

Smart Media System

Software Configuration Guide

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Supported Models

SN10200/16E/UI	SN10200/1DS3/UI	SN10200/STM1/UI
SN10200/32E/UI	SN10200/2DS3/UI	
SN10200/48E/UI		

Summary Table of Contents

1	Getting Started with the Web Portal	22
2	Configuring VoIP Interfaces	36
3	Configuring an ISDN-SIP Gateway	42
4	Configuring SS7 Signaling	80
5	Configuring SIGTRAN Applications	112
6	Configuring CAS R2	191
7	Configuring H.248	203
8	Configuring SNMP	220
9	Contacting Patton	226

Table of Contents

Audience.....	21
Structure.....	21
1 Getting Started with the Web Portal	22
Overview	23
Accessing and Navigating the Web Interface	23
Connecting to the web server and logging on to the Web Portal	23
Connecting to the web server	23
Logging on to the Web Portal	23
Navigating the Web Portal	23
Navigation and Information Panels	23
Knowing Your Location	24
Managing Users.....	25
Understanding User Access Levels	25
Viewing the User List	25
Creating a New User	26
Deleting a User	27
Logging Off	27
Managing the Database Backup.....	28
Carrying out a First Database Backup	28
Downloading a Database Backup	29
Uploading a Database Backup	29
Restoring a Database Backup	29
Working with Configurations.....	30
Managing Applications	30
Viewing the List of Installed Applications	30
Starting an Application	30
Verifying that an Application is Operating	32
Verifying the Application Path	32
Activating the Configuration	33
Verifying status	34
2 Configuring VoIP Interfaces	36
Overview	37
Configuring Interfaces	37
Understanding Parameters for IP Interfaces	38
Viewing the Status of Interfaces.....	39
Adapters (General View)	39
Adapters (Detailed View)	39
Hardware	40
Sensors	40
Licensed Features	41

IP Interfaces (Detailed View)	41
3 Configuring an ISDN-SIP Gateway	42
Overview	44
Creating a New Configuration	44
Allocating Physical Interfaces.....	46
Creating a new line interface	46
Understanding Parameters for Line Interfaces	47
Creating a new line service	48
Understanding Parameters for Line Services	50
Creating an IP port range	50
Understanding Parameters for IP Port Ranges	51
Configuring ISDN-PRI Signaling	52
Understanding Parameters for ISDN Stacks	53
Defining a Clocking Source.....	54
Understanding Parameters for the System Clock	55
Configuring SIP Signaling.....	55
Creating a SIP stack	55
Understanding Parameters for SIP Stacks	57
Creating a SIP transport server	57
Understanding Parameters for SIP Transport Servers	58
Creating a SIP service access point (SAP)	59
Understanding Parameters for SIP SAPs	60
Configuring Codecs and Tone Detection	60
Accessing Profiles and Validating Settings	60
Managing the Session Description Protocol (SDP)	62
Media Announcement	62
Attribute for Media Announcement	63
Configuring Network Access Points (NAPs).....	65
Allocating an ISDN NAP	65
Understanding Parameters for ISDN NAPs	66
Allocating a SIP NAP	66
Understanding Parameters for SIP NAPs	68
Creating Call Routing Rules.....	69
Creating a primary call route	69
Understanding Parameters for Call Routing	71
Viewing the Status of the TDM Lines	72
General View	72
Detailed View	73
Line Interface	73
Line Service	73
Viewing the Status of the ISDN Stack.....	74
General View	74
Timeslot States Diagram	75

Viewing the Status of the SIP Stack.....	76
General View	76
Detailed View	77
SIP Stack Configuration Status	77
SIP SAP Detailed Status	78
Viewing the Status of the NAPs.....	79
General View	79
4 Configuring SS7 Signaling	80
Overview	82
Configuring the MTP2 Layer	82
Creating an MTP2 Configuration	82
Understanding Parameters for MTP2 Configurations	83
Creating MTP2 Links	83
Understanding Parameters for MTP2 Links	85
Configuring the MTP3 Layer	86
Creating an MTP3 Configuration	86
Understanding Parameters for MTP3 Configurations	87
Creating an MTP3 Network	87
Understanding Parameters for MTP3 Networks	88
Creating an MTP3 Point Code	88
Understanding Parameters for SS7 Point Codes	89
Creating an MTP3 Linkset	90
Understanding Parameters for MTP3 Linksets	91
Creating MTP3 Links	91
Understanding Parameters for MTP3 Links	93
Creating an MTP3 Route	93
Understanding Parameters for MTP3 Routes	95
Configuring the ISUP Layer	95
Creating an ISUP Stack	95
Understanding Parameters for ISUP Stacks	96
Creating an ISUP Network	97
Understanding Parameters for ISUP Networks	98
Creating an ISUP User Part	98
Understanding Parameters for ISUP User Parts	99
Creating an ISUP Interface	100
Understanding Parameters for ISUP Interfaces	101
.....	101
Viewing the Status of SS7 MTP2 Links.....	102
General View	102
Detailed View	102
MTP2 Link Detailed Status	102
MTP2 Link Listing	103
Viewing the Status of SS7 MTP3 Links.....	104

General View	104
Detailed View	104
MTP3 Stack Status	105
MTP3 Linkset	105
MTP3 Link	107
Viewing the Status of SS7 ISUP Stacks.....	108
General View	108
Detailed View	109
ISUP Stack Status	109
ISUP Interface Status	110
Circuit Group Status	111
5 Configuring SIGTRAN Applications	112
Overview	115
Configuring an M2PA System.....	116
Adding an Adapter	117
Understanding Parameters for Hardware Adapters	119
Creating Line Interfaces	119
Understanding Parameters for Line Interfaces	120
Creating Line Services	121
Understanding Parameters for Line Services	123
Creating the SCTP Configuration	124
Understanding Parameters for SCTP Configurations	124
Creating an M2PA Configuration	125
Understanding Parameters for M2PA Configurations	125
Creating an M2PA SAP	126
Understanding Parameters for M2PA SAPs	127
Creating M2PA Links	127
Understanding Parameters for M2PA Links	128
Creating SS7 Point Codes	129
Understanding Parameters for SS7 Point Codes	130
Creating an MTP3 Configuration	131
Understanding Parameters for MTP3 Configurations	132
Creating an MTP3 Network	132
Understanding Parameters for MTP3 Networks	133
Creating an MTP3 Linkset	133
Understanding Parameters for MTP3 Linksets	134
Creating MTP3 Links (M2PA)	134
Understanding Parameters for MTP3 (M2PA) Links	136
Creating an MTP3 Route	136
Understanding Parameters for MTP3 Routes	138
Creating an ISUP Stack	138
Understanding Parameters for ISUP Stacks	139
Creating an ISUP Network	139

Understanding Parameters for ISUP Networks	140
Creating an ISUP User Part	141
Understanding Parameters for ISUP User Parts	142
Creating an ISUP Interface	142
Understanding Parameters for ISUP Interfaces	143
Creating ISUP CIC Groups	144
Understanding Parameters for ISUP CIC Groups	145
Creating a NAP (SIGTRAN)	145
Understanding Parameters for NAPs (SIGTRAN)	147
Configuring an M2UA System on a Signaling Gateway.....	148
Creating an MTP2 Configuration	148
Understanding Parameters for MTP2 Configurations	149
Creating MTP2 Links	149
Understanding Parameters for MTP2 Links	151
Creating an M2UA Configuration	151
Understanding Parameters for M2UA Configurations	152
Creating an M2UA SAP	152
Understanding Parameters for M2UA SAPs	153
Creating an M2UA Cluster	153
Understanding Parameters for M2UA Clusters	154
Creating M2UA Links	154
Understanding Parameters for M2UA Links	155
Creating M2UA Peers	156
Understanding Parameters for M2UA Peers	157
Configuring an M2UA System on a Media Gateway Controller.....	158
Creating MTP3 Links (M2UA)	159
Understanding Parameters for MTP3 (M2UA) Links	159
Configuring an IUA System on a Signaling Gateway.....	160
Creating an IUA Configuration	160
Understanding Parameters for IUA Configurations	161
Creating an IUA SAP	161
Understanding Parameters for IUA SAPs	162
Creating an IUA Cluster	162
Understanding Parameters for IUA Clusters	163
Creating IUA Links	163
Understanding Parameters for IUA Links	164
Creating IUA Peers	164
Understanding Parameters for IUA Peers	165
Configuring an M3UA System on IP Signaling Points	166
Creating an M3UA Configuration (IPSP)	167
Understanding Parameters for M3UA Configurations	167
Creating an M3UA SAP	168
Understanding Parameters for M3UA SAPs	169
Creating an M3UA Network	169

Understanding Parameters for M3UA Networks	170
Creating an M3UA User Part	170
Understanding Parameters for M3UA User Parts	171
Creating an M3UA Peer Signaling Process (IPSP)	171
Understanding Parameters for M3UA PSPs	172
Creating an M3UA Peer Server	173
Understanding Parameters for M3UA Peer Servers	174
Creating an M3UA Route	175
Understanding Parameters for M3UA Routes	176
Configuring an M3UA System on a Signaling Gateway.....	177
Creating MTP3 Links (M3UA)	178
Understanding Parameters for MTP3 (M3UA) Links	179
Creating an M3UA Configuration (SGP)	180
Understanding Parameters for M3UA Configurations	180
Creating an M3UA Peer Signaling Process (SGP)	181
Understanding Parameters for M3UA PSPs	182
Creating an M3UA Route (SGP)	183
Understanding Parameters for M3UA Routes	184
Configuring an M3UA System on an Application Server.....	185
Creating an M3UA Configuration (ASP)	186
Understanding Parameters for M3UA Configurations	186
Creating an M3UA Peer Signaling Process (ASP)	187
Understanding Parameters for M3UA PSPs	188
Creating an M3UA ISUP Network	189
Understanding Parameters for M3UA ISUP Networks	190
6 Configuring CAS R2	191
Overview	192
Adding an Adapter	192
Understanding Parameters for Hardware Adapters	194
Creating Line Interfaces	194
Understanding Parameters for Line Interfaces	195
Creating Line Services	196
Understanding Parameters for Line Services	198
Copying a Variant Script (optional).....	199
Creating a CAS R2 Stack.....	200
Understanding Parameters for CAS R2 Stacks	201
Creating a CAS R2 NAP	201
Understanding Parameters for NAPs	202
7 Configuring H.248.....	203
Overview	204
Adding an Adapter	204
Understanding Parameters for Hardware Adapters	206
Creating Line Interfaces	206

Understanding Parameters for Line Interfaces	207
Creating Line Services	208
Creating an IP Port Range.....	210
Creating an IP port range	210
Understanding Parameters for IP Port Ranges	211
Configuring Network Access Points (NAPs).....	212
Allocating a VoIP network access point (NAP)	212
Understanding Parameters for VoIP NAPs	213
Allocating a TDM Network Access Point (NAP)	213
Understanding Parameters for TDM NAPs	214
Configuring the Media Gateway for H.248 Mode.....	215
Creating an H.248 Configuration	216
Understanding Parameters for H.248 Configuration	217
Adding a New Media Gateway Controller (MGC).....	217
Understanding Parameters for Media Gateway Controller	218
Associating NAPs with the H.248 Configuration	218
Selecting Timeslots for TDM Interfaces	219
8 Configuring SNMP	220
Overview	221
Activating the tbSnmpAgent.....	221
Disabling the SELinux Service	221
Activating the tbSnmpAgent application	222
Configuring the tbSnmpAgent	223
Configuring SNMP system parameters	223
Configuring SNMPv1, SNMPv2c	225
Configuring SNMPv3	225
Configuring traps	225
9 Contacting Patton	226
Introduction.....	227
Contact information.....	227
Patton support headquarters in the USA	227
Alternate Patton support for Europe, Middle East, and Africa (EMEA)	227
Warranty Service and Returned Merchandise Authorizations (RMAs).....	227
Warranty coverage	227
Out-of-warranty service	228
Returns for credit	228
Return for credit policy	228
RMA numbers	228
Shipping instructions	228

List of Figures

1	SmartNode Web Portal Navigation	24
2	SmartNode Web Portal Menus	24
3	SmartNode User Access Levels	25
4	Global > Users	25
5	User List	26
6	User List > Create New User	26
7	User List > Delete User	27
8	Navigation Menu: Logout	27
9	Global > Backups	28
10	Backups > Create new database backup	28
11	Database Backup Message	28
12	Database Backup List	28
13	Download Database Backup	29
14	Upload Database Backup File	29
15	Restore Database Backup File	29
16	Applications > Instances	30
17	Application Instance List	30
18	Application Instance List > Edit	31
19	Application Status	31
20	Apply States	31
21	SmartNode Interfaces	32
22	Application Status List	32
23	Global > Systems	33
24	System List	33
25	Name and Activate Configuration	33
26	Successful Activation	34
27	Global > Status	34
28	Status: General View	35
29	Status: Detailed View	35
30	Menu > IP Interfaces	37
31	IP Interface List	37
32	Editing an IP Interface	38
33	Adapters (General View)	39
34	Adapters (Detailed View) > Hardware	40
35	Adapters (Detailed View) > Sensors	40
36	Adapters (Detailed View) > Licensed Features	41
37	IP Interfaces (Detailed View)	41
38	Global > Configurations	44
39	Configuration List	45
40	Name and Copy a Configuration File	45
41	Successful Configuration Copy	45
42	TDM Interfaces > Line Interfaces	46
43	Line Interface List	46
44	Create New Line Interface	47
45	Confirmation Message for New Line Interface	47
46	TDM Interfaces > Line Interfaces	48
47	Line Interface List	48

