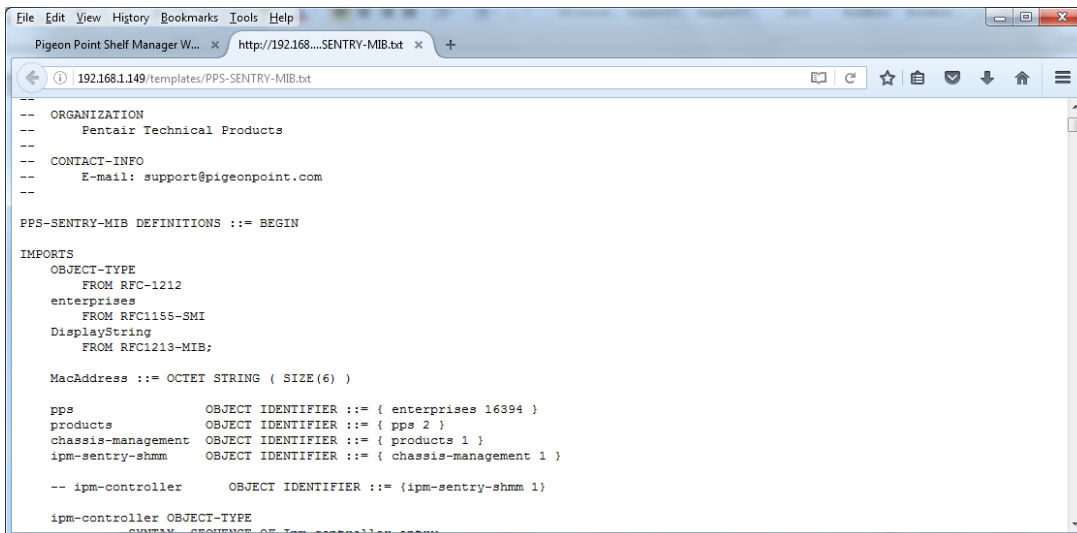


4.9.8 MIB Files

The “Pigeon Point MIB Files” page allows the user to inspect the MIB files contents.



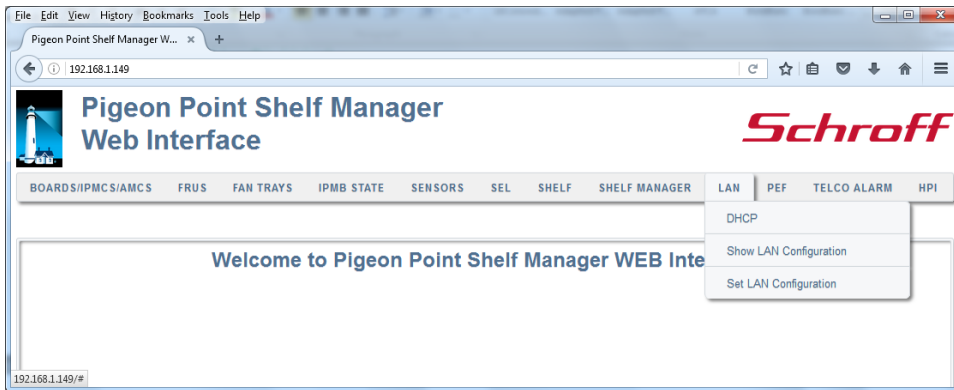
After the user clicks on a file name, a new tab of a browser is opened. The file's content is presented in a result page.



4.10 LAN

This drop-down list consists of the following items:

- DHCP
- Show LAN Configuration
- Set LAN Configuration



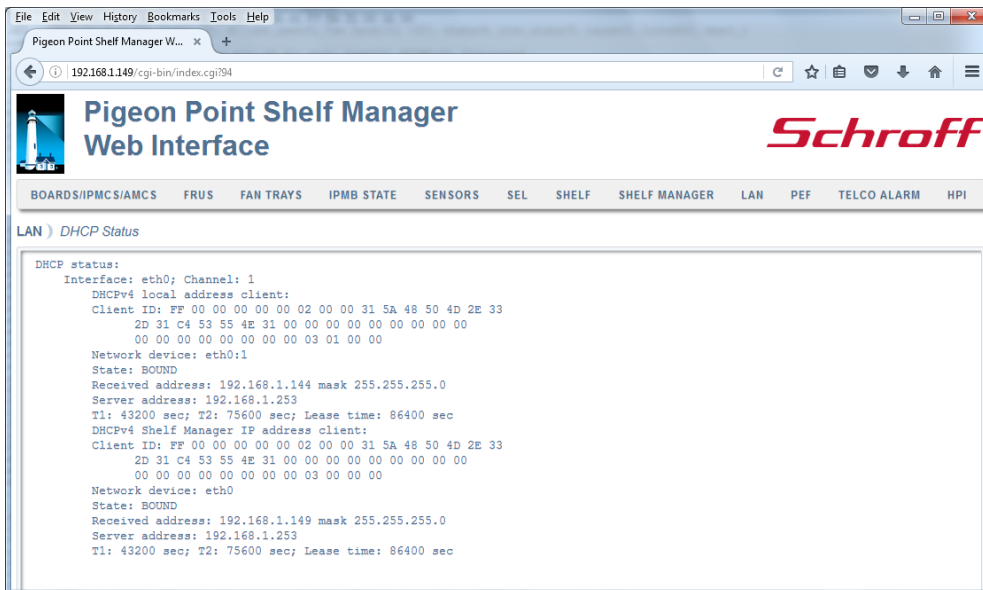
4.10.1 DHCP

The “DHCP” drop-down list consists of two items:

- Status
- Restart

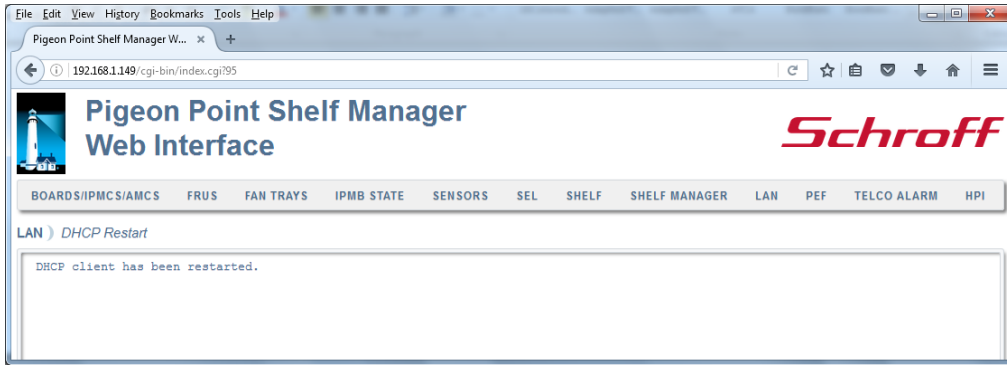
4.10.1.1 Status

The “Status” command does not have parameters and allows the user to inspect the current status of the DHCP client. The contents of a result page is essentially equal to the output produced by the CLI command *dhcp status*.



4.10.1.2 Restart

The “Restart” command does not have parameters and initiates a restart of the DHCP client. The contents of a result page are essentially equal to the output produced by the CLI command *dhcp restart*.

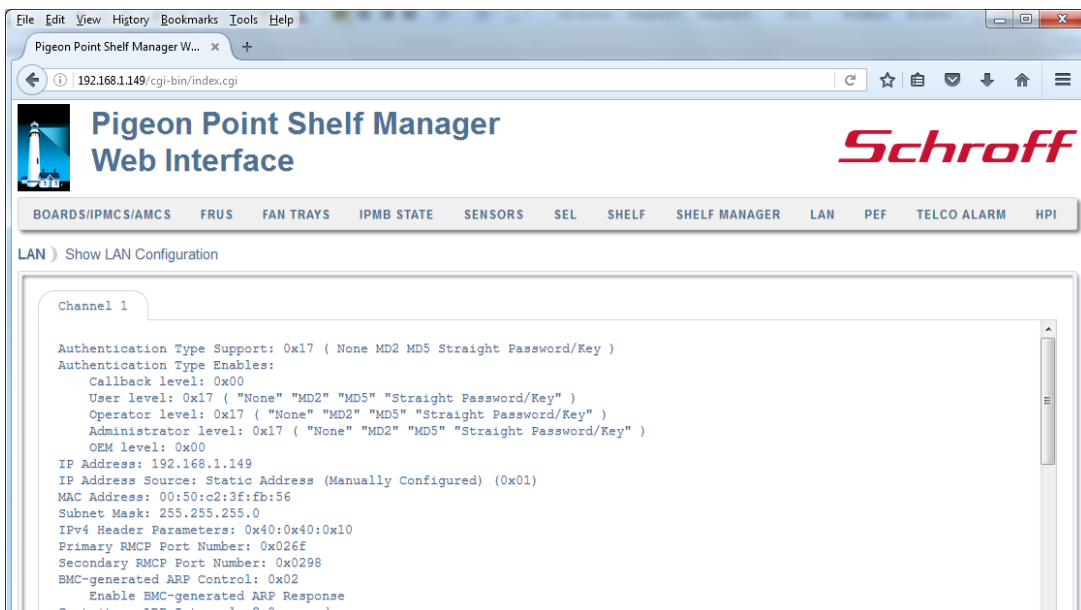


4.10.2 Show LAN Configuration

The “Show LAN Configuration” page enables user to retrieve LAN configuration information for the specified IPMC or the logical Shelf Manager.



After the user selects the target of the operation and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `getlanconf`.



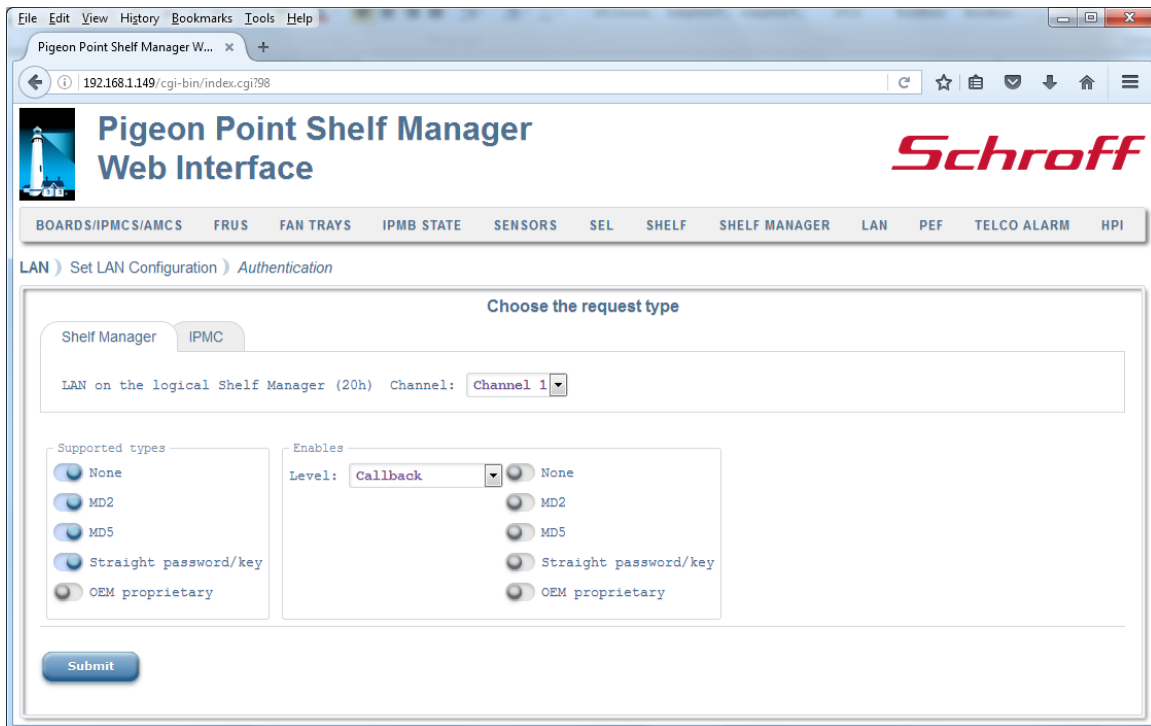
4.10.3 Set LAN Configuration

The “Set LAN Configuration” drop-down list consists of the following items:

- Authentication
- IP
- Gateway
- Alert Destinations
- VLAN ID /Priority
- Cipher Suites
- Bad Password Threshold

4.10.3.1 Authentication

The “Authentication” page enables the user to set authentication type enable flags for the Callback, User, Operator, Administrator and OEM privilege levels for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)



The screenshot shows the Pigeon Point Shelf Manager Web Interface. The browser address bar displays `192.168.1.149/cgi-bin/index.cgi?98`. The page title is "Pigeon Point Shelf Manager Web Interface" with the Schreff logo. A navigation menu includes: BOARDS/IPMCS/AMCS, FRUS, FAN TRAYS, IPMB STATE, SENSORS, SEL, SHELF, SHELF MANAGER, LAN, PEF, TELCO ALARM, HPI. The current page is "LAN > Set LAN Configuration > Authentication".

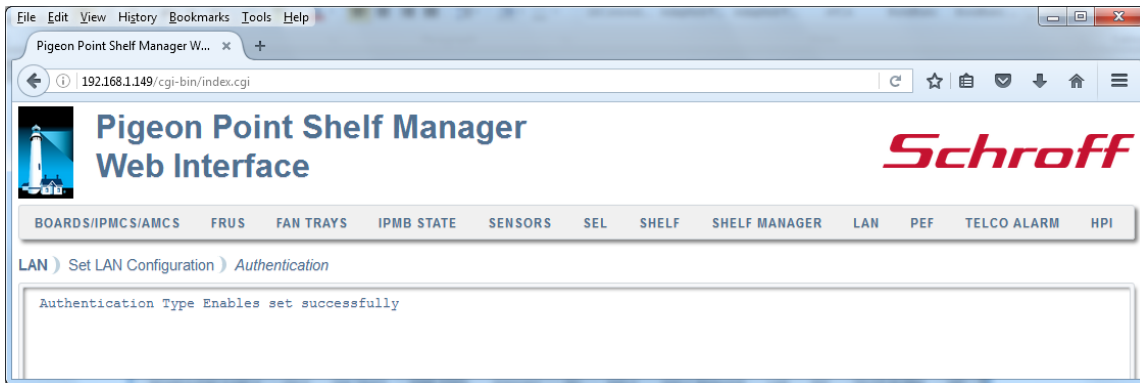
The main content area is titled "Choose the request type". It has two tabs: "Shelf Manager" and "IPMC". The "IPMC" tab is selected. Below the tabs, it says "LAN on the logical Shelf Manager (20h) Channel: Channel 1".

There are two columns of options:

- Supported types:** Radio buttons for None, MD2, MD5, Straight password/key, and OEM proprietary. The "None" option is selected.
- Enables:** A "Level:" dropdown menu is set to "Callback". To its right are radio buttons for None, MD2, MD5, Straight password/key, and OEM proprietary. The "None" option is selected.

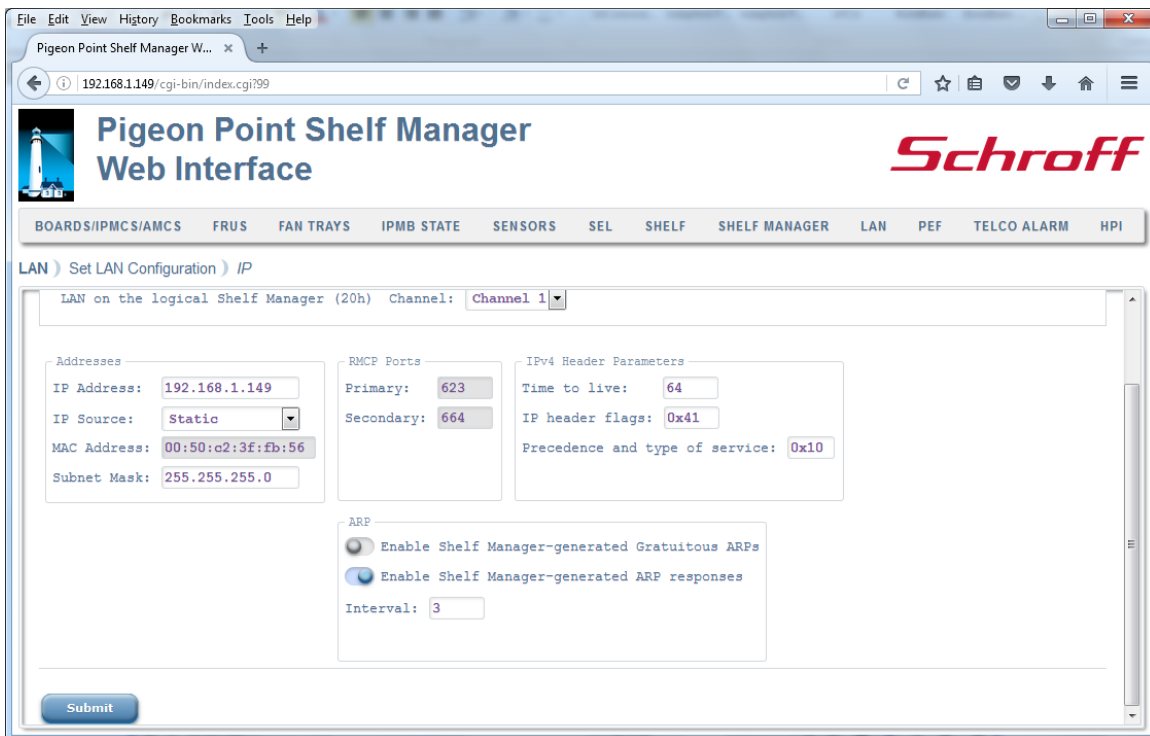
A "Submit" button is located at the bottom left of the form area.

After the user selects the options and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.

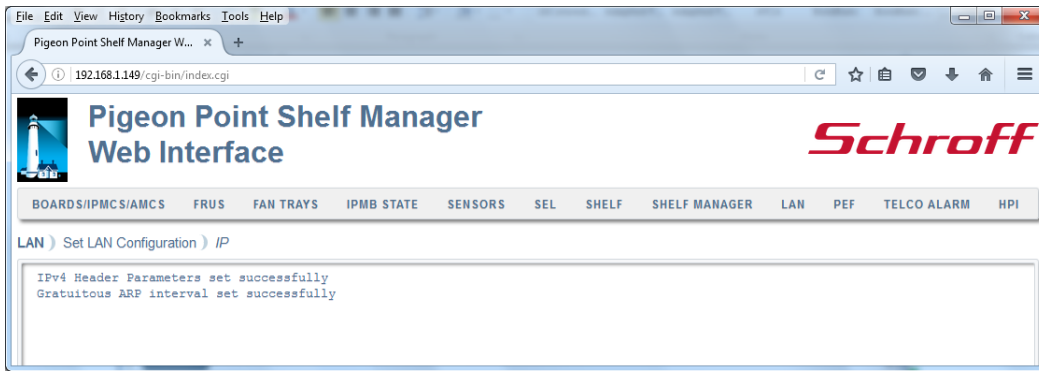


4.10.3.2 IP

The “IP” page allows the user to set several LAN configuration parameters: assigned IP address, source of assigned IP address, subnet mask, etc., for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)

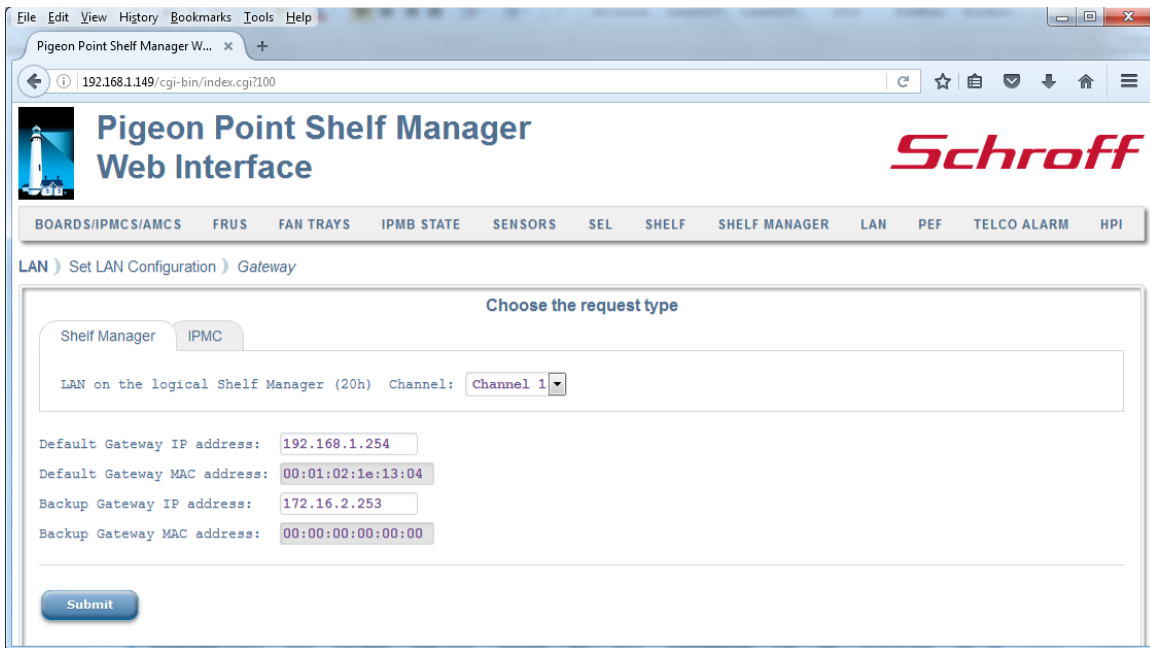


After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.

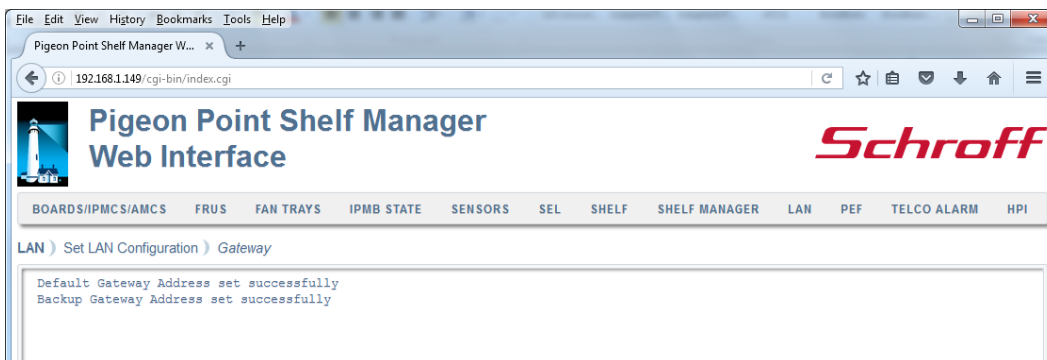


4.10.3.3 Gateway

The “Gateway” page allows the user to set the following LAN configuration parameters: IP addresses for the default gateway and the backup gateway for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)

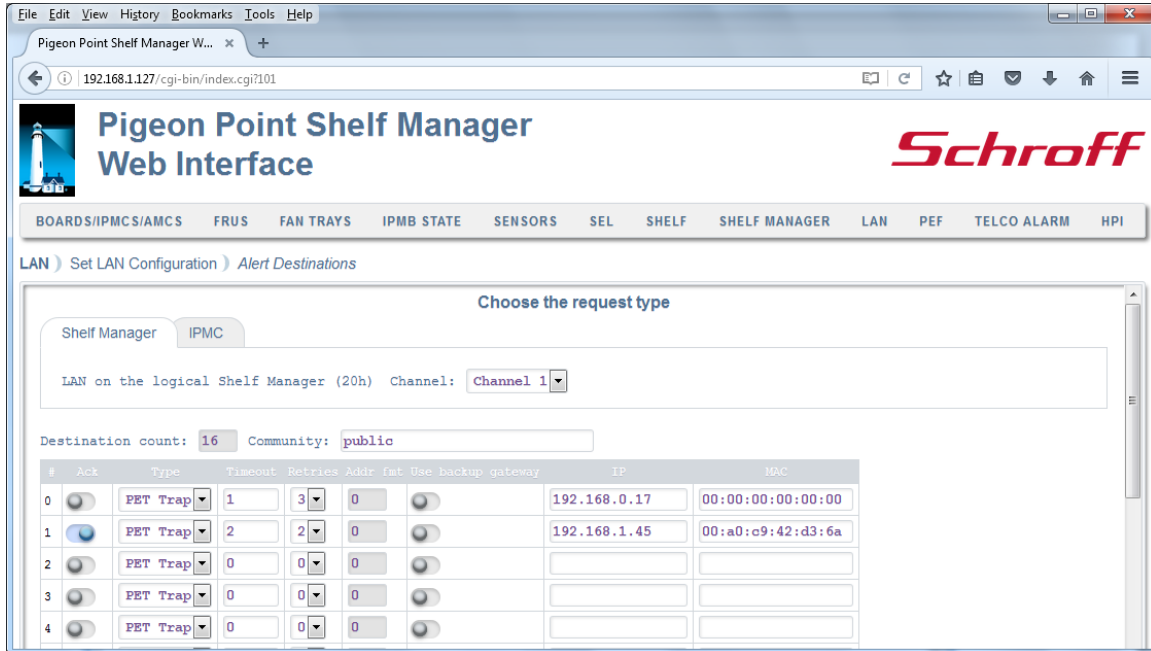


After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.



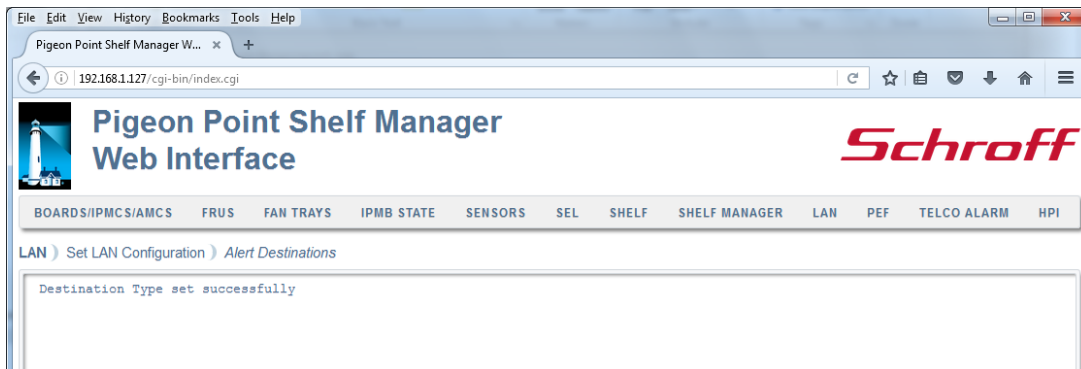
4.10.3.4 Alert Destinations

The “Alert Destinations” page allows the user to set several LAN Configuration parameters: community string, destination types, destination addresses for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)



#	Ack	Type	Timeout	Retries	Addr. fmt	Use backup gateway	IP	MAC
0	<input type="checkbox"/>	PET Trap	1	3	0	<input type="checkbox"/>	192.168.0.17	00:00:00:00:00:00
1	<input checked="" type="checkbox"/>	PET Trap	2	2	0	<input type="checkbox"/>	192.168.1.45	00:a0:c9:42:d3:6a
2	<input type="checkbox"/>	PET Trap	0	0	0	<input type="checkbox"/>		
3	<input type="checkbox"/>	PET Trap	0	0	0	<input type="checkbox"/>		
4	<input type="checkbox"/>	PET Trap	0	0	0	<input type="checkbox"/>		

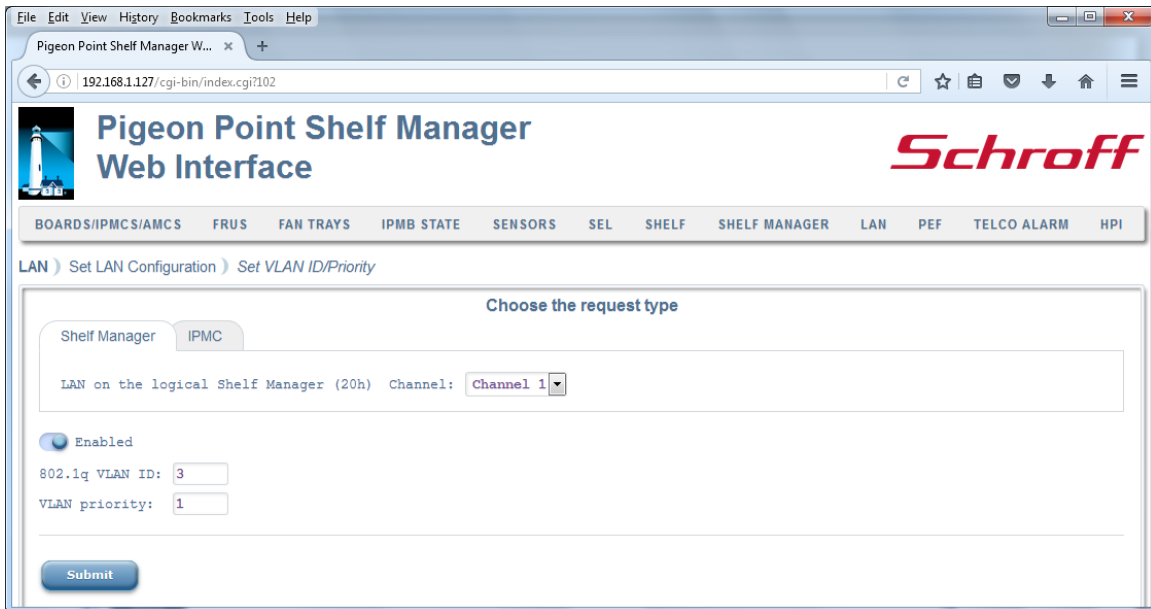
After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.



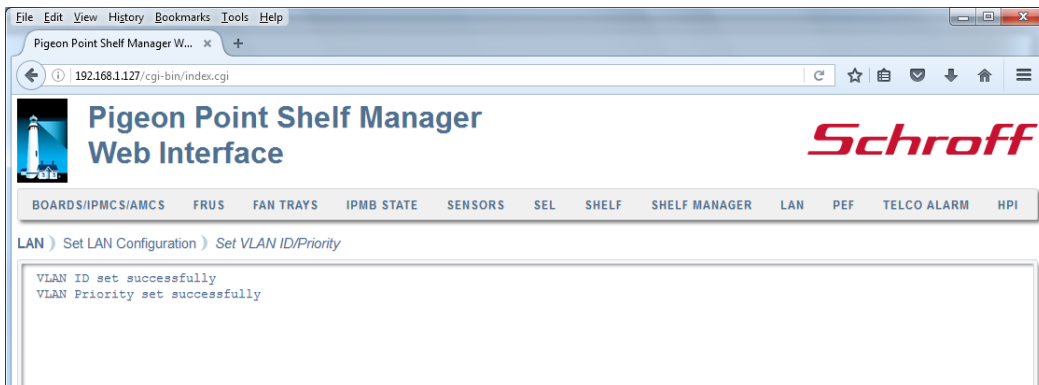
Destination Type set successfully

4.10.3.5 VLAN ID /Priority

The “VLAN ID/Priority” page allows the user to set several LAN configuration parameters that are related to VLAN for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)

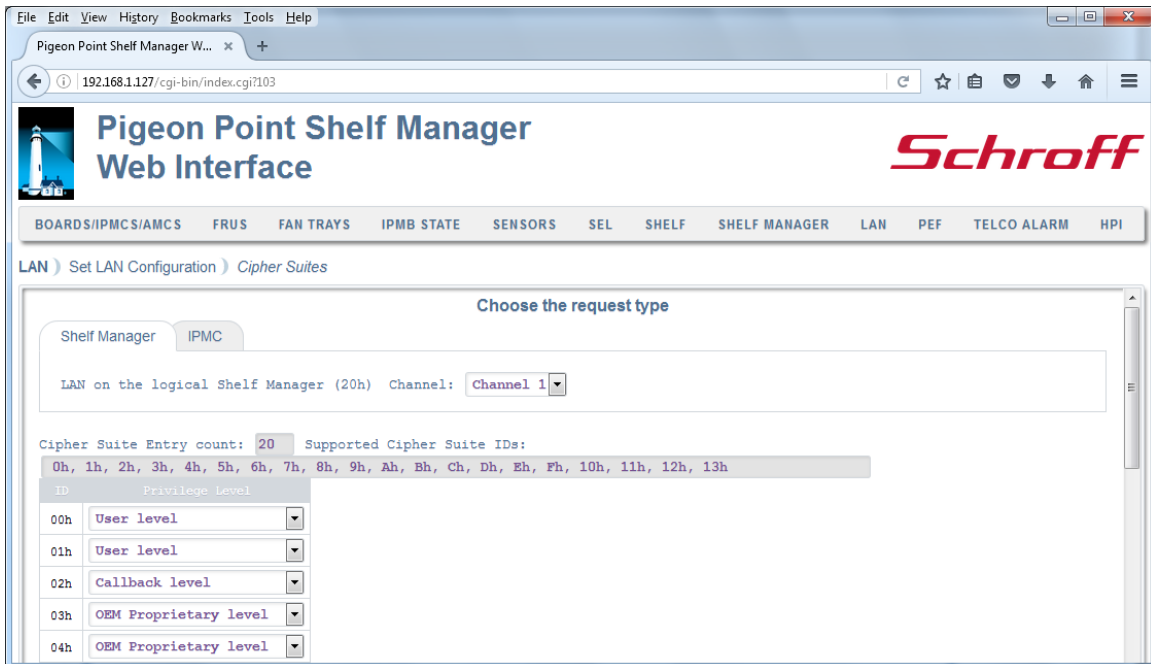


After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.

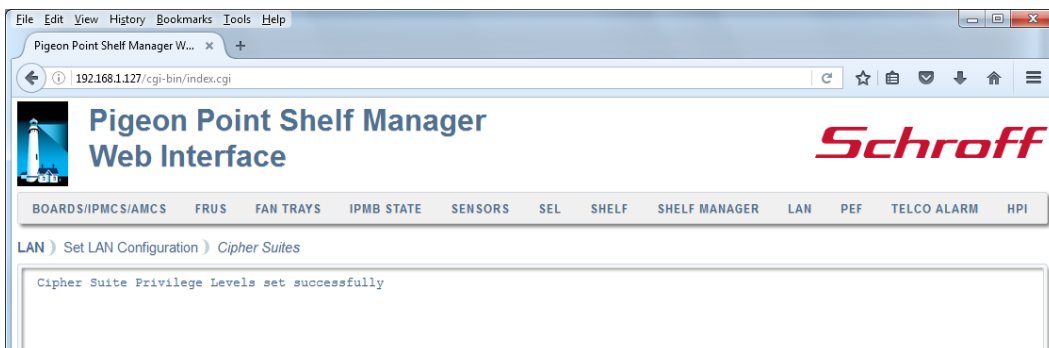


4.10.3.6 Cipher Suites

The “Cipher Suites” page allows the user to set privilege levels for supported Cipher Suites for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)

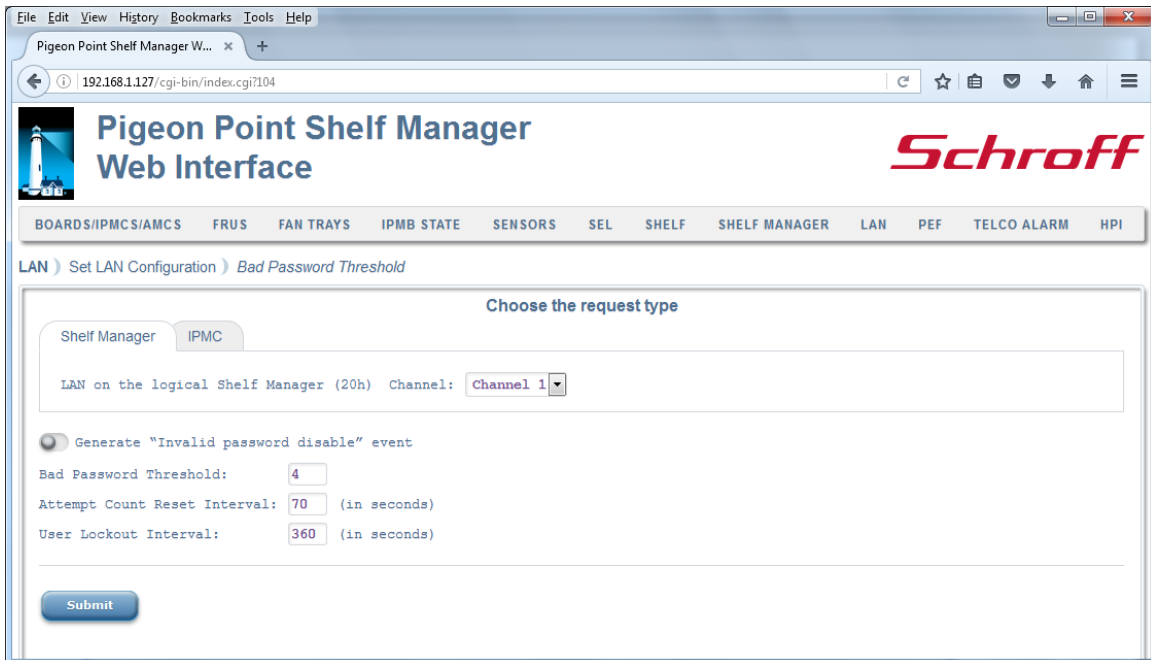


After the user selects options and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.