48	Editing a Line Interface to Create a New Service	48
49	Create New Line Service	49
50	Line Services List	49
51	Menu: IP Interfaces	50
52	Editing Port Ranges	51
53	Creating a New Port Range	51
54	Confirmation Message for Port Range	51
55	Signaling > ISDN	52
56	ISDN Stack List	52
57	Create New ISDN Stack	53
58	Confirmation Message for New ISDN Stack	53
59	Menu: Clocking	54
60	External System Clock Reference List	54
61	Creating New External System Clock	54
62	Confirmation Message for System Clock	54
63	Menu: SIP	55
64	SIP Configuration List	56
65	Creating a New SIP Stack	56
66	Confirmation Message for SIP	56
67	Menu: SIP	57
68	Edit SIP Configuration List	57
69	Transport Servers List	57
70	Creating a New SIP Transport Server	58
71	Confirmation Message for SIP Transport Server	58
72	Menu: SIP	59
73	Edit SIP Configuration List	59
74	Service Access Points (SAP) List	59
75	Creating a New SAP	59
76	Confirmation Message for SIP SAP	59
77	Associating Transport Servers	60
78	Menu: Profiles	60
79	Edit Profile List	61
80	DTMF Relay Scheme List	61
81	Menu: NAP	65
82	Edit NAP List	65
83	Creating a New ISDN NAP	65
84	Confirmation Message for New NAP	65
85	Associating ISDN Stacks with NAPs	66
86	Menu: NAP	66
87	Edit NAP List	66
88	Creating a New SIP NAP	67
89	Confirmation Message for New NAP	67
90	Associating SIP SAPs with NAPs	67
91	Configurations > Routes	69
92	Static Routes List	69
93	Creating a New Route	70
94	Confirmation Message for New Route	70
95	General View: Line Interfaces and Services	72
96	Detailed View: Line Interface	73
97	Detailed View: Line Service	73
98	General View: ISDN Stack List	74

99	Timeslot States Diagram	75
100	General View: SIP Status	76
101	Detailed View: SIP Stack Configuration Status	77
102	Detailed View: SIP SAPs Configuration Status	78
103	Detailed View: SIP SAP Status	78
104	NAP Status	79
105	Signaling > MTP2	82
106	Creating the New MTP2 Configuration	82
107	Successful Configuration Message	82
108	MTP2 Link in MTP2 Configuration Window	83
109	Creating a New MTP2 Link	84
110	Successful Link Message	84
111	SS7 > MTP3	86
112	Creating the New MTP3 Configuration	86
113	Successful Configuration Message	87
114	MTP3 Networks in MTP3 Configuration Window	87
115	Creating a New MTP3 Network	87
116	Successful Network Message	88
117	SS7 > Point Codes	88
118	Point Codes	88
119	Creating the New MTP3 Point Code	89
120	Successful Point Code Message	89
121	MTP3 Linksets	90
122	Creating the New MTP3 Linkset	90
123	Successful Linkset Message	90
124	MTP3 Links	91
125	Creating the New MTP3 Link	92
126	Successful MTP3 Link Message	92
127	MTP3 Routes	93
128	Creating the New MTP3 Route	94
129	Successful MTP3 Route Message	94
130	Associating Routes with Linksets	94
131	SS7 > ISUP	95
132	ISUP Stack List	95
133	Creating the New ISUP Stack	96
134	Successful ISUP Stack Message	96
135	Editing ISUP Networks	97
136	Creating the New ISUP Network	97
137	Successful ISUP Network Message	97
138	Editing Userparts	98
139	Creating the New ISUP User Part	99
140	Successful ISUP User Part Message	99
141	Editing ISUP Interfaces	100
142	Creating the New ISUP Interface	100
143	Successful ISUP Interface Message	100
144	General View: SS7 MTP2	102
145	Detailed View: MTP2 Link Status	102
146	Detailed View: MTP2 Link Listing	103
147	General View: SS7 MTP3	104
148	Detailed View: MTP3 Stack Status	105
149	Detailed View: MTP3 Linkset Status-Linkset Tab	106

150	Detailed View: MTP3 Linkset Status-Links Tab	106
151	Detailed View: MTP3 Link Status	107
152	General View: SS7 ISUP	108
153	Detailed View: ISUP Stack Status-Stack Tab	109
154	Detailed View: ISUP Stack Status-Interfaces Tab	109
155	Detailed View: ISUP Interface Status-Interface Tab	110
156	Detailed View: ISUP Interface Status-Circuit Groups Tab	110
157	Detailed View: Circuit Group Status	111
158	config_patton > Hardware	117
159	Hardware List	117
160	Creating the New Hardware Device	118
161	Successful Device Message	118
162	TDM Interfaces > Line Interfaces	119
163	Line Interface List	119
164	Create New Line Interface	120
165	Confirmation Message for New Line Interface	120
166	TDM Interfaces > Line Interfaces	121
167	Line Interface List	121
168	Editing a Line Interface to Create a New Service	121
169	Create New Line Service	122
170	Line Services List	122
171	Signaling > SCTP	124
172	Creating a New MTP2 Link	124
173	Successful SCTP Configuration Message	124
174	Signaling > M2PA	125
175	Creating the New M2PA Configuration	125
176	Successful M2PA Configuration Message	125
177	M2PA SAPs	126
178	Creating the New M2PA SAP	126
179	Successful M2PA Configuration Message	126
180	Associating IP Interfaces	126
181	M2PA Links	127
182	Creating a New M2PA Link	127
183	Designating a Destination Address	128
184	Successful M2PA Link Message	128
185	SS7 > Point Codes	129
186	Point Codes	129
187	Creating the New MTP3 Point Code	129
188	Successful Point Code Message	130
189	SS7 > MTP3	131
190	Creating the New MTP3 Configuration	131
191	Successful Configuration Message	131
192	MTP3 Networks in MTP3 Configuration Window	132
193	Creating a New MTP3 Network	132
194	Successful Network Message	132
195	MTP3 Linksets	133
196	Creating the New MTP3 Linkset	134
197	Successful Linkset Message	134
198	M2PA Links	134
199	Creating the New MTP3 (M2PA) Link	135
200	Successful MTP3 Link Message	135

201	MTP3 Routes	136
202	Creating the New MTP3 Route	137
203	Successful MTP3 Route Message	137
204	Associating Routes with Linksets	137
205	SS7 > ISUP	138
206	ISUP Stack List	138
207	Creating the New ISUP Stack	139
208	Successful ISUP Stack Message	139
209	Editing ISUP Networks	139
210	Creating the New ISUP Network	140
211	Successful ISUP Network Message	140
212	Editing Userparts	141
213	Creating the New ISUP User Part	141
214	Successful ISUP User Part Message	141
215	Editing ISUP Interfaces	142
216	Creating the New ISUP Interface	143
217	Successful ISUP Interface Message	143
218	Editing CIC Groups	144
219	Creating the New ISUP CIC Group	144
220	Successful ISUP CIC Group Message	144
221	Menu: NAP	145
222	Edit NAP List	145
223	Creating a New NAP (SIGTRAN)	146
224	Confirmation Message for New NAP	146
225	Associating ISUP CIC Groups with NAPs	146
226	Saving the New NAP SS7 Parameters	146
227	Confirmation Message for Updated NAP	147
228	Signaling > MTP2	148
229	Creating the New MTP2 Configuration	148
230	Successful Configuration Message	149
231	MTP2 Link in MTP2 Configuration Window	149
232	Creating a New MTP2 Link	150
233	Successful Link Message	150
234	Signaling > M2UA	151
235	Creating the New M2UA Configuration	152
236	Successful M2UA Configuration Message	152
237	M2UA SAPs	152
238	Creating the New M2UA SAP	153
239	Successful M2UA Configuration Message	153
240	Associating IP Interfaces	153
241	M2UA Clusters	153
242	Creating the New M2UA Cluster	154
243	Successful M2UA Cluster Message	154
244	M2UA Links	154
245	Creating a New M2UA Link	155
246	Successful M2UA Link Message	155
247	M2UA Peers	156
248	Creating the New M2UA Peer	156
249	Successful M2UA Peer Message	156
250	Editing Destination Addresses	156
251	MTP3 Links	159

252	Creating the New MTP3 (M2UA) Link	159
253	Successful MTP3 Link Message	159
254	Signaling > IUA	160
255	Creating the New IUA Configuration	160
256	IUA SAPs	161
257	Creating the New IUA SAP	161
258	Successful IUA Configuration Message	161
259	Associating IP Interfaces with the IUA SAP	161
260	IUA Clusters	162
261	Creating the New IUA Cluster	162
262	Successful IUA Cluster Message	162
263	IUA Links	163
264	Creating a New IUA Link	163
265	Successful IUA Link Message	163
266	IUA Peers	164
267	Creating the New IUA Peer	164
268	Successful IUA Peer Message	164
269	Editing Destination Addresses	165
270	SS7 > M3UA	167
271	Creating the New M3UA Configuration	167
272	Successful Configuration Message	167
273	M3UA SAPs	168
274	Creating a New M3UA SAP	168
275	Successful Link Message	168
276	Associating IP Interfaces with the M3UA SAP	168
277	M3UA Networks List	169
278	Creating the New M3UA Network	169
279	Successful M3UA Network Message	169
280	M3UA Network Configuration Window: Create M3UA User Part	170
281	Creating the New M3UA User Part	170
282	Successful M3UA User Part Message	171
283	M3UA Network Configuration Window: Create M3UA PSP	171
284	Creating the New M3UA PSP	171
285	Successful M3UA PSP Message	172
286	Associating SAPs with the M3UA PSP	172
287	Editing Destination Address for the PSP	172
288	M3UA Network Configuration Window: Create M3UA Peer Server	173
289	Creating the New M3UA Peer Server	173
290	Successful M3UA Peer Server Message	173
291	Associating PSPs with the New Peer Server	174
292	M3UA Network Configuration Window: Create M3UA Route	175
293	Creating the New M3UA Route	175
294	Successful M3UA Route Message	175
295	MTP3 Links	178
296	Creating the New MTP3 (M3UA) Link	178
297	Successful MTP3 Link Message	179
298	SS7 > M3UA	180
299	Creating the New M3UA (SGP) Configuration	180
300	Successful Configuration Message	180
301	M3UA Network Configuration Window: Create M3UA PSP	181
302	Creating the New M3UA PSP (ASP)	181

303	Successful M3UA PSP Message	181
304	Associating SAPs with the M3UA PSP	182
305	Editing Destination Address for the PSP	182
306	M3UA Network Configuration Window: Create M3UA Route	183
307	Creating the New M3UA Route	183
308	Successful M3UA Route Message	183
309	SS7 > M3UA	186
310	Creating the New M3UA (ASP) Configuration	186
311	Successful Configuration Message	186
312	M3UA Network Configuration Window: Create M3UA PSP	187
313	Creating the New M3UA PSP (ASP)	187
314	Successful M3UA PSP Message	187
315	Associating SAPs with the M3UA PSP	187
316	Editing Destination Address for the PSP	188
317	Editing ISUP Networks	189
318	Creating the New M3UA ISUP Network	189
319	Successful ISUP Network Message	189
320	General View: SS7 M3UA Stack	190
321	config_patton > Hardware	192
322	Hardware List	192
323	Creating the New Hardware Device	193
324	Successful Device Message	193
325	TDM Interfaces > Line Interfaces	194
326	Line Interface List	194
327	Create New Line Interface	195
328	Confirmation Message for New Line Interface	195
329	TDM Interfaces > Line Interfaces	196
330	Line Interface List	196
331	Editing a Line Interface to Create a New Service	196
332	Create New Line Service	197
333	Line Services List	197
334	Menu > CASR2 Scripts	199
335	Copy from Scripts List	199
336	Creating a New Script File	199
337	Successful Script File Message	199
338	User Scripts List	199
339	Signaling > CASR2	200
340	CASR2 Stack List	200
341	Creating the New CAS R2 Stack	200
342	Menu > NAP	201
343	Network Access Point List	201
344	Creating New CAS R2 NAP	202
345	Successful NAP Message	202
346	Associating a CAS R2 Stack with the NAP	202
347	Successful NAP Update Message	202
348	config_patton > Hardware	204
349	Hardware List	204
350	Creating the New Hardware Device	205
351	Successful Device Message	205
352	TDM Interfaces > Line Interfaces	206
353	Line Interface List	206

354	Create New Line Interface	207
355	Confirmation Message for New Line Interface	207
356	TDM Interfaces > Line Interfaces	208
357	Line Interface List	208
358	Editing a Line Interface to Create a New Service	208
359	Create New Line Service	209
360	Line Services List	209
361	Menu: IP Interfaces	210
362	Editing Port Ranges	210
363	Creating a New Port Range	211
364	Confirmation Message for Port Range	211
365	Menu: NAP	212
366	Edit NAP List	212
367	Creating the New VoIP NAP	212
368	Confirmation Message for New NAP	212
369	Associating VoIP Media with the New NAP	213
370	Menu: NAP	213
371	Edit NAP List	213
372	Creating the New TDM NAP	214
373	Confirmation Message for New NAP	214
374	Associating VoIP Media with the New NAP	214
375	Menu > Configurations	215
376	Setting the Application Mode to H.248	215
377	Gateway > H248	216
378	Creating the New H.248 Configuration	216
379	Successful Configuration Message	216
380	H.248 MGCs	217
381	Creating a New H.248 MGC	217
382	Successful MGC Message	217
383	Gateway > H248	218
384	Associating a TDM NAP	218
385	Associating a VoIP NAP	218
386	MG H.248 TDM Terminations Window	219
387	Enabling Timeslots	219
388	Successful Update Message	219
389	Global > Status	222
390	Status > Applications tab	222
391	Applications > Not running list	222
392	Application Instance Status Window	222
393	Applications > Ready list	223
394	Applications > Configurations	223
395	Application Configuration List	223
396	Application Params section	224
397	Application Params > Polling Delay	224
398	Create New SNMP Community window	225
399	Create New SNMP User window	225
400	Create New SNMP Trap Destination window	225

List of Tables

1	Configuration Parameters for IP Interfaces	38
2	Configuration Parameters for New Line Interfaces	47
3	Configuration Parameters for New Line Services	50
4	Loopback Types	50
5	Configuration Parameters for New IP Port Ranges	51
6	Configuration Parameters for New ISDN Stacks	53
7	Configuration Parameters for the Clocking Source	55
8	Configuration Parameters for New SIP Stacks	57
9	Configuration Parameters for SIP Transport Servers	58
10	Configuration Parameters for SIP SAPs	60
11	Codec Payload Type Values	63
12	Configuration Parameters for NAPs	66
13	Configuration Parameters for SIP NAPs	68
14	Configuration Parameters for Static Routes	71
15	Configuration Parameters for New MTP2 Configurations	83
16	Configuration Parameters for New MTP2 Links	85
17	Configuration Parameters for New MTP3 Configurations	87
18	Configuration Parameters for New MTP3 Networks	88
19	Configuration Parameters for New Point Codes	89
20	Configuration Parameters for New MTP3 Linksets	91
21	Configuration Parameters for New MTP3 Links	93
22	Configuration Parameters for New MTP3 Routes	95
23	Configuration Parameters for New ISUP Stack	96
24	Configuration Parameters for New ISUP Network	98
25	Configuration Parameters for New ISUP User Part	99
26	Configuration Parameters for New ISUP Interface	101
27	Circuit Group Status Settings	111
28	Configuration Parameters for New Hardware Adapters	119
29	Configuration Parameters for New Line Interfaces	120
30	Configuration Parameters for New Line Services	123
31	Loopback Types	123
32	Configuration Parameters for New SCTP Configurations	124
33	Configuration Parameters for New M2PA Configurations	125
34	Configuration Parameters for New M2PA SAP	127
35	Configuration Parameters for New M2PA Links	128
36	Configuration Parameters for New Point Codes	130
37	Configuration Parameters for New MTP3 Configurations	132
38	Configuration Parameters for New MTP3 Networks	133
39	Configuration Parameters for New MTP3 Linksets	134
40	Configuration Parameters for New MTP3 (M2PA) Links	136
41	Configuration Parameters for New MTP3 Routes	138
42	Configuration Parameters for New ISUP Stack	139
43	Configuration Parameters for New ISUP Network	140

44	Configuration Parameters for New ISUP User Part	142
45	Configuration Parameters for New ISUP Interface	143
46	Configuration Parameters for New ISUP CIC Group	145
47	Configuration Parameters for NAPs (SIGTRAN)	147
48	Configuration Parameters for New MTP2 Configurations	149
49	Configuration Parameters for New MTP2 Links	151
50	Configuration Parameters for New M2UA Configurations	152
51	Configuration Parameters for New M2UA SAP	153
52	Configuration Parameters for New M2UA Cluster	154
53	Configuration Parameters for New M2UA Links	155
54	Configuration Parameters for New M2UA Peers	157
55	Configuration Parameters for New MTP3 (M2UA) Links	159
56	Configuration Parameters for New IUA Configurations	161
57	Configuration Parameters for New IUA SAP	162
58	Configuration Parameters for New IUA Cluster	163
59	Configuration Parameters for New IUA Links	164
60	Configuration Parameters for New IUA Peers	165
61	Configuration Parameters for New M3UA Configurations	167
62	Configuration Parameters for New M3UA SAPs	169
63	Configuration Parameters for New M3UA Networks	170
64	Configuration Parameters for New M3UA User Part	171
65	Configuration Parameters for New M3UA PSPs	172
66	Configuration Parameters for New M3UA Peer Servers	174
67	Configuration Parameters for New M3UA Routes	176
68	Configuration Parameters for New MTP3 (M3UA) Links	179
69	Configuration Parameters for New M3UA Configurations	180
70	Configuration Parameters for New M3UA PSPs	182
71	Configuration Parameters for New M3UA Routes	184
72	Configuration Parameters for New M3UA Configurations	186
73	Configuration Parameters for New M3UA PSPs	188
74	Configuration Parameters for New M3UA ISUP Network	190
75	Configuration Parameters for New Hardware Adapters	194
76	Configuration Parameters for New Line Interfaces	195
77	Configuration Parameters for New Line Services	198
78	Loopback Types	198
79	Configuration Parameters for CAS R2 Stacks	201
80	Configuration Parameters for NAPs	202
81	Configuration Parameters for New Hardware Adapters	206
82	Configuration Parameters for New Line Interfaces	207
83	Configuration Parameters for New Line Services	209
84	Loopback Types	209
85	Configuration Parameters for New IP Port Ranges	211
86	Configuration Parameters for VoIP NAPs	213
87	Configuration Parameters for TDM NAPs	214
88	Configuration Parameters for H.248 Configuration	217
89	Configuration Parameters for Media Gateway Controller	218

About this guide

This *Smart Media Software Configuration Guide* describes how to configure components through the Web Portal of Patton's Smart Media system.

For detailed hardware or set-up information, refer to the product's *User Manual*.

Audience

This guide is intended for the following users:

- Operators
- Installers
- Maintenance technicians

Structure

This guide contains the following chapters and appendices:

- [Chapter 1](#) on page 22 provides an overview of logging into the system and general configuration
- [Chapter 2](#) on page 36 describes how to configure VoIP interfaces
- [Chapter 3](#) on page 42 describes how to configure an ISDN-to-SIP gateway
- [Chapter 4](#) on page 80 describes how to configure the SS7 signaling protocol
- [Chapter 5](#) on page 112 describes how to configure SIGTRAN applications
- [Chapter 6](#) on page 191 describes how to CAS R2 signaling stacks
- [Chapter 7](#) on page 203 describes how to configure an H.248 media gateway control protocol
- [Chapter 8](#) on page 220 describes how to configure SNMP

Chapter 1 **Getting Started with the Web Portal**

Chapter contents

Overview	23
Accessing and Navigating the Web Interface	23
Connecting to the web server and logging on to the Web Portal	23
Connecting to the web server	23
Logging on to the Web Portal	23
Navigating the Web Portal	23
Navigation and Information Panels	23
Knowing Your Location	24
Managing Users.....	25
Understanding User Access Levels	25
Viewing the User List	25
Creating a New User	26
Deleting a User	27
Logging Off	27
Managing the Database Backup.....	28
Carrying out a First Database Backup	28
Downloading a Database Backup	29
Uploading a Database Backup	29
Restoring a Database Backup	29
Working with Configurations.....	30
Managing Applications	30
Viewing the List of Installed Applications	30
Starting an Application	30
Verifying that an Application is Operating	32
Verifying the Application Path	32
Activating the Configuration	33
Verifying status	34

Overview

This chapter explains how to access and manage the SmartNode Web Portal. Refer to the following sections for more details on:

- “Accessing and Navigating the Web Interface” on page 23
- “Managing Users” on page 25
- “Managing the Database Backup” on page 28
- “Working with Configurations” on page 30

Accessing and Navigating the Web Interface

This section describes how to login and navigate the SmartNode Web Portal.

Connecting to the web server and logging on to the Web Portal

The first step involved in initially configuring any Smart Media system involves logging on to the Web Portal. This can be divided into two distinct tasks: Connecting to the web server, and logging on to the Web Portal.

Connecting to the web server

Using a web browser, connect to the Web Portal by typing the following in your address bar:

– **http://[DEVICE HOST NAME]:12358**

or, alternately,

– **http://[DEVICE IP ADDRESS]:12358**

Logging on to the Web Portal

In order to log on to the Web Portal configuration tool, enter the root user ID and password. The default values for these parameters are:

– **User ID:** root

– **Default password:** root

Navigating the Web Portal

Effective use of the Web Portal requires a basic understanding of the physical elements of the tool, how to access its various components and knowing your current location in the Web Portal display. The following topics are covered: *Navigation and Information Panels* and *Knowing Your Location*.

Navigation and Information Panels

The Web Portal has been designed with a consistent streamlined approach for the presentation of Smart Media configuration data. Information related to the hierarchy of data is displayed in the left-hand navigation panel, while information related to a selected category is displayed in the information panel found on the right side of the window.

Selecting a category in the navigation panel causes related configuration and status information to be dynamically displayed. The navigation panel displays information in a tree-like structure enabling you to understand how configuration parameters are contained by others.

Note Figure 1 on page 24 shows the SmartNode Web Management Interface. The navigation panel is located to the left of the screen. The information panel is located to the right.

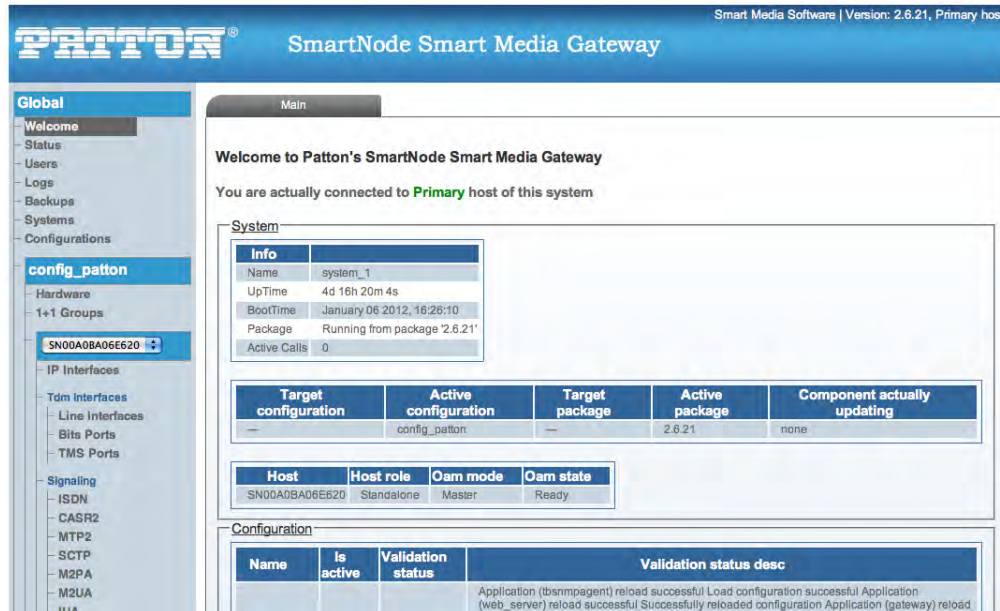


Figure 1. SmartNode Web Portal Navigation

Knowing Your Location

As you navigate the Web Portal, it is important that you understand how to determine your current location. The Web Portal has been designed to make this easy for you. When you browse through the navigation panel, your current selection is always indicated by a graphical highlight. In addition, the system configuration that you are using and the specific Smart Media unit that is being configured is always displayed, as shown in the figure below.

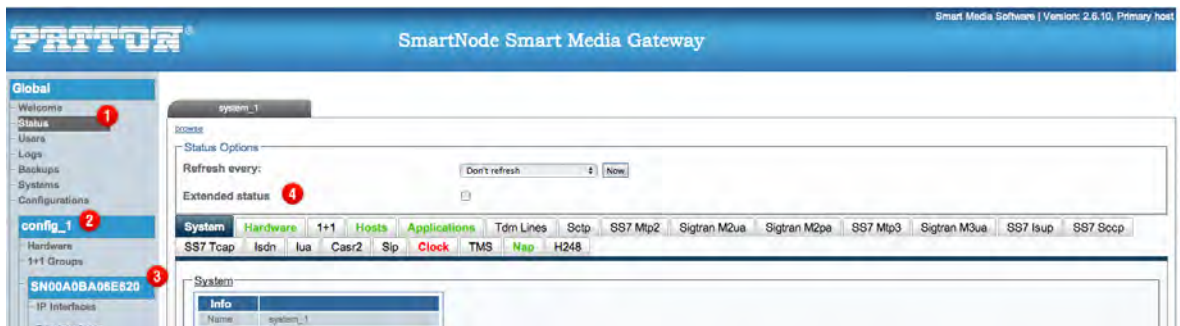


Figure 2. SmartNode Web Portal Menus

- **1:** Indicates status Global sub-menu.
- **2:** Indicates a configuration named config_patton is selected.
- **3:** Indicates a Smart Media hardware device named TB002176 is selected.
- **4:** Displays information concerning the system.