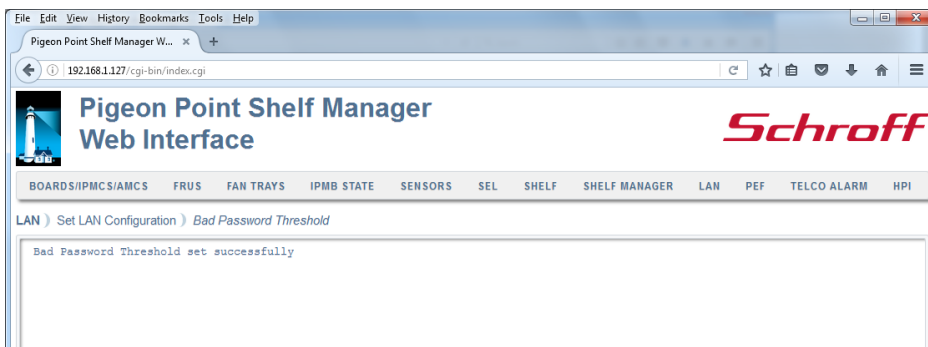


4.10.3.7 Bad Password Threshold

The “Bad Password Threshold” page enables the user to set LAN configuration parameters related to Bad Password functionality for a LAN channel on the target IPMC or on the logical Shelf Manager (by default, the logical Shelf Manager is assumed as the target.)



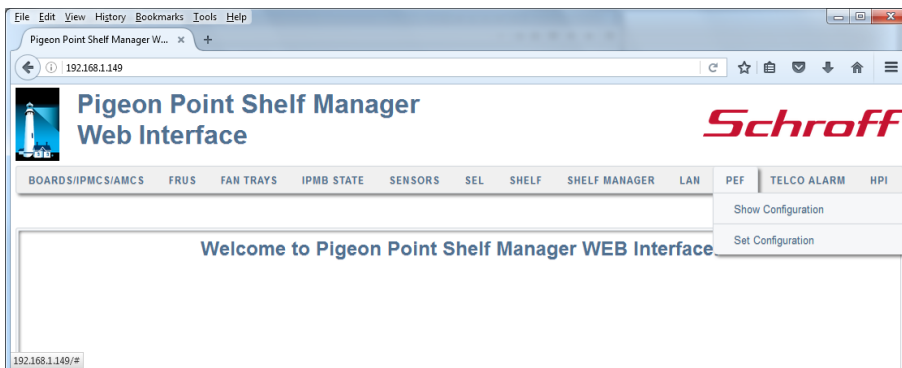
After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by the CLI command `setlanconf` with the appropriate parameter selector.



4.11 PEF

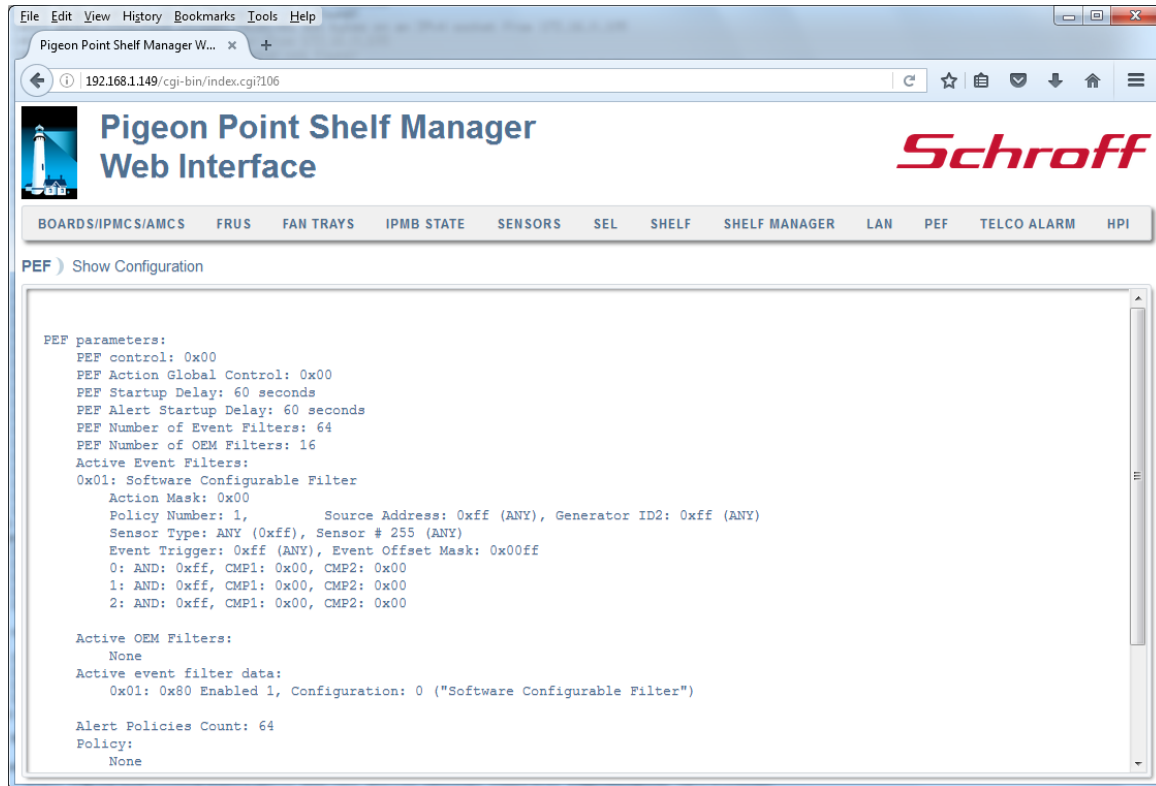
This drop-down list consists of the following items:

- Show Configuration
- Set Configuration



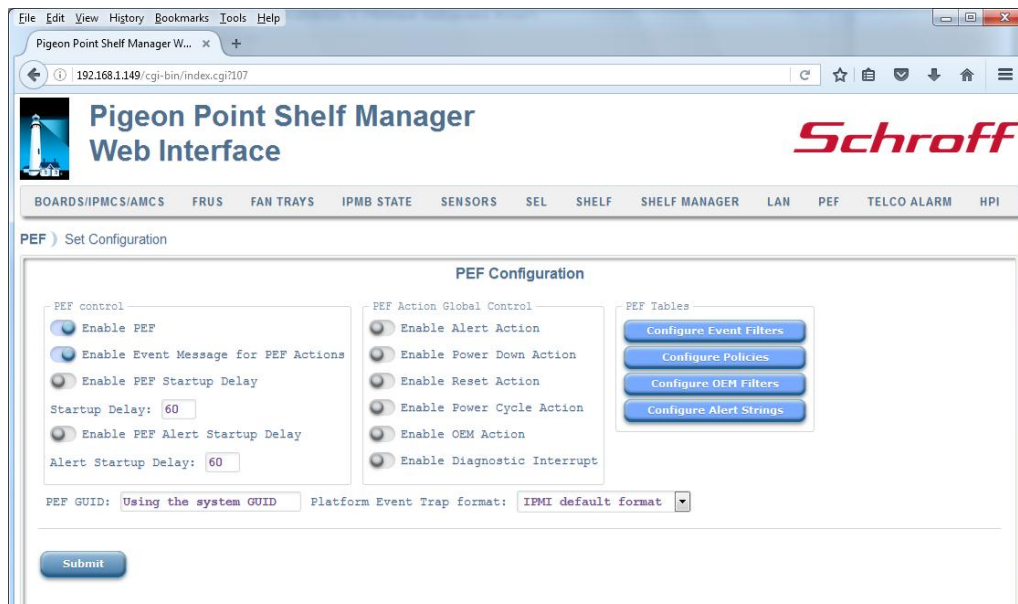
4.11.1 Show Configuration

The “Show Configuration” command does not have parameters and allows the user to see the Platform Event Filter (PEF) configuration information. Its result page displays essentially the output produced by the CLI command *getpefconfig*.

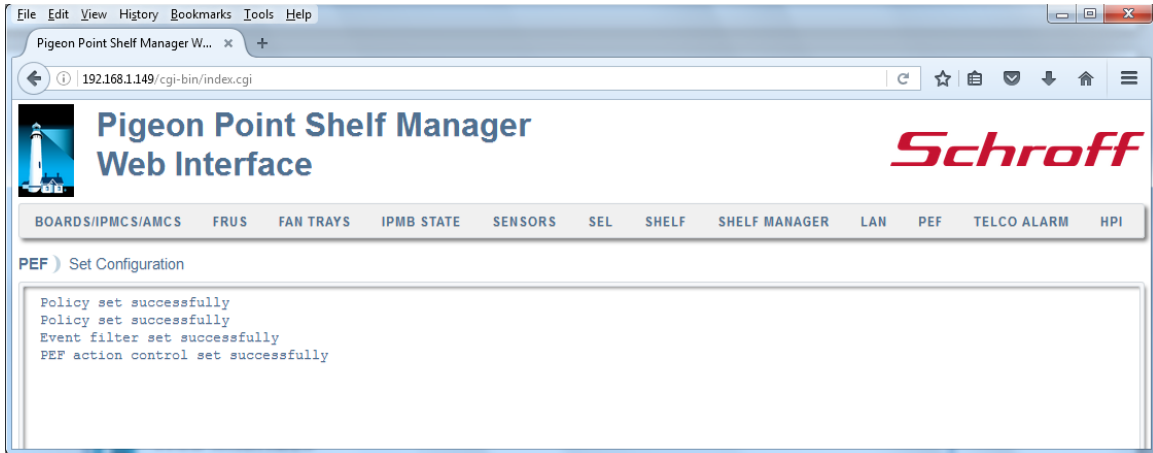


4.11.2 Set Configuration

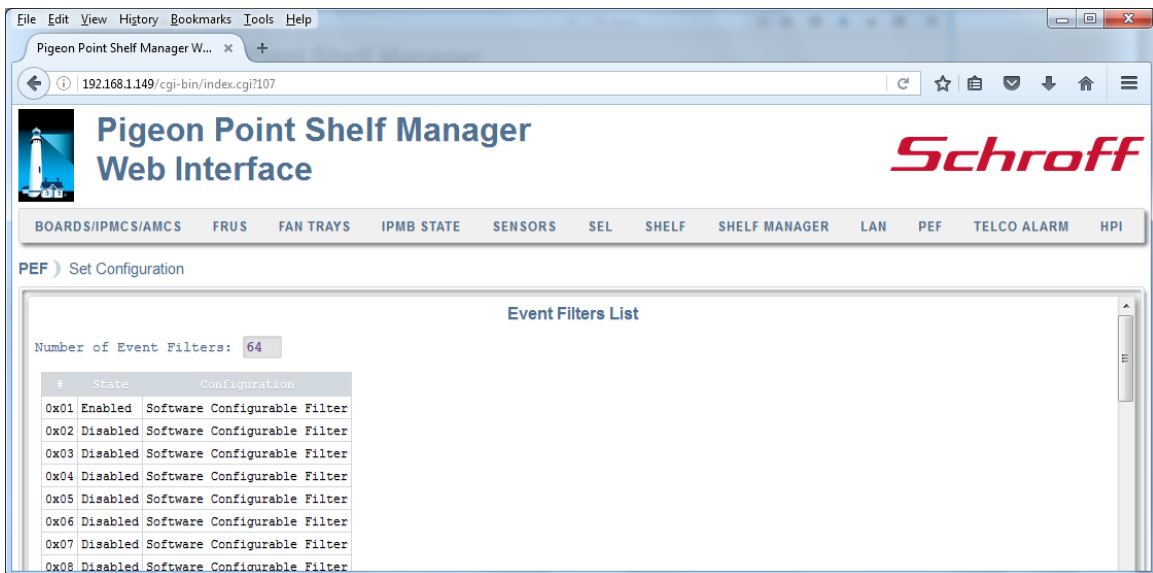
The “Set PEF Configuration” page allows the user to set new values for specified PEF configuration parameters.



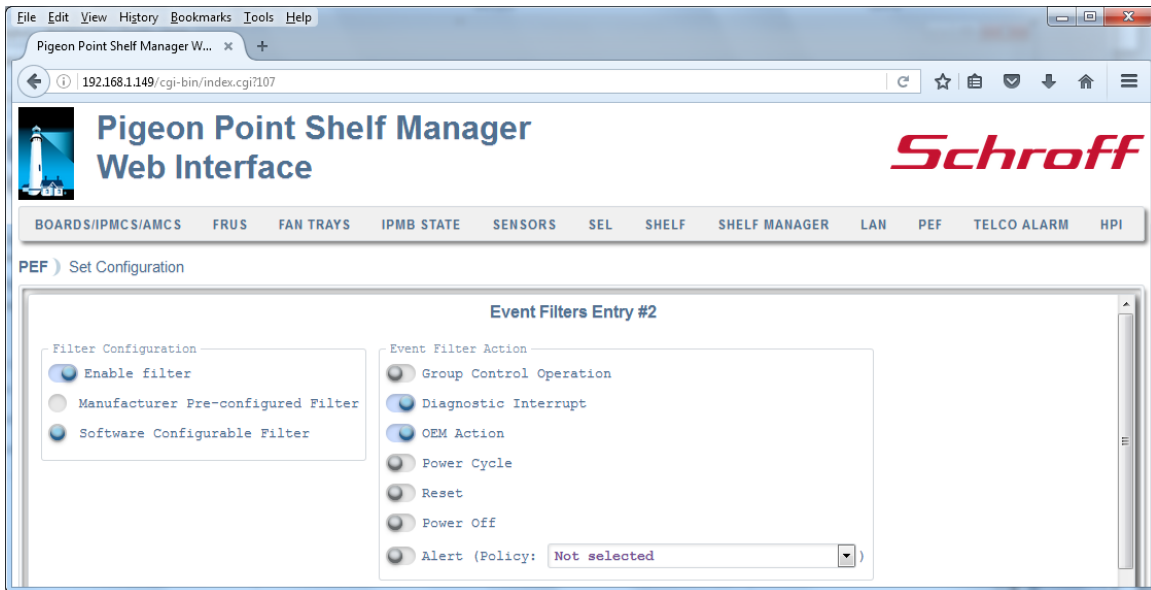
After the user fills in the fields and clicks the “Submit” button, the request is executed and a result page is generated, similar to the one below. The output produced by this command is essentially the same as the output produced by several CLI commands *setpefconfig* with appropriate parameters.



To configure Event Filters, click the “Configure Filters” button. A page, similar to the one below, contains a list of Event Filters and enables the user to inspect and set the Event Filters.



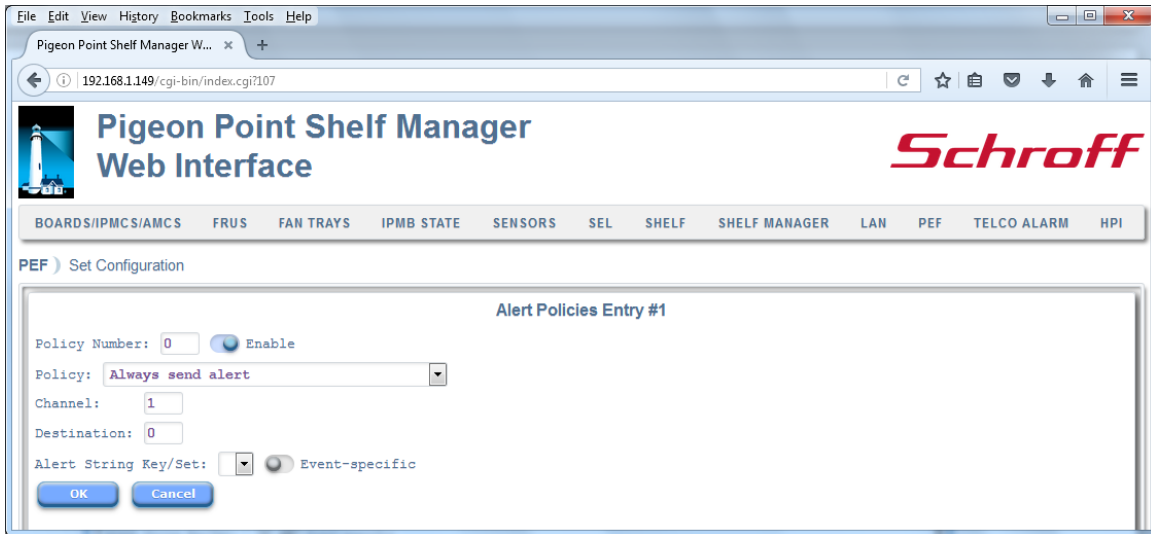
When the user clicks on an entry in the table of event filters, the following page is shown; it allows the user to edit a single event filter:



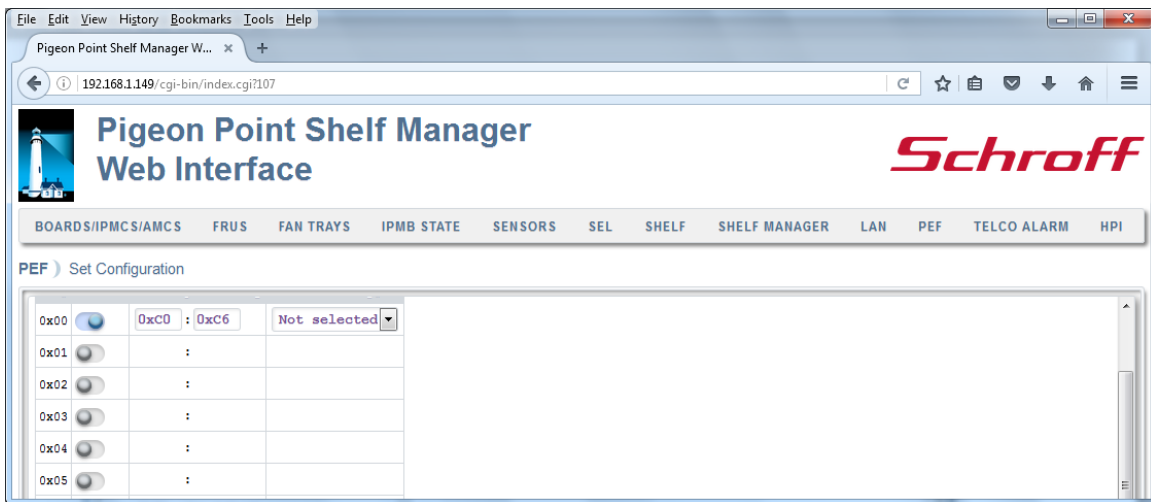
To configure Alert Policies, press the “Configure Policies” button. A result page, similar to the one below, displays a list of Alert Policies and enables the user to inspect and set the Alert Policies.



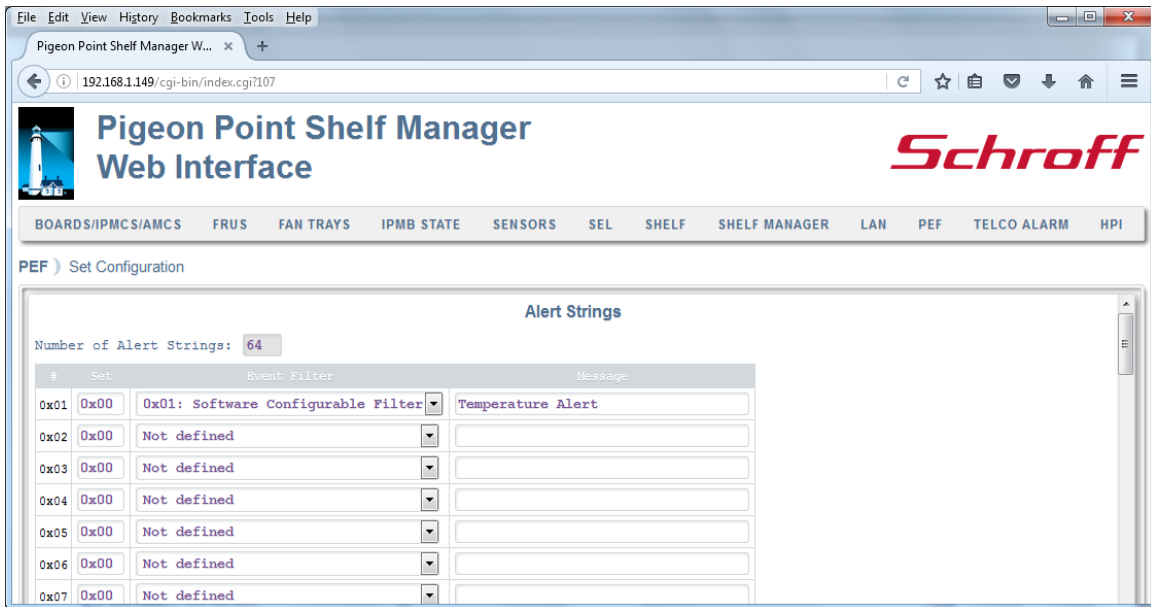
When the user clicks on an entry in the table of alert policies, the following page is shown; it allows the user to edit a single alert policy:



To configure OEM Filters, press the “Configure OEM Filters” button. A page, similar to the one below, displays a list of Active OEM Filters and enables the user to inspect and set the OEM Filters.



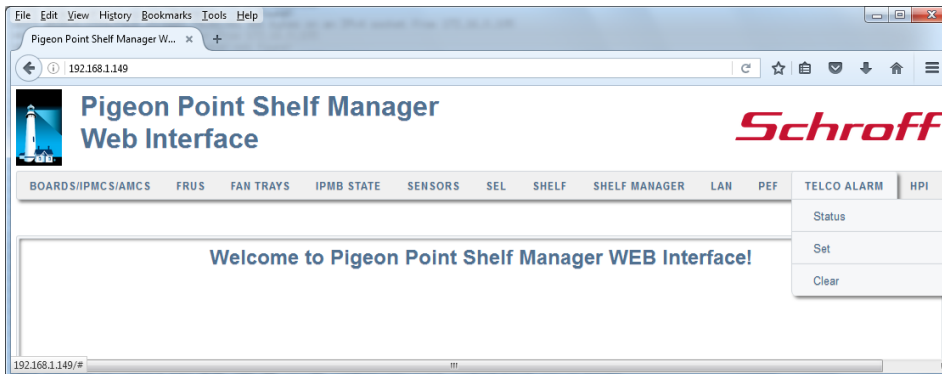
To configure Alert Strings, click the “Configure Alert Strings” button. A page, similar to the one below, displays a list of Alert Strings and enables the user to inspect and set the Alert Strings.



4.12 TELCO Alarm

This drop-down list consists of the following items:

- Status
- Set
- Clear



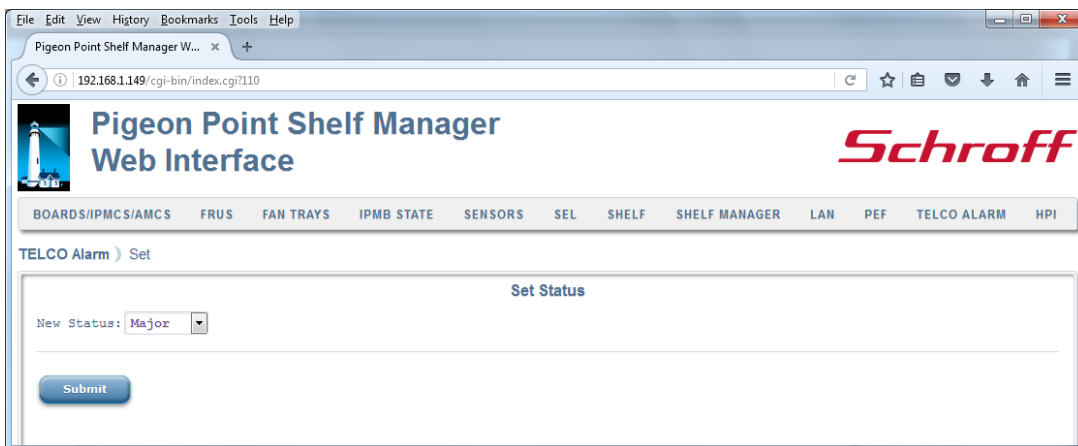
4.12.1 Status

The “Status” command does not have parameters; its result page shows the status of TELCO alarm outputs. It displays the output produced by the CLI commands *alarm* and *alarm info*.

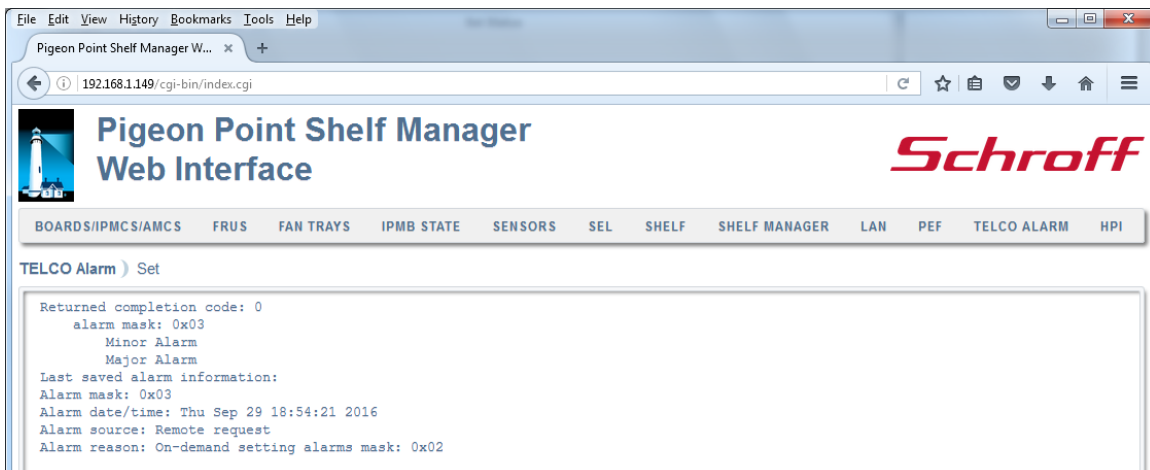


4.12.2 Set

The "Set" page enables the user to set a single alarm output.

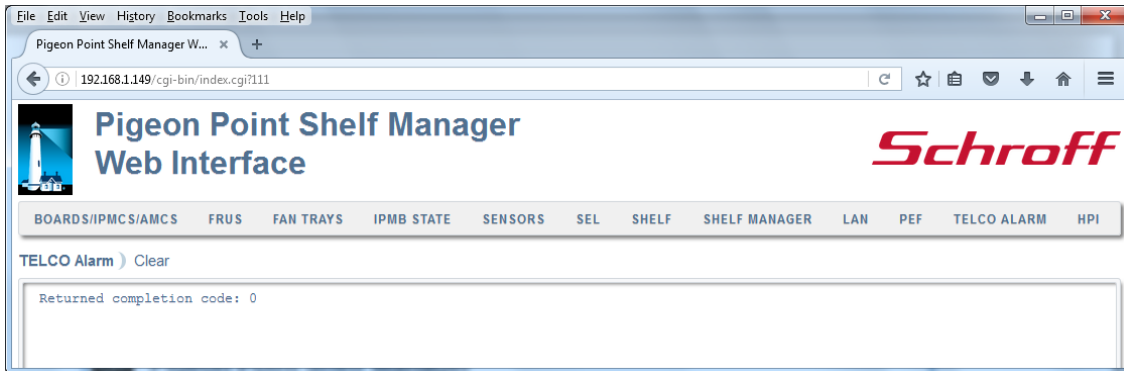


After the user chooses the alarm to set and clicks the "Submit" button, the request is executed and a result page is shown, similar to the one below. It displays the output produced by the CLI commands `alarm` with a correspondent parameter and `alarm info`.



4.12.3 Clear

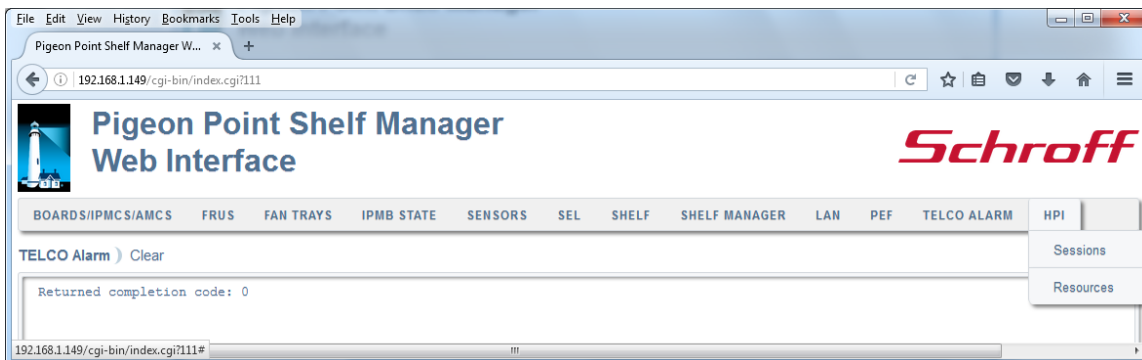
The “Clear” command does not have parameters and clears alarm outputs. Its result page displays the output produced by the CLI command *alarm clear*.



4.13 HPI

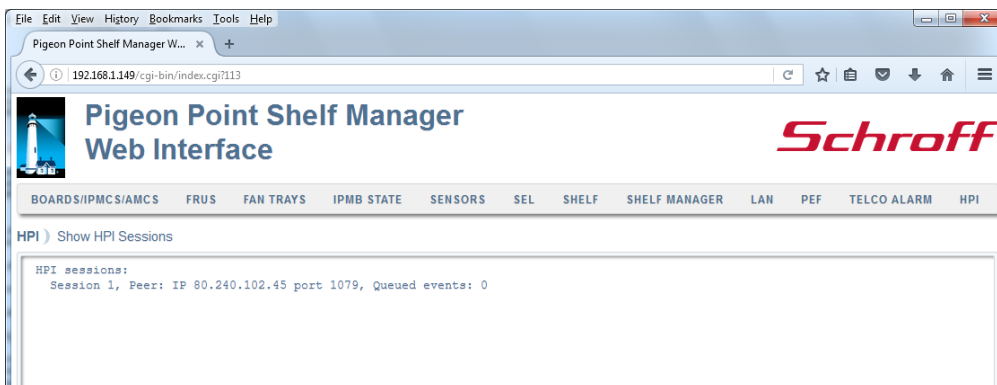
This drop-down list consists of the following items:

- Sessions
- Resources



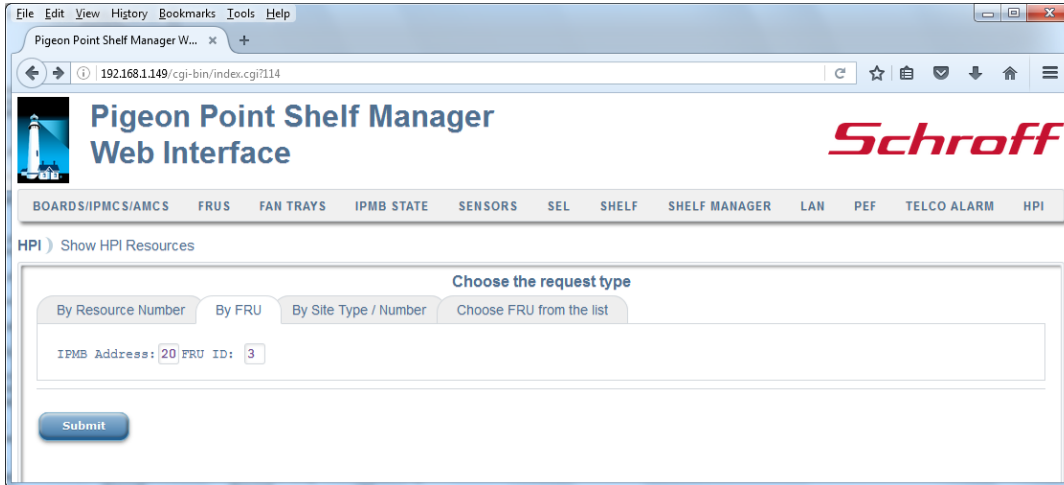
4.13.1 Sessions

The “Sessions” command does not have parameters; its result page shows the HPI sessions currently open in the IntegralHPI subsystem of the Shelf Manager. The output is essentially the same as produced by the CLI command *hpi session*.

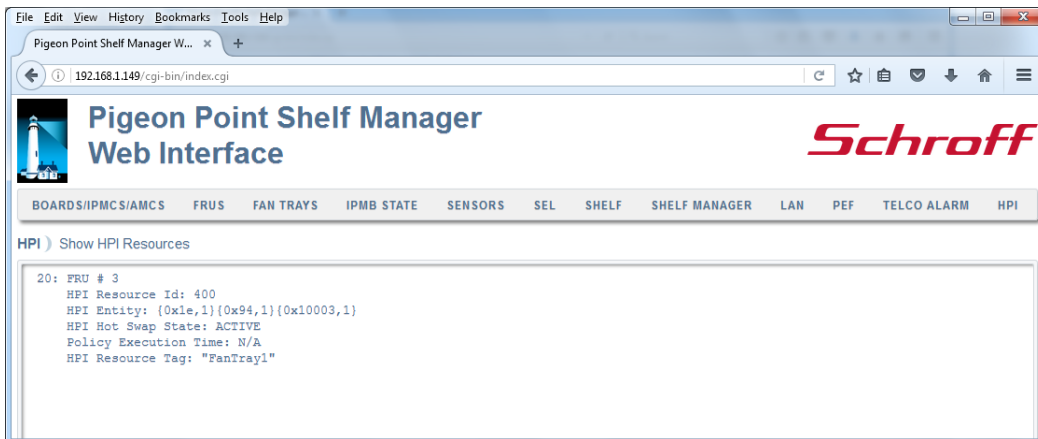


4.13.2 Resources

The “Resources” command enables the user to retrieve information about a specific HPI resource. The target resource can be chosen in several ways; if the tab “By Resource Number” is chosen and the “Resource Number” field is left blank, information about all known HPI resources is shown.



After the user selects one of the options specified and clicks the “Submit” button, the request is executed and a result page is shown, similar to the one below. It displays the output produced by the CLI command `hpi resource` with corresponding parameters.



5 Simple Network Management Protocol (SNMP)

The Pigeon Point Shelf Manager supports a Simple Network Management Protocol (SNMP) interface to the shelf configuration and control variables. The following groups of variables are supported by this interface:

- IPM Controllers
- FRU Devices
- Sensors
- Boards
- Shelf/shelves
- System Event Log
- LAN Configuration Parameters
- PEF Configuration Parameters

According to SNMP rules, the variables from these groups are represented via a hierarchical data model, each variable identified via an object identifier (OID). These object identifiers have a common root OID:

```
iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).pps(16394).products(2).chassis-management(1).ipm-sentry-shelf-manager(1)
```

16394 is a unique private Pentair Technical Products (referenced as Pentair in this document) enterprise number obtained from IANA. The root OID in the remainder of this section is denoted as *<ROOT_OID>*.

The structure of the branches of the SNMP variables tree is described in the following subsections.

The definition of SNMP variables provided by the Shelf Manager is contained in a Management Information Base (MIB) file. This file should be installed on the management system (the one that interacts with the Shelf Manager over the network). It depends on the SNMP client software how the MIB file should be installed on the management system; usually this file must be placed in a special location on the management system and compiled with a MIB compiler.

The Shelf Manager SNMP interface provides two groups of MIB variables: Basic and Advanced. The Basic MIB variables provide user-friendly access to the information that can be retrieved from the Pigeon Point Shelf Manager. It ensures that all objects are indexed naturally for the user. Also, information in the Basic MIB variables is processed to be more readable and easily understandable for a user who is inexperienced with the details of IPMI.

The Advanced MIB variables assume that the user is experienced enough to use the indexing by IPMB address and FRU ID which are natural for the objects described in the IPMI 2.0 and PICMG 3.0 specifications. Accessing the variables described in the Advanced MIB variables is more simple and robust than accessing the Basic MIB variables, but the variables are delivered to the user in non-processed format.