Managing Users

This section describes how to manage user access levels in the SmartNode Web Portal. (Refer to “[Connecting to the web server and logging on to the Web Portal](#)” on page 23 for information about how to login to the Web Portal).

Understanding User Access Levels

The Web Portal is designed to provide varying degrees of write and read privileges to users. By default, the root user is given full read and write access. This is required so that the root user can function as the system administrator without any restrictions imposed. Subsequent users can be created with the ability to read and write, or just to read. An integer value from 0 - 9 is assigned to each user.

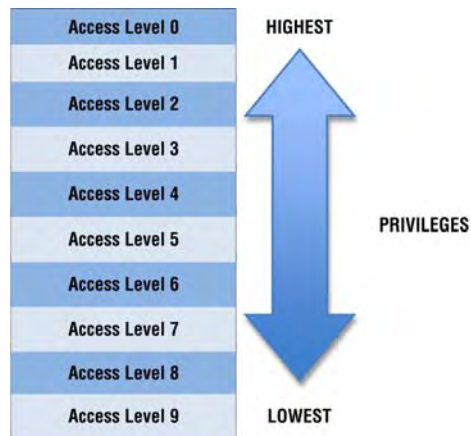


Figure 3. SmartNode User Access Levels

- A user with an access level of 0 has access to configurations created with levels 0 - 9.
- A user with an access level of 4, will have access to configurations created with user levels 4 - 9.
- Configurations created with user levels 0 -3 will be invisible to user levels 4-9.

Viewing the User List

It is possible to create an unlimited list of users, each with an assignment from 0-9. Any user can view the entire list of users, however only a root user with an access level of 0 can modify the access rights of other users.

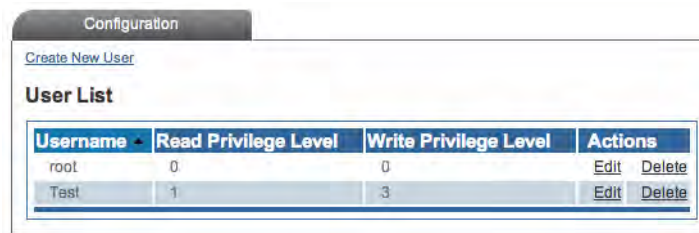
To view the user list:

1. Select **Users** from the navigation panel.



Figure 4. Global > Users

2. The **User List** is displayed.




Username	Read Privilege Level	Write Privilege Level	Actions
root	0	0	Edit Delete
Test	1	3	Edit Delete

Figure 5. User List

Creating a New User

1. Select **Users** from the navigation panel.
2. Click **Create New User**.



Configuration

List

Creating New User:

Name:

Password:

Read privilege Level:

Write privilege Level:

Figure 6. User List > Create New User

3. Enter a **User Name** and **Password**.
4. Select a **Read Privilege Level** (from 0-9).
5. Select a **Write Privilege Level** (from 0-9).
6. Press **Create** to save your changes. The **User List** window is displayed with the newly added user.

Deleting a User

1. Select **Users** from the navigation panel.
2. Click **Delete** in the information panel, next to the user account that you wish to delete.

User List

Username	Read Privilege Level	Write Privilege Level	Actions	
root	0	0	Edit	Delete
Test	1	3	Edit	Delete

Figure 7. User List > Delete User

3. Click **OK** to confirm the deletion.
4. The modified **User List** is displayed.

Logging Off

When you are finished working in the Web Portal, it is recommended that you log out from your session. If you do not log out, the session between the Web Browser on your PC and the Web Portal remains active.

To log out from the Web Portal, select Logout from the navigation panel.

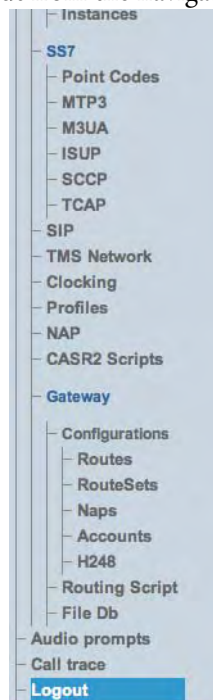


Figure 8. Navigation Menu: Logout

Managing the Database Backup

After carrying out system modifications, it is recommended that you back up the SQL database. This section describes how to back up the database for the first time, retrieve a saved backup file, upload a new backup file, and restore the database from a backup file.

Carrying out a First Database Backup

To create a backup file of the database:

1. Click **Backups** in the navigation panel.

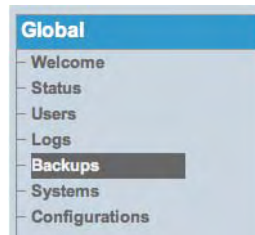


Figure 9. Global > Backups

2. Click **Create**, under Create New Database Backup.

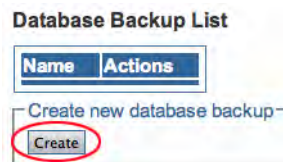


Figure 10. Backups > Create new database backup

3. Verify that the “**Database backup dump was successfully started. Refresh this page when it is done**” message appears. Then, refresh your Internet browser page.

Database backup dump was successfully started. Refresh this page to see when it is done.

Figure 11. Database Backup Message

4. Verify that your new backup appears in the **Database Backup List**.

Database Backup List	
Name	Actions
toolpack_2_6_10_2011_12_07_08_32_41.sql.gz	Rename Download Validate Recover Delete

Figure 12. Database Backup List

Downloading a Database Backup

Once you have created a backup of your database, it is recommended that you download it to store it to an external storage device.

1. Click the **Download** link to store your backup externally.

Database Backup List

Name	Actions
toolpack_2_6_10_2011_12_07_08_32_41.sql.gz	Rename Download Validate Recover Delete

Figure 13. Download Database Backup

2. Click **Save** in the pop-up window to store the backup.

Uploading a Database Backup

An external backup of your database can be uploaded to your SmartNode.

1. Click the **Choose File** tab, under Upload Database Backup, and select your external database backup.

Upload database backup

Backup file Choose File No file chosen

Figure 14. Upload Database Backup File

2. Click the **Upload** tab, under Backup File.

Restoring a Database Backup

The configuration settings of your system can be restored from a local or remote copy of your database.

1. Click the Recover link, under Database Backup List, to overwrite the current database and restore your file backups.

Database Backup List

Name	Actions
toolpack_2_6_10_2011_12_07_08_32_41.sql.gz	Rename Download Validate Recover Delete

Figure 15. Restore Database Backup File

2. After a few minutes, the Web Portal will come back online and the new configuration will be available. You need to activate the configuration to apply the changes.

Working with Configurations

This section explains how to manage applications and instances on the SmartNode Web Portal, how to activate a configuration, and how to configure IP interfaces. Refer to the following sections for information on:

- “Managing Applications” on page 30
- “Activating the Configuration” on page 33

Managing Applications

This section explains how to start up and verify applications and instances on the Smart Media application server.

Viewing the List of Installed Applications

The Smart Media application server is designed to run a large variety of applications. Before you can run an application, you must first be able to view it from a list of applications. To view the selection of applications:

1. Select **Instances** from the navigation panel.

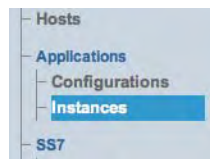


Figure 16. Applications > Instances

2. The **Application Instance List** is displayed in the information panel.

Application Instance List

Name	Host Name	Target State	Application Config	Actions
gateway	SKULLHEAD	Run	gateway	Edit
logtrace	SKULLHEAD	Run	logtrace	Edit
stream_server	SKULLHEAD	Dont run	stream_server 1	Edit
tboam_app	SKULLHEAD	Run	tboamapp	Edit
tbsnmpagent	SKULLHEAD	Dont run	tbsnmpagent	Edit
tbuctwriter	SKULLHEAD	Run	tbuctwriter	Edit
toolpack_engine	SKULLHEAD	Run	toolpack_engine	Edit
toolpack_sys_mgr	SKULLHEAD	Run	toolpack_sys_mgr	Edit

Figure 17. Application Instance List

Applications are displayed in one of three states:

- Run (application is operating)
- Management (application is installed but not in operation)
- Fault (application has an operation fault)

Starting an Application

In order to be able to load and start an application, it will need to have been installed on the Smart Media application server. In addition, at least one Smart Media unit must have been configured on the Smart Media application server so that you are able to connect to it.

When you first log on to the Web Portal, your system application will have been installed on the Smart Media application server, and it will be in a management state. This means that the application is not yet operating and controlling your system. In order to start an application, its state must be changed from Management to Run. To start an application:

1. Select **Instances** from the navigation panel.
2. Select the application that you wish to run and click **Edit**.

Application Instance List

Name	Host Name	Target State	Application Config	Actions
gateway	SKULLHEAD	Run	gateway	Edit
logtrace	SKULLHEAD	Run	logtrace	Edit
stream_server	SKULLHEAD	Dont run	stream_server_1	Edit
tboam_app	SKULLHEAD	Run	tboamapp	Edit
tbsnmpagent	SKULLHEAD	Dont run	tbsnmpagent	Edit
tbuctwriter	SKULLHEAD	Run	tbuctwriter	Edit

Figure 18. Application Instance List > Edit

3. Click the **Status** tab to activate the application.

Figure 19. Application Status

4. Set the **Oam target state** to **Run**.
5. Click **Apply States**.

Name	Value
Host	SKULLHEAD
Name	
Oam target state	Run
Oam target update state	<input checked="" type="checkbox"/> Dont_run <input type="checkbox"/> Fault <input type="checkbox"/> Management
Oam current state	Not running
Current bin path	
Working dir	
Oam ha current state	Not present

Apply states

Figure 20. Apply States

Verifying that an Application is Operating

When an application's target state is set to run, there are a number of crucial verifications that you should conduct in order to know that an application is running properly. These verifications are as follows:

- **Verify the application's current path.** It is important that once the application has been set to run, a path is displayed.
- **Verify the TDM interface.** If you are running a TDM application on your Smart Media unit then you can verify the TDM interface. Although, you most likely have not yet configured the TDM interface of the Smart Media unit, certain status LEDs will indicate that your application is operational.
- **Verify the IP Interfaces.** Your Smart Media unit is furnished with two IP interfaces for access to a VoIP network. Although you have not as of yet configured the interfaces, certain LED indications will be displayed. See [Figure 21](#) below.

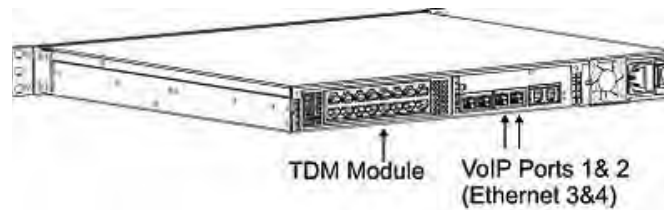


Figure 21. SmartNode Interfaces

Verifying the Application Path

One important indication of the normal operation of an application is when the application path is displayed in the hardware status window. To verify that the application path is displayed:

1. Select **Instances** from the navigation panel.
2. Click the **Status** tab, in the Application Instances window, to view the application path
3. Verify that the application path is displayed. Verify that the target state is set to **Run**, the current state displays **Ready**, and the current HA state displays **Active**.

Application Status List

Name	Host	Oam target state	Oam target update state	Oam current state	Current bin path	Oam ha current state
gateway	SKULLHEAD	Run	Run	Not running	w:\tb\pkg\2.6.10\bin\release\586-msvc8\gateway.exe	Not present
logtrace	SKULLHEAD	Run	Run	Not running	w:\tb\pkg\2.6.10\bin\release\586-msvc8\tblogtrace.exe	Not present
stream_server	SKULLHEAD	Dont_run	Run	Not running		Not present
tb_oam_app	SKULLHEAD	Run	Run	Not running		Not present
tb_snmagent	SKULLHEAD	Dont_run	Run	Not running		Not present
tbuctwriter	SKULLHEAD	Run	Run	Not running	w:\tb\pkg\2.6.10\bin\release\586-msvc8\tbuctwriter.exe	Not present
toolpack_engine	SKULLHEAD	Run	Run	Not running	w:\tb\pkg\2.6.10\bin\release\586-msvc8\toolpack_engine.exe	Not present
toolpack_sys_mgr	SKULLHEAD	Run	Run	Not running	w:\tb\pkg\2.6.10\bin\release\586-msvc8\toolpack_sys_manager.exe	Not present

Figure 22. Application Status List

Activating the Configuration

Changes made to the configuration of the Smart Media units are stored on the OAM&P Configuration and Logging database. In order for changes to be used by the system, they must first be activated. This is done at the system level and accessed from the Navigation panel.

Note To activate a configuration, you must be the Root user or have a user access level of 0.

1. Select **Systems** from the navigation panel.

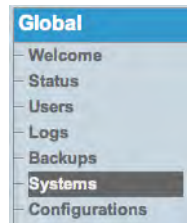


Figure 23. Global > Systems

2. Click **Edit** next to the system you wish to activate, in order to access the System Configuration screen.

System List

Name	Gateway Port	Active Configuration	Target Configuration	Active Package	Target Package	Actions
system_1	12358	config_1		2.6.10_package		Edit Delete

Figure 24. System List

3. Activate the configuration. Enter a name for the system. Under **Activate Configuration**: Select a Configuration on which to run the system. Click **Activate**.