It is worth mentioning that in certain cases, using the Advanced MIB variables, information can be retrieved even though an “object unavailable” error is reported when using Basic MIB

variables. This happens because the information is internally handled differently: in most cases the Basic MIB variables access Shelf FRU Information that can be unavailable, corrupted or contain incomplete information. Access to Advanced MIB variables in most cases does not require retrieving data from Shelf FRU Information storage: information that is cached internally in the Shelf Manager is used instead.

The user can use both Basic and Advanced MIB variables simultaneously.

In redundant configurations, the external IP address is always maintained by the active Shelf Manager and is switched over to the backup Shelf Manager when the general switchover takes place. Therefore, if the client uses the SNMP interface with the external IP address of the Shelf Manager in redundant configurations, it always communicates to the active Shelf Manager.

The backup Shelf Manager can however be accessed via SNMP, if it exposes a private IP address. In that case, Basic MIB variables are not supported; in the Advanced MIB variable tree, only the Shelf variables (see 5.2.7) are supported.

Using the existing U-Boot variable *ipaddr*, each ShMM (both active and backup) can be assigned its own IP address for the Ethernet adapter “eth0”, which will be available immediately after Monterey Linux starts on a given ShMM. On the active ShMM, this IP addresses will coexist with the RMCP address on Ethernet adapter 0.

On the backup Shelf Manager, this ShMM-specific IP address will be preserved across switchovers. That is, both active and backup ShMMs are always accessible via these ShMM-specific addresses, but the RMCP address is always served by the active Shelf Manager. Please see the *Shelf Manager User Guide* for additional background on this topic.

It should be mentioned that access to some SNMP variables may require FRU data read or write operations to be invoked. In some cases an entire FRU Information section (Board Information for example) is retrieved as part of this process, and access to such variables may take a rather long time. However, once retrieved, FRU Information is cached and any further access to this data will use the cache, and will be faster.

5.1 Basic MIB variables

5.1.1 Board variables

The variables defined in this section contain information about the CompactPCI boards in 2.x systems or ATCA boards in ATCA systems. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single board. Entries are indexed by a Physical Slot number, which is equal to the site number. This group of variables is uses the prefix *board-basic* to distinguish them from the board variables in described in the Advanced MIB variables section.

Board basic information variables have the following OID:

```
<ROOT_OID>.32.1.<var>.<boardnum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular board slot. The variable indices are defined in the table below. *<boardnum>* is the Physical Board number.

Table 21: Board variable indices

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
board-basic-slot-number	1	INTEGER	Read-only	Table entry index, equal to <i><boardnum></i> .
board-basic-present	2	INTEGER	Read-only	1 – if board is present in the slot, 0 – otherwise.
board-basic-healthy	3	INTEGER	Read-only	1 – if board is present and healthy, 0 – otherwise.
board-basic-reset	4	INTEGER	Read-write	When reading: 1 – if board is in the reset state, 0 – otherwise. Writing 1 to this variable triggers a reset of the specified board.
board-basic-powered	5	INTEGER	Read-write	When reading: 1 – if board is the powered state, 0 – otherwise, -1 – if information is unavailable. Writing to this variable powers the specified board ON (if value=1) or OFF (if value=0). The variable currently returns an accurate value only on CompactPCI shelves where a radial BD_SEL# signal directly corresponds to the state of backend power for the CompactPCI board.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
board-basic-slave-address	6	INTEGER	Read-only	<p>8-bit Slave address of the IPM controller representing this board on IPMB.</p> <p>If the unit in question is not currently installed, then return -1.</p> <p>If the unit in question is installed, but does not have an active/working IPM controller, return 32 (20h).</p> <p>If the unit is installed and has an IPM controller, return the IPM controller's slave address.</p>
board-basic-fru-device-id	7	INTEGER	Read-only	<p>The FRU Device ID of the board.</p> <p>If the unit in question is not currently installed, then return -1.</p> <p>If the unit in question is installed, but does not have an active/working IPM controller, return the control FRU ID.</p> <p>The control FRU ID is used in conjunction with the BMC IPMI address (20h), and represents the board to the BMC so that it can be managed via the IPMI interface.</p> <p>This is applicable to CompactPCI systems only.</p> <p>If the unit is installed and has an IPM controller, returns 0.</p>

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>board-basic-fruinfo-product-area-present</code>	8	INTEGER	Read-only	1 – if the product area is present within the board FRU Information, 0 – otherwise.
<code>board-basic-fruinfo-product-manufacturer</code>	9	DisplayString	Read-only	Returns the product manufacturer from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-product-name</code>	10	DisplayString	Read-only	Returns the product name from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-product-part-model-number</code>	11	DisplayString	Read-only	Returns the product part model number from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-product-version-number</code>	12	DisplayString	Read-only	Returns the product version from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-product-serial-number</code>	13	DisplayString	Read-only	Returns the product serial number from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-board-area-present</code>	14	INTEGER	Read-only	1 – if the board area is present within the board FRU Information, 0 – otherwise.
<code>board-basic-fruinfo-board-manufacturer</code>	15	DisplayString	Read-only	Returns the board manufacturer from the board FRU Information or “N/A”.
<code>board-basic-fruinfo-board-product-name</code>	16	DisplayString	Read-only	Returns the board product name from the board FRU Information or “N/A”.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>board-basic-fruinfo-board-serial-number</code>	17	DisplayString	Read-only	Returns the board serial number from the board FRU Information or "N/A".
<code>board-basic-fruinfo-board-part-number</code>	18	DisplayString	Read-only	Returns the board part number from the board FRU Information or "N/A".
<code>board-basic-fruinfo-board-manufacture-time</code>	19	DisplayString	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, Coordinated Universal Time (UTC); -1 if the corresponding field is not present in the board FRU Information.
<code>board-basic-fruinfo-product-asset-tag</code>	20	DisplayString	Read-only	Returns the product asset tag from the board FRU Information or "N/A".
<code>board-basic-fruinfo-product-fru-file-id</code>	21	DisplayString	Read-only	Returns the product FRU File ID from the board FRU Information or "N/A".
<code>board-basic-fruinfo-board-fru-file-id</code>	22	DisplayString	Read-only	Returns the board FRU File ID from the board FRU Information or "N/A".

For example, to check the powered state of the board in slot 8, use the following OID:

```
<ROOT_OID>.32.1.5.8
```

5.1.2 Fan Tray variables

The variables defined in this section contain information about the Fan Trays in the system. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single Fan Tray. Entries are indexed by a physical Fan Tray number which is equal to Fan Tray site number.

Fan Tray information variables have the following OID:

```
<ROOT_OID>.33.1.<var>.<fantraynum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular Fan Tray slot. The variable indices are defined in the table below. *<fantraynum>* is the Physical Fan Tray number.

Table 22: Basic Fan Tray variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fantray-slot-number	1	INTEGER	Read-only	Table entry index, equal to <i><fantraynum></i> .
fantray-present	2	INTEGER	Read-only	1 – if fan tray is present in the slot, 0 – otherwise.
fantray-healthy	3	INTEGER	Read-only	1 – if fan tray is present and healthy, 0 – otherwise.
fantray-health-led	4	INTEGER	Read-write	When reading: the led state is returned (0 = off, 1 = on). Writing to this variable turns the led on (value=1) or off (value=0). This variable is available in 2.x systems only. In ATCA systems it always is equal to -1.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fantray-slave-address	5	INTEGER	Read-only	<p>The 8-bit Slave address of the IPM controller representing this Fan Tray on IPMB.</p> <p>If the unit in question is not currently installed, then return -1.</p> <p>If the unit in question is installed, but does not have an active/working IPM controller, return 32 (20h).</p> <p>If the unit is installed and has an IPM controller, return the IPM controller's slave address.</p>
fantray-fru-device-id	6	INTEGER	Read-only	<p>The FRU Device ID of the fan tray.</p> <p>If the unit in question is not currently installed, then return -1.</p> <p>If the unit in question is installed, but does not have an active/working IPM controller, return the control FRU ID. The control FRU ID is used in conjunction with the BMC IPMI address (20h), and represents the fan to BMC so that the fan tray can be managed via the IPMI interface. This is applicable to CompactPCI systems only.</p>
fantray-fruinfo-product-area-present	7	INTEGER	Read-only	<p>1 – if the product area is present within the fan tray FRU Information,</p>

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				0 – otherwise.
fantray-fruinfo-product-manufacturer	8	DisplayString	Read-only	Returns the product manufacturer from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-product-name	9	DisplayString	Read-only	Returns the product name from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-product-part-model-number	10	DisplayString	Read-only	Returns the product part model number from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-product-version-number	11	DisplayString	Read-only	Returns the product version from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-product-serial-number	12	DisplayString	Read-only	Returns the product serial number from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-board-area-present	13	INTEGER	Read-only	1 – if the board area is present within the fan tray FRU Information, 0 – otherwise.
fantray-fruinfo-board-manufacturer	14	DisplayString	Read-only	Returns the board manufacturer from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-board-product-name	15	DisplayString	Read-only	Returns the board product name from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-board-serial-number	16	DisplayString	Read-only	Returns the board serial number from the fan tray FRU Information, or “N/A”.
fantray-fruinfo-board-part-number	17	DisplayString	Read-only	Returns the board part number from the fan tray FRU Information, or

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				"N/A".
fantray-fruinfo-board-manufacture-time	18	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, Coordinated Universal Time (UTC); -1 if the corresponding field is not present in the fan tray FRU Information.
fantray-fan-level	19	OCTET STRING (SIZE(1..3))	Read-write	Returns Override Fan Level, Local Control Fan Level, Local Control Enable State as reported by the controller in a "Get Fan Level" response on reading. Local Control Fan Level and Local Control Enable State are optional fields. When writing, byte values for Fan Level and optional Local Control Enable State should be supplied as in a "Set Fan Level" command request.
fantray-fruinfo-product-asset-tag	20	DisplayString	Read-only	Returns the product asset tag from the fan tray FRU Information, or "N/A".
fantray-fruinfo-product-fru-file-id	21	DisplayString	Read-only	Returns the product FRU File ID from the fan tray FRU Information, or "N/A".
fantray-fruinfo-board-fru-file-id	22	DisplayString	Read-only	Returns the board FRU File ID from the fan tray FRU Information, or "N/A".

For example, to check the led state of the Fan Tray # 8, use the following OID:

<ROOT_OID>.33.1.4.8

5.1.3 Power Supply variables

The variables defined in this section contain information about the Power Supplies in a CompactPCI chassis. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single Power Supply. Entries are indexed by a physical Power Supply number which is equal to site number.

Power Supply information variables have the following OID:

<ROOT_OID>.34.1.<var>.<powersupplynum>

Here <var> is the index of a particular variable in the table entry describing a particular Power Supply slot. The variable indices are defined in the table below. <powersupplynum> is the Physical Power Supply number.

Note: Since both PEMs and Power Supplies can now be used in ATCA shelves, this table is now obsolete for non-CompactPCI systems. Instead, two separate tables are available: the table "Basic xTCA PEM variables" (see section 5.1.12) describes ATCA Power Entry Modules and the table "Basic xTCA Power Supply variables" (see section 5.1.13) describes ATCA Power Supplies.

The following variables are defined for each power supply slot:

Table 23: Basic Power Supply variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
powersupply-slot-number	1	INTEGER	Read-only	Table entry index, equal to <powersupplynum>.
powersupply-degrade	2	INTEGER	Read-only	1 – if power supply is in the Degraded state, 0 – otherwise. This variable is available in 2.x systems only.
powersupply-fail	3	INTEGER	Read-only	1 – if power supply is in the Failed state, 0 – otherwise. This variable is available in 2.x systems only.
powersupply-inhibit	4	INTEGER	Read-write	1 – if power supply is in the Inhibited state, 0 – otherwise. Writing a value to this field inhibits the power supply (if value=1) or re-enables it (if value=0).

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				This variable is available in 2.x systems only.
powersupply-healthy	5	INTEGER	Read-only	1 – if power supply is healthy, 0 – otherwise.
powersupply-slave-address	6	INTEGER	Read-only	The 8-bit Slave address of the IPM controller representing this Power supply on IPMB. If the unit in question is not currently installed, then return -1. If the unit in question is installed, but does not have an active/working IPM controller, return 32 (20h). If the unit is installed and has an IPM controller, return the IPM controller's slave address.
powersupply-fru-device-id	7	INTEGER	Read-only	The FRU Device ID of the power supply. If the unit in question is not currently installed, then return -1. If the unit in question is installed, but does not have an active/working IPM controller, returns the control FRU ID. The control FRU ID is used in conjunction with the BMC IPMI address (20h), and represents the power supply to the BMC so that the power supply can be managed via the IPMI interface. This is applicable to CompactPCI systems only.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>powersupply-fruinfo-product-area-present</code>	8	INTEGER	Read-only	1 – if the product area is present within the power supply FRU Information, 0 – otherwise.
<code>powersupply-fruinfo-product-manufacturer</code>	9	DisplayString	Read-only	Returns the product manufacturer from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-product-name</code>	10	DisplayString	Read-only	Returns the product name from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-product-part-model-number</code>	11	DisplayString	Read-only	Returns the product part model number from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-product-version-number</code>	12	DisplayString	Read-only	Returns the product version from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-product-serial-number</code>	13	DisplayString	Read-only	Returns the product serial number from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-board-area-present</code>	14	INTEGER	Read-only	1 – if the board area is present within the power supply FRU Information, 0 – otherwise.
<code>powersupply-fruinfo-board-manufacturer</code>	15	DisplayString	Read-only	Returns the board manufacturer from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-board-product-name</code>	16	DisplayString	Read-only	Returns the board product name from the power supply FRU Information, or “N/A”.
<code>powersupply-fruinfo-board-serial-number</code>	17	DisplayString	Read-only	Returns the board serial number from the power supply FRU Information, or “N/A”.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>powersupply-fruinfo-board-part-number</code>	18	DisplayString	Read-only	Returns the board part number from the power supply FRU Information, or "N/A".
<code>powersupply-fruinfo-board-manufacture-time</code>	19	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, Coordinated Universal Time (UTC); -1 if the corresponding field is not present in the power supply FRU Information.
<code>powersupply-fruinfo-product-asset-tag</code>	20	DisplayString	Read-only	Returns the product asset tag from the power supply FRU Information, or "N/A".
<code>powersupply-fruinfo-product-fru-file-id</code>	21	DisplayString	Read-only	Returns the product FRU File ID from the power supply FRU Information, or "N/A".
<code>powersupply-fruinfo-board-fru-file-id</code>	22	DisplayString	Read-only	Returns the board FRU File ID from the power supply FRU Information, or "N/A".

For example, to check if the product area information is present for the Power Supply # 3, use the following OID:

```
<ROOT_OID>.34.1.2.8
```

5.1.4 Shelf Manager variables

The variables defined in this section contain information about the Shelf Managers in the system. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single Shelf Manager. Entries are indexed by a physical Shelf Manager number, which is equal to the site number.

Shelf Manager information variables have the following OID:

```
<ROOT_OID>.35.1.<var>.<shelfmanagernum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular Shelf Manager slot. The variable indices are defined in the table below. *<shelfmanagernum>* is the Physical Shelf Manager number.

Table 24: Basic Shelf Manager variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>shelf-manager-slot-number</code>	1	INTEGER	Read-only	Table entry index, equal to <code><shelfmanagemum></code> .
<code>shelf-manager-ipmc-slave-address</code>	2	INTEGER	Read-only	The 8-bit Slave address of the IPM controller representing this Shelf Manager on IPMB.
<code>shelf-manager-present</code>	3	INTEGER	Read-only	1 – if Shelf Manager is present in the slot, 0 – otherwise.
<code>shelf-manager-healthy</code>	4	INTEGER	Read-only	1 – if Shelf Manager is healthy, 0 – otherwise.
<code>shelf-manager-active</code>	5	INTEGER	Read-write	1 – if Shelf Manager is active, 0 – otherwise. Writing 0 to this field triggers a reboot of the Shelf Manager, causing a switchover to the other Shelf Manager .
<code>shelf-manager-reset</code>	6	INTEGER	Read-write	1 – if Shelf Manager is in the reset state, 0 – otherwise. Writing 1 to this field triggers a reset of the target Shelf Manager if the other Shelf Manager is present (works similar to the IPMI “Cold Reset” command).
<code>shelf-manager-fruinfo-product-area-present</code>	7	INTEGER	Read-only	1 – if the product area is present within the Shelf Manager FRU Information, 0 – otherwise.
<code>shelf-manager-fruinfo-product-manufacturer</code>	8	DisplayString	Read-only	Returns the product manufacturer from the Shelf Manager FRU Information, or “N/A”.
<code>shelf-manager-fruinfo-product-name</code>	9	DisplayString	Read-only	Returns the product name from the Shelf Manager FRU Information, or “N/A”.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>shelf-manager-fruinfo-product-part-model-number</code>	10	DisplayString	Read-only	Returns the product part model number from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-product-version-number</code>	11	DisplayString	Read-only	Returns the product version from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-product-serial-number</code>	12	DisplayString	Read-only	Returns the product serial number from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-board-area-present</code>	13	INTEGER	Read-only	1 – if the board area is present within the Shelf Manager FRU Information, 0 – otherwise.
<code>shelf-manager-fruinfo-board-manufacturer</code>	14	DisplayString	Read-only	Returns the board manufacturer from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-board-product-name</code>	15	DisplayString	Read-only	Returns the board product name from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-board-serial-number</code>	16	DisplayString	Read-only	Returns the board serial number from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-board-part-number</code>	17	DisplayString	Read-only	Returns the board part number from the Shelf Manager FRU Information, or "N/A".
<code>shelf-manager-fruinfo-board-manufacture-time</code>	18	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, Coordinated Universal Time (UTC); -1 if the corresponding field is not present in the Shelf Manager FRU Information.
<code>shelf-manager-fruinfo-product-asset-tag</code>	19	DisplayString	Read-only	Returns the product asset tag from the Shelf Manager FRU Information, or "N/A".

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
shelf-manager-fruinfo-product-fru-file-id	20	DisplayString	Read-only	Returns the product FRU File ID from the Shelf Manager FRU Information, or "N/A".
shelf-manager-fruinfo-board-fru-file-id	21	DisplayString	Read-only	Returns the board FRU File ID from the Shelf Manager FRU Information, or "N/A".

For example, to check the slave address of the Shelf Manager # 2, use the following OID:

```
<ROOT_OID>.35.1.2.2
```

5.1.5 Chassis variables

The variables defined in this section contain information about the Chassis (Shelf). This information is provided in the form of an SNMP branch. Each entry in this table provides information about a single Chassis. Entries are indexed by a physical Chassis number.

Chassis information variables have the following OID:

```
<ROOT_OID>.36.<var>
```

Here *<var>* is the index of a particular variable in the table entry.

Table 25: Basic Chassis variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
chassis-id	1	DisplayString	Read-write	Read/ Write Shelf Address.
chassis-type	2	INTEGER	Read-only	The 8-bit Chassis Type from the Shelf FRU Information.
chassis-part-number	3	DisplayString	Read-only	Chassis Part Number from the Shelf FRU Information.
chassis-serial-number	4	DisplayString	Read-only	Chassis Serial Number from the Shelf FRU Information.
chassis-product-area-present	5	INTEGER	Read-only	1 – if the product area is present within the Shelf FRU Information, 0 – otherwise.
chassis-product-manufacturer	6	DisplayString	Read-only	Returns the product manufacturer from the Shelf FRU Information or "N/A".
chassis-product-name	7	DisplayString	Read-only	Returns the product name from the Shelf FRU Information or "N/A".

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
chassis-product-part-model-number	8	DisplayString	Read-only	Returns the product part model number from the Shelf FRU Information or "N/A".
chassis-product-version-number	9	DisplayString	Read-only	Returns the product version from the Shelf FRU Information or "N/A".
chassis-product-serial-number	10	DisplayString	Read-only	Returns the product serial number from the Shelf FRU Information or "N/A".
chassis-board-area-present	11	INTEGER	Read-only	1 – if the board area is present within the Shelf FRU Information, 0 – otherwise.
chassis-board-manufacturer	12	DisplayString	Read-only	Returns the board manufacturer from the Shelf FRU Information or "N/A".
chassis-board-product-name	13	DisplayString	Read-only	Returns the board product name from the Shelf FRU Information or "N/A".
chassis-board-serial-number	14	DisplayString	Read-only	Returns the board serial number from the Shelf FRU Information or "N/A".
chassis-board-part-number	15	DisplayString	Read-only	Returns the board part number from the Shelf FRU Information or "N/A".
chassis-board-manufacture-time	16	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, Coordinated Universal Time (UTC); -1 if the corresponding field is not present in the Shelf FRU Information.
chassis-product-asset-tag	17	DisplayString	Read-only	Returns the product asset tag from the Shelf FRU Information, or "N/A".

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
chassis-product-fru-file-id	18	DisplayString	Read-only	Returns the product FRU File ID from the Shelf FRU Information, or "N/A".
chassis-board-fru-file-id	19	DisplayString	Read-only	Returns the board FRU File ID from the Shelf FRU Information, or "N/A".

For example, to check the chassis type use the following OID:

```
<ROOT_OID>.36.2.0
```

5.1.6 Event variables

The variables defined in this section contain information about the SEL entries in the system. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single SEL entry.

SEL entry information variables have the following OID:

```
<ROOT_OID>.37.1.<var>.<selentrynum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular SEL entry. The variable indices are defined in the table below. *<selentrynum>* is the sel entry number.

Table 26: Basic Event variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
event-index	1	INTEGER	Read-only	Table entry index, equal to <i><selentrynum></i> .
event-delete	2	INTEGER	Read-write	Returns 0 on reading, Writing 1 causes the current SEL entry to be deleted.
event-timestamp	3	INTEGER	Read-only	Timestamp of the SEL entry
event-class	4	INTEGER	Read-only	Returns sensor type value of the event. The following sensor types are recognized in the MIB: <ul style="list-style-type: none"> • other (0), • temperature (1), • voltage (2), • current (3), • fan (4), • HotSwap ('F0'H), • PowerState ('E1'H)

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
event-type	5	INTEGER	Read-only	Event type <ul style="list-style-type: none"> • other (0), • aboveUpperNonRecoverable(1), • aboveUpperCritical (2), • aboveUpperNonCritical (3), • belowLowerNonRecoverable(4), • belowLowerCritical (5), • belowLowerNonCritical (6), • inserted (7), • activated (8), • communicationLost (9), • communicationRestored (10), • deactivated (11), • extracted (12), • powerDegraded (13), • powerFail (14), • powerInhibit (15).
event-asserted	6	INTEGER	Read-only	Event assertion state: <ul style="list-style-type: none"> • deasserted (0), • asserted (1).
event-origin-site-type	7	INTEGER	Read-only	Origin site type.
event-origin-site-number	8	INTEGER	Read-only	Origin site number.
event-origins-slave-address	9	INTEGER	Read-only	Origin IPMB address.
event-origin-fru-id	10	INTEGER	Read-only	Origin FRU Device ID.
event-origin-sensor-number	11	INTEGER	Read-only	Origin sensor number.

For example, to check the timestamp of the Record ID 10 in the SEL (which may or may not exist on an actual shelf at a given point in time), use the following OID:

```
<ROOT_OID>.37.1.3.10
```

The order in which the SEL entries are returned corresponds to the Record ID order in the SEL. This ensures that the index of each of the arrays (represented by *event-index*) increases monotonically for each “Get Next” operation. The resulting order of SEL entries may not correspond to the order in which corresponding events have been placed into the SEL; the *event-timestamp* variable can be used to reconstruct the order in which the events have been placed into the SEL.

5.1.7 Shelf Manager Status variables

The variables defined in this section contain information about the Shelf Manager status.

Shelf Manager Status variables have the following OID:

```
<ROOT_OID>.38.<var>
```

Here *<var>* is the index of a particular variable in the table entry.

Table 27: Basic Shelf Manager Status variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
rmcp-interface-status	1	INTEGER	Read-only	0 – RMCP interface is down, 1 – RMCP interface is up.
shelf-fru-found-status	2	INTEGER	Read-only	0 – Shelf FRU Information is not found, 1- Shelf FRU Information is found.
active-status	3	INTEGER	Read-only	0 - the current ShMM is Backup, 1 – the current ShMM is Active.

For example, to check the status of RMCP interface, use the following OID:

```
<ROOT_OID>.38.1.0
```

5.1.8 Shelf Manager Version variables

The variables defined in this section contain information about the Shelf Manager version.

Shelf Manager Version variables have the following OID:

```
<ROOT_OID>.39.<var>
```

Here *<var>* is the index of a particular variable in the table entry.

Table 28: Basic Shelf Manager Version variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
major-version	1	INTEGER	Read-only	Returns Shelf Manager major version.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
minor-version	2	INTEGER	Read-only	Returns Shelf Manager minor version.
carrier-type	3	DisplayString	Read-only	Returns carrier type.
carrier-subtype	4	INTEGER	Read-only	Returns carrier subtype.
carrier-subversion	5	INTEGER	Read-only	Returns carrier subversion.
functional-level	6	INTEGER	Read-only	Returns 0 for the standard Shelf Manager; 1 for the entry level Shelf Manager.

For example, to get the Shelf Manager Major version, use the following OID:

```
<ROOT_OID>.39.1.0
```

5.1.9 TELCO Alarm variables

The variables defined in this section contain information about the state of the TELCO alarms.

TELCO alarm variables have the following OID:

```
<ROOT_OID>.40.<var>
```

Here *<var>* is the index of a particular variable in the table entry.

Table 29: Basic TELCO Alarm variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
minor-alarm	1	INTEGER	Read-write	Reflects the state of the Minor Alarm: 1 means “set”, 0 means “cleared”. Writing 1 to this variable sets the Minor Alarm; writing 0 to this variable clears the Minor Alarm.
major-alarm	2	INTEGER	Read-write	Reflects the state of the Major Alarm: 1 means “set”, 0 means “cleared”. Writing 1 to this variable sets the Major Alarm; writing 0 to this variable clears the Major Alarm.
critical-alarm	3	INTEGER	Read-write	Reflects the state of the Critical Alarm: 1 means “set”, 0 means “cleared”. Writing 1 to this variable sets the Critical Alarm; writing 0 to this variable

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				clears the Critical Alarm.
alarm-cutoff	4	INTEGER	Read-only	Reflects the state of the Alarm Cutoff: 1 means "set", 0 means "cleared".

For example, to get the state of the Minor Alarm, use the following OID:

```
<ROOT_OID>.40.1.0
```

5.1.10 SEL variables

The variables defined in this section contain information about the SEL state.

SEL variables have the following OID:

```
<ROOT_OID>.41.<var>
```

Here *<var>* is the index of a particular variable in the table entry.

Table 30: Basic SEL variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sel-version	1	INTEGER	Read-only	Returns System Event Log version byte; for example, 51h for IPMI 1.5 and 02h for IPMI 2.0.
sel-entry-count	2	INTEGER	Read-only	Returns the current number of SEL entries.
sel-capacity	3	INTEGER	Read-only	Returns capacity of the SEL in event records.
sel-add-timestamp	4	INTEGER	Read-only	Returns the Timestamp for the most recent SEL entry addition in seconds since 1/1/1970.
sel-del-timestamp	5	INTEGER	Read-only	Returns Timestamp for the most recent SEL entry deletion in seconds since 1/1/1970.
sel-overflow-state	6	INTEGER	Read-only	Returns the SEL Overflow status flag. 1 means "set", 0 means "not set".

For example, to get the current number of SEL entries, use the following OID:

```
<ROOT_OID>.41.2.0
```

5.1.11 Carrier-specific variables

Some carriers may have carrier/vendor specific SNMP extensions with the following root OID:

`<ROOT_OID>.42.<var>`,

where `<var>` depends on a carrier type.

5.1.12 xTCA PEM variables

The variables defined in this section contain information about power entry modules in xTCA shelves (as differentiated from CompactPCI or PICMG 2.x chassis).

xTCA PEM variables have the following OID:

`<ROOT_OID>.43.<var>`

Here `<var>` is the index of a particular variable in the table entry.

Table 31: Basic xTCA PEM variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>xtca-pem-slot-number</code>	1	INTEGER	Read-only	Table entry index, that is equal to the PEM site number.
<code>xtca-pem-present</code>	2	INTEGER	Read-only	Returns 1 if the PEM is present, 0 otherwise.
<code>xtca-pem-healthy</code>	3	INTEGER	Read-only	Returns 0 if the PEM is unhealthy (i.e. it is in M1, M7 or the latest State Change Cause for this PEM was unexpected), 1 otherwise.
<code>xtca-pem-slave-address</code>	4	INTEGER	Read-only	Returns the 8-bit slave address of the IPM controller representing this PEM on IPMB.
<code>xtca-pem-fru-device-id</code>	5	INTEGER	Read-only	Returns the FRU Device ID of the PEM.
<code>xtca-pem-fruinfo-product-area-present</code>	6	INTEGER	Read-only	Returns 1 if the product area is present within the PEM FRU Information, 0 otherwise
<code>xtca-pem-fruinfo-product-manufacturer</code>	7	DisplayString	Read-only	Returns the product manufacturer string from the PEM FRU Information, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-product-name</code>	8	DisplayString	Read-only	Returns the product name from the PEM FRU Information, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-product-part-model-</code>	9	DisplayString	Read-only	Returns the product part model number from the PEM FRU Information, or "N/A" if

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>number</code>				it's not present.
<code>xtca-pem-fruinfo-product-version-number</code>	10	DisplayString	Read-only	Returns the product version number from the PEM FRU Information, as a text string, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-product-serial-number</code>	11	DisplayString	Read-only	Returns the product serial number from the PEM FRU Information, as a text string, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-board-area-present</code>	12	INTEGER	Read-only	Returns 1 if the board area is present within the PEM FRU Information, 0 otherwise
<code>xtca-pem-fruinfo-board-manufacturer</code>	13	DisplayString	Read-only	Returns the board manufacturer string from the PEM FRU Information, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-board-product-name</code>	14	DisplayString	Read-only	Returns the board product name from the PEM FRU Information, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-board-serial-number</code>	15	DisplayString	Read-only	Returns the board serial number from the PEM FRU Information, as a text string, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-board-part-number</code>	16	DisplayString	Read-only	Returns the board part number from the PEM FRU Information, or "N/A" if it's not present.
<code>xtca-pem-fruinfo-board-manufacture-time</code>	17	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, (UTC); -1 if the corresponding field is not present in the PEM FRU Information.
<code>xtca-pem-fruinfo-product-asset-tag</code>	18	DisplayString	Read-only	Returns the product asset tag from the PEM FRU Information, or "N/A".
<code>xtca-pem-fruinfo-product-</code>	19	DisplayString	Read-only	Returns the product FRU File ID from the PEM FRU

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>fru-file-id</code>				Information, or "N/A".
<code>xtca-pem-fruinfo-board-fru-file-id</code>	20	DisplayString	Read-only	Returns the board FRU File ID from the PEM FRU Information, or "N/A".

For example, to check if the product area information is present for the PEM # 2, use the following OID:

```
<ROOT_OID>.43.1.6.2
```

5.1.13 xTCA Power Supply variables

The variables defined in this section contain information about AC power supplies in in xTCA shelves (as differentiated from CompactPCI or PICMG 2.x chassis).

xTCA power supply variables have the following OID:

```
<ROOT_OID>.44.<var>
```

Here `<var>` is the index of a particular variable in the table entry.

Table 32: Basic xTCA Power Supply variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>xtca-ps-slot-number</code>	1	INTEGER	Read-only	Table entry index, that is equal to the power supply site number.
<code>xtca-ps-present</code>	2	INTEGER	Read-only	Returns 1 if the power supply is present, 0 otherwise.
<code>xtca-ps-healthy</code>	3	INTEGER	Read-only	Returns 0 if the power supply is unhealthy (i.e. it is in M1, M7 or the latest State Change Cause for this power supply was unexpected), 1 otherwise.
<code>xtca-ps-slave-address</code>	4	INTEGER	Read-only	Returns the 8-bit slave address of the IPM controller representing this power supply on IPMB.
<code>xtca-ps-fru-device-id</code>	5	INTEGER	Read-only	Returns the FRU Device ID of the power supply.
<code>xtca-ps-fruinfo-product-area-present</code>	6	INTEGER	Read-only	Returns 1 if the product area is present within the power supply FRU Information, 0 otherwise

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>xtca-ps-fruinfo-product-manufacturer</code>	7	DisplayString	Read-only	Returns the product manufacturer string from the power supply FRU Information, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-product-name</code>	8	DisplayString	Read-only	Returns the product name from the power supply FRU Information, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-product-part-model-number</code>	9	DisplayString	Read-only	Returns the product part model number from the power supply FRU Information, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-product-version-number</code>	10	DisplayString	Read-only	Returns the product version number from the power supply FRU Information, as a text string, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-product-serial-number</code>	11	DisplayString	Read-only	Returns the product serial number from the power supply FRU Information, as a text string, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-board-area-present</code>	12	INTEGER	Read-only	Returns 1 if the board area is present within the power supply FRU Information, 0 otherwise
<code>xtca-ps-fruinfo-board-manufacturer</code>	13	DisplayString	Read-only	Returns the board manufacturer string from the power supply FRU Information, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-board-product-name</code>	14	DisplayString	Read-only	Returns the board product name from the power supply FRU Information, or "N/A" if it's not present.
<code>xtca-ps-fruinfo-board-serial-number</code>	15	DisplayString	Read-only	Returns the board serial number from the power supply FRU Information, as

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				a text string, or "N/A" if it's not present.
xtca-ps-fruinfo-board-part-number	16	DisplayString	Read-only	Returns the board part number from the power supply FRU Information, or "N/A" if it's not present.
xtca-ps-fruinfo-board-manufacture-time	17	INTEGER	Read-only	Returns the board manufacturing time: the number of seconds since 00:00:00, January 1, 1970, (UTC); -1 if the corresponding field is not present in the power supply FRU Information.
xtca-ps-fruinfo-product-asset-tag	18	DisplayString	Read-only	Returns the product asset tag from the power supply FRU Information, or "N/A".
xtca-ps-fruinfo-product-fru-file-id	19	DisplayString	Read-only	Returns the product FRU File ID from the power supply FRU Information, or "N/A".
xtca-ps-fruinfo-board-fru-file-id	20	DisplayString	Read-only	Returns the board FRU File ID from the power supply FRU Information, or "N/A".

For example, to check if the board area information is present for the power supply # 3, use the following OID:

```
<ROOT_OID>.44.1.12.3
```

5.2 Advanced MIB variables

5.2.1 IPM Controller variables

The variables defined in this section contain information about the IPM controllers in the shelf. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single IPM controller. Entries are indexed by an 8-bit address of the IPM controller on the IPMB.

IPM controller information variables have the following OID:

`<ROOT_OID>.1.1.<var>.<addr>`

Here `<var>` is the index of a particular variable in the table entry describing a particular IPM controller. The variable indices are defined in the table below. `<addr>` is the 8-bit IPMB address of the IPM controller.

Table 33: Advanced IPM controller variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>ipm-controller-index</code>	1	INTEGER	Read-only	Table entry index, equal to <code><addr></code> .
<code>ipm-controller-sdr-version</code>	2	INTEGER	Read-only	SDR Version of the Management Controller Device Locator Record for this controller.
<code>ipm-controller-picmg-version</code>	3	INTEGER	Read-only	PICMG Extension Version as reported by the controller in a "Get PICMG Properties" reply.
<code>ipm-controller-slave-address</code>	4	INTEGER	Read-only	Device Slave Address as defined in the Management Controller Device Locator Record for this controller.
<code>ipm-controller-channel-number</code>	5	INTEGER	Read-only	Channel Number as defined in the Management Controller Device Locator Record for this controller
<code>ipm-controller-power-state-notification</code>	6	INTEGER	Read-only	Power State Notification as defined in the Management Controller Device Locator Record for this controller.
<code>ipm-controller-global-initialization</code>	7	INTEGER	Read-only	Global Initialization as defined in the Management Controller Device Locator Record for this controller.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
ipm-controller-capabilities	8	INTEGER	Read-only	Device Capabilities as defined in the Management Controller Device Locator Record for this controller.
ipm-controller-id-string	9	DisplayString (SIZE(0..255))	Read-only	Device ID String as defined in the Management Controller Device Locator Record for this controller.
ipm-controller-maximum-fru	10	INTEGER	Read-only	Max FRU Device ID as reported by the controller in "Get PICMG Properties" reply.
ipm-controller-own-fru-id	11	INTEGER	Read-only	FRU Device ID for IPM controller as reported by the controller in "Get PICMG Properties" reply.