Note Make certain that **Lock Active Configuration** box (located at the top of the page) is 'unchecked.' Failure to do so will prevent the configuration from being saved.

 A screenshot of the 'System Configuration' form. The form is divided into two sections. The top section, 'Editing system:', contains fields for 'Name' (value: system_1), 'Gateway Port' (value: 12358), and 'Lock active configuration' (checkbox: unchecked). A 'Save' button is below these fields. The bottom section, 'Activate configuration', contains a 'Configuration' dropdown menu (value: config_1) and an 'Activate' button. The 'Name' field and the 'Activate' button are highlighted with red boxes.

Figure 25. Name and Activate Configuration

- Verify that an activation confirmation message is displayed. The system will remind you to back up your database when you are done configuring (at top of screen, in yellow).

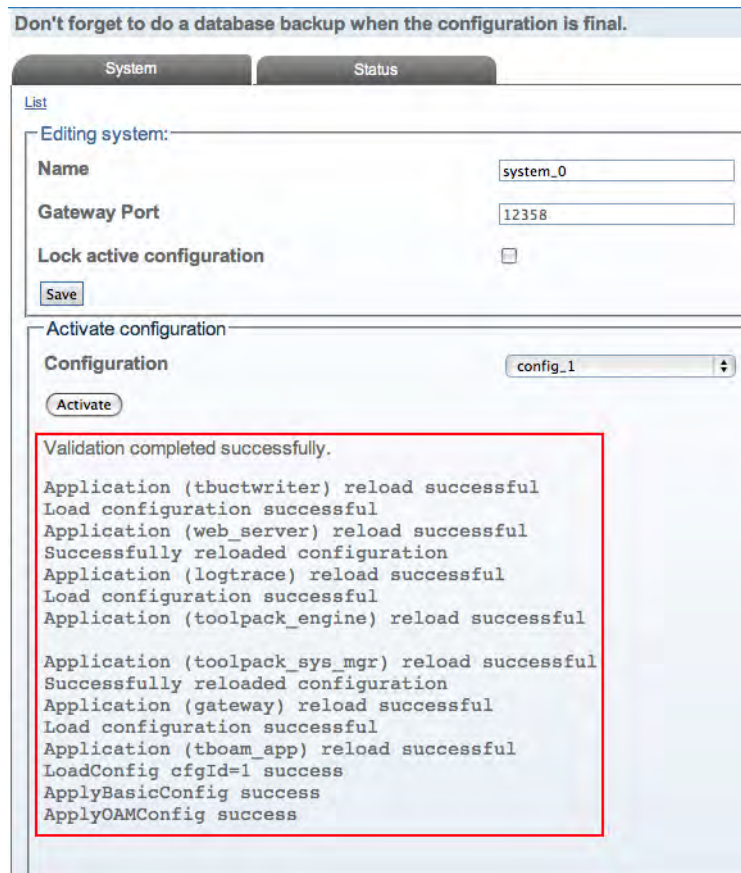


Figure 26. Successful Activation

Verifying status

General and detailed status information about the applications that are run by one or more host machine(s) is accessible from the **Applications** tab of the Global-->Status menu.

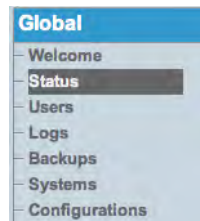


Figure 27. Global > Status

You may view the status in *General View* or *Detailed View*.

General View: The general view, shown below, lists the applications, and their current general status (ready, fault, not running). This window also provides a count of all applications with ready or fault status.

Figure 28. Status: General View

Detailed View: A more detailed description of each application can be viewed by following the appropriate link in the general window (shown above). The detailed status screen, shown below, lists the states of the application, its name, the host machine and the location of the application on the host.

From this detailed view, the **Oam target state may be changed**.

To modify the Oam target state of an application: Select a state from the **Oam target state** combo box. Click **Apply States** to change the states.

Figure 29. Status: Detailed View

Chapter 2 **Configuring VoIP Interfaces**

Chapter contents

Overview	37
Configuring Interfaces	37
Understanding Parameters for IP Interfaces	38
Viewing the Status of Interfaces.....	39
Adapters (General View)	39
Adapters (Detailed View)	39
Hardware	40
Sensors	40
Licensed Features	41
IP Interfaces (Detailed View)	41

Overview

The IP interface of the VoIP0 and VoIP1 ports can be configured by setting the following:

- IP Address
- Netmask
- Gateway

Configuring Interfaces

To configure a VoIP0 or VoIP1 port:

1. Select **IP Interfaces** from the navigation pane:

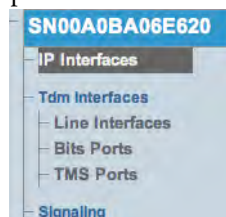


Figure 30. Menu > IP Interfaces

2. Click **Edit** from the IP Interfaces Information panel.

IP Interface List

Name	IP Address	Netmask	Gateway	DHCP	Actions
ETH0	10.3.2.19	255.255.252.0	10.3.0.1	false	
ETH1	10.3.6.19	255.255.252.0	10.3.4.1	false	
VOIP0	10.3.10.19	255.255.252.0	10.3.8.1	false	Edit

Figure 31. IP Interface List

3. Configure the IP port:
 - Indicate whether or not to use **DHCP** on this port
 - Enter an **IP address**
 - Enter a **Netmask**
 - Enter a **gateway address**
 - Click **Save**

Note The IP addresses of ETH0, ETH1, VOIP0 and VOIP1 must be on different subnets.

Figure 32. Editing an IP Interface

- The changes are displayed in the IP interfaces information panel.



The system will display the following notice, describing steps to apply your new configuration:

NOTE: To apply IP configuration change, activate current configuration, then reboot the adapter.

- Activate the configuration: Systems -> Edit -> Activate
- Reboot the adapter (will drop active calls): Status -> Adapters -> Click on the adapter Serial Number -> Reboot adapter. It will take about 1.5 minutes to restart the unit.

Understanding Parameters for IP Interfaces

Table 1. Configuration Parameters for IP Interfaces

Parameter	Description
Use DHCP	Indicates that the DHCP autoconfiguration protocol is to be used on an IP port.
IP Address	Sets an address for accessing a new media gateway controller (MGC).
Netmask	Sets a subnetwork mask number on an IP port.
Gateway	Associates the address of a TCP/IP network gateway with an IP port.

Viewing the Status of Interfaces

General and detailed status information about the Smart Media units, also referred to as adapters, is accessible from the Adapters tab of the Global Status view.

Adapters (General View)

The general view of the Adapters status screen provides information about the Smart Media units in a system. From this view you can know the status of Smart Media units by seeing if they are up, down, or disabled. In addition, similar information can be known about the IP interfaces of the Smart Media units. Selecting a Smart Media unit link will cause its detailed view to be displayed. The same is true for the IP interface links.

The screenshot displays the 'Adapters (General View)' interface, divided into two main sections: 'Hardware' and 'Ip Interfaces'.

Hardware Section: A table with columns 'name' and 'value'. The 'Up adapter list' row shows the value '1' and a green link 'SN00A0BA06E620'. A red arrow points from this link to the text 'Link to hardware adapter detailed view'. Other rows include 'Down cnt', 'Down adapter list', 'Disabled cnt', 'Disabled adapter list', 'Fault cnt', 'Fault adapter list', 'License about to expire cnt', 'License about to expire adapter list', 'License expired cnt', 'License expired adapter list', 'Reboot required cnt', 'Reboot required adapter list', and three rows for OAM (Operational Administration and Maintenance) results.

Ip Interfaces Section: A table with columns 'name' and 'value'. The 'Down cnt' row shows the value '2'. Below this, a sub-table shows 'states' and 'list' for the adapter 'SN00A0BA06E620'. The 'Down ip interface list' row shows 'voip0, voip1' in red text. A red arrow points from this text to the text 'Link to IP interface detailed view'. The 'Up ip interface list' row is also visible.

Figure 33. Adapters (General View)

Adapters (Detailed View)

The Adapters detailed view groups status information about a specific adapter under three tabs, as follows:

- “Hardware” on page 40
- “Sensors” on page 40
- “Licensed Features” on page 41

Hardware

The Hardware status screen displays detailed information about the Smart Media unit, such as the software version, the firmware version, and the configuration state. From this view, the OAM target state can be modified from enabled to disabled, and the option to reboot the adapter or not can be changed.

Hardware		Sensors	Licensed features
Name	Value		
Reboot adapter required	Reboot is not required now		
Reboot adapter	No		
Oam target state	Enabled		
Oam target update state	Enabled		
Oam current state	Ready		
Oam current upgrade status	No install in progress		
Oam last upgrade result	Ok, running 2.6.21		
Oam last upgrade time	1969-12-31 19:00:00-0500		
Oam last license install result	Successfully installed license TB007215_V2_6_license.dat		
Oam last license install time	2012-01-06 16:26:34-0500		
Oam last configuration result	Adapter successfully configured		
Configuration state	Ready		
Fault state	(no fault)		
Cpu usage	Cpu0(4%), Cpu1(0%)		
Reboot cnt	1		
Absolute reboot cnt	10526		
Type	TB640		
Name	SN00A0BA06E620		
Current profile	default		
Serial number	SN00A0BA06E620		
Build name	RELEASE_V2_6_21_RC1		
Rom build name	RELEASE_V2_5_116_RC1		
License about to expire	The license is not about to expire		
License expired	The license is not expired		
License days left	9		
Rom firmware version	33911553		
Firmware version	33953025		

Apply states

Figure 34. Adapters (Detailed View) > Hardware

Sensors

The Sensors status screen displays detailed information about the temperature and voltage recorded by various sensors located inside the Smart Media unit chassis.

Hardware		Sensors	Licensed features	
Type	Description	Value integer	Value fraction	
VOLTAGE	CH 3.3V	3	194	
VOLTAGE	CH 5V	4	995	
VOLTAGE	VCC 3.3V	3	9	
VOLTAGE	VCC 5V	4	991	
TEMPERATURE	Zone1 (Tsl)	55	500	
TEMPERATURE	Zone2 (CPU)	70	500	
TEMPERATURE	Zone3 (H110)	38	0	
TEMPERATURE	Zone4 (Dsp)	44	500	

Figure 35. Adapters (Detailed View) > Sensors

Licensed Features

The Licensed Feature status screen displays detailed information about licensed features. A zero in the 'Licensed feature cnt' column means that the Smart Media unit does not have access to the feature. A value of 1 or more indicates the quantity purchased. A number in the 'Maximum feature cnt' column indicates the maximum amount of a licensed feature that can be purchased.

Type	Licensed feature cnt	Hardware feature cnt
MAX_TRUNK	64	64
TRUNK_E1	64	64
TRUNK_T1	64	64
TRUNK_J1	64	64
TRANSCODING	1	1
RECORD	2048	2048
PLAYBACK	2048	2048
CONFERENCE	680	680
tone GENERATION	2048	2048
tone DETECTION	2048	2048
tone SUPPRESSION	2048	2048
VOICE_ACTIVITY_DETECTION	2048	2048
WATCHDOG	1	1
HA	1	0
ISDN	64	84
ISDN_4ESS	1	1
ISDN_AUS	1	1
ISDN_5ESS	1	1
ISDN_NET5	1	1
ISDN_DMS	1	1
ISDN_NI2	1	1
ISDN_HONG_KONG	1	1
ISDN_JAPAN_INS	1	1
NP1_BACKUP	0	1
SS7_MTP2	1	1

Figure 36. Adapters (Detailed View) > Licensed Features

IP Interfaces (Detailed View)

The IP Interfaces status screen displays detailed information about a specific IP interface. This view displays the state of the link, its activity, and configuration settings.

Name	Value
Mac address	00-0C-38-00-03-4A
Link up	true
Ip address	10.3.2.19
Ip netmask	255.255.252.0
Ip gateway	10.3.0.1
Type	ETH0
Rx bandwidth pct	0
Rx bandwidth highest pct	0
Tx bandwidth pct	0
Tx bandwidth highest pct	0

Figure 37. IP Interfaces (Detailed View)

Chapter 3 **Configuring an ISDN-SIP Gateway**

Chapter contents

Overview	44
Creating a New Configuration	44
Allocating Physical Interfaces.....	46
Creating a new line interface	46
Understanding Parameters for Line Interfaces	47
Creating a new line service	48
Understanding Parameters for Line Services	50
Creating an IP port range	50
Understanding Parameters for IP Port Ranges	51
Configuring ISDN-PRI Signaling	52
Understanding Parameters for ISDN Stacks	53
Defining a Clocking Source.....	54
Understanding Parameters for the System Clock	55
Configuring SIP Signaling.....	55
Creating a SIP stack	55
Understanding Parameters for SIP Stacks	57
Creating a SIP transport server	57
Understanding Parameters for SIP Transport Servers	58
Creating a SIP service access point (SAP)	59
Understanding Parameters for SIP SAPs	60
Configuring Codecs and Tone Detection	60
Accessing Profiles and Validating Settings	60
Managing the Session Description Protocol (SDP)	62
Media Announcement	62
Attribute for Media Announcement	63
Dynamic payload type.....	63
Other media specific attribute	63
Examples.....	64
Configuring Network Access Points (NAPs).....	65
Allocating an ISDN NAP	65
Understanding Parameters for ISDN NAPs	66
Allocating a SIP NAP	66
Understanding Parameters for SIP NAPs	68
Creating Call Routing Rules.....	69
Creating a primary call route	69
Understanding Parameters for Call Routing	71
Viewing the Status of the TDM Lines	72
General View	72
Detailed View	73

Line Interface	73
Line Service	73
Viewing the Status of the ISDN Stack.....	74
General View	74
Timeslot States Diagram	75
Viewing the Status of the SIP Stack.....	76
General View	76
Detailed View	77
SIP Stack Configuration Status	77
SIP SAP Detailed Status	78
Viewing the Status of the NAPs.....	79
General View	79

Overview

The following sections describe a typical configuration scenario for an ISDN to SIP gateway. This type of installation allows for the transfer of information from traditional ISDN signaling to SIP protocol for VoIP applications. Please follow each step one after another as these are listed in logical order.

Refer to the following sections to configure the SmartNode for an ISDN to SIP gateway:

- “Creating a New Configuration” on page 44
- “Allocating Physical Interfaces” on page 46
- “Configuring ISDN-PRI Signaling” on page 52
- “Defining a Clocking Source” on page 54
- “Configuring SIP Signaling” on page 55
- “Configuring Codecs and Tone Detection” on page 60
- “Configuring Network Access Points (NAPs)” on page 65
- “Creating Call Routing Rules” on page 69



After completing the setup process, remember to activate the configuration. Refer to “Activating the Configuration” on page 33 for more information.

Creating a New Configuration

Once you are logged on to the Web Portal, you should make a copy of the default configuration, so as not to alter the original. Should you need to restore the default system configuration, the original file will still be available.

1. Select **Configurations** from the navigation panel:

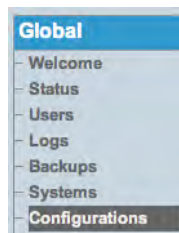


Figure 38. Global > Configurations

- Copy the default configuration—Click **Copy** next to the configuration named "default":



Figure 39. Configuration List

- Enter a new name for the copy, then click **Copy**.



Figure 40. Name and Copy a Configuration File

- Verify that the **"Configuration was successfully copied"** message appears, and that the copied configuration appears in the list below.



Figure 41. Successful Configuration Copy

Allocating Physical Interfaces

Allocating physical interfaces involves creating a new line interface and creating a new line service.

Creating a new line interface

Line interface is a generic term for TDM physical interfaces. The SmartNode 10200 Series supports three types of physical interfaces: T1/E1/J1 interfaces, DS3 interfaces, and Oc3/STM1 interfaces.

To create a new line interface:

1. Select **Tdm Interfaces**-->**Line Interfaces** from the navigation panel:



Figure 42. TDM Interfaces > Line Interfaces

2. Click **Create New Line Interface** to create a single interface, or **Create Multiple Line Interfaces** to create many interfaces at once:

 A screenshot of a web-based configuration interface showing the 'Line Interface List' page. At the top, there are two tabs: 'Configuration' and 'Status'. Below the tabs, there are three buttons: 'Create New Line Interface', 'Create Multiple Line Interfaces', and 'Delete All'. The 'Create New Line Interface' button is highlighted with a red box. Below the buttons is a table with the following data:

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 43. Line Interface List

3. Create the new line interface:
 - Enter a **name** for the interface
 - Set a **type** for the interface
 - Set a **local index** for the line
 - Select a **length** and an **encoding scheme**

- Click **Create**

Figure 44. Create New Line Interface

4. Verify that the "**Line interface was successfully created**" message is displayed.

Line interface was successfully created.

Figure 45. Confirmation Message for New Line Interface

Understanding Parameters for Line Interfaces

Table 2. Configuration Parameters for New Line Interfaces

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of line interface: E1/DS3/T1/J1/STM1/OC3
Local Index	Assigns an integer to represent an object
Length	Indicates the physical length of a line: Short/Long/Autodetect/Monitoring
Encoding	Sets an encoding scheme for a line interface. Values depend on the interface type: E1 : HDB3/AMI DS3 : B3ZS T1/J1 : B8ZS/AMI/AMI CLEAR STM1/OC3 : (None)

Creating a new line service

You must create a new line service for your line interface. A line service defines the payload type of a line interface or another line service. The line service chain stops when it reaches the E1/J1/T1 line service. The E1/J1/T1 line services are also known as trunks or spans.

To create a new line service:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 46. TDM Interfaces > Line Interfaces

2. Click **Edit** next to the line service for which you wish to create a line service:

Create New Line Interface | Create Multiple Line Interfaces | Delete All

Line Interface List

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
TDM_Line_00	2	E1			Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 47. Line Interface List

3. In the following window, click **Create New Child Line Service** (also, a number can be created at once by selecting **Create Multiple Child Line Service**):

Configuration | Status

List | **Create New Child Line Service** | Create Multiple Child Line Service

Editing E1 Line Interface:

Name: TDM_Line_00

Type: E1

Local index: 2

Length: Short

Encoding: HDB3

Advanced Parameters

Figure 48. Editing a Line Interface to Create a New Service

4. Create the new line service:
 - Enter a **name** for the new line
 - Select an available **local index**, from the drop-down box
 - Select appropriate **framing** and **loopback modes**

– Click **Create**



The screenshot shows a web-based configuration form titled "Creating New E1 Line Service:". The form contains several input fields and sections:

- Name:** A text input field containing "Line_Service_00".
- Local index:** A dropdown menu with "0" selected.
- Framing:** A dropdown menu with "AUTO" selected.
- Advanced Parameters:** A section header with a downward arrow.
- Live states:** A section header with a downward arrow.
- Loopback:** A dropdown menu with "None" selected.
- Create:** A button at the bottom left of the form.

Figure 49. Create New Line Service

5. Navigate back to the line interface page, by following link displayed in the upper-left corner of the screen. The new line service should be displayed in the **Line Services** list.



The screenshot shows a table titled "Line Services:" with the following data:

Name	Local Index	Line Services	Actions
Line_Service_00	0		Edit Delete

Figure 50. Line Services List

Understanding Parameters for Line Services

Table 3. Configuration Parameters for New Line Services

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Local Index	Assigns an integer to represent an object
Framing	Sets a framing type for a line service. Select from: AUTO (typical for E1)/STD/MFRAME/SF/ESF (typical for T1)/SLC96
Loopback	Used to set a loopback state for a line service. Refer to Table 4 for details.

Table 4. Loopback Types

Loopback Type	Description	Behavior	Use
NONE	Normal Operation	All traffic is received and sent on the line	Always
LINE	Analog Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs of the analog transceiver bypassing the framer modules.	First step in testing a physical connection
PAYLOAD	Digital Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs after the deframer/framer.	Second step in testing a physical connection. This tests the framer configuration.
GENERATE_LOS	Generate Loss of Signal	This forces the transmit line to stop sending.	This is the second-best thing to disconnecting the line interface physically.
LOCAL	Local Loopback	All received traffic is dropped. The traffic sent is re-routed internally.	Never. Used for internal testing only

Creating an IP port range

After you have properly allocated all of your system's physical interfaces, you must create a new IP port range.

1. Click **IP Interfaces** in the navigation panel:

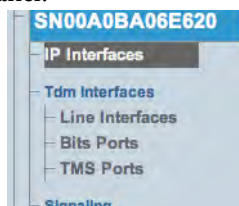


Figure 51. Menu: IP Interfaces

2. In the **IP Interfaces** window, click **Create New Port Range**:



Figure 52. Editing Port Ranges

3. Create the new IP port range:
- Enter a **name** for the port range
 - Select an **IP interface**
 - Enter a **port min value** (must be at least 1024)
 - Enter a **port max value**
 - Click **Create**

Figure 53. Creating a New Port Range

4. Verify that the "**Port Range was successfully created**" message appears:

PortRange was successfully created.

Figure 54. Confirmation Message for Port Range

Understanding Parameters for IP Port Ranges

Table 5. Configuration Parameters for New IP Port Ranges

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
IP Interface	Identifies an IP interface that is to be associated with the structure being created
Port Min	Sets a minimum value for an IP port range. Since only even-numbered ports will be used to send RTP over, it is recommended that the Port Min value be at least 1000
Port Max	Sets a maximum value for an IP port range. Since only even-numbered ports will be used to send RTP over, it is recommended that the Port Min value be at least 1000. Ex.: 10000-20000 -> 5000 connections

Configuring ISDN-PRI Signaling

Integrated Systems Digital Network (ISDN) is a circuit-switched telephone system that integrated voice and data on the same lines. The Smart Media system can be configured to provide an ISDN signaling stack on the trunks of one or more units to meet system configuration requirements. In order to configure ISDN-PRI signaling for your system, you must create a new ISDN stack.

To create a new ISDN stack:

1. Click **ISDN** in the navigation menu, under the Signaling header:

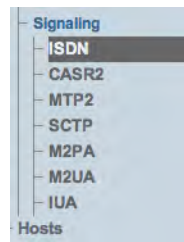


Figure 55. Signaling > ISDN

2. Click **Create New ISDN Stack**:

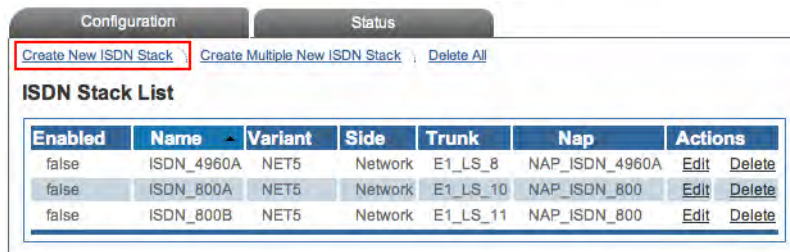


Figure 56. ISDN Stack List

3. Create the new stack:

Note Patton offers several ISDN variants, four of which support Non-Facility Associated Signaling (NFAS). By clicking on 'Create', you confirm the line service and in the case of ISDN variants which support NFAS you are permitted to add additional line services.

- Verify that the box labeled **Enabled** is checked
- Enter a **name** for the new ISDN stack
- Select a **variant** to associate with the stack
- Determine whether the stack will operate on the **user side**, or the **network side**
- Select a **primary D-channel line service**
- Click **Create**

Creating New ISDN Stack:

Enabled

Name

Variant

Side

Line Service

Timers

Advanced Parameters

Create

Figure 57. Create New ISDN Stack

4. Verify that the "ISDN stack was successfully created" message appears.

ISDN stack was successfully created.

Figure 58. Confirmation Message for New ISDN Stack

Understanding Parameters for ISDN Stacks

Table 6. Configuration Parameters for New ISDN Stacks

Parameter	Description
Enabled	Indicates whether an object is currently implemented or not
Name	Used by the Web Portal to indicate a specific object or string in the system
Line Service	Indicates which TDM line service is to be associated with the object being created
Variant	Indicates the protocol variant to be used on a signaling stack. Possible values: 4ESS/AUS/5ESS/DMS/NI2/HONG-KONG/JAPAN INS
Side	Defines each side of an ISDN stack. Possible values: Network/User

Defining a Clocking Source

The clock is a necessary component of a TDM network. Synchronizing your system on the right clock, allows it to offer good sound quality. It is recommended that you configure an external clocking source for your system.

1. Click **Clocking** in the navigation panel:

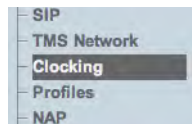


Figure 59. Menu: Clocking

2. Click **Create New External System Clock Reference**:



Figure 60. External System Clock Reference List

3. Create the new clocking source:
 - Select the appropriate hardware **adapter**
 - Select a **clock reference type** (in this example, Line Service was chosen)
 - Select a **clock reference source** (in this example "Line_Service_00")

 A form titled 'Creating New External System Clock:' with three dropdown menus: 'Hardware' (SN00A0BA06E620), 'Clock Ref Type' (Line service), and 'Clock Ref Source' (E1_LS_0). There is a 'Create' button at the bottom left.

Figure 61. Creating New External System Clock

4. Verify that the “**System Clock was successfully created**” message appears, and that the new clocking source appears in the **External System Clock Reference List**:

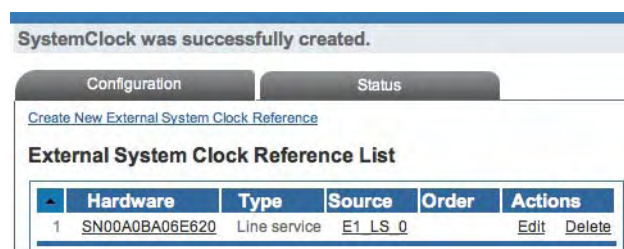


Figure 62. Confirmation Message for System Clock

Understanding Parameters for the System Clock

Table 7. Configuration Parameters for the Clocking Source

Parameter	Description
Adapter	Defines the Smart Media hardware adapter for which a new object is created
Clock Reference Type	Defines which type of object is to be used as an external clocking source. Possible values: Line Service/Bits Port/Sonet SDH
Clock Reference Source	Defines which object is to be used as an external clocking source. Possible values available depend on the selected Clock Reference Type .