For example, to get the Device ID String of the IPM controller at IPMB address 20h = 32₁₀ (that is, the Shelf Manager itself), use the following OID:

```
<ROOT_OID>.1.1.9.32
```

5.2.2 FRU device variables

The variables defined in this section contain information about the FRU devices in the shelf. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single FRU. The table lists all FRUs for which FRU Device Locator Records (SDR Type 11h) or Management Controller Device Locator Records (SDR Type 12h) are present in the SDR Repository.

FRU device information variables have the following OID:

```
<ROOT_OID>.2.1.<var>.<ipmb_addr>.<fru_id>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular FRU device. The variable indices are defined in the table below. *<ipmb_addr>* is the IPMB address of IPM controller and *<fru_id>* is the number of the FRU device on this IPM controller.

Table 34: Advanced FRU variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-index	1	INTEGER	Read-only	Table entry index, equal to ((<i><ipmb_addr></i> << 16) <i><fru_id></i>).

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-sdr-version	2	INTEGER	Read-only	SDR Version of the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.
fru-device-slave-address	3	INTEGER	Read-only	Device Slave Address as defined in the FRU Device or Management Controller Device Locator Record for this FRU
fru-device-fru-device-id	4	INTEGER	Read-only	FRU Device ID as defined in the FRU Device Locator Record for this FRU, or 0 for Management Controller devices
fru-device-channel-number	5	INTEGER	Read-only	Channel Number as defined in the FRU Device or Management Controller Device Locator Record for this FRU or -1 if the record is absent.
fru-device-device-type	6	INTEGER	Read-only	For FRUs with FRU Device ID different from zero: Device Type as defined in the FRU Device Locator Record for this FRU. Since the Management Controller Device Locator Record doesn't provide the Device Type information, for Management Controller devices (FRU #0), this field is set to FRU Inventory Device (10h). If the record is absent, this field is read as -1.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-device-type-modifier	7	INTEGER	Read-only	For FRUs with FRU Device ID different from zero: Device Type Modifier as defined in the FRU Device Locator Record for this FRU. Since the Management Controller Device Locator Record doesn't provide the Device Type information, for Management Controller devices (FRU #0), this field is set to Unspecified (FFh). If the record is absent, this field is read as -1.
fru-device-fru-entity-id	8	INTEGER	Read-only	(FRU) Entity ID as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.
fru-device-fru-entity-instance	9	INTEGER	Read-only	(FRU) Entity Instance as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.
fru-device-id-string	10	DisplayString (SIZE(0..255))	Read-only	Device ID String as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as "N/A".
fru-device-hot-swap-state	11	INTEGER	Read-only	Current PICMG 3.0 FRU state (M1...M7) for this FRU. If this variable is equal to n, that means that the FRU is in state Mn.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-activated	12	INTEGER	Read-write	<p>When reading: 1 means that the FRU device is active (that is, in state M4), 0 is returned otherwise.</p> <p>Writing 1 to this variable triggers sending the “Set FRU Activation (Activate FRU)” command to this FRU, if the FRU is in state M2 or M5, and sending “Set FRU Activation Policy (Clear Locked)” command if the FRU is in state M1.</p> <p>Writing 0 to this variable triggers sending the “Set FRU Activation (Deactivate FRU)” command to this FRU, if the FRU is in state M2, M3, M4, or M5, and sending “Set FRU Activation Policy (Set Locked)” command if the FRU is in state M1 or M6.</p>

For example, to get the Device ID String of the FRU 0 of IPM controller at IPMB address 20h = 32₁₀ (Shelf Manager), use the following OID:

```
<ROOT_OID>.2.1.10.32.0
```

5.2.3 Sensor variables

The variables defined in this section contain information about the sensors in the shelf. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single sensor. The table lists all sensors for which Full Sensor Records (SDR Type 01h), Compact Sensor Records (SDR Type 02h) or Event-Only Sensor Records (SDR Type 03h) exist in the shelf.

Sensor variables have the following OID:

```
<ROOT_OID>.3.1.<var>.<ipmb_addr>.<seqnum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular sensor. The variable indices are defined in the table below. *<ipmb_addr>.<seqnum>* is a compound index where *<ipmb_addr>* is the IPMB address of an IPM controller and *<seqnum>* is the sequential number of the sensor on this IPM controller. This sequential number is not necessarily equal to the sensor number, if the target IPM controller defines sensors on multiple LUNs.

Table 35: Advanced Sensor variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-index	1	INTEGER	Read-only	Table entry index, equal to $((\langle ipmb_addr \rangle \ll 16) \langle seqnum \rangle)$.
sensor-sdr-version	2	INTEGER	Read-only	SDR Version of the Sensor Record.
sensor-record-type	3	INTEGER	Read-only	Record Type of the Sensor Record: 01h – for Full Sensor Records, 02h – for Compact Sensor Records, 03h – for Event-Only Sensor Records.
sensor-owner-id	4	INTEGER	Read-only	Sensor Owner ID as defined in the Sensor Record.
sensor-owner-lun	5	INTEGER	Read-only	Sensor Owner LUN as defined in the Sensor Record.
sensor-number	6	INTEGER	Read-only	Sensor Number as defined in the Sensor Record.
sensor-entity-instance	7	INTEGER	Read-only	Entity Instance as defined in the Sensor Record.
sensor-entity-id	8	INTEGER	Read-only	Entity ID as defined in the Sensor Record.
sensor-initialization	9	INTEGER	Read-only	Sensor Initialization as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records.
sensor-capabilities	10	INTEGER	Read-only	Sensor Capabilities as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records.
sensor-type	11	INTEGER	Read-only	Sensor Type as defined in the Sensor Record.
sensor-event	12	INTEGER	Read-only	Event/Reading Type Code as defined in the Sensor Record.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-assertion-event-mask	13	INTEGER	Read-only	Assertion Event Mask / Lower Threshold Reading Mask as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-deassertion-event-mask	14	INTEGER	Read-only	Deassertion Event Mask / Upper Threshold Reading Mask as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-mask	15	INTEGER	Read-only	Discrete Reading Mask / Settable Threshold Mask, Readable Threshold Mask as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-unit1	16	INTEGER	Read-only	Sensor Units 1 as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-unit2	17	INTEGER	Read-only	Sensor Units 2 – Base Unit as defined in the .Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-unit3	18	INTEGER	Read-only	Sensor Units 3 – Modifier Unit as defined in the Sensor Record. Read as 0 for Event-Only Sensor Records
sensor-linearization	19	INTEGER	Read-only	Linearization as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-M	20	INTEGER	Read-only	M sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 1 for Compact Sensor Records. Read as 0 for Event-Only Sensor Records.
sensor-tolerance	21	INTEGER	Read-only	Tolerance sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-B	22	INTEGER	Read-only	B sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-accuracy	23	INTEGER	Read-only	Accuracy sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-accuracy-exp	24	INTEGER	Read-only	Accuracy exp sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-R-exp	25	INTEGER	Read-only	R exp sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-B-exp	26	INTEGER	Read-only	B exp sensor reading conversion parameter as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-characteristic-flags	27	INTEGER	Read-only	Analog characteristic flags as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-reading	28	INTEGER	Read-only	Current sensor reading in raw form. Read as 0 for Event-Only Sensor Records.
sensor-processed-reading	29	DisplayString (SIZE(0..255))	Read-only	Current sensor reading processed according to reading conversion formula for this sensor. For discrete sensors, the current state mask is returned. Read as a string "N/A" for Event-Only Sensor Records.
sensor-nominal-reading	30	INTEGER	Read-only	Nominal Reading as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-nominal-maximum	31	INTEGER	Read-only	Normal Maximum as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-nominal-minimum	32	INTEGER	Read-only	Normal Minimum as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-maximum-reading	33	INTEGER	Read-only	Sensor Maximum Reading as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-minimum-reading	34	INTEGER	Read-only	Sensor Minimum Reading as defined in the Sensor Record. Valid only for Full Sensor Records. Read as 0 for Compact Sensor Records and Event-Only Sensor Records.
sensor-upper-non-recoverable-threshold	35	INTEGER	Read-write	Current value of the Upper non-recoverable Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-upper-critical-threshold	36	INTEGER	Read-write	Current value of the Upper critical Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-upper-non-critical-threshold	37	INTEGER	Read-write	Current value of the Upper non-critical Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-lower-non-recoverable-threshold	38	INTEGER	Read-write	Current value of the Lower non-recoverable Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-lower-critical-threshold	39	INTEGER	Read-write	Current value of the Lower critical Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-lower-non-critical-threshold	40	INTEGER	Read-write	Current value of the Lower non-critical Threshold for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-positive-going-threshold-hysteresis	41	INTEGER	Read-write	Current value of the Positive-going Threshold Hysteresis for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-negative-going-threshold-hysteresis	42	INTEGER	Read-write	Current value of the Negative-going Threshold Hysteresis for the specified sensor. For Event-only sensors, read as 0, writes are ignored.
sensor-id-string	43	DisplayString (SIZE(0..255))	Read-only	ID String as defined in the Sensor Record.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-entire-sensor-data	44	OCTET STRING (SIZE(0..128))	Read-only	Entire contents of the SDR: 48..64 bytes for Full Sensor Record, 32..48 bytes for Compact Sensor Record, 17..33 bytes for Event-Only Sensor Record.
sensor-processed-unr-threshold	45	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Upper non-recoverable Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.
sensor-processed-uc-threshold	46	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Upper critical Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.
sensor-processed-unc-threshold	47	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Upper non-critical Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.
sensor-processed-lnr-threshold	48	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Lower non-recoverable Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sensor-processed-lc-threshold	49	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Lower critical Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.
sensor-processed-lnc-threshold	50	DisplayString (SIZE(0..255))	Read-write	Processed current value of the Lower non-critical Threshold for the specified sensor. Read "N/A" when the sensor is not threshold-based. Read "N/A" when the sensor is threshold-based and has no such threshold.

For example, to get the ID String of the second sensor on the IPM controller at IPMB address 20h = 32₁₀ (Shelf Manager), use the following OID:

```
<ROOT_OID>.3.1.43.32.2
```

5.2.4 Board variables

The variables defined in this section contain information about the AdvancedTCA Board slots in the system. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single board slot. Entries are indexed by a Physical Slot number.

The semantics of the board variables below are different between the ATCA context and the PICMG 2.x (CompactPCI) context. Therefore, the description for each of these variables essentially contains of the two parts, prefixed by "AdvancedTCA:" and "CompactPCI:" respectively.

Board information variables have the following OID:

```
<ROOT_OID>.4.1.<var>.<slotnum>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular board slot. The variable indices are defined in the table below. *<slotnum>* is the Physical Slot number.

Table 36: Advanced Board slot variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
board-index	1	INTEGER	Read-only	Table entry index, equal to <i><slotnum></i> .

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
board-present	2	INTEGER	Read-only	Both ATCA and CompactPCI: 1 – if a board is present in the slot, 0 – otherwise.
board-healthy	3	INTEGER	Read-only	AdvancedTCA: 1 – if a board is present and healthy, 0 – if the board is either not present, or not healthy. Unhealthy board is a board in state M1 or M7. CompactPCI: This variable reflects the state of the HEALTHY# signal for the slot: 1 – the board is healthy, 0 – the board is not healthy.
board-reset	4	INTEGER	Read-write	AdvancedTCA: When reading: 1 – if the board is not present (in state M0), 0 – otherwise. Writing 1 to this variable triggers sending the “FRU Control (Cold Reset)” command to the IPM controller of this board. Writing 0 to this variable is ignored. CompactPCI: When reading, reflects the reset state of the board: 1 – in reset, 0 – not in reset. Writing 1 to this variable triggers a reset of the board by pulsing the BD_SEL# signal for the slot; writing 0 to this variable is ignored.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
board-slave-address	5	INTEGER	Read-only	Both ATCA and CompactPCI: The 8-bit Slave address of the IPM controller representing this board on IPMB, according to the address table in the Shelf FRU Information.
board-fru-device-id	6	INTEGER	Read-only	Both ATCA and CompactPCI: The FRU Device ID for the board, according to the address table in the Shelf FRU Information.

For example, to check the presence of the board in slot 8, use the following OID:

```
<ROOT_OID>.4.1.2.8
```

5.2.5 FRU LED variables

The variables defined in this section contain information about the FRU LEDs. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single LED. The table lists all LEDs for all FRUs for which FRU Device Locator Records (SDR Type 11h) or Management Controller Device Locator Records (SDR Type 12h) are present in the SDR Repository.

FRU LED information variables have the following OID:

```
<ROOT_OID>.22.1.<var>.<ipmb_addr>.<fru_id>.<led_number>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular FRU LED. The variable indices are defined in the table below. *<ipmb_addr>* is the IPMB address of IPM controller and *<fru_id>* is the number of the FRU device on this IPM controller. The *<led_number>* is the number of the LED as defined in the ATCA specification (0 = blue LED, 1 = out-of-service LED and so on).

Table 37: FRU LED variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
led-index	1	INTEGER	Read-only	Table entry index, defined as follows: Bits 0-15: LED number Bits 16-23: FRU device ID Bits 24-31: IPMB address of the IPM controller

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
led-color-capabilities	2	INTEGER	Read-only	The bit mask of colors supported by the LED, defined as follows: [0] – reserved, set to 0 [1] – LED supports BLUE [2] – LED supports RED [3] – LED supports GREEN [4] – LED supports AMBER [5] – LED supports ORANGE [6] – LED supports WHITE
led-state-capabilities	3	INTEGER	Read-only	The bit mask of special LED flags, defined as follows: [0] – LED is powered from Payload power [1] – LED has another hardware restriction
led-default-local-color	4	INTEGER	Read-only	The default LED color in local control state, in the range 0 to 6, defined as follows: 0 – local control not supported 1 – BLUE 2 – RED 3 – GREEN 4 – AMBER 5 – ORANGE 6 – WHITE
led-default-override-color	5	INTEGER	Read-only	The default LED color in override state, in the range 1 to 6, defined as follows: 1 – BLUE 2 – RED 3 – GREEN 4 – AMBER 5 – ORANGE 6 – WHITE

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>led-current-state-flags</code>	6	INTEGER	Read-only	<p>The bit mask of current LED state flags, defined as follows:</p> <p>[0] – the LED has local control state</p> <p>[1] – the override state has been enabled</p> <p>[2] – the lamp test has been enabled</p> <p>[3] – LED has a hardware restriction that is not currently met</p>
<code>led-local-state</code>	7	INTEGER	Read-only	<p>The current LED local control state and color. Reported as 0 if the LED does not support local control state, otherwise defined as follows:</p> <p>Bits 0-7: local control LED function (byte 4 of the “Get FRU LED State” command response)</p> <p>Bits 8-15: local control on-duration (byte 5 of the “Get FRU LED State” command response)</p> <p>Bits 16-24: local control color (byte 6 of the “Get FRU LED State” command response)</p>

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>led-override-state</code>	8	INTEGER	Read-write	<p>The current LED local control state and color.</p> <p>On read, reported as 0 if the command response to “Get FRU LED State” does not include bytes 7 to 9. Otherwise, and for write access, the value is defined as follows:</p> <p>Bits 0-7: override state LED function (byte 7 of the “Get FRU LED State” command response, byte 4 of the “Set FRU LED State” command request)</p> <p>Bits 8-15: override state on-duration (byte 8 of the “Get FRU LED State” command response, byte 5 of the “Set FRU LED State” command request)</p> <p>Bits 16-24: override state color (byte 9 of the “Get FRU LED State” command response, byte 6 of the “Set FRU LED State” command request).</p> <p>On write, return to local control state can be requested by placing FCh in bits 0-7; lamp test can be requested by placing FBh in bits 0-7 and lamp test duration, in hundreds of milliseconds, in bits 8-15.</p>
<code>led-lamp-test-duration</code>	9	INTEGER	Read-only	<p>Current lamp test duration, in hundreds of milliseconds. Reported as 0 if the LED is not in a lamp test state.</p>

For example, to get the current state flags of the LED 1 on FRU 0 of IPM controller at IPMB address 82h = 130₁₀ (the first hub board), use the following OID:

```
<ROOT_OID>.22.1.5.130.0.1
```

5.2.6 System Event Log variables

The variables defined in this section contain information about the System Event Log (SEL). This information is provided in the form of an SNMP table. Each entry in this table provides information about a single System Event Log record. Table entries are indexed by a SEL Record ID.

SEL information variables have the following OID:

```
<ROOT_OID>.5.1.<var>.<recid>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular SEL record. The variable indices are defined in the table below. *<recid>* is the 16-bit SEL Record ID: 1...FFFEh.

Table 38: Advanced System Event Log variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
sel-index	1	INTEGER	Read-only	Table entry index, equal to <i><recid></i> .
sel-contents	2	OCTET STRING (SIZE(0..128))	Read-only	Contents of the SEL entry.

For example, to get the contents of the SEL entry with Record ID 3001, use the following OID:

```
<ROOT_OID>.5.1.2.3001
```

5.2.7 Shelf variables

The variables defined in this section contain information about the shelf in general. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single shelf. Table entries are indexed by shelf numbers. The current release of the Shelf Manager software supports only one shelf per Shelf Manager. The table index is intended to allow for future extensions, but for this revision it must be set to 1.

Shelf information variables have the following OID:

```
<ROOT_OID>.6.1.<var>.<shelfid>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular shelf. The variable indices are defined in the table below. *<shelfid>* is the shelf number. For this release *<shelfid>* must be set to 1.

Table 39: Advanced Shelf variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<i>shelf-index</i>	1	INTEGER	Read-only	Table entry index, equal to <i><shelfid></i>
<i>shelf-healthy</i>	2	INTEGER	Read-only	1 – if the shelf doesn't have unhealthy components, 0 –

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
				if there exist unhealthy components in the shelf.

For example, to get the health status of the entire shelf, use the following OID:

`<ROOT_OID>.6.1.2.1`

5.2.8 LAN configuration variables

The variables defined in this section contain LAN configuration information. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single configuration variable. Table entries are further indexed by IPMI channel numbers. The current release of the Shelf Manager supports two LAN channel numbers – IPMI channel #1 and IPMI channel #2. Channel #2 data are available only if two LAN channels are used by the Shelf Manager for RMCP access, and they are used in Active-Active mode.

Shelf information variables have the following OID:

`<ROOT_OID>.7.1.<var>.<channel>`

Here `<var>` is the index of a particular variable in the table entry describing a particular LAN channel configuration. The variable indices are defined in the table below. `<channel>` is the IPMI channel number. For this release, LAN channel number 1 is always supported and LAN channel number 2 is optionally supported. The current release also has a fixed number of supported destinations – 16. Thus the SNMP variables for the Destination Type and Destination Addresses parameters are implemented as fixed-sized arrays.

Table 40: Advanced LAN channel variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>lan-configuration-index</code>	1	INTEGER	Read-only	Table entry index, equal to <code><channel></code> .
<code>lan-configuration-set-in-progress</code>	2	INTEGER	Read-only	Set In Progress parameter for the LAN channel.
<code>lan-configuration-authentication-type-support</code>	3	INTEGER	Read-only	Authentication Type Support parameter for the LAN channel.
<code>lan-configuration-authentication-type-enable</code>	4	OCTET STRING (SIZE(5))	Read-write	Authentication Type Enables parameter for the LAN channel.
<code>lan-configuration-ip-address</code>	5	IpAddresses	Read-write	IP Address parameter for the LAN channel.
<code>lan-configuration-ip-address-source</code>	6	INTEGER	Read-only	IP Address Source parameter for the LAN channel.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-mac-address	7	OCTET STRING (SIZE(6))	Read-write	MAC Address parameter for the LAN channel.
lan-configuration-subnet-mask	8	IpAddresses	Read-write	Subnet Mask parameter for the LAN channel
lan-configuration-ipv4-header-parameters	9	OCTET STRING (SIZE(3))	Read-write	IPv4 Header Parameters parameter for the LAN channel.
lan-configuration-primary-rmcp-port-number	10	INTEGER	Read-write	Primary RMCP Port Number parameter for the LAN channel.
lan-configuration-secondary-rmcp-port-number	11	INTEGER	Read-write	Secondary RMCP Port Number parameter for the LAN channel.
lan-configuration-bmc-generated-arp-control	12	INTEGER	Read-write	BMC-generated ARP control parameter for the LAN channel.
lan-configuration-gratuitous-arp-interval	13	INTEGER	Read-write	Gratuitous ARP interval parameter for the LAN channel.
lan-configuration-default-gateway-address	14	IpAddresses	Read-write	Default Gateway Address parameter for the LAN channel.
lan-configuration-default-gateway-mac-address	15	OCTET STRING (SIZE(6))	Read-write	Default Gateway MAC Address parameter for the LAN channel
lan-configuration-backup-gateway-address	16	IpAddresses	Read-write	Backup Gateway Address parameter for the LAN channel.
lan-configuration-backup-gateway-mac-address	17	OCTET STRING (SIZE(6))	Read-write	Backup Gateway MAC Address parameter for the LAN channel.
lan-configuration-community-string	18	DisplayString (SIZE(0..255))	Read-write	Community String parameter for the LAN channel.
lan-configuration-number-of-destinations	19	INTEGER	Read-only	Number Of Destinations parameter for the LAN channel.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-destination-type-0	20	OCTET STRING (SIZE(3))	Read-write	Destination Type with Destination selector 0 for the LAN channel, excluding the Set Selector byte.
lan-configuration-destination-type-1	21	OCTET STRING (SIZE(3))	Read-write	Destination Type with Destination selector 1 for the LAN channel, excluding the Set Selector byte.
...
lan-configuration-destination-type-15	35	OCTET STRING (SIZE(3))	Read-write	Destination Type with Destination selector 15 for the LAN channel, excluding the Set Selector byte.
lan-configuration-destination-address-0	36	OCTET STRING (SIZE(1 1 2))	Read-write	Destination Addresses with Destination selector 0 for the LAN channel, excluding the Set Selector byte.
lan-configuration-destination-address-1	37	OCTET STRING (SIZE(1 1 2))	Read-write	Destination Addresses with Destination selector 1 for the LAN channel, excluding the Set Selector byte.
...
lan-configuration-destination-address-15	51	OCTET STRING (SIZE(1 1 2))	Read-write	Destination Addresses with Destination selector 15 for the LAN channel, excluding the Set Selector byte.
lan-configuration-vlan-id	52	OCTET STRING (SIZE(2))	Read-write	Virtual LAN ID (12 bits), value 0 indicates that VLAN support is disabled for the channel.
lan-configuration-vlan-priority	53	OCTET STRING (SIZE(1))	Read-write	Virtual LAN priority (3 bits).
lan-configuration-cipher-suite-entry-support	54	OCTET STRING (SIZE(1))	Read-only	The number of supported Cipher Suite IDs.
lan-configuration-cipher-suite-entries	55	OCTET STRING (SIZE(0..1 6))	Read-only	The sequence of supported Cipher Suite IDs; each octet in the string contains one ID.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-cipher-suite-priv-level	56	OCTET STRING (SIZE(8))	Read-write	The sequence of supported Cipher Suite IDs; each octet in the string contains one ID.
lan-configuration-destination-address-vlan-tag-0	57	OCTET STRING (SIZE(3))	Read-only	Destination VLAN tag (3 bytes) for destination selector 0 for the given LAN channel.
lan-configuration-destination-address-vlan-tag-1	58	OCTET STRING (SIZE(3))	Read-only	Destination VLAN tag (3 bytes) for destination selector 1 for the given LAN channel.
...
lan-configuration-destination-address-vlan-tag-15	72	OCTET STRING (SIZE(3))	Read-only	Destination VLAN tag (3 bytes) for destination selector 15 for the given LAN channel.
lan-configuration-ipv6-support	75	INTEGER	Read-only	Shows how the specified channel supports IPv6- and IPv4-based addressing and their combinations
lan-configuration-ipv6-addr-enables	76	INTEGER	Read-write	The current IPv4/IPv6 addressing mode on the channel
lan-configuration-ipv6-traffic-class	77	INTEGER	Read-write	The IPv6 traffic class used for transmitting Alert packets
lan-configuration-ipv6-hop-limit	78	INTEGER	Read-write	The IPv6 hop limit used for outgoing packets on the channel if the router returns "unspecified" (00h) as the hop limit or when a static router configuration is used
lan-configuration-ipv6-flow-label	79	OCTET STRING (SIZE(3))	Read-only	Shows the IPv6 flow label used for outgoing packets on the channel
lan-configuration-ipv6-max-static-addresses	80	INTEGER	Read-only	Shows the maximum number of static IPv6 addresses

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-ipv6-max-dynamic-addresses	81	INTEGER	Read-only	Shows the maximum number of dynamic IPv6 addresses
lan-configuration-ipv6-dynamic-addresses-types	82	OCTET STRING (SIZE(1))	Read-only	Shows supported types of dynamic addresses
lan-configuration-ipv6-address-0	83	OCTET STRING (SIZE(19))	Read-only	IPv6 static address 0
lan-configuration-ipv6-address-1	84	OCTET STRING (SIZE(19))	Read-only	IPv6 static address 1
...
lan-configuration-ipv6-address-15	98	OCTET STRING (SIZE(19))	Read-only	IPv6 static address 15
lan-configuration-ipv6-static-duid-length	99	INTEGER	Read-only	The number of bytes allocated for storing each of the IPv6 static DUIDs (DHCP Unique Identifiers) for the channel
lan-configuration-ipv6-static-duid-0	100	OCTET STRING (SIZE(0..255))	Read-only	IPv6 static DUID 0
lan-configuration-ipv6-static-duid-1	101	OCTET STRING (SIZE(0..255))	Read-only	IPv6 static DUID 1
...
lan-configuration-ipv6-static-duid-15	115	OCTET STRING (SIZE(0..255))	Read-only	IPv6 static DUID 15
lan-configuration-ipv6-dynamic-address-0	116	OCTET STRING (SIZE(19))	Read-only	IPv6 dynamic address 0

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-ipv6-dynamic-address-1	117	OCTET STRING (SIZE(19))	Read-only	IPv6 dynamic address 1
...
lan-configuration-ipv6-dynamic-address-15	131	OCTET STRING (SIZE(19))	Read-only	IPv6 dynamic address 15
lan-configuration-ipv6-dynamic-duid-length	132	INTEGER	Read-only	The number of bytes allocated for storing each of the IPv6 dynamic DUIDs (DHCP Unique Identifiers) for the channel; this number is a multiple of 16 bytes
lan-configuration-ipv6-dynamic-duid-0	133	OCTET STRING (SIZE(0..255))	Read-only	IPv6 dynamic DUID 0
lan-configuration-ipv6-dynamic-duid-1	134	OCTET STRING (SIZE(0..255))	Read-only	IPv6 dynamic DUID 1
...
lan-configuration-ipv6-dynamic-duid-15	148	OCTET STRING (SIZE(0..255))	Read-only	IPv6 dynamic DUID 15
lan-configuration-ipv6-nd-slaac-timing-support	149	INTEGER	Read-only	Shows how ND/SLAAC timing configuration support is implemented for the channel (currently shows as “not implemented” on the logical Shelf Manager)
lan-configuration-ipv6-dhcpv6-timing-support	150	INTEGER	Read-only	Shows how DHCPv6 timing configuration support is implemented for the channel (currently shows as “not implemented” on the logical Shelf Manager)

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-ipv6-router-config	151	INTEGER	Read-write	The current router configuration for the channel, with respect to whether static routers and/or dynamic routers are enabled
lan-configuration-ipv6-router1-ip	152	OCTET STRING (SIZE(16))	Read-only	Shows the IPv6 address of the first static router for the channel, as currently configured
lan-configuration-ipv6-router1-prefix-length	153	INTEGER	Read-write	The length of the prefix serviced by the first static router for the channel, as currently configured
lan-configuration-ipv6-router1-prefix-value	154	OCTET STRING (SIZE(0..255))	Read-only	Shows the actual prefix serviced by the first static router for the channel
lan-configuration-ipv6-router2-ip	155	OCTET STRING (SIZE(16))	Read-only	Shows the IPv6 address of the second static router for the channel, as currently configured
lan-configuration-ipv6-router2-prefix-length	156	INTEGER	Read-write	The length of the prefix serviced by the second static router for the channel, as currently configured
lan-configuration-ipv6-router2-prefix-value	157	OCTET STRING (SIZE(0..255))	Read-only	Shows the actual prefix serviced by the second static router for the channel
lan-configuration-ipv6-dynamic-router-num	158	INTEGER	Read-only	Shows the current number of dynamic router information sets on the target channel
lan-configuration-ipv6-dynamic-router-ip-0	159	OCTET STRING (SIZE(16))	Read-only	Shows the IPv6 address of the first router in the dynamic router information set for the channel

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
lan-configuration-ipv6-dynamic-router-mac-0	160	OCTET STRING (SIZE(0..255))	Read-only	Shows the MAC address of the first router in dynamic router information sets
lan-configuration-ipv6-dynamic-router-prefix-length-0	161	INTEGER	Read-only	Shows the length of the prefix advertised by the first router in the dynamic router information set for the channel
lan-configuration-ipv6-dynamic-router-prefix-value-0	162	OCTET STRING (SIZE(0..255))	Read-only	Shows the actual prefix advertised by the first router in the in the dynamic router information set for the channel

Note: currently only information about the first router in the dynamic IPv6 router set is available over SNMP; this limitation will be removed in a future release.

For example, to get the IP address of channel #1, use the following OID:

`<ROOT_OID>.7.1.5.1`

5.2.9 PEF configuration variables

The variables defined in this section contain PEF configuration information. This information is provided as several scalar SNMP variables and several SNMP tables.

The following scalar variables are defined for PEF configuration.

They have OIDs of the following form:

`<ROOT_OID>.<var>.0`

Here `<var>` is the index of a particular variable in the table entry describing a particular PEF configuration. The variable indices are defined in the table below.

Table 41: Advanced PEF configuration variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
pef-configuration-set-in-progress	8	INTEGER	Read-only	Set In Progress parameter.
pef-configuration-control	9	INTEGER	Read-write	PEF Control parameter.
pef-configuration-action-global-control	10	INTEGER	Read-write	PEF Action global control parameter.
pef-configuration-startup-delay	11	INTEGER	Read-write	PEF Startup Delay parameter.

pef-configuration-alert-startup-delay	12	INTEGER	Read-write	PEF Alert Startup Delay parameter.
pef-configuration-number-of-event-filters	13	INTEGER	Read-only	Number of Event Filters parameter.
pef-configuration-number-of-alert-policy-entries	15	INTEGER	Read-only	Number of Alert Policy Entries parameter.
pef-configuration-system-guid	17	OCTET STRING (SIZE(16))	Read-write	System GUID parameter, excluding the "Used to fill in the GUID field in a PET Trap" byte.
pef-configuration-number-of-alert-strings	18	INTEGER	Read-only	Number of Alert Strings parameter.

For example, to get the PEF Startup Delay parameter, use the following OID:

```
<ROOT_OID>.11.0
```

A separate SNMP table is defined for PEF Event Filters. Each entry in this table provides information about a single PEF Event Filter. Table entries are indexed by filter numbers. The table entry with index 1 corresponds to filter number #0, table entry 2 – to filter number #1, etc.

PEF Event Filters variables have the following OID:

```
<ROOT_OID>.14.1.<var>.<filter>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular PEF Event Filter. The variable indices are defined in the table below. *<filter>* is the filter number plus 1. Event Filter numbers start with 1; thus table entry with index 1 is not populated.

Table 42: PEF Event Filter variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
pef-configuration-event-filter-index	1	INTEGER	Read-only	Table entry index, equal to <i><filter></i> .
pef-configuration-event-filter-data	2	OCTET STRING (SIZE(20))	Read-write	Event Filter Table entry data, excluding the Set Selector byte.

For example, to get the PEF Event Filter Data #8, use the following OID:

```
<ROOT_OID>.14.1.2.9
```

A separate SNMP table is defined for PEF Alert Policies. Each entry in this table provides information about a single PEF Alert Policy. Table entries are indexed by policy numbers. The table entry with index 1 corresponds to alert policy #0, table entry 2 – to alert policy #1, etc.

PEF Alert Policy variables have the following OID:

`<ROOT_OID>.16.1.<var>.<policy>`

Here `<var>` is the index of a particular variable in the table entry describing a particular PEF Alert Policy. The variable indices are defined in the table below. `<policy>` is the policy number plus 1. Alert Policy numbers start with 1; thus table entry with index 1 is not populated.

Table 43: PEF Alert Policy variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>pef-configuration-alert-policy-index</code>	1	INTEGER	Read-only	Table entry index, equal to <code><policy></code> .
<code>pef-configuration-alert-policy-data</code>	2	OCTET STRING (SIZE(3))	Read-write	Alert Policy Table entry data, excluding the Set Selector byte.

For example, to get the PEF Configuration Alert Policy Data #8, use the following OID:

`<ROOT_OID>.16.1.2.9`

A separate SNMP table is defined for PEF Alert Strings. Each entry in this table provides information about a single PEF Alert String. Table entries are indexed by string numbers. The table entry with index 1 corresponds to alert string #0, table entry 2 – to alert string #1, etc.

PEF Alert String variables have the following OID:

`<ROOT_OID>.19.1.<var>.<strnum>`

Here `<var>` is the index of a particular variable in the table entry describing a particular PEF Alert String. The variable indices are defined in the table below. `<strnum>` is the alert string number plus 1.

Table 44: PEF Alert String variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>pef-configuration-alert-string-index</code>	1	INTEGER	Read-only	Table entry index, equal to <code><strnum></code> .
<code>pef-configuration-alert-string-key</code>	2	OCTET STRING (SIZE(2))	Read-write	Alert String Keys entry data, excluding the Set Selector byte.
<code>pef-configuration-alert-string</code>	3	DisplayString	Read-write	Alert Strings entry data, excluding the Set Selector byte.

For example, to get the PEF Configuration Alert String Key for string #8, use the following OID:

`<ROOT_OID>.19.1.2.9`

5.2.10 FRU Information variables

The variables defined in this section contain information about the FRU Information in the shelf. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single block of information for the designated FRU. The table lists all blocks of FRUs for which FRU Device Locator Records (SDR Type 11h) or Management Controller Device Locator Records (SDR Type 12h) are present in the SDR Repository.

FRU device information variables have the following OID:

```
<ROOT_OID>.20.1.<var>.<ipmb addr>.<fru_id>.<block number>
```

Here *<var>* is the index of a particular variable in the table entry describing a particular FRU device. The variable indices are defined in the table below. *<ipmb addr>* and *<fru_id>* are the corresponding values of the specified FRU, *<block number>* is the 32-byte block offset within the FRU Info.

Table 45: FRU Information block variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-info-index	1	INTEGER	Read-only	Index = (<i><ipmb addr></i> << 24) (<i><fru_id></i> << 16) <i><block number></i> .
fru-info-data	2	OctetString (SIZE(1..32))	Read-only	A block of data.
fru-info-data-wo	3	OctetString (SIZE(1..32))	Write-only	Write any number of bytes up to 32. Due to limitations in the current version of the SNMP agent, <i><block number></i> is interpreted as a byte offset.

For example, to get first 32 bytes (block number 0) of the FRU Information of FRU #254 at IPMB address 20h, use the following OID:

```
<ROOT_OID>.20.1.2.32.254.0
```

5.2.11 FRU device by site variables

The variables defined in this section contain information about the FRU devices in the shelf. This information is provided in the form of an SNMP table. Each entry in this table provides information about a single FRU. The table lists all FRUs for which FRU Device Locator Records (SDR Type 11h) or Management Controller Device Locator Records (SDR Type 12h) are present in the SDR Repository.

FRU device information variables have the following OID:

```
<ROOT_OID>.21.1.<var>.<site type>.<site number>
```


Here *<var>* is the index of a particular variable in the table entry describing a particular FRU device. The variable indices are defined in the table below. *<site type>* and *<site number>* are the corresponding values of the specified FRU.

Table 46: Advanced FRU device variables

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-by-site-index	1	INTEGER	Read-only	Table entry index, equal to (<i><site type></i> << 16) <i><site number></i> .
fru-device-by-site-sdr-version	2	INTEGER	Read-only	SDR Version of the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.
fru-device-by-site-slave-address	3	INTEGER	Read-only	Device Slave Address as defined in the FRU Device or Management Controller Device Locator Record for this FRU.
fru-device-by-site-fru-device-id	4	INTEGER	Read-only	FRU Device ID as defined in the FRU Device Locator Record for this FRU, or 0 for Management Controller devices. If the record is absent, this field is read as -1.
fru-device-by-site-channel-number	5	INTEGER	Read-only	Channel Number as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
<code>fru-device-by-site-device-type</code>	6	INTEGER	Read-only	<p>For FRUs with FRU Device ID different from zero: Device Type as defined in the FRU Device Locator Record for this FRU.</p> <p>Since the Management Controller Device Locator Record doesn't provide the Device Type information, for Management Controller devices (FRU #0), this field is set to FRU Inventory Device (10h). If the record is absent, this field is read as -1.</p>
<code>fru-device-by-site-device-type-modifier</code>	7	INTEGER	Read-only	<p>For FRUs with FRU Device ID different from zero: Device Type Modifier as defined in the FRU Device Locator Record for this FRU.</p> <p>Since the Management Controller Device Locator Record doesn't provide the Device Type information, for Management Controller devices (FRU #0), this field is set to Unspecified (FFh). If the record is absent, this field is read as -1.</p>
<code>fru-device-by-site-fru-entity-id</code>	8	INTEGER	Read-only	<p>(FRU) Entity ID as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.</p>

VARIABLE	INDEX	TYPE	ACCESS MODE	DESCRIPTION
fru-device-by-site-fru-entity-instance	9	INTEGER	Read-only	(FRU) Entity Instance as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as -1.
fru-device-by-site-id-string	10	DisplayString (SIZE(0..255))	Read-only	Device ID String as defined in the FRU Device or Management Controller Device Locator Record for this FRU. If the record is absent, this field is read as "N/A".
fru-device-by-site-hot-swap-state	11	INTEGER	Read-only	Current PICMG 3.0 FRU state (M1...M7) for this FRU. If this variable is equal to n, that means that the FRU is in state Mn.
fru-device-by-site-activated	12	INTEGER	Read-write	<p>When reading: 1 means that the FRU device is active (that is, in state M4), 0 is returned otherwise.</p> <p>Writing 1 to this variable triggers sending the "Set FRU Activation (Activate FRU)" command to this FRU, if the FRU is in state M2 or M5, and sending "Set FRU Activation Policy (Clear Locked)" command if the FRU is in state M1.</p> <p>Writing 0 to this variable triggers sending the "Set FRU Activation (Deactivate FRU)" command to this FRU, if the FRU is in state M2, M3, M4, or M5, and sending "Set FRU Activation Policy (Set Locked)" command if the FRU is in state M1 or M6.</p>



For example, to get the Device ID String of the site type 2, site number 1, use the following OID:

`<ROOT_OID>.21.1.10.2.1`

5.3 Accessing the Shelf Manager via SNMP

5.3.1 SNMPv2c

Any SNMP client implementation should be able to access the Shelf Manager defined variables. One specific choice that we've used successfully is the net-snmp 5.0.6 package from: <http://net-snmp.sourceforge.net/>. This package would be installed on the management computer (running Linux kernel 2.4.2 and higher). It provides some basic management tools. To access the Pigeon Point SNMP agent, the *snmpget* and *snmpwalk* commands can be used.

To install the MIB file on the management system, follow the instructions supplied with the package.

After that, use the *snmpget* and *snmpwalk* commands to access selected variables. For example, to retrieve the variable controller-sdr-version for the controller 20h (BMC), use the following command:

```
snmpget -v 2c <Pigeon Point ipaddr> -c public  
.iso.3.6.1.4.1.16394.2.1.1.1.1.2.32
```

The output will be similar to the following:

```
PPS-SENTRY-MIB::ipm-controller-sdr-version.32 = INTEGER: 81
```

To retrieve the entire PPS-SENTRY-MIB variables subtree, use the following command:

```
snmpwalk -v 2c <Pigeon Point ipaddr> -c public .iso.3.6.1.4.1.16394.2.1.1
```

The output will usually contain about 3000 strings for two IPM controllers with about 20 sensors on each of them.

This example assumes that SNMP v2c is used.

5.3.2 SNMPv3

In order to provide SNMPv3 functionality the SNMP agent should be properly configured. An example snmpd.conf file is provided below. It should exist in the */etc* directory. This example shows how to configure: user: overlord and password: possessor, which has read-write rights and SNMPv3 access to the SNMP-agent. In order to access the SNMP agent in SNMPv3 mode, use the following commands.

To read a variable:

```
snmpget -v 3 -u <user name> -l authNoPriv -a MD5 -A <user password> <Pigeon  
Point IP address> <variable OID with index>
```

To set a variable (for read-write variables only):

```
snmpset -v 3 -u <user name> -l authNoPriv -a MD5 -A <user password> <Pigeon  
Point IP address> <variable OID with index> <variable value>
```

For example, to retrieve the variable controller-sdr-version for the controller 20h (Shelf Manager), use the following command:

```
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor <Pigeon Point  
ipaddr> .iso.3.6.1.4.1.16394.2.1.1.1.1.2.32
```

Here is an example configuration file for the ucd-snmp agent:

```
#####  
##
```

```
# EXAMPLE.conf:
#   An example configuration file for configuring the ucd-snmp snmpd agent.
#####
##
# This file is intended to only be an example.  If, however, you want
# to use it, it should be placed in /usr/local/share/snmp/snmpd.conf.
# When the snmpd agent starts up, this is where it will look for it.
# Note: This file is automatically generated from EXAMPLE.conf.def.
# Do NOT read the EXAMPLE.conf.def file! Instead, after you have run
# configure & make, and then make sure you read the EXAMPLE.conf file
# instead, as it will tailor itself to your configuration.
# All lines beginning with a '#' are comments and are intended for you
# to read.  All other lines are configuration commands for the agent.
# PLEASE: read the snmpd.conf(5) manual page as well!
#####
##
# Access Control
#####
##
# YOU SHOULD CHANGE THE "COMMUNITY" TOKEN BELOW TO A NEW KEYWORD ONLY
# KNOWN AT YOUR SITE.  YOU *MUST* CHANGE THE NETWORK TOKEN BELOW TO
# SOMETHING REFLECTING YOUR LOCAL NETWORK ADDRESS SPACE.
# By far, the most common question I get about the agent is "why won't
# it work?", when really it should be "how do I configure the agent to
# allow me to access it?"
# By default, the agent responds to the "public" community for read
# only access, if run out of the box without any configuration file in
# place.  The following examples show you other ways of configuring
# the agent so that you can change the community names, and give
# yourself write access as well.
# The following lines change the access permissions of the agent so
# that the COMMUNITY string provides read-only access to your entire
# NETWORK (EG: 10.10.10.0/24), and read/write access to only the
# localhost (127.0.0.1, not its real ipaddress).
# For more information, read the FAQ as well as the snmpd.conf(5)
# manual page.
####
# First, map the community name (COMMUNITY) into a security name
# (local and mynetwork, depending on where the request is coming
# from):
rwuser overlord
#       sec.name  source          community
com2sec local    localhost      public
com2sec mynetwork 172.16.2.0/24  public
```

```

####
# Second, map the security names into group names:
#
#           sec.model  sec.name
group MyRWGroup v1      local
group MyRWGroup v2c     local
group MyRWGroup usm     local
group MyROGroup v1     mynetwork
group MyROGroup v2c    mynetwork
group MyROGroup usm    mynetwork
####
# Third, create a view for us to let the groups have rights to:
#
#           incl/excl subtree                mask
view all   included   .1                    80
####
# Finally, grant the 2 groups access to the 1 view with different
# write permissions:
#
#           context sec.model sec.level match  read   write  notif
access MyROGroup ""      any      noauth  exact  all    none   none
access MyRWGroup ""      any      noauth  exact  all    all    none
# -----
--
engineID "Love_me_tender_lo"
createUser overlord MD5 possessor DES
#####
##
# System contact information
# It is also possible to set the sysContact and sysLocation system
# variables through the snmpd.conf file:
syslocation Pigeon Point Shelf Management Mezzanine Module
syscontact support@pigeonpoint.com
# Example output of snmpwalk:
# % snmpwalk -v 1 localhost public system
# system.sysDescr.0 = "SunOS name sun4c"
# system.sysObjectID.0 = OID: enterprises.ucdavis.ucdSnmpAgent.sunos4
# system.sysUpTime.0 = Timeticks: (595637548) 68 days, 22:32:55
# system.sysContact.0 = "Me <me@somewhere.org>"
# system.sysName.0 = "name"
# system.sysLocation.0 = "Right here, right now."
# system.sysServices.0 = 72
# -----
--
#####
##
# Process checks.
# The following are examples of how to use the agent to check for

```

```
# processes running on the host. The syntax looks something like:
# proc NAME [MAX=0] [MIN=0]
# NAME: the name of the process to check for. It must match
#       exactly (ie, http will not find httpd processes).
# MAX:  the maximum number allowed to be running. Defaults to 0.
# MIN:  the minimum number to be running. Defaults to 0.
# Examples:
# Make sure mountd is running
#proc mountd
# Make sure there are no more than 4 ntalkds running, but 0 is ok too.
#proc ntalkd 4
# Make sure at least one sendmail, but less than or equal to 10 are running.
#proc sendmail 10 1
# -----
--
```

Here the demo script is provided that shows how to access the writeable variables.

```
#!/bin/bash
# fru activation
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.2.1.12.32.0
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.2.1.12.32.0 i 2
# emulated temp
# unr
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.35.156.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.35.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.35.156.2
# uc
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.36.156.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.36.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.36.156.2
# unc
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.37.156.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.37.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.37.156.2
# lnr
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.38.156.2
```



```
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.38.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.38.156.2
# lc
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.39.156.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.39.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.39.156.2
# lnc
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.40.156.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.40.156.2 i 100
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.40.156.2
#board reset
#1-16: 86 = 3
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.4.1.4.3
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.4.1.4.3 i 1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.4.1.4.3
# auth port enabled
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.4.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.4.1 x "00 11 11 11 00"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.4.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.4.1 x "00 15 15 15 00"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.4.1
# IP addr
# dangerous, may shutdown network interface
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.5.1
#snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.5.1 x "C0 A0 B0 D0"
#snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.5.1
# MAC address
# dangerous, may shutdown network interface
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.7.1
```

```
# Subnet Mask
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.8.1
# IPv4
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.9.1
# Primary RMCP port 623
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.10.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.10.1 i 10623
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.10.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.10.1 i 623
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.10.1
# Secondary RMCP port 624
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.11.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.11.1 i 824
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.11.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.11.1 i 624
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.11.1
# BMC Generated ARP Control
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.12.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.12.1 i 1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.12.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.12.1 i 2
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.12.1
# ARP Interval
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.13.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.13.1 i 25
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.13.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.13.1 i 4
```

```
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.13.1
# Gateway IP
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.14.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.14.1 x "C0 C0 C0 C0"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.14.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.14.1 x "00 00 00 00"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.14.1
# Gateway MAC
# does not work :(
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.15.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.15.1 x "DE AD CA FE DE AD"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.15.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.15.1 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.15.1
# Backup IP
# absent check on length
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.16.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.16.1 x "C0 B0 A0 90"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.16.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.16.1 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.16.1
# Backup MAC
# does not work :(
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.17.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.17.1 x "DE AD CA FE DE AD"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.17.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.17.1 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.17.1
```

```
# Community
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.18.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.18.1 x "DE AD CA FE DE AD"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.18.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.18.1 s "public"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.18.1

# Destination type
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.20.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.20.1 x "05 BB CC"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.20.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.20.1 x "00 00 00"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.20.1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.33.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.33.1 x "07 08 44"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.33.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.33.1 x "00 00 00"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.33.1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.35

# Destination Address
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.36.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.36.1 x "11 22 33 44 55 66 77 88 99 AA BB CC
FF"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.36.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.36.1 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.36.1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.43.1
```

```
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.43.1 x "D1 D2 D3 D4 D5 D6 D7 D8 D9 AA BB CC
DD"

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.43.1

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.43.1 x ""

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.7.1.43.1

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.3.1.51

# PEF Control

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.9.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.9.0 i 7

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.9.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.9.0 i 0

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.9.0

# Action control

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.10.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.10.0 i 7

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.10.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.10.0 i 0

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.10.0

# Startup Delay

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.11.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.11.0 i 15

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.11.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.11.0 i 60

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.11.0

# Alert Startup Delay

snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.12.0

snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.12.0 i 23
```

```
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.12.0
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.12.0 i 60
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.12.0
#event filter table data
# Event filter table data
# 2-64
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.5
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.5 x "80 3F 33 44 55 66 77 88 11 22 33 44 55
66 77 88 99 99 99 99"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.5
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.5 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.5
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.8
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.8 x "FF FF 33 44 55 66 77 88 11 22 33 44 55
66 77 88 99 99 99 99"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.8
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.8 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.14.1.2.8
# Alert policy table data
# 2-64
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.2 x "FF FF FF"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.2 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.2
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.9 x "FF 11 35"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.16.1.2.9
# Alert string table key
# 1-64
```