Configuring SIP Signaling

Smart Media provides support for signaling using the Session Initiation Protocol, more commonly known as SIP, for voice over IP (VoIP) communications. SIP may be used in conjunction with various voice codecs for the media component of a call. Smart Media supports SIP signaling concurrently with SS7, ISDN and other signaling protocols. SIP signaling stacks are configured for IP applications and for each Smart Media unit requiring SIP signaling.

Based upon your system requirements, you can configure a SIP stack to carry signaling traffic over multiple transport servers, which are IP endpoints comprised of: protocol type (TCP/UDP), port number, IP interface, IP address, IP name, and SAPs.

Refer to the following sections to configure SIP signaling for your Smart Media device:

- “Creating an IP port range” on page 50
- “Creating a SIP stack” on page 55
- “Creating a SIP transport server” on page 57
- “Creating a SIP service access point (SAP)” on page 59

Creating a SIP stack

In order to configure SIP signaling for your system, you must first create a SIP stack.

1. Click **SIP** in the navigation panel:

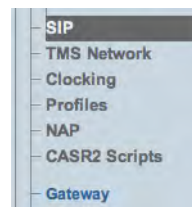


Figure 63. Menu: SIP

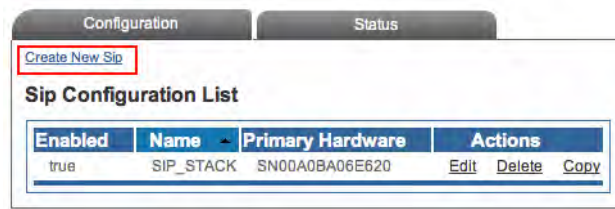
2. Click **Create New Sip**:

Figure 64. SIP Configuration List

3. Create the new SIP stack:

- Verify that the box labeled **Enabled** is checked
- Enter a **name** for the stack
- Select a **virtual adapter**
- Click **Create**

Creating New Sip Config:

Enabled

Name

Hardware

Quirks

Advanced

Timers

Header Params

Dns Params

Session Timer

Create

Figure 65. Creating a New SIP Stack

4. Verify that the "**Port Range was successfully created**" message appears:

SipCfg was successfully created.

Figure 66. Confirmation Message for SIP

Understanding Parameters for SIP Stacks

Table 8. Configuration Parameters for New SIP Stacks

Parameter	Description
Enabled	Indicates whether an object is currently implemented or not
Name	Used by the Web Portal to indicate a specific object or string in the system
Virtual Adapter	Defines the Smart Media hardware adapter for which a new object is being created

Creating a SIP transport server

After you have created a SIP stack, you must create a new SIP transport server for your configuration.

Note In order to employ SIP transport servers, the protocol that they will use to transport the SIP signaling traffic must be defined.

1. Click **SIP** in the navigation panel:

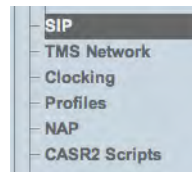


Figure 67. Menu: SIP

2. Click **Edit** next to the SIP stack for which you wish to create a transport server:

Sip Configuration List

Enabled	Name	Primary Hardware	Actions
true	SIP_STACK	SN00A0BA06E620	Edit Delete Copy

Figure 68. Edit SIP Configuration List

3. Click **Create New Transport Server** under the **Transport Servers** list:

Transport Servers

[Create New Transport Server](#)

Name	Port	Port Type	Hardware	IP Interface	Actions
SIP_VOIP0_UDP_5060	5060	UDP	SN00A0BA06E620	VOIP0	Edit Delete

Figure 69. Transport Servers List

4. Create the new SIP transport server:
 - Enter a **name** for the server
 - Select an appropriate **port type**
 - Select a hardware **adapter**
 - Select an appropriate **IP interface**

– Click **Create**

SIP STACK

Creating New SIP Transport Server:

Name: SIP_VOIP1_UDP_5060

Port Type: UDP

Port: 5060

IP Interface: VOIP1

Create

Figure 70. Creating a New SIP Transport Server

5. Verify that the "**SIP transport server was successfully created**" message appears, and that the new server is listed in the **Transport Servers** list:

SIP transport server was successfully created.

Transport Servers

Create New Transport Server

Name	Port	Port Type	Hardware	IP Interface	Actions
SIP_VOIP0_UDP_5060	5060	UDP	SN00A0BA06E620	VOIP0	Edit Delete
SIP_VOIP1_UDP_5060	5060	UDP	SN00A0BA06E620	VOIP1	Edit Delete

Figure 71. Confirmation Message for SIP Transport Server

Understanding Parameters for SIP Transport Servers

Table 9. Configuration Parameters for SIP Transport Servers

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Port Type	Identifies the type of IP port used by a SIP transport server. Possible values: UDP/TCP
Adapter	Defines the Smart Media hardware adapter for which a new object is being created
IP Interface	Identifies an IP interface that is to be associated with the structure being created

Creating a SIP service access point (SAP)

After you have created a SIP stack and transport server, you must create a new service access point (SAP) for your configuration. The Service Access Point is used to bind the SIP stack with a transport server. Depending on the system configuration, multiple SAPs can be configured.

To create a new SIP SAP:

1. Click **SIP** in the navigation panel:

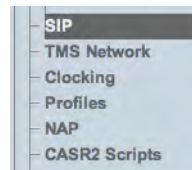


Figure 72. Menu: SIP

2. Click **Edit** next to the SIP stack for which you wish to create a SAP:

Sip Configuration List

Enabled	Name	Primary Hardware	Actions
true	SIP_STACK	SN00A0BA06E620	Edit Delete Copy

Figure 73. Edit SIP Configuration List

3. Click **Create New SAP** under the **Service Access Points** list:

Service Access Points

[Create New Sap](#)

Name	Transport Servers	Actions
SIP_SAP_VOIP0_5060	SIP_VOIP0_UDP_5060	Edit Delete

Figure 74. Service Access Points (SAP) List

4. Create the new service access point:

- Enter a **name** for the SAP
- Click **Create**

SIP_STACK

Creating New Service Access Point:

Name

Figure 75. Creating a New SAP

5. Verify that the "**Sip Sap was successfully created**" message appears.

SipSap was successfully created.

Figure 76. Confirmation Message for SIP SAP

6. Associate the previously created SIP transport server with your new configuration:

- Select a transport server from the list of available servers
- Associate this configuration by clicking the "<<" button
- The transport server will now appear in the list to the left:

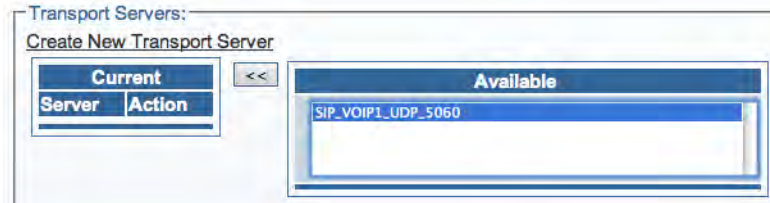


Figure 77. Associating Transport Servers

Understanding Parameters for SIP SAPs

Table 10. Configuration Parameters for SIP SAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Configuring Codecs and Tone Detection

This section describes how to access and configure tone detection profiles, and also how to write and submit the code for the Session Description Protocol (SDP).

Accessing Profiles and Validating Settings

You must access your system's default sound codec and tone detection profiles, in order to validate whether or not they are configured correctly.

1. Click **Profiles** in the navigation panel:

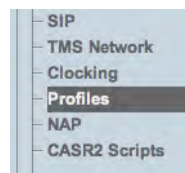
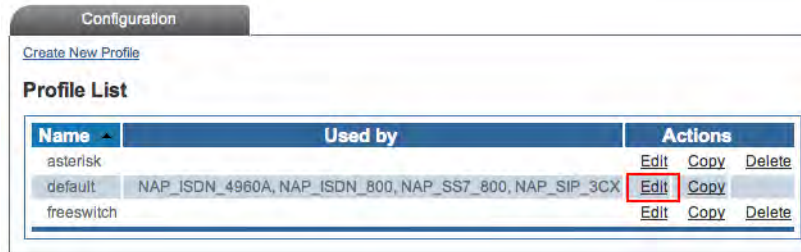


Figure 78. Menu: Profiles

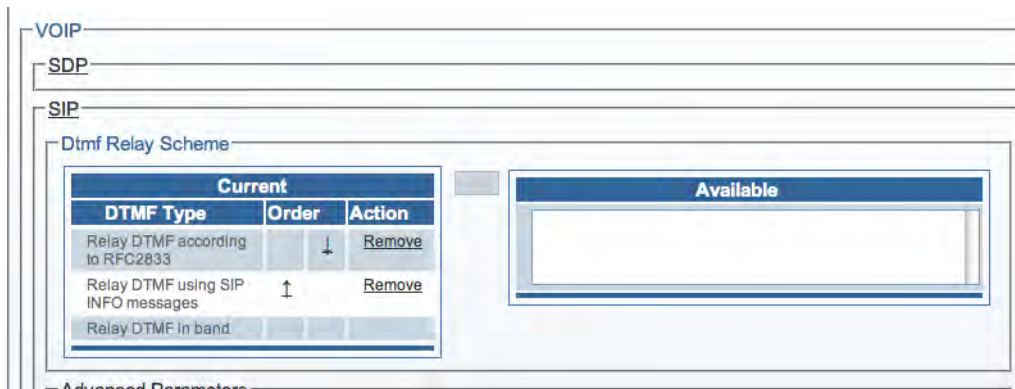
2. Click **Edit** next to the default configuration (or the custom configuration you will be using):



Name	Used by	Actions
asterisk		Edit Copy Delete
default	NAP_ISDN_4960A, NAP_ISDN_800, NAP_SS7_800, NAP_SIP_3CX	Edit Copy
freeswitch		Edit Copy Delete

Figure 79. Edit Profile List

3. Validate the configuration:
- Select an appropriate **DTMF relay scheme** from the list
 - Add the chosen scheme by clicking the "<<" button
 - Click **Save**



Current			Available
DTMF Type	Order	Action	
Relay DTMF according to RFC2833	↓	Remove	
Relay DTMF using SIP INFO messages	↑	Remove	
Relay DTMF in band			

Figure 80. DTMF Relay Scheme List



IMPORTANT

The configuration will not be saved if the text box designed to contain the session definition protocol (SDP) is left empty. The SDP must be written in section “[Managing the Session Description Protocol \(SDP\)](#)” on page 62.

Managing the Session Description Protocol (SDP)

You can specify the Profile SDP Description to define which voice codecs are supported in the Network Access Point (NAP) using this Profile.

Here is the default Profile SDP Description:

```
m=audio 0 RTP/AVP 0 8 4 96 97 18 98 13
a=rtpmap:96 iLBC/8000
a=rtpmap:97 iLBC/8000
a=fmtp:97 mode=20
a=rtpmap:98 telephone-event/8000
```

Each line of the Profile SDP Description consists of text of the form <type>=<value>. <type> is always exactly one character and is case-significant. <value> is a structured text string whose format depends on <type>. It also will be case-significant unless a specific field defines otherwise. Whitespace is not permitted either side of the '=' sign. In general <value> is either a number of fields delimited by a single space character or a free format string.

In our Profile SDP Description, only 2 <type> are used.

Media Announcement

The format of media announcement is as follows:

```
m=<media> <port> <transport> <fmt list>
```

- The first sub-field is the media type. Currently defined media for Smart Media is "audio".
- The second sub-field is the transport port to which the media stream will be sent. In Smart Media, it is not specified in Profile SDP Description and therefore you should specify "0".
- The third sub-field is the transport protocol. For most of the application, you may specify it as "RTP/AVP" - the IETF's Realtime Transport Protocol using the Audio/Video profile carried over UDP.
- The fourth and subsequent sub-fields are media formats. For audio and video, these will normally be media payload types as defined in the RTP Audio/Video Profile. When a list of payload formats is given, this implies that all of these formats may be used in the session, but the first of these formats is the default format for the session. When the transport protocol is specified as "RTP/AVP", the payload format can be specified as either
 - the payload type number for static payload types
 - the payload type number along with additional encoding information for dynamically allocated payload types.

The payload type, which is carried in the actual RTP packet header, is used to identify the type of codec information carried in the packet. A list of payload type values for each codec is defined within RFC3551. Unfortunately, since the payload type field is only 7 bits-wide, all codecs cannot have a permanent payload type value understood universally by all VoIP systems. Therefore, some codecs have dynamic values that need to be negotiated through a call control or session control protocol such as SIP before the actual RTP session can take place.

Table 11 shows the list of codec payload type values per RFC3551:

Table 11. Codec Payload Type Values

Codec	Payload Type Value
G.711 uLaw	0
G.723.1	4
G.711 aLaw	8
Comfort Noise	13
G.728	15
G.729AB	18
G.726-40	dynamic
G.726-32	2 or dynamic (depends on network)
G.726-24	dynamic
G.726-16	dynamic
G.729EG	dynamic
AMR	dynamic
EVRC	dynamic
QCELP	dynamic

When you use dynamic payload types, you need to specify the additional encoding information using the attribute for media announcement.

Attribute for Media Announcement

A media description may have any number of attributes ("a=" fields) which are media specific. The format of attribute is as follows.

```
a=<attribute>
```

or

```
a=<attribute>:<value>
```

Here are some examples of attributes:

Dynamic payload type. You specify the additional encoding information for dynamic payload type in the following format:

```
a=rtptime:<payload type> <encoding name>/<clock rate>[/<encoding parameters>]
```

For audio streams, <encoding parameters> may specify the number of audio channels. This parameter may be omitted if the number of channels is one provided no additional parameters are needed.