```
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.2.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.2.1 x "FF FF"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.2.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.2.1 x ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.2.1
# Alert string table string
# 1-64
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.1 s "Test Alert String"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.1
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.1 s ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.1
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.9
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.9 s "@Cry"
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.9
snmpset -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.9 s ""
snmpget -v 3 -u overlord -l authNoPriv -a MD5 -A possessor 172.16.2.203
.iso.3.6.1.4.1.16394.2.1.1.19.1.3.9
```

This example assumes that SNMP v3 is used.

6 RMCP interface

The IPMI specification defines a LAN Interface to the chassis or shelf, represented in this context by the Shelf Manager. This interface is based on the RMCP (Remote Management Control Protocol). RMCP messages provide encapsulation for IPMI commands and responses adding special headers. On the transport level, RMCP messages are transferred across the network as UDP packets. AdvancedTCA requires that Shelf Managers support the IPMI LAN Interface and RMCP as part of the System Manager Interface.

The RMCP interface supports multi-session IPMI mode, allowing multiple users to work with the Shelf Manager simultaneously, while still being isolated from each other. User and message authentication and privilege levels are supported for RMCP sessions.

The Pigeon Point Shelf Manager fully supports the RMCP interface for the System Manager's interactions with the shelf in accordance with the IPMI specification, revision 1.5.1. Refer to chapter 12 of that specification for detailed information about the RMCP interface.

The Shelf Manager also supports the RMCP+ interface in accordance with the revision 2.0 of the IPMI specification. Detailed information about RMCP+ is contained in sections 13 and 24 of that specification.

The Shelf Manager fully supports the mandatory RMCP+ algorithms for authentication (RAKPNONE, RAKPHMAC-SHA1), integrity (none, HMAC-SHA1-96) and confidentiality (none, AES-CBC-128). In addition, the Shelf Manager supports optional encryption algorithms xRC4-128 and xRC4-40.

However, the Shelf Manager software on the ShMM-1500 is optionally delivered with encryption code removed, for reasons having to do with export regulations. If present, the encryption-related code is located in the shared library `/lib/libpps_encryption.so`. If the encryption library is absent, the Shelf Manager does not allow opening RMCP+ sessions with encryption support (and only the confidentiality algorithm "none" is supported in that case).

6.1 Supported IPMI commands

The following table shows the IPMI commands implemented by the Shelf Manager. Due to security considerations, the treatment of a given command may be different, depending on whether it is received over the RMCP interface or on IPMB-0.

Table 47: IPMI commands implemented by the Shelf Manager

COMMAND	NETFN	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Get Device ID	App	01h	Supported	Supported
Cold Reset	App	02h	Supported	Supported
Warm Reset	App	03h	Not supported	Not supported
Get Self Test Results	App	04h	Supported	Supported
Manufacturing Test	App	05h	Not supported	Not supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
On				
Set ACPI Power State	App	06h	Supported	Supported
Get ACPI Power State	App	07h	Supported	Supported
Get Device GUID	App	08h	Supported	Supported
Get NetFn Support	App	09h	Supported	Supported
Get Command Support	App	0Ah	Supported	Supported
Get Command Sub-function Support	App	0Bh	Supported	Supported
Get Configurable Commands	App	0Ch	Supported	Supported
Get Configurable Command Sub-functions	App	0Dh	Supported	Supported
Reset Watchdog Timer	App	22h	Supported	Supported
Set Watchdog Timer	App	24h	Supported	Supported
Get Watchdog Timer	App	25h	Supported	Supported
Set BMC Global Enables	App	2Eh	Supported	Supported
Get BMC Global Enables	App	2Fh	Supported	Supported
Clear Message Flags	App	30h	Supported	Supported
Get Message Flags	App	31h	Supported	Supported
Enable Message Channel Receive	App	32h	Not supported	Not supported
Get Message	App	33h	Not supported	Not supported
Send Message	App	34h	Supported	Supported
Read Event Message Buffer	App	35h	Not supported	Not supported
Get BT Interface Capabilities	App	36h	Not supported	Not supported

COMMAND	NETFN	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Get System GUID	App	37h	Supported	Supported
Get Channel Authentication Capabilities	App	38h	Supported	Supported(*)
Get Session Challenge	App	39h	Supported	Not supported
Activate Session	App	3Ah	Supported	Not supported
Set Session Privilege Level	App	3Bh	Supported	Not supported
Close Session	App	3Ch	Supported	Not supported
Get Session Info	App	3Dh	Supported	Supported(*)
Get AuthCode	App	3Fh	Supported	Supported(*)
Set Channel Access	App	40h	Supported	Supported(*)
Get Channel Access	App	41h	Supported	Supported(*)
Get Channel Info	App	42h	Supported	Supported(*)
Set User Access	App	43h	Supported	Supported(*)
Get User Access	App	44h	Supported	Supported(*)
Set User Name	App	45h	Supported	Supported(*)
Get User Name	App	46h	Supported	Supported(*)
Set User Password	App	47h	Supported	Supported(*)
Activate Payload	App	48h	Not supported	Not supported
Deactivate Payload	App	49h	Not supported	Not supported
Get Payload Activation Status	App	4Ah	Not supported	Not supported
Get Payload Instance Info	App	4Bh	Not supported	Not supported
Set User Payload Access	App	4Ch	Not supported	Not supported
Get User Payload Access	App	4Dh	Not supported	Not supported
Get Channel Payload Support	App	4Eh	Supported	Not supported
Get Channel Payload Version	App	4Fh	Supported	Not supported
Get Channel OEM	App	50h	Not supported	Not supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Payload Info				
Master Write-Read	App	52h	Supported (HPDL-based systems only)	Supported (HPDL-based systems only)
Get Channel Cipher Suites	App	54h	Supported	Not supported
Suspend/Resume Payload Encryption	App	55h	Supported (RMCP+ sessions only)	Not supported
Set Channel Security Keys	App	56h	Supported (RMCP+ sessions only)	Not supported
Get System Interface Capabilities	App	57h	Not supported	Not supported
Set System Info	App	58h	Supported (RMCP+ sessions only)	Not supported
Get System Info	App	59h	Supported (RMCP+ sessions only)	Not supported
Set Command Enables	App	60h	Supported	Supported
Get Command Enables	App	61h	Supported	Supported
Set Command Sub-function Enables	App	62h	Supported	Supported
Get Command Sub-function Enables	App	63h	Supported	Supported
Get OEM NetFn IANA Support	App	64h	Supported	Supported
Get Chassis Capabilities	Chassis	00h	Supported	Supported
Get Chassis Status	Chassis	01h	Supported	Supported
Chassis Control	Chassis	02h	Supported	Supported
Chassis Reset	Chassis	03h	Not supported	Not supported
Chassis Identify	Chassis	04h	Not supported	Not supported

COMMAND	NETFN	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Set Chassis Capabilities	Chassis	05h	Supported	Supported
Set Power Restore Policy	Chassis	06h	Not supported	Not supported
Get System Restart Cause	Chassis	07h	Not supported	Not supported
Set System Boot Options	Chassis	08h	Not supported	Not supported
Get System Boot Options	Chassis	09h	Not supported	Not supported
Set Front Panel Button Enables	Chassis	0Ah	Not supported	Not supported
Set Power Cycle Interval	Chassis	0Bh	Not supported	Not supported
Get POH Counter	Chassis	0Fh	Not supported	Not supported
Set LAN Configuration Parameters	Transport	01h	Supported	Supported(*)
Get LAN Configuration Parameters	Transport	02h	Supported	Supported
Suspend BMC ARPs	Transport	03h	Supported	Supported(*)
Get IP/UDP/RMCP statistics	Transport	04h	Not supported	Not supported
Set Serial/Modem Configuration	Transport	10h	Not supported	Not supported
Get Serial/Modem Configuration	Transport	11h	Not supported	Not supported
Set Serial/Modem Mux	Transport	12h	Not supported	Not supported
Get TAP Response Codes	Transport	13h	Not supported	Not supported
Set PPP UDP Proxy Transmit Data	Transport	14h	Not supported	Not supported
Get PPP UDP Proxy Transmit Data	Transport	15h	Not supported	Not supported
Send PPP UDP	Transport	16h	Not supported	Not supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Proxy Packet				
Get PPP UDP Proxy Receive Data	Transport	17h	Not supported	Not supported
Serial/Modem Connection Active	Transport	18h	Not supported	Not supported
Callback	Transport	19h	Not supported	Not supported
Set User Callback Options	Transport	1Ah	Supported	Supported(*)
Get User Callback Options	Transport	1Bh	Supported	Supported(*)
Set Serial Routing Mux	Transport	1Ch	Not supported	Not supported
SOL Activating	Transport	20h	Not supported	Not supported
Set SOL Configuration Parameters	Transport	21h	Not supported	Not supported
Get SOL Configuration Parameters	Transport	22h	Not supported	Not supported
Forwarded Command	Transport	30h	Not supported	Not supported
Set Forwarded Commands	Transport	31h	Not supported	Not supported
Get Forwarded Commands	Transport	32h	Not supported	Not supported
Enable Forwarded Commands	Transport	33h	Not supported	Not supported
Get FRU Inventory Area Info	Storage	10h	Supported	Supported
Read FRU Data	Storage	11h	Supported	Supported
Write FRU Data	Storage	12h	Supported	Supported
Get SDR Repository Info	Storage	20h	Supported	Supported
Get SDR Repository Allocation Info	Storage	21h	Not supported	Not supported
Reserve SDR Repository	Storage	22h	Supported	Supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Get SDR	Storage	23h	Supported	Supported
Add SDR	Storage	24h	Supported	Supported
Partial Add SDR	Storage	25h	Supported	Supported
Delete SDR	Storage	26h	Supported	Supported
Clear SDR Repository	Storage	27h	Supported	Supported
Get SDR Repository Time	Storage	28h	Supported	Supported
Set SDR Repository Time	Storage	29h	Supported	Supported
Enter SDR Repository Update Mode	Storage	2Ah	Not supported	Not supported
Exit SDR Repository Update Mode	Storage	2Bh	Supported	Supported
Run Initialization Agent	Storage	2Ch	Not supported	Not supported
Get SEL Info	Storage	40h	Supported	Supported
Get SEL Allocation Info	Storage	41h	Supported	Supported
Reserve SEL	Storage	42h	Supported	Supported
Get SEL Entry	Storage	43h	Supported	Supported
Add SEL Entry	Storage	44h	Supported	Supported
Partial Add SEL Entry	Storage	45h	Supported	Supported
Delete SEL Entry	Storage	46h	Supported	Supported
Clear SEL	Storage	47hh	Supported	Supported
Get SEL Time	Storage	48h	Supported	Supported
Set SEL Time	Storage	49h	Supported	Supported
Get Auxiliary Log Status	Storage	5Ah	Not supported	Not supported
Set Auxiliary Log Status	Storage	5Bh	Not supported	Not supported
Get SEL Time UTC Offset	Storage	5Ch	Supported	Supported
Set SEL Time UTC	Storage	5Dh	Not supported	Not supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Offset				
Set Event Receiver	S/E	00h	Supported	Supported
Get Event Receiver	S/E	01h	Supported	Supported
Event Message	S/E	02h	Supported	Supported
Get PEF Capabilities	S/E	10h	Supported	Supported
Arm PEF Postpone Timer	S/E	11h	Supported	Supported
Set PEF Configuration Parameters	S/E	12h	Supported	Supported
Get PEF Configuration Parameters	S/E	13h	Supported	Supported
Set Last Processed Event ID	S/E	14h	Supported	Supported
Get Last Processed Event ID	S/E	15h	Supported	Supported
Alert Immediate	S/E	16h	Supported	Supported
PET Acknowledge	S/E	17h	Supported	Supported
Get Device SDR Info	S/E	20h	Supported	Supported
Get Device SDR	S/E	21h	Supported	Supported
Reserve Device SDR Repository	S/E	22h	Supported	Supported
Get Sensor Reading Factors	S/E	23h	Supported	Supported
Set Sensor Hysteresis	S/E	24h	Supported	Supported
Get Sensor Hysteresis	S/E	25h	Supported	Supported
Set Sensor Threshold	S/E	26h	Supported	Supported
Get Sensor Threshold	S/E	27h	Supported	Supported
Set Sensor Event Enable	S/E	28h	Supported	Supported
Get Sensor Event	S/E	29h	Supported	Supported

COMMAND	NetFn	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Enable				
Re-arm Sensor Events	S/E	2Ah	Supported	Supported
Get Sensor Event Status	S/E	2Bh	Supported	Supported
Get Sensor Reading	S/E	2Dh	Supported	Supported
Set Sensor Type	S/E	2Eh	Supported	Supported
Get Sensor Type	S/E	2Fh	Supported	Supported
Set Sensor Reading and Event Status	S/E	30h	Supported	Supported
Get PICMG Properties	PICMG	00h	Supported	Supported
Get Address Info	PICMG	01h	Supported	Supported
Get Shelf Address Info	PICMG	02h	Supported	Supported
Set Shelf Address Info	PICMG	03h	Supported	Supported
FRU Control	PICMG	04h	Supported	Supported
Get FRU LED Properties	PICMG	05h	Supported	Supported
Get LED Color Capabilities	PICMG	06h	Supported	Supported
Set FRU LED State	PICMG	07h	Supported	Supported
Get FRU LED State	PICMG	08h	Supported	Supported
Set IPMB State	PICMG	09h	Supported	Supported
Set FRU Activation Policy	PICMG	0Ah	Supported	Supported
Get FRU Activation Policy	PICMG	0Bh	Supported	Supported
Set FRU Activation	PICMG	0Ch	Supported	Supported
Get Device Locator Record ID	PICMG	0Dh	Supported	Supported
Set Port State	PICMG	0Eh	Supported	Supported
Get Port State	PICMG	0Fh	Supported	Supported
Compute Power Properties	PICMG	10h	Supported	Supported

COMMAND	NETFN	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Set Power Level	PICMG	11h	Supported	Supported
Get Power Level	PICMG	12h	Supported	Supported
Renegotiate Power	PICMG	13h	Not supported	Supported
Get Fan Speed Properties	PICMG	14h	Supported	Supported
Set Fan Level	PICMG	15h	Supported	Supported
Get Fan Level	PICMG	16h	Supported	Supported
Bused Resource	PICMG	17h	Not supported	Supported
Get IPMB Link Info	PICMG	18h	Supported	Supported
Get Shelf Manager IPMB Address	PICMG	1Bh	Supported	Supported
Set Fan Policy	PICMG	1Ch	Supported	Supported
Get Fan Policy	PICMG	1Dh	Supported	Supported
FRU Control Capabilities	PICMG	1Eh	Supported	Supported
FRU Inventory Device Lock Control	PICMG	1Fh	Supported	Supported
FRU Inventory Device Write	PICMG	20h	Supported	Supported
Get Shelf Manager IP Addresses	PICMG	21h	Supported	Supported
Get Shelf Power Allocation	PICMG	22h	Supported	Supported
Get Telco Alarm Capability	PICMG	29h	Supported	Supported
Set Telco Alarm State	PICMG	2Ah	Supported	Supported
Get Telco Alarm State	PICMG	2Bh	Supported	Supported
Get Target Upgrade Capabilities	PICMG	2Eh	Supported	Supported
Get Component Properties	PICMG	2Fh	Supported	Supported
Abort Firmware Upgrade	PICMG	30h	Supported	Supported
Initiate Upgrade	PICMG	31h	Supported	Supported

COMMAND	NETFN	CMD	ARRIVING FROM RMCP INTERFACE	ARRIVING FROM IPM CONTROLLER
Action				
Upload Firmware Block	PICMG	32h	Supported	Supported
Finish Firmware Upload	PICMG	33h	Supported	Supported
Get Upgrade Status	PICMG	34h	Supported	Supported
Activate Firmware	PICMG	35h	Supported	Supported
Query Self-test Results	PICMG	36h	Supported	Supported
Query Rollback Status	PICMG	37h	Supported	Supported
Initiate Manual Rollback	PICMG	38h	Supported	Supported
Get Telco Alarm Location	PICMG	39h	Supported	Supported
Set FRU Extracted	PICMG	3Ah	Supported	Supported

Note: Commands in the table above that are marked by () are supported from the IPMB-0 side only if the configuration parameter ALLOW_ALL_COMMANDS_FROM_IPMB is set to TRUE.*

6.1.1 Get Device ID response

The command “Get Device ID” is intended to return information about the target IPMC. When this command is directed to the Shelf Manager, it returns information about the Shelf Manager, however this information is different in some fields depending on whether the destination address is 20h, which designates the logical Shelf Manager, or the address of the physical Shelf Manager.

The fields in the “Get Device ID” response have the following values and meaning:

Table 48: Fields of Get Device ID response

FIELD NAME	OFFSET	VALUE FOR THE LOGICAL SHELF MANAGER	VALUE FOR THE PHYSICAL SHELF MANAGER
Device ID	2	Identifier of the target ShMM, as follows: 0 = ISM 3 = ShMM-300 5 = ShMM-500 7 = ShMM-700 15h = ShMM-1500	

FIELD NAME	OFFSET	VALUE FOR THE LOGICAL SHELF MANAGER	VALUE FOR THE PHYSICAL SHELF MANAGER
Device Revision	3	Bit [7] = 1: device provides Device SDRs Bits [6:0] = 0	
Firmware Revision 1	4	Bit [7]: 0 = device available, 1 = initialization is in progress Bits [6:0] = major Shelf Manager version, binary encoded (3 for version 3.7.0)	
Firmware Revision 2	5	Minor Shelf Manager version (second and third levels of the version), BCD encoded (70h for version 3.7.0)	
IPMI Version	6	02h, meaning IPMI Version 2.0 is supported	
Additional Device Support	7	BFh, which identifies the following capabilities: <ul style="list-style-type: none"> • Chassis Device • IPMB Event Generator • IPMB Event Receiver • FRU Inventory Device • SEL Device • SDR Repository Device • Sensor Device 	29h, which identifies the following capabilities: <ul style="list-style-type: none"> • IPMB Event Generator • FRU Inventory Device • Sensor Device
Manufacturer ID	8:10	0Ah 40h 00h = Pentair IANA Enterprise Number [†]	
Product ID	11:12	00h 00h	
Auxiliary Firmware Revision Information	13:16	Detailed information about the version of the Shelf Manager and type and subversion of the carrier-specific module. Byte 1: If bit [7] = 0, the major Shelf Manager version in bits [6:0], binary encoded (3h for version 3.7.0) If bit [7] = 1, the fourth level of Shelf Manager	Data from the file <code>/var/nvdata/aux-fw-revision</code> , as described in the <i>User Guide</i> , section 3.9

[†]This IANA Enterprise Number was originally assigned to Pigeon Point Systems, which has since been acquired by Pentair.

FIELD NAME	OFFSET	VALUE FOR THE LOGICAL SHELF MANAGER	VALUE FOR THE PHYSICAL SHELF MANAGER
		version in bits [6:0], binary encoded Byte 2: Minor Shelf Manager version (second and third levels of the version), BCD encoded (70h for version 3.7.0) Byte 3: Carrier-specific module. Indicates the currently used carrier-specific module. For HPDL systems, the value is 1Ch Byte 4: Bits [7:4] = carrier subtype, if multiple carrier types are serviced by the same carrier-specific module; Bits [3:0] = carrier subversion. This value is normally 0, and is greater than 0 if the current carrier-specific module has been modified within the current release of the Shelf Manager.	

6.1.2 Get Self Test Results response

The command “Get Self Test Results” returns the results of the POST tests performed by the Linux U-Boot at the startup of the ShMM. If all tests have passed, the status code 0x55 is returned. If any tests have failed, the device-specific failure code 0x59 is returned. The third byte contains the following bit mask in that case:

- [7:5] Reserved
- [4] 1b = Ethernet test failed
- [3] 1b = UART test failed
- [2] 1b = U-Boot CRC test failed

- [1] 1b = I2C test failed
- [0] 1b = Memory test failed.

Both the logical Shelf Manager and the physical Shelf Manager return the same response to this command.

6.2 Pentair-specific extension commands and sensors

In addition to the specification-defined IPMI commands listed above, the Shelf Manager implements several Pentair-defined IPMI commands and sensors for the convenience of the System Manager.

The commands described in this section are implemented as OEM Group commands (Network Function Code 2Eh) and require that the first three bytes of the request and response be the following Pentair IANA Enterprise Number (“IANA” for short): (0Ah, 40h, 00h)[†]. Previously, for certain carriers, some of these commands were also implemented as Controller-Specific OEM/Group commands (Network Function Code 3Eh), but that latter variant is no longer supported.

The first set of Pentair-specific mechanisms provides an alternative for TELCO alarm control to the PEF-based mechanism. The mechanisms consist of one sensor and two Pentair extension commands. The commands can be issued by the System Manager over the RMCP interface and implement the following functionality:

- set/clear specified TELCO alarms (both the set and clear operations are performed atomically within the same command)
- get the number of the TELCO alarm sensor. This sensor can then be used to read the current state of TELCO alarms in an IPMI-compliant way.

Some ShMM carriers support general purpose digital output pins that are intended to be accessible by the System Manager and other external applications. There is no explicit support for such entities in the IPMI specification, so a second set of Pentair extension commands is provided to allow the System Manager to work with such digital outputs.

The commands can be issued by the System Manager over the RMCP interface and provide the following functionality:

- query the properties and number of available digital outputs;
- get the current state of digital outputs;
- set/clear digital outputs.

Currently, these commands are implemented for selected carriers on some FRUs of the Shelf Manager (IPMB address 20h). However, in future they may be implemented on other IPM controllers/FRUs.

Another set of Pentair extensions provide additional functionality, currently including the following:

- Reading the contents of a Shelf FRU Information multirecord;

[†]This IANA Enterprise Number was originally assigned to Pigeon Point Systems, which has since been acquired by Pentair.

- Notifying the Shelf Manager about an extracted FRU;
- Initiating a Shelf Manager switchover;
- Subscribing for event notifications;
- DHCP client control;
- Diagnostic support;
- Allowing/disallowing AXIe functionality to enable PCI Express hosts.

The commands in this set are implemented as OEM Group commands (Network Function Code 2Eh) and require that the first three bytes of the request and response be the following Pentair IANA: (0Ah, 40h, 00h).

One more set of Pentair extensions serves to improve the performance of Pigeon Point OpenHPI, when operating with the Pigeon Point Shelf Manager. The Pigeon Point Shelf Manager implements an internal cache of the Device SDR Repository for every known IPM controller. The Shelf Manager uses that cache for internal needs and initially did not provide an external interface to access it. The Shelf Manager periodically checks the consistency of this cache.

A set of Pentair OEM commands provides an external interface to this cache, including the following functions:

- Getting information about the cached Device SDR Repository;
- Obtaining an SDR from the cached Device SDR Repository;
- Reserving the cached Device SDR Repository.

The tables below lists sensors with predefined numbers on the logical and physical Shelf Manager. Custom Shelf Manager sensors that belong to this group are documented in the paragraphs below.

Table 49: Logical Shelf Manager sensors

SENSOR LUN/ NUMBER	SENSOR NAME	SENSOR TYPE	EVENT/ READING TYPE	COMMENTS
0/0	FRU 0 HOT_SWAP	F0h (Hot Swap)	6Fh (Sensor-specific)	ATCA-specified Hot Swap sensor for the logical Shelf Manager IPMC
0/1	IPMB LINK	F1h (IPMB Link)	6Fh (Sensor-specific)	ATCA-specified IPMB Link sensor for the logical Shelf Manager IPMC
0/2 – 0/N	FRU <n> HOT_SWAP	F0h (Hot Swap)	6Fh (Sensor-specific)	ATCA-specified Hot Swap sensors for the subsidiary FRUs of the logical Shelf Manager
0/119	TelcoAlarmInput	F4h (TELCO Alarm)	6Fh (Sensor-specific)	Standard Telco Alarm Input sensor

		Input)		
0/131	TELCO Alarms	DFh (custom)	6Fh (Sensor-specific)	Custom Shelf Manager Telco Alarm Sensor. See 6.2.1
0/132	BMC Watchdog	23h (Watchdog 2)	6Fh (Sensor-specific)	IPMI-specified BMC Watchdog sensor for the logical Shelf Manager; used by watchdog-related IPMI commands
0/133	SYSTEM EVENT	12h (System Event)	6Fh (Sensor-specific)	System Event sensor for the logical Shelf Manager: <ul style="list-style-type: none"> - generates a “System Reconfigured” event at Shelf Manager startup and after each switchover - generates a “PEF Action” event on each PEF action if such event is enabled in the PEF configuration
0/134	SEL State	10h (Event Logging Disabled)	6Fh (Sensor-specific)	This sensor of a standard type reports the state of the SEL (full, almost full) for the logical Shelf Manager (exposed only if automatic SEL truncation is disabled in the configuration)
0/135	FT Oper.Status	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that represent the operational status of fan trays. See 6.2.24
0/136	Cooling State	28h (Management Subsystem Health)	07h (Severity Event States)	Custom Shelf Manager sensor that represents the cooling state of the shelf. See 6.2.25
0/137	Fans State	28h (Management Subsystem Health)	07h (Severity Event States)	Custom Shelf Manager sensor that represents the state of fans in the shelf. See 6.2.26

		Health)		
0/138	ShM Redundancy	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that represents the redundancy status of the Shelf Managers in the shelf. See 6.2.27
0/139	Session Audit	2Ah (Session Audit)	6Fh (Sensor-specific)	Session audit sensor that tracks establishment and closure of RMCP connections to the Shelf Manager, invalid logon attempts and lockout of usernames due to the expiration of the number of logon attempts with a bad password
3/0	HPI Sys Event	DBh (custom)	6Fh (Sensor-specific)	Custom Shelf Manager sensor that reports the status of the IntegralHPI server. See 6.2.23
3/1	Shelf FRU Info	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that tracks the current Shelf FRU Information redundancy state. See 6.2.28
3/8	NE ID Device 1	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that represents the redundancy status of Network Element ID 1. See 6.2.29
3/9	NE ID Device 2	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that represents the redundancy status of Network Element ID 2. See 6.2.29
3/10	NE ID Device 3	28h (Management Subsystem Health)	0Bh (Redundancy States)	Custom Shelf Manager sensor that represents the redundancy status of Network Element ID 3. See 6.2.29

		m Health)		6.2.29
--	--	--------------	--	--------

Table 50: Physical Shelf Manager sensors

SENSOR LUN/ NUMBER	SENSOR NAME	SENSOR TYPE	EVENT/ READING TYPE	COMMENTS
0/0	FRU 0 HOT_SWAP	F0h (Hot Swap)	6Fh (Sensor-specific)	ATCA-specified Hot Swap sensor for the physical Shelf Manager IPMC
0/1	IPMB LINK	F1h (IPMB Link)	6Fh (Sensor-specific)	ATCA-specified IPMB Link sensor for the physical Shelf Manager IPMC
0/128	CPLD State (on ShMM-500/ShMM-1500) HWRI State (on ShMM-700)	DEh (custom)	6Fh (Sensor-specific)	Custom Shelf Manager sensor that represents the state of the Hardware Redundancy Interface on the ShMM. See 6.2.21
0/129	Reboot Reason	DDh (custom)	6Fh (Sensor-specific)	Custom Shelf Manager sensor that represents the reason for the last reboot of the ShMM. See 6.2.22
0/130	ShM Bank1 active	Fh (System Firmware Progress)	03h (Digital Discrete: State asserted/de asserted)	ShMM-700 only: Custom Shelf Manager sensor that identifies the ShMM-700 firmware bank currently in use with an asserted state for bank 1 and deasserted state for bank 0. See 6.2.30
0/131	ShM Mem Rec	12h (System Event)	03h (Digital Discrete: State asserted/de asserted)	ShMM-700 only: Custom Shelf Manager sensor that indicates whether the most recent reboot was caused by the reliable upgrade watchdog timer during a failed Shelf Manager firmware upgrade attempt, with an automatic rollback to the Shelf Manager firmware version that was running before the upgrade attempt. See 6.2.31

6.2.1 TELCO Alarm sensor

This discrete sensor has sensor type DFh, event/reading type 6Fh (sensor-specific discrete) and is implemented on LUN 0, number 131 of the Shelf Manager IPM controller (20h). The sensor name is “TELCO Alarms”. The following offsets are defined for the sensor:

- 0 – Minor Alarm active,
- 1 – Major Alarm active,
- 2 – Critical Alarm active,
- 3 – Alarm Cutoff active.

6.2.2 Set/Clear TELCO Alarms

This extension command is implemented by the Shelf Manager IPM controller (address 20h).

Network Function Code (NetFN): 3Eh

Command Code: D0h

Table 51: Set/Clear TELCO Alarms command

	BYTE	DATA FIELD
Request Data	1	<i>Set Alarm Mask</i> A bit field that defines which alarm to set. [7:3] Reserved [2] Set Critical Alarm [1] Set Major Alarm [0] Set Minor Alarm
	2	<i>Clear Alarm Mask</i> A bit field that defines which alarm to clear. [7:3] Reserved [2] Clear Critical Alarm [1] Clear Major Alarm [0] Clear Minor Alarm
Response Data	1	<i>Completion Code</i>

6.2.3 Get TELCO Alarm Sensor Number

This extension command is implemented by the Shelf Manager IPM controller (address 20h). It allows the caller to obtain the sensor number for the TELCO Alarm sensor, after which the caller can read the state of TELCO Alarms in an IPMI-compliant way.

Network Function Code (NetFN): 3Eh

Command Code: D1h

Table 52: Get TELCO Alarm Sensor Number command

	BYTE	DATA FIELD
Request Data	-	
Response Data	1	<i>Completion Code</i>
	2	<i>Sensor Number</i> . Identifies the TELCO alarm sensor.

6.2.4 Query Digital Output Properties

This extension command returns the number of available digital outputs.

Network Function Code (NetFN): 2Eh

Command Code: D4h

Table 53: Query Digital Output Properties command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates an individual FRU device to query.
Response Data	1	<i>Completion Code</i>
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	5	<i>Digital Output Count</i> . The number of digital outputs supported by this FRU.

6.2.5 Get Digital Outputs

This extension command allows the caller to query the current state of selected digital outputs. The state of each digital output is represented with one bit, so one byte represents the state of 8 digital outputs. All digital outputs are logically divided into groups, with each group containing 8 digital outputs and fitting in one byte. Group 0 comprises digital outputs 0-7, group 1 comprises digital outputs 8-15, etc.

The caller specifies the starting and ending group numbers for the digital outputs desired. Both numbers are optional; the default for the starting group number is 0, the default for the ending group number is the last group. Omitting both parameters causes retrieval of the state of all available digital outputs.

Network Function Code (NetFN): 2Eh

Command Code: D3h

Table 54: Get Digital Outputs command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates an individual FRU device to query.
	(5)	<i>Starting group ID.</i> This parameter is optional; it defaults to 0.
	(6)	<i>Ending group ID.</i> This parameter is optional; it defaults to the last group.
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Data byte 1.</i> The state of digital outputs for the first requested group

	N	<i>Data byte N-1.</i> The state of digital outputs for the last requested group.

6.2.6 Set/Clear Digital Outputs

This extension command allows the caller to simultaneously set/clear the current state of digital outputs from the selected group. The state of each digital output is represented with one bit, so one byte represents the state of 8 digital outputs. All digital outputs are logically divided into groups, with each group containing 8 digital outputs and fitting in one byte. Group 0 comprises digital outputs 0-7, group 1 comprises digital outputs 8-15, etc.

The specified digital outputs within the group are set/cleared atomically with one operation.

Network Function Code (NetFN): 2Eh

Command Code: D2h

Table 55: Set/Clear Digital Outputs command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates an individual FRU device to access.

	5	<i>Group ID.</i> Indicates the group of digital outputs to be set /cleared.
	6	<i>Digital Outputs Set Mask Bits.</i> A bit mask of digital outputs to be set within the group specified. [7] – 1b = set digital output 7 in the group specified [6] – 1b = set digital output 6 in the group specified [5] – 1b = set digital output 5 in the group specified [4] – 1b = set digital output 4 in the group specified [3] – 1b = set digital output 3 in the group specified [2] – 1b = set digital output 2 in the group specified [1] – 1b = set digital output 1 in the group specified [0] – 1b = set digital output 0 in the group specified
	7	<i>Digital Outputs Clear Mask Bits.</i> A bit mask of digital outputs to be cleared within the group specified. [7] – 1b = clear digital output 7 in the group specified [6] – 1b = clear digital output 6 in the group specified [5] – 1b = clear digital output 5 in the group specified [4] – 1b = clear digital output 4 in the group specified [3] – 1b = clear digital output 3 in the group specified [2] – 1b = clear digital output 2 in the group specified [1] – 1b = clear digital output 1 in the group specified [0] – 1b = clear digital output 0 in the group specified
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

6.2.7 Get Shelf FRU Record Data

Using this Pentair extension command, a specified range of bytes can be retrieved from any multirecord in the Shelf FRU Information. This command can be applied to any PICMG-defined or OEM-defined record from the Shelf FRU Information, including the Address Table Record (PICMG Record ID = 10h), Shelf Power Distribution Record (PICMG Record ID = 11h), etc.

The type of the record to be retrieved is specified by the Manufacturer IANA and manufacturer-specific record type. The 0-based record number can be used to distinguish different instances of the same type of record. (There may be several records of the same type in the Shelf FRU Information.)

The number of bytes read by this command is limited by the size of an IPMB packet and must be 20 bytes or fewer.

Network Function Code (NetFN): 2Eh

Command Code: 1h

IANA: 00400Ah (Assigned to Pentair)

Table 56: Get Shelf FRU Record Data command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>Record Manufacturer IANA Low Byte.</i>
	5	<i>Record Manufacturer IANA Middle Byte.</i>
	6	<i>Record Manufacturer IANA High Byte.</i>
	7	<i>Record Type.</i>
	8	<i>Record Number.</i> This field specifies the number of the record to be accessed. The record numbers are 0-based.
	9	<i>Offset.</i> This field specifies the offset from the beginning of the record in bytes.
	10	<i>Byte Count.</i> This field specifies the number of bytes to be read.
Response Data	1	<i>Completion Code</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Count read.</i> Indicates the number of bytes in the <i>Data</i> field.
	6:N+5	<i>Data.</i> This variable length field contains data retrieved from the record. N is specified in the <i>Count read</i> byte.

For example, to retrieve the first 10 bytes of the first Address Table record in the Shelf FRU Information, use the following parameters:

Record Manufacturer IANA Low Byte = 5Ah (PICMG)

Record Manufacturer IANA Middle Byte = 31h (PICMG)

Record Manufacturer IANA High Byte = 00h (PICMG)

Record type = 10h (Address Table)

Record Number = 00h (first record)

Offset = 00h

Byte Count = Ah (10 bytes)

6.2.8 Notify Shelf Manager About an Extracted FRU

This Pentair extension command is sent to the logical Shelf Manager (20h) and informs the Shelf Manager that the specified FRU (which is typically in the communication lost (M7) state) is not in the shelf any more and can be moved to state M0, and have all its resources released. If the FRU Device ID is 0, the command applies to all FRUs represented by the specified IPM controller. This command is similar in effects to the CLI command *setextracted*.

Unless the “forced mode” is specified, the Shelf Manager verifies that the target FRU is indeed in the “Communication Lost” (M7) state; if not, the completion code D5h (Command Not Supported in Present State) is returned.

Network Function Code (NetFN): 2Eh

Command Code: 2h

IANA: 00400Ah (Assigned to Pentair)

Table 57: Notify Shelf Manager About an Extracted FRU command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>IPMB Address</i> . Indicates IPMB address of the target IPM controller.
	5	<i>Target FRU Device ID</i> . Indicates the FRU Device ID that is targeted by this command.
	(6)	<i>Flags</i> . An optional bit field: [7:1] Reserved; shall be set to 0 [0] <i>Forced Mode</i> . This bit is set to 1b if “forced mode” is to be used; in this mode the Shelf Manager does not check that the target FRU is indeed in state M7.
Response Data	1	<i>Completion Code</i> .
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.

6.2.9 Initiate Shelf Manager Switchover

This Pentair extension command can be targeted to the logical Shelf Manager address (20h) or alternatively to the physical address for either the active or backup Shelf Managers. It initiates a switchover from the active to the backup Shelf Manager. If a switchover cannot be performed (for instance, if there is no backup Shelf Manager available), the completion code D5h (Command Not Supported in Present State) is returned.

Network Function Code (NetFN): 2Eh

Command Code: 3h

IANA: 00400Ah (Assigned to Pentair)

Table 58: Initiate Shelf Manager Switchover command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<p><i>Flags.</i></p> <p>[7:1] Reserved. Shall be set to 0b.</p> <p>[0] <i>Active Reboot Mode.</i> If this command is sent to the active Shelf Manager and this bit is set to 1, the Shelf Manager reboots its ShMM; if this bit is set to 0, the Shelf Manager exits without rebooting the ShMM. This bit is not applicable if the command is sent to the backup Shelf Manager.</p>
Response Data	1	<i>Completion Code</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

6.2.10 Subscribe for Event Notifications

This Pentair extension command can be used by an RMCP client to subscribe or unsubscribe for event notification on the current RMCP session. This command should be targeted to the logical Shelf Manager address (20h). It either subscribes or unsubscribes for event notification on the current session, depending on the value of the parameter *Flags*. If a session is subscribed for notifications, each time a new entry is placed in the SEL, a notification in the form of an “Add SEL Entry” request is sent to the RMCP client over this session. The client should confirm the notification by sending an “Add SEL Entry” response, according to the normal IPMI rules. The subscription is automatically terminated when the corresponding session is closed.

Network Function Code (NetFN): 2Eh

Command Code: 4h

IANA: 00400Ah (Assigned to Pentair)

Table 59: Subscribe for Event Notifications command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>Flags.</i> A bit field that specifies the action: [0]: 1b = subscribe for event notifications on the current session; 0b = unsubscribe. [7:1] Reserved. Shall be set to 0.
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

6.2.11 Set Shelf FRU Record Data

Using this Pentair extension command, a specified range of bytes can be written into any multirecord in the Shelf FRU Information. This command can be applied to any PICMG-defined or OEM-defined record in the Shelf FRU Information, including the Address Table Record (PICMG Record ID = 10h), Shelf Power Distribution Record (PICMG Record ID = 11h), etc.

The type of the record to be written is specified by the Manufacturer IANA and manufacturer-specific record type. The 0-based record number can be used to distinguish different instances of the same type of record. (There may be several records of the same type in the Shelf FRU Information.)

The implementation of the command takes care of updating the checksum of the target record so that the checksum stays correct.

The number of bytes to be written by this command is limited by the size of IPMB packet and must be 15 bytes or fewer. This number is specified by the parameter “Byte Count” and must be equal to the actual number of data bytes in the command. If the actual number of data bytes in a command does not correspond to the value of the parameter “Byte Count”, the command is rejected.

Network Function Code (NetFN): 2Eh

Command Code: 05h

IANA: 00400Ah (Assigned to Pentair)

Table 60: Set Shelf FRU Record Data command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>Record Manufacturer IANA Low Byte.</i>
	5	<i>Record Manufacturer IANA Middle Byte.</i>
	6	<i>Record Manufacturer IANA High Byte.</i>
	7	<i>Record Type.</i>
	8	<i>Record Number.</i> This field specifies the number of the record to be accessed. The record numbers are 0-based.
	9	<i>Offset.</i> This field specifies the offset from the beginning of the record in bytes.
	10	<i>Byte Count.</i> This field specifies the number of bytes to be written.
	11:N+10	<i>Data.</i> This variable length field contains data to be written into the record.
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Count written.</i> Indicates the number of bytes written to the record.

For example, to set the first 9 bytes of the first Address Table record in the Shelf FRU Information, use the following parameters:

Record Manufacturer IANA Low Byte = 5Ah (PICMG)

Record Manufacturer IANA Middle Byte = 31h (PICMG)

Record Manufacturer IANA High Byte = 00h (PICMG)

Record type = 10h (Address Table)

Record Number = 00h (first record)

Offset = 00h

Byte Count = 09h

Data = 41h 08h 00h 12h 09h 00 43h 0Ah 00 (9 bytes)

6.2.12 Get Cached Device SDR Info

This Pentair extension command can be used by an RMCP client to get information about the device SDRs from a shelf's IPM controllers that the Pigeon Point Shelf Manager caches in its internal data structures during operation. The command request and response data are

structured like the corresponding data in the IPMI “Get Device SDR Info” command with minimal changes.

Network Function Code (NetFN): 2Eh

Command Code: 6h

IANA: 00400Ah (Assigned to Pentair)

Table 61: Get Cached Device SDR Info command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>IPMB Address.</i> Indicates IPMB address of an IPM controller for which a Device SDR Repository is cached
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Number of sensors in device for LUN this command is addressed to.</i>
	6	<p><i>Flags:</i></p> <p><i>Dynamic population</i></p> <p>[7]: 0b =static sensor population. The number of sensors handled by this device is fixed, and a query returns records for all sensors.</p> <p>1b = dynamic sensor population. The device may have its sensor population vary during 'run time' (defined as any time other than when an install operation is in progress).</p> <p>[6:4] Reserved</p> <p><i>Device LUNs</i></p> <p>[3]: 1b = LUN 3 has sensors,</p> <p>[2]: 1b = LUN 2 has sensors,</p> <p>[1]: 1b = LUN 1 has sensors,</p> <p>[0]: 1b = LUN 0 has sensors.</p>
	7:10	<p><i>Sensor population change indicator.</i> LS byte first.</p> <p>Four byte timestamp or counter. Updated or incremented each time the sensor population changes. This field is not provided if the flags indicate a static sensor population.</p>

6.2.13 Get Cached Device SDR

This Pentair extension command can be used by an RMCP client to obtain an SDR from the collection of device SDRs from various IPM controllers that the Pigeon Point Shelf Manager caches in its internal data structures during operation. The command request and response data are structured like the corresponding data in the IPMI “Get Device SDR” command with minimal changes.

Network Function Code (NetFN): 2Eh

Command Code: 7h

IANA: 00400Ah (Assigned to Pentair)

Table 62: Get Cached Device SDR command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>IPMB Address.</i> Indicates IPMB address of an IPM controller for which the Device SDR Repository is cached.
	5	<i>Reservation ID Low Byte.</i> Only required for partial reads with non-zero 'Offset into record' field. Use 0000h for <i>Reservation ID</i> otherwise.
	6	<i>Reservation ID High Byte.</i>
	7	<i>Record ID of record to Get. Low Byte.</i> 0000h returns the first record.
	8	<i>Record ID of record to Get. High Byte.</i>
	9	<i>Offset into record.</i>
	10	<i>Bytes to read.</i> FFh means read entire record.
Response Data	1	<i>Completion Code.</i> Generic, plus following command specific: 80h = record changed. This status returned if any of the record contents has been altered since the last time the Requester issued the request with 00h for the <i>Offset into record</i> field.
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Record ID for the next record. Low Byte.</i>
	6	<i>Record ID for the next record. High Byte.</i>
	7:N+6	<i>Requested bytes from record.</i>

6.2.14 Reserve Cached Device SDR Repository

This Pentair extension command can be used by an RMCP client to obtain a *Reservation ID* for the collection of device SDRs from various IPM controllers that the Pigeon Point Shelf Manager caches in its internal data structures during operation. The Reservation ID is a part of the mechanism that is used to notify the requester that a record may have changed during the process of a multi-part read. The command request and response data are structured like the corresponding data in the IPMI “Reserve Device SDR Repository” command with minimal changes.

Network Function Code (NetFN): 2Eh

Command Code: 8h

IANA: 00400Ah (Assigned to Pentair)

Table 63: Reserve Cached Device SDR Repository command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>IPMB Address.</i> Indicates IPMB address of the IPM controller which Device SDR Repository is cached.
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Reservation ID. Low Byte.</i> 0000h reserved.
	6	<i>Reservation ID. High Byte.</i>

6.2.15 Set FRU Activation Parameters

This Pentair extension command can be used by an RMCP client to manage the slot-specific attributes Shelf Manager Controlled Activation, Shelf Manager Controlled Deactivation and Delay Before Next Power On. These attributes are stored in the Shelf FRU Information and normally the changes done to the Shelf FRU Information do not effect Shelf Manager operation immediately. This command doesn’t change Shelf FRU Information, but changes the values of power management attributes for the specified slot, so that the Shelf Manager starts using the new values immediately.

Network Function Code (NetFN): 2Eh

Command Code: 9h

IANA: 00400Ah (Assigned to Pentair)

Table 64: Set FRU Activation Parameters command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>IPMB Address.</i> Indicates IPMB address (NOT the hardware address) of the slot for which the attributes are changed.
	5	<i>FRU Device ID.</i> Indicates the FRU device ID of the slot for which the attributes are changed (the value FEh means “all FRUs”).
	6	<i>Value Presence Flags:</i> [7:3]: Reserved [2]: Set the Shelf Manager Controlled Activation bit from the next byte. [1]: Set the Shelf Manager Controlled Deactivation bit from the next byte. [0]: Set the Delay Before Next Power On value from the next byte.
	7	<i>Values:</i> [7]: Shelf Manager Controlled Deactivation bit. [6]: Shelf Manager Controlled Activation bit. [5:0]: Delay Before Next Power On value.
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

6.2.16 Set Minimal Fan Level

This command sets the minimal fan level for a specific fan tray or for all fan trays in the shelf.

Network Function Code (NetFN): 2Eh

Command Code: 0Ch

IANA: 00400Ah (Assigned to Pentair)

Table 65: Set Min Fan Level command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>Level</i> . A new minimum fan level value.
	(5)	<i>IPMB Address</i> . An optional field. Indicates the IPMB address of the Fan Tray for which the minimum fan level is set. In a shelf that does not implement zoned cooling, this parameter is ignored. If this parameter and the <i>FRU Device ID</i> are omitted, the specified <i>Level</i> is set to all Fan Trays.
	(6)	<i>FRU Device ID</i> . An optional field. Indicates the FRU device ID of the Fan Tray for which the minimum fan level is set. In a shelf that does not implement zoned cooling, this parameter is ignored. If this parameter and the <i>IPMB Address</i> are omitted, the specified <i>Level</i> is set to all Fan Trays.
Response Data	1	<i>Completion Code</i> .
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.

If *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned. Parameters *IPMB Address* and *FRU Device ID* must be either both present or both omitted.

6.2.17 Get Minimal Fan Level

This command gets the minimal fan levels, both statically configured and dynamic, for a specific fan tray in the shelf.

Network Function Code (NetFN): 2Eh

Command Code: 0Dh

IANA: 00400Ah (Assigned to Pentair)

Table 66: Get Min Fan Level command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	(4)	<p><i>IPMB Address.</i> An optional field.</p> <p>Indicates the IPMB address of the Fan Tray for which the minimum fan level is queried. If this parameter and the <i>FRU Device ID</i> are omitted, the <i>CFG Min Fan Level</i> and <i>Dynamic Min Fan Level</i> parameters returned in the response relate to the first Fan Tray within the internal Shelf Manager list. In a shelf that does not implement zoned cooling, this parameter is ignored; the returned minimum fan level values apply to all fan trays in the shelf.</p>
	(5)	<p><i>FRU Device ID.</i> An optional field.</p> <p>Indicates the FRU device ID of the Fan Tray for which the minimum fan level is queried. If this parameter and the <i>IPMB Address</i> are omitted, the <i>CFG Min Fan Level</i> and <i>Dynamic Min Fan Level</i> parameters returned in the response relate to the first Fan Tray within the internal Shelf Manager list. In a shelf that does not implement zoned cooling, this parameter is ignored; the returned minimum fan level values apply to all fan trays in the shelf.</p>
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>CFG Minimum Fan Level.</i> The current value of the minimum level parameter specified manually (via the configuration file, a CLI command or via the RMCP command “Set Min Fan Level”).
	6	<i>Dynamic Minimum Fan Level.</i> The current value of the dynamically changed minimum fan level. This value is always greater or equal than the manually specified minimum fan level.

If *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.18 DHCP Client Control

This Pentair extension command can be targeted to the logical Shelf Manager address (20h) or alternatively to the physical address for either the active or the backup Shelf Manager. It initiates a DHCP client restart on the active Shelf Manager or provides DHCP Client status from

the active or the backup Shelf Manager. If a *dhcp restart* command is sent to backup Shelf Manager or to a Shelf Manager on which DHCP Client functionality is disabled, the completion code D5h (Command Not Supported in Present State) is returned. For other cases, the completion code IPMI_SUCCESS is returned and, in addition, the status of the DHCP client after the restart is reported in the DHCP Client Status byte in the command response data separately for each Ethernet channel (see Table 67).

Network Function Code (NetFN): 2Eh

Command Code: 0Eh

IANA: 00400Ah (Assigned to Pentair)

Table 67: DHCP Client Control command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>Function Code</i> . 00h = restart DHCP client 01h = get the status of the DHCP client.
Response Data	1	<i>Completion Code</i>
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	5	<i>DHCP Client Status</i> : Bits 7-4: Channel 1 status Bits 3-0: Channel 0 status Status: 0 = Completed (Done) 1 = Start/restart in progress 2 = Not started yet 3 = Stopped (Terminated) 4 = Received from active (Only on the backup ShelfManager) Eh = Error occurred Fh = Channel not used (LAN channel or DHCP Client is not configured)

If *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19 Diagnostic Initiator commands

The following commands implement the Pigeon Point Diagnostic Initiators (DI) architecture in the Shelf Manager. The DI architecture defines Pentair OEM IPMI commands and data

structures that can be used to invoke diagnostics and tests on an arbitrary IPM controller using HPI Diagnostic Initiator Management Instruments (DIMIs). HPI DIMI API functions and data structures are easily mapped to the DI commands and data structures. (In fact, the Diagnostic Infrastructure has been intentionally designed to facilitate such mapping.)

The DI architecture is described in a separate document.

6.2.19.1 Get Static DI Data

This command provides read-only access to the static DI information for the specified FRU. Using the specified offset and size, the requester can obtain a piece of the DI information structure; using multiple invocations of this command, the requester can read the entire DI information structure.

Network Function Code (NetFN): 2Eh

Command Code: 48h

IANA: 00400Ah (Assigned to Pentair)

Table 68: Get Static DI Data command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates the target FRU Device ID
	5:6	<i>Offset.</i> Offset in the static DI information data structure to read from (LS byte first)
	7	<i>Byte Count.</i> How many bytes to read from the specified offset
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5:N	<i>Data.</i> The requested piece of static DI information. The returned data size can be less than the requested size if <i>Offset + Byte Count</i> is greater than the size of the static DI Information data structure

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

The static DI information data structure has the following layout.

Table 69: Static DI information data structure

OFFSET	SIZE	DATA FIELD
0	1	<i>Format Version.</i> Format version of this data structure; 0 for this specification

1	2	<i>Total DI Information Size.</i> LS byte first
3	1	<i>Record Checksum.</i> Holds the zero checksum for the whole record
4	1	<i>DI Count.</i> Number of DIs defined for this FRU
5	Variable	<i>DI Information Descriptors.</i> The sequence of DI information descriptors for this FRU

Each DI descriptor has the following layout:

Table 70: DI information descriptor

OFFSET	SIZE	DATA FIELD
0	2	<i>DI Information Descriptor Size.</i> LS byte first
2	1	<i>DI ID</i>
3	1	<i>Test Count.</i> The number of tests defined for this DI
4	N+1	<i>DI Name.</i> Text string in the IPMI FRU Information data format, with the first byte specifying the length (N). The <i>DI Name</i> must fit into a single IPMI string.
4+N+1	Variable	<i>Test Information Descriptors.</i> The sequence of test information descriptors for this DI

The layout of a test information descriptor is defined in the following table:

Table 71: Test information descriptor

OFFSET	SIZE	DATA FIELD
0	2	<i>Test Information Descriptor Size.</i> LS byte first
2	1	<i>Test ID</i>
3	1	<p><i>Test Capabilities.</i> Maps directly to the HPI type SaHpiDimiTestCapabilityT; see that definition for detailed descriptions of the individual capability bits:</p> <p>Bits 7 – reserved</p> <p>Bit 6 = 1 – this is an INFORMATIONAL test (the test is non-disruptive, always succeeds and reports certain information about the DI in its results string(s))</p> <p>Bit 5 = 1 – test cancellation is supported (maps to the capability bit SAHPI_DIMITEST_CAPABILITY_TESTCANCEL)</p> <p>Bit 4 = 1 – test supports logging capability; the standard test parameter “Logging” is also defined for this test (maps to the capability bit SAHPI_DIMITEST_CAPABILITY_LOGGING)</p> <p>Bit 3 = 1 – test supports looping for a specified amount of time; the standard test parameter “Loop Time” is also defined for this test (maps to the capability bit</p>

		<p>SAHPI_DIMITEST_CAPABILITY_LOOPTIME)</p> <p>Bit 2 = 1 – test supports looping for a specified count of times; the standard test parameter “Loop Count” is also defined for this test (maps to the capability bit SAHPI_DIMITEST_CAPABILITY_LOOPCOUNT)</p> <p>Bit 1 = 1 – test supports a basic as well as extended mode; the standard test parameter “Service Mode” is also defined for this test (maps to the capability bit SAHPI_DIMITEST_CAPABILITY_SERVICEMODE)</p> <p>Bit 0= 1 – test supports FINALONLY, ONDEMAND, ASYNC results output capabilities; the standard test parameter “Results Output” is also defined for this test (maps to the capability bit SAHPI_DIMITEST_CAPABILITY_RESULTSOUTPUT)</p>
4	8	<p><i>Expected Run Duration.</i> In nanoseconds, follows the format of Linux struct timespec:</p> <p>Bytes 0:3 – the number of whole seconds (LS Byte first)</p> <p>Bytes 4:7 – the number of nanoseconds (LS byte first)</p>
12	1	<p><i>FRU Service Impact.</i> Specifies the service impact of the test on the entire FRU. Directly maps on the HPI enumeration SaHpiDimiTestServiceImpactT; the following values are defined:</p> <p>0 = Non-Degrading</p> <p>1 = Degrading</p> <p>2 = Vendor-Defined</p> <p>All other values are reserved</p>
13	1	<p><i>FRU Management Controller Service Impact.</i> Same values as for <i>FRU Service Impact.</i></p> <p>In the case of an intelligent subsidiary FRU, the impact applies to the MC of that FRU (e.g. to an AMC’s MMC). In the case of a non-intelligent subsidiary FRU or a managing FRU, the impact applies to the MC of the corresponding managing FRU.</p>
14	1	<p><i>Impacted Entities Count.</i> The number of entities (M) affected by this test (up to 4):</p> <p>Bits 7:3 – reserved</p> <p>Bits 2:0 – the number of affected instances (in the range 0..4)</p>
15	1	<p><i>Need Service OS</i> (Service OS String Count).</p> <p>Bits 7:4 - reserved</p>

		Bits 3:0 – the number of text strings in the Service OS name If this number = 0, no Service OS is needed and the Service OS name is absent
16	1	<i>Parameter Count</i> . The number of test parameters defined for this test
17	N+1	<i>Test Name</i> . Text string in the FRU Information data format, with the first byte specifying the length (N). The Test Name must fit into a single IPMI string.
17+N+1	M*3	<i>Entities Impacted</i> . M (up to 4) Affected Entity Descriptors
17+N+1+M*3	Variable (L)	<i>Service OS Name</i> . One or more text strings representing the HPI string for the Service OS Name. Absent if <i>Need Service OS</i> = 0
17+N+1+M*3+L+1	Variable	<i>Parameters</i> . The sequence of Parameter Information Descriptors for this test

Note: For the test service impact, HPI allows up to 5 additional affected entities to be listed. On the IPMI level, the FRU management controller can be one of these entities, and 4 other entities can be defined explicitly.

The layout of an affected entity descriptor is defined in the following table:

Table 72: Affected entity descriptor

OFFSET	SIZE	DATA FIELD
0	1	<i>Entity ID</i> . IPMI Entity ID of the affected entity
1	1	<i>Entity Instance</i> . IPMI Entity instance of the affected entity
2	1	<i>Service Impact</i> . Directly maps on the HPI enumeration SaHpiDimiTestServiceImpactT; the following values are defined: 0 = Non-Degrading 1 = Degrading 2 = Vendor-Defined All other values are reserved.

The layout of each parameter information descriptor is defined in the following table:

Table 73: Parameter information descriptor

OFFSET	SIZE	DATA FIELD
0	2	<i>Parameter Information Descriptor Size</i> . LS byte first
2	1	<i>Parameter ID</i>
3	1	<i>Parameter Type</i> . Directly maps to the SaHpiDimiTestParamTypeT enumeration, with several additional integer types:

		0 = BOOLEAN: 1 byte 1 = Int32: 4 byte integer, LS byte first 2 = Float64: 8 byte float, LS byte first 3 = Text: HPI text string, represented by zero or more IPMI strings FDh = Int8: 1 byte signed integer FEh = Int16: 2 byte signed integer, LS byte first
4	1	<i>Parameter Information String Count.</i> Bits 7:4 - reserved Bits 3:0 – the number of text strings in the parameter information
5	N+1	<i>Parameter Name.</i> Text string in the FRU Information data format, with the first byte specifying the length (N). Length must be ≤ 20 characters and must consist of a single IPMI string.
5+N+1	M	<i>Min/Max/Default Value Descriptor.</i> Type-dependent
(5+N+1+M)	Variable	<i>Parameter Information.</i> Sequence of zero or more IPMI text strings describing the parameter for informational purposes; mapped to a single HPI string

Table 74: Min/Max/Default Value descriptor for BOOLEAN parameters

OFFSET	SIZE	DATA FIELD
0	1	<i>Default Value.</i> Default parameter value (0 = FALSE, 1 = TRUE)

Table 75: Min/Max/Default Value descriptor for Int32 parameters

OFFSET	SIZE	DATA FIELD
0	4	<i>Default Value.</i> Default parameter value. LS byte first
4	4	<i>Minimum Value.</i> Minimum parameter value. LS byte first
8	4	<i>Maximum Value.</i> Maximum parameter value. LS byte first

Table 76: Min/Max/Default Value descriptor for Float64 parameters

OFFSET	SIZE	DATA FIELD
0	8	<i>Default Value.</i> Default parameter value. LS byte first
8	8	<i>Minimum Value.</i> Minimum parameter value. LS byte first
16	8	<i>Maximum Value.</i> Maximum parameter value. LS byte first

Table 77: Min/Max/Default Value descriptor for Text parameters

OFFSET	SIZE	DATA FIELD
0	1	<i>Default Value String Count.</i> Bits 7:4 - reserved Bits 3:0 – the number of text strings in the parameter information If this number = 0, the rest of the data structure is absent and the default parameter value is an empty string
1	Variable	<i>Default Value.</i> Sequence of one or more IPMI strings representing a single HPI string – the default value. Absent if <i>Default Value String Count</i> = 0

Table 78: Min/Max/Default Value descriptor for Int8 parameters

OFFSET	SIZE	DATA FIELD
0	1	<i>Default Value.</i> Default parameter value
1	1	<i>Minimum Value.</i> Minimum parameter value
2	1	<i>Maximum Value.</i> Maximum parameter value

Table 79: Min/Max/Default Value descriptor for Int16 parameters

OFFSET	SIZE	DATA FIELD
0	2	<i>Default Value.</i> Default parameter value. LS byte first
2	2	<i>Minimum Value.</i> Minimum parameter value. LS byte first
4	2	<i>Maximum Value.</i> Maximum parameter value. LS byte first

6.2.19.2 Get DI Test Readiness

This command maps on the HPI API `saHpiDimiTestReadinessGet()` and returns the readiness state of the specified test.

Network Function Code (NetFN): 2Eh

Command Code: 49h

IANA: 00400Ah (Assigned to Pentair)

Table 80: Get DI Test Readiness command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates the target FRU Device ID
	5	<i>DI ID.</i> Indicates the target Diagnostic Instrument (DI) ID

	6	<i>Test ID</i> . Indicates the target test ID
Response Data	1	<i>Completion Code</i> . All general completion codes, including: C9h = Parameter Out Of Range: <i>DI ID</i> or <i>Test ID</i> do not match any existing Diagnostic Instrument or Test.
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	5	<i>Test Readiness State</i> . This field directly maps on the SaHpiDimiReadyT enumeration: 0 = DI is ready to run the specified test 1 = DI is in a wrong state to run the specified test (e.g. need to load a correct Service OS before this test can be run) 2 = DI is busy and cannot run the specified test now, the user can try again later All other values are reserved

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.3 Get Start DI Test Reservation ID

This command obtains a reservation ID for a test start sequence. A test start sequence begins with a single “Get Start DI Test Reservation ID” command, followed by zero or more “Specify DI Test Parameters” commands, followed by a single “Start DI Test” command.

A Reservation ID is used to preserve the integrity of this sequence. The reservation ID obtained via the “Get Start DI Test Reservation ID” command must be specified in subsequent commands of the test start sequence. The reservation ID is invalidated by the responder if another “Get Start DI Test Reservation ID” command is received for the same DI ID and Test ID. In that case, the current test start sequence is invalidated and a new one is initiated.

When this command is received, the responder clears any test parameter value previously set and assigns defaults to all test parameters of the specified test.

Similar to other use cases of reservation IDs in IPMI, successful completion of this command does not guarantee successful execution of the test start sequence. For example, a pair of requesters could compete for a test start in such a manner that each one alternately cancels the reservation that is held by the other - effectively ‘deadlocking’ each other. Additional means of synchronization are needed between the requesters to avoid this situation; these means are outside the scope of this document.

Network Function Code (NetFN): 2Eh

Command Code: 4Ah

IANA: 00400Ah (Assigned to Pentair)

Table 81: Get Start DI Test Reservation ID command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates the target FRU Device ID
	5	<i>DI ID</i> . Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID</i> . Indicates the target test ID
Response Data	1	<i>Completion Code</i> . All general completion codes, including: C9h = Parameter Out Of Range: <i>DI ID</i> or <i>Test ID</i> do not match any existing DI or Test. D5h = Command Inconsistent in Present State: The test start sequence cannot be initiated at this time.
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	5:6	<i>Reservation ID</i> . LS Byte first, value 0000h is reserved

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.4 Specify DI Test Parameters

This command specifies the parameters for a specific test to be started and is issued as part of the mapping of a call to the HPI API saHpiDimiTestStart(). One instance of this command specifies the value of a single parameter. This command may need to be issued multiple times even for a single parameter, if the parameter value is large.

For each parameter for which the value is not specified, the corresponding default value is used for the test run.

Network Function Code (NetFN): 2Eh

Command Code: 4Bh

IANA: 00400Ah (Assigned to Pentair)

Table 82: Specify DI Test Parameters command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates the target FRU Device ID
	5	<i>DI ID</i> . Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID</i> . Indicates the target test ID

	7:8	<i>Reservation ID.</i> This is the Reservation ID previously obtained via “Get Start Test Reservation ID” command
	9	<i>Parameter ID.</i> Indicates the target Parameter ID
	10	<i>Offset.</i> Offset in the parameter value data where to write the following data
	11:N	<i>Value Data.</i> The entire or partial parameter value data
Response Data	1	<i>Completion Code.</i> All general completion codes, including: C5h = Reservation Broken or Invalid Reservation ID. C9h = Parameter Out Of Range: <i>DI ID, Test ID or Parameter ID</i> do not match any existing DI, Test or Parameter. CCh = Invalid Data In Request: specified <i>Offset</i> or/and <i>Value Data</i> exceed the parameter data storage capacity.
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

The parameter value data format depends on the parameter type specified in the parameter information descriptor, according to the following table:

Table 83: Parameter value data format by parameter type

TYPE	SIZE (BYTES)	FORMAT
BOOLEAN	1	0 = FALSE, non-zero = TRUE
Int32	4	Integer value (signed), LS byte first
Float64	8	Floating-point value (IEEE 754-1985), LS byte first
Text	Variable	Byte 1: Bits 7:4 – reserved Bits 3:0 – number of following IPMI text strings, comprising the value Bytes 2:N – Sequence of IPMI text strings representing an HPI text string
Int8	1	Integer value (signed)
Int16	2	Integer value (signed), LS byte first

If a test parameter has the string type, multiple value strings may be specified as the parameter value. All of these must have the same string type and are concatenated to form the actual parameter value (an HPI string of up to 255 bytes).

If a reservation has been broken and subsequently reestablished, it is necessary to retransmit all test parameters.

6.2.19.5 Start DI Test

This command instructs the target IPMC to start the specified test; the test parameters must have been already passed as a sequence of “Specify DI Test Parameters” commands. This command is issued at the last phase of mapping a call to the HPI API saHpiDimiTestStart().

Network Function Code (NetFN): 2Eh

Command Code: 4Ch

IANA: 00400Ah (Assigned to Pentair)

Table 84: Start DI Test command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates the target FRU Device ID
	5	<i>DI ID.</i> Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID.</i> Indicates the target test ID
	7:8	<i>Reservation ID.</i> This is the Reservation ID previously obtained via “Get Start Test Reservation ID” command
Response Data	1	<i>Completion Code.</i> All general completion codes, including: C5h = Reservation Broken or Invalid Reservation ID. C9h = Parameter Out Of Range: <i>DI ID</i> , <i>Test ID</i> or <i>Parameter ID</i> do not match any existing DI, Test or Parameter.
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5:12	<i>Timestamp.</i> The timestamp of the test run that has just been initiated (contains the number of nanoseconds since January 1, 1970, 00:00, LS byte first, follows the format of Linux struct timespec): Bytes 0:3 – the number of whole seconds (LS Byte first) Bytes 4:7 – the number of nanoseconds (LS byte first)

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.6 Cancel DI Test

This command instructs the target IPMC to cancel the specified test that normally would be currently running. It implements a mapping of the HPI API saHpiDimiTestCancel().

Network Function Code (NetFN): 2Eh

Command Code: 4Dh

IANA: 00400Ah (Assigned to Pentair)

Table 85: Cancel DI Test command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates the target FRU Device ID
	5	<i>DI ID</i> . Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID</i> . Indicates the target test ID
Response Data	1	<i>Completion Code</i> . All general completion codes, including: D5h = Command Inconsistent in Present State if the test is not running. C9h = Parameter Out Of Range: <i>DI ID</i> , <i>Test ID</i> or <i>Parameter ID</i> do not match any existing DI, Test or Parameter.
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.

If *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.7 Get DI Test Status

This command implements a mapping of the HPI API saHpiDimiTestStatusGet().

Network Function Code (NetFN): 2Eh

Command Code: 4Eh

IANA: 00400Ah (Assigned to Pentair)

Table 86: Get DI Test Status command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates the target FRU Device ID
	5	<i>DI ID</i> . Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID</i> . Indicates the target test ID
Response Data	1	<i>Completion Code</i> . All general completion codes, including: C9h = Parameter Out Of Range: <i>DI ID</i> , <i>Test ID</i> or <i>Parameter ID</i> do not match any existing DI, Test or Parameter.
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.

	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5	<i>Run Status.</i> Directly maps to the SaHpiDimiTestRunStatusT enumeration: 0 = Not Run. The test has never been executed on the DI 1 = Finished, No Errors. 2 = Finished with Errors. 3 = Canceled (with the “Cancel DI Test” command) 4 = Running; test is in progress All other values are reserved
	(6:13)	<i>Start Timestamp.</i> The start timestamp of the last executed or currently executing test (contains the number of nanoseconds since January 1, 1970, 00:00, LS byte first, follows the format of Linux struct timespec): Bytes 0:3 – the number of whole seconds (LS Byte first) Bytes 4:7 – the number of nanoseconds (LS byte first); Absent if Run Status = Not Run
	(14)	<i>Percentage of completion.</i> The value is in the range 0 to 100 or absent if not available or if <i>Run Status</i> = Not Run

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.8 Get DI Test Results Reservation ID

This command obtains a reservation ID for the test results. A Reservation ID is used to preserve the integrity of test results returned via multiple IPMI commands. A reservation ID is invalidated by the responder if test results change during a test results retrieval sequence (e.g. due to initiation of a new test run).

Network Function Code (NetFN): 2Eh

Command Code: 4Fh

IANA: 00400Ah (Assigned to Pentair)

Table 87: Get DI Test Results Reservation ID command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>FRU Device ID.</i> Indicates the target FRU Device ID
	5	<i>DI ID.</i> Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID.</i> Indicates the target test ID

Response Data	1	<i>Completion Code</i> . All general completion codes, including: C9h = Parameter Out Of Range: <i>DI ID</i> or <i>Test ID</i> do not match any existing DI or Test.
	2	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	4	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	5:6	<i>Reservation ID</i> . LS Byte first, value 0000h is reserved

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.19.9 Get DI Test Results

This command implements a mapping of the HPI API saHpiDimiTestResultsGet().

Due to IPMI command size limitations, multiple commands of this type may be required to retrieve test results. To preserve the integrity of returned data, a Reservation ID is used. A Reservation ID is assigned to the caller via the command “Get DI Test Results Reservation ID” and is invalidated by the responder if test results change during a test result retrieval sequence (e.g. due to initiation of a new test run).

A requester can correlate the test results with a specific instance of the “Start DI Test” command by comparing the two timestamps: the one returned by the “Start DI Test” command and the one contained in the test results data.

Network Function Code (NetFN): 2Eh

Command Code: 50h

IANA: 00400Ah (Assigned to Pentair)

Table 88: Get DI Test Results command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte</i> . A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte</i> . A value 40h shall be used.
	3	<i>Pentair IANA High Byte</i> . A value 00h shall be used.
	4	<i>FRU Device ID</i> . Indicates the target FRU Device ID
	5	<i>DI ID</i> . Indicates the target Diagnostic Instrument (DI) ID
	6	<i>Test ID</i> . Indicates the target test ID
	7:8	<i>Reservation ID</i> . LS byte first, 0000h reserved
	9:10	<i>Offset</i> . Offset in the results data structure to read from (LS byte first)
	11	<i>Byte Count</i> . How many bytes to read from the specified offset

Response Data	1	<p><i>Completion Code.</i> All general completion codes, including:</p> <p>D5h = Command Inconsistent in Present State if no results are present.</p> <p>C9h = Parameter Out Of Range: <i>DI ID</i> or <i>Test ID</i> do not match any existing DI or Test, or offset is beyond the size of results.</p> <p>CCh = Invalid Data In Request: specified <i>Offset</i> and/or <i>Byte Count</i> data exceed the result storage capacity.</p>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	5:N	<i>Results Data.</i> A piece of data from the results data structure. The returned data size can be less than requested size if <i>Offset + Byte Count</i> is greater than the size of the results data structure

The layout of the DI results data is described in the following table:

Table 89: DI test results data structure

OFFSET	SIZE	DATA FIELD
0	1	<i>Format Version.</i> Format version of this data structure; 0 for this specification
1	2	<i>Results Data Size.</i> LS byte first
3	1	<i>Data Checksum.</i> Holds the zero checksum for the entire data structure
4	8	<p><i>Timestamp.</i> Timestamp of the last test start (contains the number of nanoseconds since January 1, 1970, 00:00, LS byte first, follows the format of Linux struct timespec):</p> <p>Bytes 0:3 – the number of whole seconds (LS Byte first)</p> <p>Bytes 4:7 – the number of nanoseconds (LS byte first)</p> <p>Note that this timestamp is the test start timestamp while the timestamp reported by the HPI API <code>saHpiDimiTestResultsGet()</code> is the test results generation timestamp; these two timestamps differ by the <i>Run Duration</i> value (the value of the next field).</p>
12	8	<p><i>Run Duration.</i> In nanoseconds, follows the format of Linux struct timespec:</p> <p>Bytes 0:3 – the number of whole seconds (LS Byte first)</p> <p>Bytes 4:7 – the number of nanoseconds (LS byte first)</p>
20	1	<i>Last Run Status.</i> Directly maps to the <code>SaHpiDimiTestRunStatusT</code> enumeration:

		0 = Not Run. The test has never been executed on this DI 1 = Finished, No Errors. 2 = Finished with Errors. 3 = Canceled (with the “Cancel DI Test” command) 4 = Running; test is in progress All other values are reserved
21	1	<i>Error Code.</i> Directly maps to the SaHpiDimiTestErrCodeT enumeration: 0 = No Error 1 = Run-time Error. 2 = Undefined Error. All other values are reserved
22	1	<i>Text String Flags.</i> Bit 7 = 1 - the following string is a URI to a file containing the test results Bits 6:4 – reserved Bits 3:0 – the number of following IPMI text strings that contain or point to the test results
23	N	<i>Text Strings.</i> Sequence of zero or more IPMI text strings representing the HPI result string

If the *Completion Code* is not IPMI_SUCCESS, the rest of the response may not be returned.

6.2.20 AXIe Allow Enable PCIe Hosts

This Pentair extension command can be used by the System Manager to allow the Shelf Manager to send the AXIe-specific IPMI command “Set PCIe Host State (enable)” to AXIe modules E-keyed as PCIe hosts. When the Shelf Manager receives this command with Byte 4 = 1, the Shelf Manager transitions from the AXIe sequencing state **Wait for System Manager Ready** to the state **Sending Set PCIe Host State** (see section 3.12 for details).

Network Function Code (NetFN): 2Eh

Command Code: 53h

Table 90: AXIe Allow Enable PCIe Hosts command

	BYTE	DATA FIELD
Request Data	1	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	2	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	3	<i>Pentair IANA High Byte.</i> A value 00h shall be used.
	4	<i>Flags.</i> 0 = Do not allow the Shelf Manager to send Set PCIe Host State 1 = Allow the Shelf Manager to send Set PCIe Host State Other values are reserved
Response Data	1	<i>Completion Code.</i>
	2	<i>Pentair IANA Low Byte.</i> A value 0Ah shall be used.
	3	<i>Pentair IANA Middle Byte.</i> A value 40h shall be used.
	4	<i>Pentair IANA High Byte.</i> A value 00h shall be used.

6.2.21 CPLD/HWRI State sensor

This discrete sensor has sensor type DEh, event/reading type 6Fh (sensor-specific discrete) and is implemented on LUN 0, number 128 of the physical ShMM IPM controller (typically 10h/12h). It exposes the current CPLD (ShMM-500/ShMM-1500 only) and hardware redundancy state of the ShMM. On the ShMM-500/ShMM-1500, the sensor name is “CPLD State”. On the ShMM-700, where there is no CPLD and the programmatic interface to HRI is different, this sensor has the name “HWRI State”, though it is fully state-compatible with its counterpart on the ShMM-500/1500.

The following offsets are defined for the sensor:

High-level redundancy state offsets:

- 0 – The current Shelf Manager is Active with no Backup.
- 1 – The current Shelf Manager is Active, with a Backup.
- 2 – The current Shelf Manager is a Backup.

Low-level exception state bits (should be treated as low-level errors if set):

- 3 – The Shelf Manager is Active with a Backup but the Backup is not available for switchover
- 4 – The Shelf Manager is a Backup but the remote presence bit is not set
- 5 - The Shelf Manager is a Backup but the remote switchover request bit (the remote active bit on ShMM-700) is not set
- 6 - The Shelf Manager is a Backup but the HRI Active bit is set
- 7 - The Shelf Manager is Active with a Backup but the remote presence bit is not set
- 8 – The Shelf Manager is Active with a Backup but the remote healthy bit is not set
- 9 - The Shelf Manager is Active with a Backup but the HRI Active bit is not set

- 10 - The local presence bit is not set for the current Shelf Manager
- 11 - The Shelf Manager is Active with no Backup, but the remote healthy bit is set
- 12 - The Shelf Manager is Active with no Backup but the remote switchover request bit (the remote active bit on ShMM-700) is set
- 13 - The Shelf Manager is Active but senses the HRI Active bit set on other ShMM.

6.2.22 Reboot Reason sensor

This discrete sensor has sensor type DDh, event/reading type 6Fh (sensor-specific discrete) and is implemented on LUN 0, number 129 of the physical ShMM IPM controller (typically 10h/12h). It exposes the reason for the last reboot of the ShMM and can be used for diagnostics of spontaneous ShMM reboots. The sensor name is “Reboot Reason”. The following offsets are defined for the sensor:

- 0 – The reboot reason is either a Shelf Manager crash or unknown
- 1 - The reboot was caused by a switchover operation
- 2 - The reboot was caused by a forced switchover operation
- 3 - The reboot was caused by the CLI command *terminate*
- 4 - The reboot was caused by loss of the HEALTHY bit
- 5 - The reboot was caused by loss of the ACTIVE bit
- 6 - The reboot of the Backup ShMM happened because the redundancy connection was broken but the Active ShMM was still alive
- 7 - The reboot happened due to an error during the Shelf Manager startup
- 8 - The reboot was caused by the ShMM hardware watchdog
- 9 - The reboot was initiated by software (a *reboot()* system call)
- 10 - The ShMM has been power cycled
- 11 - The reboot happened because of an SDRAM error
- 12 - The reboot was caused by the IPMI “Cold Reset” command.
- 13 - The reboot was caused by an I2C isolation switchover
- 14 - The reboot was caused by a local IPMB-0 failure (ShMM-700 only)

6.2.23 HPI System Event sensor

This discrete sensor has sensor type DBh, event/reading type 6Fh (sensor-specific discrete) and is implemented on LUN 3, number 0 of the logical Shelf Manager IPM controller (20h). The sensor name is “HPI Sys Event”. Its purpose is to enhance interaction between the Shelf Manager and the two variants of Pigeon Point HPI: IntegralHPI and Pigeon Point OpenHPI. Since this sensor is intended to be used for internal communication between the Shelf Manager and a Pigeon Point HPI implementation, its behavior, set of states and event format are subject to change. Direct user access to this sensor is not recommended.

6.2.24 Fan Tray Operational Status sensor

This discrete sensor has sensor type 28h (“Management Subsystem Health”), event/reading type Bh (“Redundancy States”) and is implemented on LUN 0, number 135 of the logical Shelf Manager IPM controller (20h). The sensor name is “Ft Oper. Status”. This sensor indicates whether all of the fan trays defined in the Shelf Address Table are present and operational. See the *Shelf Manager User Guide* for more information about this sensor.

6.2.25 Cooling State sensor

This discrete sensor has sensor type 28h (“Management Subsystem Health”), event/reading type 7h (“Severity”) and is implemented on LUN 0, number 136 of the logical Shelf Manager IPM controller (20h). The sensor name is “Cooling State”. This sensor exposes the current cooling state of the shelf. See the *Shelf Manager User Guide* for more information about this sensor.

6.2.26 Fans State sensor

This discrete sensor has sensor type 28h (“Management Subsystem Health”), event/reading type 7h (“Severity”) and is implemented on LUN 0, number 137 of the logical Shelf Manager IPM controller (20h). The sensor name is “Fans State”. This sensor exposes the current state of fans in the shelf. See the *Shelf Manager User Guide* for more information about this sensor.

6.2.27 Shelf Manager Redundancy sensor

This discrete sensor has sensor type 28h (“Management Subsystem Health”), event/reading type Bh (“Redundancy States”) and is implemented on LUN 0, number 138 of the logical Shelf Manager IPM controller (20h). The sensor name is “SHM Redundancy”. This sensor exposes the current Shelf Manager redundancy state. The following offsets are defined for the sensor:

- 0 – Fully Redundant: Both Active and Backup Shelf Managers are operational and form a redundant pair
- 1 – Redundancy Lost: Only Active Shelf Manager is operational
- 2 – Redundancy Degraded: Backup Shelf Manager is operational but cannot take an Active role in this state.

6.2.28 Shelf FRU Information Redundancy sensor

This discrete sensor has sensor type 28h (“Management Subsystem Health”), event/reading type Bh (“Redundancy States”) and is implemented on LUN 3, number 1 of the logical Shelf Manager IPM controller (20h). The sensor name is “Shelf FRU Info”. This sensor tracks the current Shelf FRU Information redundancy state. The following offsets are defined for the sensor:

- 0 – Fully Redundant: At least two sources of the Shelf FRU Information are valid and match each other
- 1 – Redundancy Lost: Only one source of the Shelf FRU Information is available
- 5 – Non Redundant: Insufficient Resources: in combination with Redundancy Lost indicates that no Shelf FRU Information sources are available.

6.2.29 Network Element ID Redundancy sensors

Note: These sensors are optional and are present only with selected ShMM carriers.

These three discrete sensors have sensor type 28h (“Management Subsystem Health”), event/reading type Bh (“Redundancy States”) and are implemented on LUN 3, numbers 8, 9, 10 of the logical Shelf Manager IPM controller (20h). The sensor names are “NE ID Device 1”, “NE ID Device 2”, “NE ID Device 3”. They expose the redundancy state of Network Element IDs 1, 2 and 3, respectively. The following offsets are defined for the sensors:

- 0 – Fully Redundant: Both copies of the respective Network Element ID are valid and match each other
- 1 – Redundancy Lost: At least one copy of the respective Network Element ID is invalid (has a wrong checksum) or the two copies mismatch.

In the case of lost redundancy, the redundancy can be restored by updating the respective Network Element ID via the CLI command *networkelementid*.

6.2.30 Shelf Manager firmware bank 1 active sensor (ShMM-700 only)

This discrete sensor has sensor type Fh (“System Firmware Progress”), event/reading type 3 (“Digital Discrete: State asserted/deasserted”) and is implemented on LUN 0, number 130 of the physical ShMM IPM controller (typically 10h/12h). It identifies the ShMM-700 firmware bank (0/1) where the current firmware is located. The sensor name is “ShM Bank1 active”. The following offsets are defined for the sensor:

- 0 – State Deasserted: The current bank is bank 0
- 1 – State Asserted: The current bank is bank 1.

An event is generated on behalf of this sensor at Shelf Manager startup if that startup happened after a bank change (as a result of an upgrade, downgrade or rollback).

6.2.31 Shelf Manager firmware upgrade rollback sensor (ShMM-700 only)

This discrete sensor has sensor type 12h (“System Event”), event/reading type 3 (“Digital Discrete: State asserted/deasserted”) and is implemented on LUN 0, number 131 of the physical ShMM IPM controller (typically 10h/12h). It indicates whether the ShMM startup was caused by triggering of the reliable upgrade watchdog timer (which signals a failed firmware upgrade attempt and an automatic rollback to the Shelf Manager firmware that was operating before the upgrade attempt). The sensor name is “ShM FW Rollback”.

- 0 – State Deasserted: the ShMM startup was not caused by the reliable upgrade watchdog timer trigger and Shelf Manager firmware rollback did not occur.
- 1 – State Asserted: the ShMM startup was caused by the reliable upgrade watchdog timer trigger during a Shelf Manager firmware upgrade attempt and firmware rollback occurred.

An event is generated on behalf of this sensor at Shelf Manager startup if the sensor state changes compared to the immediately previous startup of the ShMM-700.

6.3 Deactivation scenarios for the Shelf Manager

The ATCA command “Set FRU Activation (Deactivate)” can be applied to the IPM controllers representing the active Shelf Manager – both the logical Shelf Manager (IPMB address 0x20, FRU 0) and the physical Shelf Manager IPM controller (with IPMB address derived from the hardware address of the active Shelf Manager). As a result of this command, the corresponding IPM controllers are deactivated (brought to state M1) but Shelf Manager functional operation is not affected and no switchover to the backup Shelf Manager is initiated.

Another possibility for the deactivation of the physical IPM controller on the active Shelf Manager is opening the Hot Swap handle on the ShMC. In that case, the physical IPM controller transitions to the state M1 as well.

Starting from version 2.5.0, in both of these cases a switchover to the backup Shelf Manager occurs, if the backup Shelf Manager exists and the configuration variable

SWITCHOVER_ON_HANDLE_OPEN is set to *TRUE* in the Shelf Manager configuration file. Previously, a switchover took place only in the case of deactivation via the Hot Swap handle.

The backup Shelf Manager is not considered available for switchover if it is in state M1 (either due to the handle being opened or due to programmatic deactivation). In this situation, programmatic requests for switchover fail; a switchover only takes place if the active Shelf Manager is physically removed from the shelf.

The scenarios above are not explicitly covered in the AdvancedTCA (PICMG 3.0) specification. The implementation described above became possible only after the deactivation of the physical IPM controller of the active Shelf Manager was excluded from the shelf-wide power down and power cycle operations, that could happen during the normal operation of the shelf, for example in the following cases:

- powering off all FRUs in the shelf as a result of a critical temperature alert;
- receiving the IPMI command “Chassis Control” with the control option “Power Down” or “Power Cycle”.

Performing a switchover in these cases is undesirable and may be even impossible (because the backup Shelf Manager may also be in state M1).

However, starting from release 2.4.1, dedicated Shelf Manager FRUs are not affected by the shelf-wide power down operations mentioned above.

7 Pentair OEM records in FRU Information

The Shelf Manager recognizes several Pentair OEM records that can be located in the Multirecord area of the Shelf FRU Information and Board FRU Information for the ShMM carrier. The format of these OEM-specific records is similar to the format of PICMG-defined records, except that they use the following Manufacturer ID (IANA Enterprise Number) assigned to Pentair (00400Ah)[†], while PICMG-defined records use the PICMG Manufacturer ID (00315Ah).

The following table lists Pentair OEM-specific records recognized by the Shelf Manager.

Table 91: Pentair OEM-specific records in FRU Information

RECORD NAME	PENTAIR RECORD ID	DESCRIPTION	LOCATION
Air Filter Replacement Date	03h	Contains the dates of the last and the next replacement of the shelf air filter	Shelf FRU Information
Shelf FRU Update	04h	Contains the date of the last update of the Shelf FRU Information	Shelf FRU Information
IPMB Topology	05h	Contains information about the IPMB topology supported by the ShMM Carrier (bused or radial)	ShMM Carrier FRU Information
HPDL Data	07h	Contains compiled (and optionally compressed) HPDL description data for the current carrier or shelf. The data may span multiple records.	ShMM Carrier FRU Information, Shelf FRU Information
HPDL Sensor SDRs	08h	Contains compiled (and optionally compressed) SDRs for HPDL-defined sensors for the current carrier or shelf. The data may span multiple records.	ShMM Carrier FRU Information, Shelf FRU Information
Shelf Manager	0Ah	Contains optionally	Shelf FRU

[†]This IANA Enterprise Number was originally assigned to Pigeon Point Systems, which has since been acquired by Pentair.

RECORD NAME	PENTAIR RECORD ID	DESCRIPTION	LOCATION
Configuration		compressed Shelf Manager configuration data (a set of name=value pairs in textual form). The data may span multiple records.	Information
Slot Power Capabilities	0Bh	Identifies power limits for slots based on their non-cooling related physical characteristics	Shelf FRU Information
Board/AMC LAN Configuration Parameters (obsolete)	0Ch	Contains optionally compressed LAN Configuration parameters for boards and AMCs in a textual format	Shelf FRU Information
Cold Sensitive FRU List	0Dh	Contains a list of FRU descriptors designating FRUs as cold-sensitive. A cold-sensitive FRU is not powered until the temperature in the shelf rises above the lower non-recoverable threshold for that FRU.	Shelf FRU Information

7.1 Air Filter Replacement Date record

This record is only supported on specific ShMM carriers. It holds the date when the air filter was replaced and the date when the air filter should be replaced again.

The Air Filter Replacement Date record has the following format:

Table 92: Air Filter Replacement Date record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID</i> . Value C0h (OEM).
1	1	[7:7] <i>End of list</i> . Set to one for the last record. [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).

2	1	<i>Record Length.</i>
3	1	<i>Record Checksum.</i> Holds the zero checksum of the record.
4	1	<i>Header Checksum.</i> Holds the zero checksum of the header.
5	3	<i>Manufacturer ID.</i> LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID.</i> The value 3h is used for this definition.
9	1	<i>Record Format Version.</i> Write as 0h.
10	1	<i>Type/Length byte</i> (FRU Information variant) for the following date: [6:7] <i>Type</i> (=11b for this definition), [0:5] <i>Length</i> (=19 or 13h for this definition).
11	19	8-bit ASCII string representation that specifies the date when the air filter was replaced. The date format is 'hh:mm:ss dd.mm.yyyy'.
30	1	<i>Type/Length byte</i> (FRU Information variant) for the following date: [6:7] <i>Type</i> (=11b for this definition), [0:5] <i>Length</i> (=19 or 13h for this definition)
31	19	8-bit ASCII string representation that specifies the date when the air filter should be replaced. The date format is 'hh:mm:ss dd.mm.yyyy'.

7.2 Shelf FRU Update record

The Shelf FRU Update record stores the date of the latest Shelf FRU Information update and has the following format:

Table 93: Shelf FRU Update record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID.</i> Value C0h (OEM).
1	1	[7:7] <i>End of list.</i> Set to one for the last record [6:4] Reserved, write as 0h.

		[3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length</i> .
3	1	<i>Record Checksum</i> . Holds the zero checksum of the record.
4	1	<i>Header Checksum</i> . Holds the zero checksum of the header.
5	3	<i>Manufacturer ID</i> . LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value 4h is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.
10	1	<i>Type/Length byte</i> (FRU Information variant): [6:7] <i>Type</i> (=11b for this definition) [0:5] <i>Length</i> (=19 or 13h for this definition).
11	19	8-bit ASCII string representation that specifies the date when the Shelf FRU Information was updated. The date format is 'hh:mm:ss dd.mm.yyyy'.

7.3 IPMB Topology record

The IPMB Topology record contains the Carrier Type, which indicates the IPMB-0 topology implemented by the ShMM carrier; the following format is used:

Table: 94 IPMB Topology record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID</i> . Value C0h (OEM).
1	1	[7:7] <i>End of list</i> . Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length</i> .
3	1	<i>Record Checksum</i> . Holds the zero checksum of the record.
4	1	<i>Header Checksum</i> . Holds the zero

		checksum of the header.
5	3	<i>Manufacturer ID</i> . LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value 5 is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.
10	1	<i>Carrier Type</i> : <ul style="list-style-type: none"> ● 1 – Bused Carrier ● 2 – Dual Star Carrier ● 3 – Redundant Dual Star Carrier ● 4 – Pseudo-Radial Carrier.

Carrier types defined in this record specify the IPMB topology that the carrier supports:

- Bused carriers support bused IPMB topology, where all IPM controllers, including the Shelf Manager(s), are attached to a single multi-drop IPMB. With this topology, the Shelf Manager(s) connect to IPMB in the same way as other IPM controllers in the shelf. All IPMB-0 traffic is visible to all nodes on the single logical IPMB-0.
- Dual Star carriers support a logical star, or radial, IPMB topology, where each IPM controller in the shelf is connected to the Shelf Manager via a logically distinct point-to-point IPMB link. Each of the two redundant Shelf Managers implements one radial connection, so that for any IPM controller its IPMB-A link is connected to one Shelf Manager and its IPMB-B link is connected to the other Shelf Manager. With this topology, the simultaneous presence of both redundant Shelf Managers is required for redundant operation of IPMB in accordance with the AdvancedTCA requirements. Each IPMB link is independent of the others, enabling reliability and performance benefits.
- Redundant Dual Star carriers also support a logical star or radial IPMB topology. The difference from the Dual Star carrier type is that each of the redundant Shelf Managers is connected to each IPM controller via *both* IPMB-A and IPMB-B links. With this topology, both IPMB-A and IPMB-B are operational for an IPM controller even if only a single Shelf Manager is installed in the shelf. In this topology also, each IPMB link is independent of the others, enabling reliability and performance benefits.
- Pseudo-Radial carriers support a single logical IPMB-0 topology, but provide additional controls that allow attach specific IPM controllers to IPMB-0 and detach them from it. In this topology, as with the bused carrier, all IPMB-0 traffic is visible to all nodes that are attached to the single logical bus. This topology delivers some of the advantages of a radial topology. For example, a malfunctioning IPM controller that violates bus integrity can be detached from the bus and allow other IPM controllers to resume normal communication.

In each of the radial or star topologies described above, one or more of the radial links may have more than one IPM controller on the link. The PICMG-defined Radial IPMB-0 Link Mapping record defines these aspects of the overall shelf architecture. The focus of the

defined Pentair IPMB Topology record is on the topology supported by the ShMM carrier, itself.

7.4 HPDL Data record

The HPDL data record stores the compiled and optionally compressed HPDL description of the current carrier (in the Carrier FRU Information) or shelf (in the Shelf FRU Information). The description may span multiple records if it is too long to fit in one record. In that case, the contents of all such records in the order of their occurrence is concatenated before decompression and interpretation.

Table 95: HPDL Data record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID.</i> Value C0h (OEM).
1	1	[7:7] <i>End of list.</i> Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length.</i>
3	1	<i>Record Checksum.</i> Holds the zero checksum of the record.
4	1	<i>Header Checksum.</i> Holds the zero checksum of the header.
5	3	<i>Manufacturer ID.</i> LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID.</i> The value 7h is used for this definition.
9	1	<i>Record Format Version.</i> Write as 0h.
10	N	Opaque data that represents the HPDL description

7.5 HPDL Sensor SDRs record

The HPDL Sensor SDRs record stores the compiled and optionally compressed SDRs for the sensors that are defined in HPDL for the current carrier (in the Carrier FRU Information) or shelf (in the Shelf FRU Information). The data may span multiple records if it is too long to fit in one record. In that case, the contents of all such records in the order of their occurrence is concatenated before decompression and interpretation. Uncompressed data represent the result of compilation by the SDR Compiler and consist of concatenated binary SDRs.

Table 96: HPDL Sensor SDRs record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID.</i> Value C0h (OEM).
1	1	[7:7] <i>End of list.</i> Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length.</i>
3	1	<i>Record Checksum.</i> Holds the zero checksum of the record.
4	1	<i>Header Checksum.</i> Holds the zero checksum of the header.
5	3	<i>Manufacturer ID.</i> LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID.</i> The value 8h is used for this definition.
9	1	<i>Record Format Version.</i> Write as 0h.
10	N	Opaque data that represents the sensor SDRs

7.6 Shelf Manager Configuration record

The Shelf Manager Configuration record stores the optionally compressed Shelf Manager configuration (a set of name=value pairs in a textual format, separated with newline characters). This configuration is stored in the Shelf FRU Information and overrides the configuration specified in the configuration files (so that some part of the Shelf Manager configuration can be bound to a specific type of a shelf). The data may span multiple records if it is too long to fit in one record. In that case, the contents of all such records in the order of their occurrence is concatenated before decompression and interpretation.

Table 97: Shelf Manager Configuration record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID.</i> Value C0h (OEM).
1	1	[7:7] <i>End of list.</i> Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length.</i>

3	1	<i>Record Checksum</i> . Holds the zero checksum of the record.
4	1	<i>Header Checksum</i> . Holds the zero checksum of the header.
5	3	<i>Manufacturer ID</i> . LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value Ah is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.
10	N	Opaque data that represents the Shelf Manager configuration

7.7 Slot Power Capabilities record

Generally, the Max FRU Power value specified for each slot in the PICMG Power Management Record is limited by the power which can be handled by the cooling system for the slot. For a multi-slot board, cooling applies to all the slots it occupies, so this limitation becomes less crucial for them. The power that the slot itself can physically deliver (defined by the physical characteristics of the slot, such as the backplane traces) becomes more important for such a slot, since a multi-slot board, according to ATCA rules, always get power through a single slot (the one where its IPMC takes its hardware address).

The Slot Power Capabilities OEM record identifies the power limits for slots due to their non-cooling-related physical characteristics and has the following format:

Table 98: Slot Power Capabilities record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID</i> . Value C0h (OEM).
1	1	[7:7] <i>End of list</i> . Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length</i> .
3	1	<i>Record Checksum</i> . Holds the zero checksum of the record.
4	1	<i>Header Checksum</i> . Holds the zero checksum of the header.
5	3	<i>Manufacturer ID</i> . LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value Bh is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.

10	1	<i>Number of Slot Power Capabilities Descriptor Entries (N)</i>
10	4 * N	<i>Slot Power Capability Descriptor Entries</i>

The Slot Power Capability descriptor has the following format:

Table 99: Slot Power Capability descriptor

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Slot Hardware Address</i>
1	1	<i>Slot FRU Device ID.</i> A value of FEh indicates that all FRU Device IDs at the Hardware Address are considered as a unit.
2	2	<i>Maximum Slot Power Capability.</i> This field contains the maximum wattage that can be routed to the Hardware Address/FRU Device ID location for FRUs that draw power from this location. This is stored as a number of Watts in 1 W increments, LS Byte first.

The Shelf FRU Information can contain several records of this type. The data from all such records must be merged together in order and interpreted as a single logical record.

7.8 Board/AMC LAN Configuration Parameters record

The Board/AMC LAN Configuration Parameters record stores the optionally compressed information about LAN Configuration parameters to be assigned to specific boards and/or AMCs. The corresponding facility in the Shelf Manager is deprecated and should not be used in new designs; HPM.3 facilities should be used instead for assigning LAN configuration parameters to FRUs in the shelf. See the section 4.10 of the *User Guide* for more information.

Table 100: Shelf Manager Configuration record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID.</i> Value C0h (OEM).
1	1	[7:7] <i>End of list.</i> Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length.</i>
3	1	<i>Record Checksum.</i> Holds the zero checksum of the record.
4	1	<i>Header Checksum.</i> Holds the zero checksum of the header.
5	3	<i>Manufacturer ID.</i> LS Byte first. Write as this three byte ID assigned to

		Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value Ch is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.
10	N	Opaque data that represents the LAN Configuration parameters

7.9 Cold-Sensitive FRU List record

In some use cases, it is necessary to be delay power on for some FRUs in the shelf if the shelf is located in a cold environment and has not heated sufficiently after shelf power-up (more precisely, until none of the temperature sensors in the shelf reports a value below that sensor's lower non-recoverable threshold). The cold-sensitive FRU list record is used to specify the list of such FRUs. [Is this control FRU-specific or is it the case that NONE of the FRUs listed are power up before ALL sensors in the shelf (not even just sensors on those FRUs) are above their LNR threshold?]

Table 101: Cold-Sensitive FRU List record

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Record Type ID</i> . Value C0h (OEM).
1	1	[7:7] <i>End of list</i> . Set to one for the last record [6:4] Reserved, write as 0h. [3:0] <i>Record format version</i> (=2h for this definition).
2	1	<i>Record Length</i> .
3	1	<i>Record Checksum</i> . Holds the zero checksum of the record.
4	1	<i>Header Checksum</i> . Holds the zero checksum of the header.
5	3	<i>Manufacturer ID</i> . LS Byte first. Write as this three byte ID assigned to Pentair (0Ah 40h 00h).
8	1	<i>Pentair Record ID</i> . The value Ch is used for this definition.
9	1	<i>Record Format Version</i> . Write as 0h.
10	1	<i>Number of Cold-Sensitive FRU Descriptor Entries</i> (N)
10	4 * N	<i>Cold-Sensitive FRU Descriptor Entries</i>

The Cold-Sensitive FRU descriptor has the following format:

Table 102: Cold-Sensitive FRU descriptor

OFFSET	LENGTH	DESCRIPTION
0	1	<i>Hardware Address</i>
1	1	<i>FRU Device ID</i> .

		A value of FEh indicates that all FRU Device IDs at the <i>Hardware Address</i> are considered as a unit.
2	2	<i>Enabled</i> . A non-zero value indicates that the specified FRU is cold-sensitive. A zero value indicates that the specified FRU is not cold-sensitive.

8 Hardware Platform Interface (HPI)

The Pigeon Point Shelf Manager optionally includes IntegralHPI, an implementation of the Service Availability Forum (SAF, www.saforum.org) Hardware Platform Interface (HPI), operating as a subsystem within the Shelf Manager. IntegralHPI requires a variant of the ShMM-1500 or the ShMM-500 that has additional memory: specifically, 128 megabytes of RAM and 64 megabytes of Flash. (All ShMM-700R modules have the memory capacity needed for IntegralHPI.)

The SAF HPI is a System Manager interface that is more abstract than the Remote Management Control Protocol (RMCP), the mandatory System Manager interface for AdvancedTCA shelves. A separate SAF specification defines the mapping between HPI and AdvancedTCA systems. IntegralHPI complies with this HPI-to-AdvancedTCA Mapping specification.

Integral HPI implements revision B.03.02 of the base HPI specification and revision B.03.02 of the HPI-to-xTCA Mapping specification.

By default, the IntegralHPI interface in the Shelf Manager is turned off. To turn it on, it is necessary to set the configuration variable `ENABLE_INTEGRALHPI` to `TRUE`, and ensure that the corresponding shared library `libintegralhpi.so` (along with several other libraries that IntegralHPI depends on) is present on the ShMM.

8.1 HPI Functions support in IntegralHPI

IntegralHPI implements the HPI functions defined in the HPI specification, as detailed in the following table. Some of the functions that are designated as optional in the HPI specification are not implemented.

Table 103: HPI functions implemented by IntegralHPI

FUNCTION	SUPPORT IN INTEGRALHPI
saHpiVersionGet()	Supported
saHpiSessionOpen()	Supported
saHpiSessionClose()	Supported
saHpiDiscover()	Supported
saHpiDomainInfoGet()	Supported
saHpiDrtEntryGet()	Supported
saHpiDomainTagSet()	Supported
saHpiRptEntryGet()	Supported
saHpiRptEntryGetByResourceId()	Supported
saHpiResourceSeveritySet()	Supported
saHpiGetIdByEntityPath()	Supported

FUNCTION	SUPPORT IN INTEGRALHPI
saHpiGetChildEntityPath	Supported
saHpiResourceFailedRemove()	Supported
saHpiResourceTagSet()	Supported
saHpiResourceIdGet()	Not supported
saHpiGetIdByEntityPath()	Supported
saHpiGetChildEntityPath()	Supported
saHpiResourceFailedRemove()	Supported
saHpiEventLogInfoGet()	Supported
saHpiEventLogCapabilitiesGet()	Supported
saHpiEventLogEntryGet()	Supported
saHpiEventLogEntryAdd()	Supported
saHpiEventLogEntryClear()	Supported
saHpiEventLogTimeGet()	Supported
saHpiEventLogTimeSet()	Supported
saHpiEventLogStateGet()	Supported
saHpiEventLogStateSet()	Supported
saHpiEventLogOverflowReset()	Supported
saHpiSubscribe()	Supported
saHpiUnsubscribe()	Supported
saHpiEventGet()	Supported
saHpiEventAdd()	Supported
saHpiAlarmGetNext()	Supported
saHpiAlarmGet()	Supported
saHpiAlarmAcknowledge()	Supported
saHpiAlarmAdd()	Supported
saHpiAlarmDelete()	Supported
saHpiRdrGet()	Supported
saHpiRdrGetByInstrumentId()	Supported
saHpiRdrUpdateCounterGet()	Supported
saHpiSensorReadingGet()	Supported
saHpiSensorThresholdsGet()	Supported
saHpiSensorThresholdsSet()	Supported
saHpiSensorTypeGet()	Supported

FUNCTION	SUPPORT IN INTEGRALHPI
saHpiSensorEnableGet()	Supported
saHpiSensorEnableSet()	Supported
saHpiSensorEventMasksGet()	Supported
saHpiSensorEventMasksSet()	Supported
saHpiControlTypeGet()	Supported
saHpiControlGet()	Supported
saHpiControlSet()	Supported
saHpiIldrInfoGet()	Supported
saHpiIldrAreaHeaderGet()	Supported
saHpiIldrAreaAdd()	Not supported
saHpiIldrAreaAddById()	Not supported
saHpiIldrAreaDelete()	Not supported
saHpiIldrFieldGet()	Supported
saHpiIldrFieldAdd()	Not supported
saHpiIldrFieldAddById()	Not supported
saHpiIldrFieldSet()	Not Supported
saHpiIldrFieldDelete()	Not Supported
saHpiWatchdogTimerGet()	Supported
saHpiWatchdogTimerSet()	Supported
saHpiWatchdogTimerReset()	Supported
saHpiAnnunciatorGetNext()	Supported
saHpiAnnunciatorGet()	Supported
saHpiAnnunciatorAcknowledge()	Supported
saHpiAnnunciatorAdd()	Supported
saHpiAnnunciatorDelete()	Supported
saHpiAnnunciatorModeGet()	Supported
saHpiAnnunciatorModeSet()	Supported
saHpiDimiInfoGet()	Supported
saHpiDimiTestInfoGet()	Supported
saHpiDimiTestReadinessGet()	Supported
saHpiDimiTestStart()	Supported
saHpiDimiTestCancel()	Supported

FUNCTION	SUPPORT IN INTEGRALHPI
saHpiDimiTestStatusGet()	Supported
saHpiDimiTestResultsGet()	Supported
saHpiFumiSpecInfoGet()	Supported
saHpiFumiServiceImpactGet()	Supported
saHpiFumiSourceSet()	Supported
saHpiFumiSourceInfoValidateStart()	Supported
saHpiFumiSourceInfoGet()	Supported
saHpiFumiSourceComponentInfoGet()	Supported
saHpiFumiTargetInfoGet()	Supported
saHpiFumiTargetComponentInfoGet()	Supported
saHpiFumiLogicalTargetInfoGet()	Supported
saHpiFumiLogicalTargetComponentInfoGet()	Supported
saHpiFumiBackupStart()	Not supported
saHpiFumiBankBootOrderSet()	Not supported
saHpiFumiBankCopyStart()	Not supported
saHpiFumiInstallStart()	Supported
saHpiFumiUpgradeStatusGet()	Supported
saHpiFumiTargetVerifyStart()	Supported
saHpiFumiTargetVerifyMainStart()	Supported
saHpiFumiUpgradeCancel()	Supported
saHpiFumiAutoRollbackDisableGet	Supported
saHpiFumiAutoRollbackDisableSet	Supported
saHpiFumiRollback()	Supported
saHpiFumiActivate()	Not supported
saHpiFumiActivateStart()	Supported
saHpiHotSwapPolicyCancel()	Supported
saHpiResourceActiveSet()	Supported

FUNCTION	SUPPORT IN INTEGRALHPI
saHpiResourceInactiveSet()	Supported
saHpiAutoInsertTimeoutGet()	Supported
saHpiAutoInsertTimeoutSet()	Supported
saHpiAutoExtractTimeoutGet()	Supported
saHpiAutoExtractTimeoutSet()	Supported
saHpiHotSwapStateGet()	Supported
saHpiHotSwapActionRequest()	Supported
saHpiHotSwapIndicatorStateGet() ()	Not supported
saHpiHotSwapIndicatorStateSet() ()	Not supported
saHpiParmControl()	Not supported
saHpiResourceLoadIdGet()	Not supported
saHpiResourceLoadIdSet()	Not supported
saHpiResourceResetStateGet()	Supported
saHpiResourceResetStateSet()	Supported
saHpiResourcePowerStateGet()	Not supported
saHpiResourcePowerStateSet()	Not supported

8.2 HPI mapping sensors and controls in IntegralHPI

The HPI-to-xTCA Mapping specification, in addition to rules for mapping HPI functionality to AdvancedTCA shelves, also defines certain HPI instruments that must be included in conforming implementations. The table below lists these instruments, as they are implemented in IntegralHPI.

Table 104: Standard instruments implemented by IntegralHPI

INSTRUMENT NAME	OWNER RESOURCE	INSTRUMENT NUMBER
IPMI Sensors	Virtual Shelf Manager, ATCA FRU	(1024 * IPMI Sensor LUN) + IPMI Sensor Number
E-Keying Link State Sensor	Virtual Shelf Manager, ATCA IPMC	3584..3839
AMC Clock E-Keying Link State Sensor	AMC Module	3824..3828
Bused E-Keying Link State Sensor	Shelf	3824..3828

INSTRUMENT NAME	OWNER RESOURCE	INSTRUMENT NUMBER
Shelf FRU Information Valid Sensor	Shelf	4096
Shelf Manager Redundancy Sensor	Virtual Shelf Manager	4097
Active Shelf Manager Sensor	Virtual Shelf Manager	4098
Standby Shelf Manager Sensor	Virtual Shelf Manager	4099
Assigned Power Sensor	Slot	4113
IPMB-0 Sensor	Virtual Shelf Manager, ATCA IPMC	4352..4447
LED Controls	ATCA FRU	0.. 255
Shelf Address Control	Shelf	4096
Shelf Manager IP Address Control	Shelf	4097
Chassis Status Control	Shelf	4098
Shelf Manager Failover Control	Virtual Shelf Manager	4112
FRU Activation Control	Slot	4128
Desired Power Control	Virtual Shelf Manager, ATCA FRU	4144
IPMB-0 State Control	Virtual Shelf Manager, ATCA IPMC	4353, 4354
FRU Reboot and Diagnostics Control	Virtual Shelf Manager, ATCA FRU	4608
IPM Controller Reset Control	Virtual Shelf Manager, ATCA IPMC	4609
Fan Control	ATCA FRU	5120
IPMI Watchdog	Virtual Shelf Manager ATCA IPMC	0
ShelfFRU Information Inventory	Shelf	0
FRU Information Inventory	ATCA FRU	0
Configuration Data Inventory	Shelf	1
Telco Alarm Annunciator	Shelf	0
Telco Alarm Location Sensor	Virtual Telco Alarm	5632
Telco Alarm Input Sensor	Virtual Telco Alarm	5633
Telco Alarm Controls: Critical Alarm, Major Alarm, Minor Alarm, Power Alarm and Alarm	Virtual Telco Alarm	5632..5636

INSTRUMENT NAME	OWNER RESOURCE	INSTRUMENT NUMBER
Cutoff		
HPM.1 FUMI	ATCA FRU	0
Global IPMC Upgrade Capabilities Sensor	ATCA FRU	5888
Upgrade Image Capabilities Sensor	ATCA FRU	5889
Rollback Timeout Period Sensor	ATCA FRU	5890

IntegralHPI also implements a proprietary HPI version control to provide an HPI user with the version of supported interface and the version of IntegralHPI service.

Table 105: Additional instruments implemented by IntegralHPI

INSTRUMENT NAME	OWNER RESOURCE	INSTRUMENT NUMBER
HPI Version Control (Pentair proprietary)	Shelf	32768
IPMI Self Test DIMI (Pentair proprietary)	ATCA IPMC	32768
IPMI Command Control (Pentair proprietary)	Shelf	32767
AMC IPMI Command Control (Pentair proprietary)	Shelf	32766
IPMB-0 Address Sensor (Pentair proprietary)	ATCA FRU	32768
FRU Device Id Sensor (Pentair proprietary)	ATCA FRU	32766
IPMB-L Address Sensor (Pentair proprietary)	AMC Module	32767
DI DIMI	ATCA/AMC FRU	DI ID as defined in Static DI Data.
ShMM FUMI	Physical ShMM	1

8.3 Redundancy in IntegralHPI

IntegralHPI, as part of a Shelf Manager that natively supports redundancy, also supports redundant operation. The following IntegralHPI data items are maintained as redundant; redundancy is achieved using the Shelf Manager's built-in redundancy facility:

- HPI Session Information: Session Id and HPI User IP Address, Session Subscription Data
- Domain Tag
- Domain Auto-Insertion Timeout
- Resource Tree

- Domain Event Log State
- Domain Event Log Time
- Domain Event Log Content
- Domain Event Log Overflow Time
- Domain Alarm Table Content
- Resource Tag
- Resource Severity
- Resource Auto-Extraction Timeout
- Resource Hot Swap Policy cancellation
- Resource Hot Swap Policy Execution time
- FRU Power On Sequence Control State
- FRU Power On Sequence Commit Status Sensor Event State
- AMC Power On Sequence Control State
- AMC Power On Sequence Commit Status Sensor Event State
- FRU Power On Sequence Commit Status Sensor Status and Event Masks
- AMC Power On Sequence Commit Status Sensor Status and Event Masks
- Slot State Status Sensor Status and Event Masks
- Telco Alarm Annunciator Announcements
- HPM.1 FUMI upgrade image URI
- HPM.1 FUMI upgrade status

Status and event masks for IPMI sensors, content of FRU Information areas, as well as sensors and controls that are based on Shelf FRU Information and IPM controller FRU Information are redundant by design; no special mechanism is needed to make them redundancy-aware.

The standby IntegralHPI service instance does not perform hot swap management of the FRUs and does not provide HPI service until it become active.

9 Revision history

This section records the major revisions in this document, starting with release 2.1.0 of the Shelf Manager.

9.1 Release 2.1.0

- Section 3.2: adds CLI commands *gethysteresis*, *getipmbstate* to the table that summarizes the CLI commands.
- Section 3.34: adds the description of the CLI command *gethysteresis*.
- Section 3.35: adds the description of the CLI commands *getipmbstate*.
- Section 3.64: adds the description of the CLI command *sethysteresis*.
- Section 3.65: adds the description of the CLI command *setipmbstate*.
- Section 4: adds descriptions of Web interface for the CLI commands *gethysteresis*, *sethysteresis*.

9.2 Release 2.2.0

- Section 3.2: augments the table that summarizes the CLI commands to identify those that are available on the Backup Shelf Manager.
- Section 3.33: adds the description of the CLI command *getfruledstate*.
- Section 3.48: adds the description of the CLI command *poll*.
- Section 3.62: adds the description of the CLI command *setfruledstate*.
- Section 3.70: adds the description of the CLI command *setpowerlevel*.
- Section 5.1.1: modifies the access mode of the MIB variable *board-basic-powered* from 'read-only' to 'read-write'.

9.3 Release 2.3.0

- Overall: implements a change in Shelf Manager product name from 'IPM Sentry' to 'Pigeon Point'.
- Section 3.2: in the table that summarizes the CLI commands, augments the commands available on the Backup Shelf Manager.
- Sections 3.6, 3.28: introduces a new option *info* for CLI commands *alarm* and *frucontrol*.
- Section 3.43: the CLI command *ipmc* shows information about FRUs in the state M1, if they were known previously to the Shelf Manager. Before the version 2.3, information about such FRUs was not shown by this command.
- Section 3.52: introduces the CLI command *sendcmd*.
- Section 3.54: adds the option *-t* for the CLI command *sensordata*. If the option *-t*, is specified, information is displayed only for threshold-based sensors that have at least one of their thresholds crossed.

- Section 3.75.3: adds the option `-v` (verbosity) for the CLI command `shelf power_management`.
- Section 4: adds descriptions of Web interface for the CLI commands `alarm`, `getfruledstate`, `getipmbstate`, `getsensoreventenable`, `session`, `setfruledstate`, `setipmbstate`, `setsensoreventenable`.
- Section 4: updates the Web interface for the CLI command `sel`.
- Section 5.1.4: modifies the descriptions of the MIB variables `shelf-manager-active` and `shelf-manager-reset`.
- Section 6: adds a table of IPMI commands implemented by the Shelf Manager. This table specifies whether a command is supported if it arrives from RMCP interface or from an IPM controller.
- Section 6.2.6: corrects the command code for the extension command “Set/Clear Digital Outputs” to D2h.
- Section 6.2.15: describes the deactivation scenarios for the active Shelf Manager.

9.4 Release 2.4.0

- Sections 3.29, 3.32, 3.51, 3.57, 3.61: includes descriptions for CLI commands `getbootdev`, `getfanpolicy`, `sendamc`, `setbootdev`, `setfanpolicy`.
- Section 3.62: corrects the description of the CLI command `setfruledstate`.
- Section 3.76: updates the `shelfaddress` command description to reflect its use of full ASCII rather than packed ASCII when encoding the characters of a new shelf address string.
- Section 4: corrects the description of the Web interface for the CLI command `setfruledstate`.
- Section 6.2: adds the description of the extension commands “Notify Shelf Manager About an Extracted FRU”, “Initiate Shelf Manager Switchover”, “Subscribe for Event Notifications”, “Get Shelf FRU Record Data”.

9.5 Release 2.4.1

- Section 3.5: adds a description of the CLI command `airfilterreplaced`.
- Section 3.82: changes the CLI `version` command output to reflect carrier subtype and version.
- Section 4: changes the Web `version` command output to reflect carrier subtype and version.
- Section 5.1.3: changes the description of the SNMP MIB variable `powersupply-fail` (see Table 23) to clarify that this variable is only available in PICMG 2.x systems.
- Section 6.2.9: changes the name of the last bit in “Initiate Shelf Manager Switchover” command (see Table 58:) to “Active Reboot Mode”. Note that this change reverses the polarity of this bit.

9.6 Release 2.4.2

- Section 3.5: modifies the description of the CLI command *airfilterreplaced* to reflect the fact that an IPMI event is no longer automatically generated when the expiration date is reached or passed. Another modification reflects the usage of a Pentair defined *multirecord* to store the dates associated with air filter replacements.
- Section 3.76: adds a description of the option *-x* to the CLI command *shelfaddress*. This option allows a user to specify the shelf address as a sequence of hexadecimal bytes.

9.7 Release 2.4.3

- Section 3.48: adds a description of the CLI command *networkelementid*.
- Section 3.4.2: changes the description of the CLI command *activate* to indicate that the IPMI command “FRU Activation Policy (Clear Locked)” is also sent.
- Section 6.2.11: adds a description of the Pentair extension command “Set Shelf FRU Record Data”.

9.8 Release 2.4.4

- Section 3.18: changes the description of the CLI command *debuglevel* to reflect that separate debug levels are now supported for system log output and for console output.
- Section 3.42: modifies the *cli shelf help* example to reflect updates in the help text.

9.9 Release 2.5.0

- Sections 3.4, 3.17, 3.21, 3.23, 3.24, 3.25, 3.26, 3.27, 3.28, 3.30, 3.33, 3.59, 3.62, 3.68: changes the syntax for the following CLI commands: *activate*, *deactivate*, *fans*, *fru*, *frudata*, *frudatar*, *frudataw*, *frucontrol*, *getfanlevel*, *getfruledstate*, *setextracted*, *setfruledstate*, *setlocked*. These commands can now address a specific AMC by its number.
- Section 3.7: Adds the description of the new CLI command *amcportstate*.
- Section 3.17: changes the description of the CLI command *deactivate* to reflect that programmatic deactivation of the active Shelf Manager now causes a switchover.
- Section 3.28: adds clarification how the command “FRU Control (Cold Reset)” is implemented on the Shelf Manager.
- Sections 3.34, 3.39, 3.41, 3.53, 3.54: adds the description of the option *-f <fru_id>* to sensor-related CLI commands *gethysteresis*, *getsensoreventenable*, *getthreshold*, *sensor*, *sensordata*. This option enables the user to select sensors that belong to a specified FRU.
- Section 3.71: adds substantial detail about the parameters of the command *setsensoreventenable*.
- Section 3.79: adds a description of the forced switchover (option *-forced*).

- Section 4: adds a description of the new Web interface command “Get Pigeon Point MIB Files”.
- Section 5.1.2: adds a new read-write MIB variable *fantray-fan-level*. Retrieving and setting of fan levels can be accomplished via this variable.
- Section 5.1.3: corrects the description of *powersupply-slot-number* variable.
- Section 5.1.7: adds new MIB variables: *rmcp-interface-status*, *shelf-fru-found-status*, *active-status*. These variables report the Shelf Manager status.
- Section 5.2.10: corrects the OID example for FRU Information MIB variables.
- Section 6.2.15: reflects substantial changes due to the fact that programmatic deactivation of the active Shelf Manager now causes a switchover.

9.10 Release 2.5.2

- Section 3.4: adds information about storing, replacing and deleting HPDL binary data and SDRs in FRU Information
- New section 3.38.19: describes the new parameter *pet_format* for the command *getpefconfig*.
- Section 3.43: adds coverage of the additional three-part representation for the firmware revision.
- Section 3.47: adds information about the command *minfanlevel* in shelves with zoned cooling.
- Section 3.61: clarifies the purpose of the command *setfanpolicy*.
- New section 3.69.14: describes the new parameter *pet_format* for the command *setpefconfig*.
- New section 3.71: describes the command *setsensordata*.
- Section 3.75.3: adds information about the message that is displayed when some fan trays are not operational.
- Section 3.75.6: clarifies the description of the *shelf activation* command.
- Section 3.75.7: clarifies the description of the *shelf deactivation* command, corrects the example of the execution of the command.
- Section 4: changes the web “Get Pigeon Point MIB Files” command. A user can choose either of two Pigeon Point MIB files: PPS-SENTRY-MIB or PPS-PET-MIB.
- New section 5.1.8: describes the SNMP variables that return the version of the Shelf Manager.
- New section 5.1.9: describes the SNMP variables that access TELCO alarms.
- New sections 6.2.12, 6.2.13, 6.2.14: describe Pentair extension commands to access the cached device SDRs in the Shelf Manager.

9.11 Release 2.5.3

- Section 4: changes the request web page for the “Shelf Information” command to reflect an implementation modification.

9.12 Release 2.6.0

- New section 3.22: describes the CLI command *firewall*.
- Section 3.37: describes how to use CLI command *getlanconfig* for LAN Configuration variables supported by IPMI 2.0 specification.
- Section 3.54: adds a description of the new option *-d* for the command *sensordata*.
- New section 3.58: describes the CLI command *setcommandpolicy*.
- New section 3.63: describes the CLI command *setfunctionpolicy*.
- Section 3.67: describes how to use CLI command *setlanconfig* for LAN Configuration variables supported by IPMI 2.0 specification.
- Section 4: updates the Web interface command screen shots to reflect the current implementation, which includes the formally registered stylized lighthouse logo.
- Section 5.2.8: describes SNMP LAN Configuration variables supported by IPMI 2.0 specification.
- Section 6.1: adds IPMI 2.0 commands and PICMG 3.0 R3.0 commands to the table of IPMI commands implemented by the Shelf Manager.
- New section 6.2.15: describes the Pentair extension command to set FRU activation parameters for a slot.

9.13 Release 2.6.1

- Section 3.21: excludes the obsolete “maximum sustained fan level” from the list of data items reported by this command.
- Section 5.1.1: adds descriptions of the MIB variables *board-basic-fruinfo-board-serial-number* and *board-basic-fruinfo-board-manufacture-time*.
- Section 5.1.6: clarifies the description of the SNMP variable *event-class*.
- Section 5.1.8: adds a description of the SNMP variable *functional-level*.
- New section 5.1.10: describes the SNMP variables that contain information about the SEL state.
- New section 5.1.11: introduces carrier-specific SNMP variables.
- Section 5.2.9: corrects the description of the SNMP PEF Configuration variables in Table 42 and Table 43.
- Section 6.2.4: corrects the description of the “Query Digital Output Properties” command.
- Section 6.2.5: corrects the description of the “Get Digital Outputs” command.
- Section 6.2.6: corrects the description of the “Set/Clear Digital Outputs” command.
- New section 7: describes the IntegralHPI interface.

9.14 Release 2.6.4

- Section 3.26: adds descriptions of the new options *-p* and *-l* for the CLI command *frudataw*.
- Section 3.33: updates the description of the output of the CLI command *getfruledstate*.
- New section 3.30: describes the CLI command *getconfigparam*.
- Section 3.42: updates the examples to cover new commands.
- Section 3.46: updates the description of the output of the CLI command *minfanlevel*.
- Section 3.56: adds a description of the new option *-v* for the CLI command *session*.
- Section 3.82: updates the description of the output of the CLI command *version*.
- Session 3.75: adds descriptions of the new subcommands *shm_cfg_params* and *board_lan_cfg_params* of the CLI command *shelf*.
- Session 3.82: updates the description of the output of the CLI command *version*.
- New section 5.2.5: describes SNMP variables for FRU LED management.
- Section 6: adds a note about RMCP+ on ShMMs with encryption code removed.
- New section 6.1.1: describes the Shelf Manager response to the command “Get Device ID”.
- New section 6.1.2: describes the Shelf Manager response to the command “Get Self Test Results”.
- New section 6.2.16: describes the Pentair extension command to set minimal fan level.
- New section 6.2.17: describes the Pentair extension command to get minimal fan level.
- Section 8.2: merges the tables of sensors and controls and adds descriptions of the new HPI instruments.

9.15 Release 2.6.4.2

- New section 3.19: describes the CLI command *dhcp restart | status*.
- New section 6.2.18: describes the Pentair extension command to control and check status of the DHCP client.

9.16 Release 2.7.0

- Sections 3.2, 3.42.3, 3.51, 3.52: the CLI commands *sendamc* and *sendcmd* now accept a *<lun>* parameter.
- Section 3.41.2: sensor upper thresholds in raw format are shown as lower thresholds in processed format when the sensor has a decreasing linearization function.
- Section 3.54.2: a processed value is no longer shown by the CLI command *sensordata* if the sensor is in the state “Initial Update In Progress/Sensor Reading Unavailable”.
- Sections 3.75.4.2, 3.75.5: FRUs may now be deactivated if the currently used power exceeds the available power provided by the feed (as a result of execution of either the CLI command *shelf maxcurrent* or the CLI command *shelf minvoltage*).

- Section 3.75.9.2: FRUs may now be deactivated if the currently used power for a slot exceeds the power limit for that slot (as a result of execution of the CLI command *shelf pwrcapability*).
- Section 7: IntegralHPI now supports the SAI-HPI-B.03.02 and SAIM-HPI-xTCA-B.03.02 specification versions.
- Section 7.1: covers the new SAI-HPI-B.03.02 functions and additional SAI-HPI-B.02 functions that are now supported (The latter were not supported in previous IntegralHPI releases.)
- Section 7.2: covers SAIM-HPI-xTCA-B.03.02 instruments.
- Section 7.3: covers SAIM-HPI-xTCA-B.03.02 instruments.

9.17 Release 2.7.1

- Section 3.3: modified to indicate that the *power_supply* notation is now also supported in ATCA systems.
- New section 3.43: covers new HPI-related CLI commands.
- Section 3.44: introduces verbose extended mode for the CLI command *ipmc*; also this command now shows HPM.1 component information in verbose mode.
- Section 5.1.3: the table “Basic Power Supply variables” is now obsolete in non-2.x contexts.
- New section 5.1.12: describes the table “Basic xTCA PEM variables”.
- New section 5.1.13: describes the table “Basic xTCA Power Supply variables”.
- Sections 6.2.12, 6.2.13, 6.2.14: corrects command descriptions to include Pentair IANA bytes.
- Sections 8.1, 8.2: updated the tables to reflect better support of the new version of the HPI to xTCA mapping specification (B.03.02) in IntegralHPI.

9.18 Release 2.7.2

- Section 3.53: modified to indicate that the CLI command *sensor* now also shows information about event-only sensors.
- Section 5.2.3: modified to indicate that event-only (type 3) SDRs are now accessible via SNMP.

9.19 Release 2.7.3

- Section 5.2.8: modified to indicate that two LAN IPMI channels are now supported.

9.20 Release 2.7.4

- Section 3.48: modified to indicate that three Network Element Identifiers are now supported.
- New section 7: describes Pentair OEM-specific FRU Information records.

9.21 Release 2.8.0

- Section 3.54: added an example for the ShMM Reboot Reason sensor.

- Section 6.1: modified to indicate that HPM.1 IPMI commands are now supported by the Shelf Manager.
- Section 6.2.15: correction: this command does not update Shelf FRU Information.
- New section 6.2.19: describes Diagnostic Initiator IPMI commands.
- Section 8.2: defines HPI instrument numbers for DI DIMI and ShMM FUMI.

9.22 Release 2.8.2

- Section 5.2.3: adds descriptions of the MIB variables *sensor-processed-unr-threshold*, *sensor-processed-uc-threshold*, *sensor-processed-unc-threshold*, *sensor-processed-lnr-threshold*, *sensor-processed-lc-threshold*, *sensor-processed-lc-threshold*.

9.23 Release 3.0.0

- Section 3.82: introduces a new CLI command *variable*.
- Section 5.1.2: adds descriptions of the MIB variables *board-basic-fruinfo-product-asset-tag*, *board-basic-fruinfo-product-fru-file-id*, *board-basic-fruinfo-board-fru-file-id*.
- Section 5.1.3: adds descriptions of the MIB variables *fantray-fruinfo-product-asset-tag*, *fantray-fruinfo-product-fru-file-id*, *fantray-ps-fruinfo-board-fru-file-id*.
- Section 5.1.4: adds descriptions of the MIB variables *shelf-manager-fruinfo-product-asset-tag*, *shelf-manager-fruinfo-product-fru-file-id*, *shelf-manager-fruinfo-board-fru-file-id*.
- Section 5.1.5: adds descriptions of the MIB variables *chassis-product-asset-tag*, *chassis-product-fru-file-id*, *chassis-board-fru-file-id*.
- Section 5.1.12: adds descriptions of the MIB variables *xtca-pem-fruinfo-product-asset-tag*, *xtca-pem-fruinfo-product-fru-file-id*, *xtca-pem-fruinfo-board-fru-file-id*.
- Section 5.1.13: adds descriptions of the MIB variables *xtca-ps-fruinfo-product-asset-tag*, *xtca-ps-fruinfo-product-fru-file-id*, *xtca-ps-fruinfo-board-fru-file-id*.

9.24 Release 3.2.0

- New section 3.12. describes the *axie sequencing* command.
- Section 3.27: clarifies usage of the command options *-v* and *-x*.
- Section 3.83: adds IntegralHPI spec version to the command output.
- New section 6.2.20: describes a new proprietary IPMI command “AXIe Allow Enable PCIe Hosts”.
- New sections 6.2.21-6.2.27: describe Pentair-specific sensors exposed by the logical Shelf Manager and by the physical ShMM IPM controller.

9.25 Release 3.2.1

- Section 3.50.1: fixes the syntax description of CLI command *sel*.
- Section 3.79: adds coverage of the command option *-clear-hpdl*.

9.26 Release 3.3.0

- New section 3.16: describes the new CLI command *cooling*.
- New section 3.36: describes the new CLI command *getlanconf*.
- New section 3.40: describes the new CLI command *getsolconf*.
- New section 3.66: describes the new CLI command *setlanconf*.
- New section 3.73: describes the new CLI command *setsolconf*.
- Section 3.77.2: adds coverage of the status flag “Started as Backup”.
- Section 3.80: adds a description of the command option *-reboot-both*.

9.27 Release 3.4.0

- New section 3.7: describes the new CLI command *amcgetlanconf*.
- New section 3.8: describes the new CLI command *amcgetsolconf*.
- New section 3.10: describes the new CLI command *amcsetlanconf*.
- New section 3.11: describes the new CLI command *amcsetsolconf*.
- Section 3.23: describes additional information shown in verbose mode by the CLI command *fru*.
- Section 3.44: describes additional information shown in verbose mode by the CLI command *ipmc*.
- Sections 3.51, 3.52: describes the new command option *-x* for the CLI commands *sendamc* and *sendcmd*.

9.28 Release 3.4.0.1

- New section 3.43.3: describes the new CLI subcommand *hpi version*.
- Section 3.83: reflects the fact that the HPI version is no longer included in the output of the CLI command *version*.

9.29 Release 3.4.2.2

- Section 4: updates the description of the Web interface command “Get Pigeon Point MIB Files”.

9.30 Release 3.5.0

- Section 3.36: describes how to use the CLI command *getlanconf* for the new IPv6-related LAN Configuration variables defined by the IPMI 2.0 specification.
- Section 3.37: modified to reference section 3.36 for duplicated parameter descriptions.

- New section 3.46: describes the new CLI command *md5hash*.
- Section 3.66: describes how to use the CLI command *setlanconf* for the new IPv6-related LAN Configuration variables defined by the IPMI 2.0 specification.
- Section 3.67: modified to reference section 3.66 for duplicated parameter descriptions.
- Section 6.2: adds tables for Shelf Manager sensors with fixed numbers.
- Section 6.2.22: adds new reason codes to the description of the Reboot Reason sensor.

9.31 Release 3.6.0

- New section 3.10.5: describes the AMC LAN Configuration parameter *ip_source* as writable.
- Section 3.19: describes new functionality of the *dhcp* CLI command.
- New section 3.66.5: describes the LAN Configuration parameter *ip_source* as writable.
- Section 3.82: updated to describe operation of the CLI command *variable* without parameters (first implemented in this release).
- Section 4: completely reworked to describe the new Shelf Manager Web interface.
- Section 5.2.8: describes new SNMP variables that represent IPMI 2.0 IPv6-related LAN configuration parameters.

9.32 Release 3.6.1

- Overall: implements a change from “Pigeon Point” and “PPS” brands to the “Pentair” brand name.
- Section 3.48: elaborates on redundancy and checksum protection for Network Element IDs.
- Sections 6.2.28, 6.2.29, 6.2.30: new Pentair-specific sensors are described.
- Section 7: adds descriptions of several Pentair OEM records.

9.33 Release 3.6.1.2

- Section 3.48: updates description of the CLI command *networkelementid*.

9.34 Release 3.6.1.3

- Section 6.2.30: changes a sensor name of the Pentair-specific sensor “Current Bank” to “ShM Bank1 active”; changes the sensor type for this sensor from “Module / Board” to “System Firmware Progress”.
- New section 6.2.31: describes the new Pentair-specific sensor “ShM Mem Rec”, which indicates whether the most recent reboot was caused by the reliable upgrade watchdog timer (which indicates a failed Shelf Manager firmware upgrade attempt and an automatic rollback to the firmware that was running before the upgrade attempt).

9.35 Release 3.6.1.4

- Section 3.75.14: describes the new subcommand *info_check* of the CLI command *shelf*.

9.36 Release 3.6.1.5

- Section 6.2.31: changes a sensor name of the Pentair-specific sensor “ShM Mem Rec” to “ShM FW Rollback”.

9.37 Release 3.7.0

- Section 5.2.3: changes variable type to ‘read-write’ in descriptions of the MIB variables *sensor-processed-unr-threshold*, *sensor-processed-uc-threshold*, *sensor-processed-unc-threshold*, *sensor-processed-lnr-threshold*, *sensor-processed-lc-threshold*, *sensor-processed-lc-threshold*.
- Section 6.1: supports the IPMI command “Get SEL Time UTC Offset”.