Other media specific attribute. The use of other media specific attributes depends on the specification of the RTP payload format for the specific media type. Here are some example of attributes.

```
a=fmtp:<format> <format specific parameters>
```

This attribute allows parameters that are specific to a particular format to be conveyed in a way that SDP doesn't have to understand them. The format must be one of the formats specified for the media. Format-spe-

cific parameters may be any set of parameters required to be conveyed by SDP and given unchanged to the media tool that will use this format.

```
a=ptime:<packet time>
```

This gives the length of time in milliseconds represented by the media in a packet. This is probably only meaningful for audio data. It should not be necessary to know ptime to decode RTP or vat audio, and it is intended as a recommendation for the encoding/packetisation of audio. It is a media attribute, and is not dependent on charset.

Examples. Here are some examples of the attributes found in the default profile SDP description:

```
a=rtpmap:97 iLBC/8000
a=fmtp:97 mode=20
```

The above defines iLBC codec of 8000/sec sample rate with 20ms frame size.

```
a=rtpmap:98 telephone-event/8000
```

The above defines the DTMF relay using RFC2833.

Here is another example, enabling Voice Activity Detection (VAD) for G.711 ulaw, G.711 alaw, G.723.1a and G.729b, in addition to telephony events:

```
m=audio 0 RTP/AVP 0 8 4 18 98 13
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:4 G723/8000
a=fmtp:4 bitrate=6300;annexa=yes
a=rtpmap:18 G729/8000
a=fmtp:18 annexb=yes
a=rtpmap:98 telephone-event/8000
a=fmtp:98 0-15
a=rtpmap:13 CN/8000
```

This one is for a direct SIP INVITE with T.38. This can be useful if you know this route will always be with fax. It also doesn't require any IVR resources to detect the fax tones:

```
m=image 0 udpt1 t38
a=T38FaxVersion:0
a=T38MaxBitRate:14400
a=T38FaxFillBitRemoval:0
a=T38FaxTranscodingMMR:0
a=T38FaxTranscodingJBIG:0
a=T38FaxRateManagement:transferredTCF
a=T38FaxMaxBuffer:400
a=T38FaxMaxDatagram:400
a=T38FaxUdpEC:t38UDPRedundancy
```


Configuring Network Access Points (NAPs)

The next step in configuring an ISDN-SIP gateway is to configure the Network Access Points (NAPs).

Allocating an ISDN NAP

1. Click **NAP** in the navigation panel:

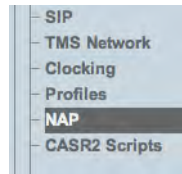


Figure 81. Menu: NAP

2. Click **Create New NAP**:

The screenshot shows a 'Create New NAP' button highlighted with a red box. Below it is a table titled 'Network Access Point List' with the following data:

Name	Profile	Channel Usage	Sip Proxy	Members	Actions
NAP_ISDN_4960A	default	Highest timeslot		ISDN_4960A	Edit Delete
NAP_ISDN_800	default	Lowest timeslot		ISDN_800A, ISDN_800B	Edit Delete
NAP_SIP_3CX	default		UDP 192.168.49.191:5060	SIP_SAP_VOIP0_5060, VOIP0_FULLL	Edit Delete
NAP_SS7_800	default	Highest timeslot		CIC_Group_0, CIC_Group_1	Edit Delete

Figure 82. Edit NAP List

3. Click Create the new NAP:
 - Enter a **name** for the NAP
 - Click **Create**:

The screenshot shows the 'Creating New NAP' form with the following fields:

- Name:** ISDN_NAP_00
- Default Profile:** default
- Calls rate limiting:** (empty field)
- Create:** (button)

Figure 83. Creating a New ISDN NAP

4. Verify that the **NAP was successfully created** message appears:

NAP was successfully created.

Figure 84. Confirmation Message for New NAP

5. Associate an ISDN stack with the new NAP:
 - Select a **stack** from the ISDN stack list
 - Click the "<<" button to associate it with the NAP

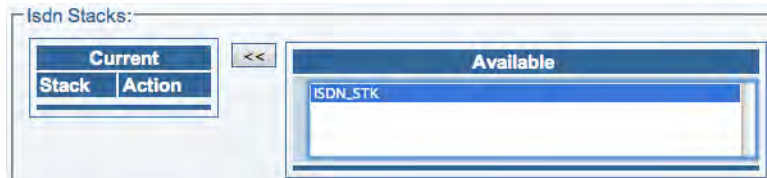


Figure 85. Associating ISDN Stacks with NAPs

Understanding Parameters for ISDN NAPs

Table 12. Configuration Parameters for NAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Allocating a SIP NAP

1. Click **NAP** in the navigation panel:

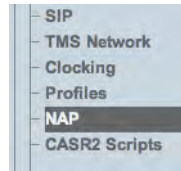


Figure 86. Menu: NAP

2. Click **Create New NAP**:

Name	Profile	Channel Usage	Sip Proxy	Members	Actions
NAP_ISDN_4960A	default	Highest timeslot		ISDN_4960A	Edit Delete
NAP_ISDN_800	default	Lowest timeslot		ISDN_800A, ISDN_800B	Edit Delete
NAP_SIP_3CX	default		UDP 192.168.49.191:5060	SIP_SAP_VOIP0_5060, VOIP0_FULLL	Edit Delete
NAP_SS7_800	default	Highest timeslot		CIC_Group_0, CIC_Group_1	Edit Delete

Figure 87. Edit NAP List

3. Click Create the new NAP:
 - Enter a **name** for the NAP
 - Click **Create**:

Figure 88. Creating a New SIP NAP

4. Verify that the **NAP was successfully created** message appears:

NAP was successfully created.

Figure 89. Confirmation Message for New NAP

5. Associate a SIP service access point with the new NAP:
 - Select a **SIP SAP** from the service access points list
 - Click the "<<" button to associate it with the NAP

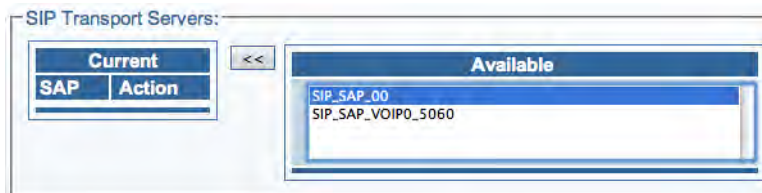


Figure 90. Associating SIP SAPs with NAPs

Understanding Parameters for SIP NAPs

Table 1.3. Configuration Parameters for SIP NAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Filtering Parameters	
Filter by destination address	Checked: Filters out incoming calls that do not have a proxy as their source address Unchecked: NAP may accept calls from any source IP
Filter by local port	Checked: Filters out calls that are not coming in on this local port Unchecked: NAP may accept calls on any configured local port
Local port	Indicates a port number to use when filtering by local port
Registration Parameters	
Register to proxy	Indicates that a NAP should be registered to a proxy server
Address to register	Indicates the address of a record the NAP uses when registering to a proxy server
Availability Detection Parameters	
Poll remote proxy	Enables proxy polling, in order to detect available proxies
Advanced Parameters	
Map any response to available status	Set to consider proxies as available on any response class (2xx/3xx/4xx). This is required when a peer proxy does not support being polled with the OPTIONS method.
183 triggers call process	Set to change the behavior of an inbound SIP 183 message from triggering a call alert signal to triggering a call progress signal.
Authentication Parameters	
Realm	Determines an authentication realm. This is typically a description of the computer or system being accessed, and for which user authentication will be provided.
User	Submits a user name for authentication
Password	Submits the password for a user name for authentication

Creating Call Routing Rules

You must set up call routing for your Smart Media system. Call routing refers to the ability to route calls based on criteria such as origin, destination, time of day, service provider rates, and more.

Creating a primary call route

1. Click **Routes** in the navigation panel:

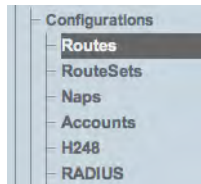


Figure 91. Configurations > Routes

2. Click **Create New Static Route**:

Listing Routes:

List static routes only

Create New Static Route

Create New Route Column

Routeset Name	Incoming Attributes		Outgoing Attributes			Actions	
	Called	NAP	Remapped Called	Remapped NAP	Remapped Profile	Edit	Delete
	400	(Any)		NAP_ISDN_4960A	(same as NAP)	Edit	Delete
	1000	(Any)		NAP_SIP_3CX	(same as NAP)	Edit	Delete
	/*3[0-9]*\$/	(Any)		NAP_ISDN_800	(same as NAP)	Edit	Delete
	/*3[0-9]*\$/	(Any)		NAP_SS7_800	(same as NAP)	Edit	Delete

1

Figure 92. Static Routes List

3. Create the new route:
 - Enter a **RoutesetName** for the route
 - Select a **NAP**, or leave empty to match calls from any NAP
 - Select a **Remapped NAP**

– Click **Create**:

gateway

Creating New Route:

RoutesetName:

Called: [Help](#)

Calling: [Help](#)

NAP: ▾

Remapped Called: [Help](#)

Remapped Calling: [Help](#)

Remapped NAP: ▾

Remapped Profile: ▾

Custom Params

Figure 93. Creating a New Route

- Verify that the **Route was successfully created** message appears, and that the new route is listed in the Routeset list:

Route was successfully created.

Configuration

gateway

Listing Routes:

List static routes only

[Create New Static Route](#)

[Create New Route Column](#)

Routeset	Incoming Attributes		Outgoing Attributes			Actions	
Name	Called	NAP	Remapped Called	Remapped NAP	Remapped Profile	Edit	Delete
	400	(Any)		NAP_ISDN_4960A	(same as NAP)	Edit	Delete
	1000	(Any)		NAP_SIP_3CX	(same as NAP)	Edit	Delete
	/*3[0-9]*\$/	(Any)		NAP_ISDN_800	(same as NAP)	Edit	Delete
	/*3[0-9]*\$/	(Any)		NAP_SS7_800	(same as NAP)	Edit	Delete
RouteSet_00		(Any)		NAP_ISDN_4960A	(same as NAP)	Edit	Delete
1							

Figure 94. Confirmation Message for New Route

Understanding Parameters for Call Routing

Table 14. Configuration Parameters for Static Routes

Parameter	Description
Routeset Name	Used by the Web Portal to indicate a specific object or string in the system
Called	Sets a filter to which each called number of an incoming call will be compared to see if the call matches the route. The called number can be a fixed number but it can also be a regular expression (regex).
Calling	Sets a filter to which each calling number of an incoming call will be compared to see if the call matches the route. The called number can be a fixed number but it can also be a regular expression (regex).
NAP	Identifies a network access point (NAP) to be associated with a new object
Remapped NAP	Defines which outgoing NAP will be selected when a particular route is used

Viewing the Status of the TDM Lines

General and detailed status information about the TDM lines, also referred to as Adapters is accessible from the TDM Lines tab of the Global Status view.

General View

The TDM Lines general view, shown below, provides information about the physical line interfaces of a TDM module and the line services that they carry. From this view you can know the status of line interfaces and line services by seeing if they are up, down, defective, or in an alarmed state. Selecting an active link will display the detailed view for line interfaces and line services.

The screenshot displays the 'system_1' configuration page. The left sidebar shows a navigation tree with 'Global' selected, and 'config_patton' expanded to 'Tdm Interfaces'. The main content area shows the 'Tdm Lines' tab selected in a navigation bar. Below this, there are two tables: 'Line Interfaces' and 'Line Services'. Both tables show a 'Down cnt' of 5 and a 'Down line list' containing several line identifiers.

Line Interfaces Table:

name	value
Up cnt	0
Defect cnt	0
Alarm cnt	0
Down cnt	5

Line Services Table:

name	value
Up cnt	0
Defect cnt	0
Alarm cnt	0
Down cnt	5

Figure 95. General View: Line Interfaces and Services

Detailed View

Line Interface

The detailed status view for each line interface allows you to reset status, or view extended status.

Line Interface Status - E1_0

Status Options

Refresh every: Don't refresh [v] Now

Extended status

Reset status

Name	Value
Type	TBCAF_LINE_TYPE_TRUNK
State	LINE_STATE_DOWN

Name	Value
Alarm	FAILURE_LOS
Alarm	FAILURE_LOF
Defect	DEFECT_LOS
Defect	DEFECT_OOF

Apply states

Figure 96. Detailed View: Line Interface

Line Service

The detailed status view for each line service allows you to reset the service's status, or to set the **loopback mode** in the **loopback** drop-down box.

Line Service Status - E1_LS_0

Status Options

Refresh every: Don't refresh [v] Now

Extended status

Reset status

Name	Value
Loopback	NONE [v]
Type	TBCAF_LINE_TYPE_TRUNK
State	LINE_STATE_DOWN

Name	Value
Alarm	FAILURE_LOS
Alarm	FAILURE_LOF
Defect	DEFECT_LOS
Defect	DEFECT_OOF

Apply states

Figure 97. Detailed View: Line Service

Viewing the Status of the ISDN Stack

General and detailed status information about the ISDN stack is accessible from the ISDN tab of the Global Status view.

General View

The ISDN general view, shown below, lists the ISDN stacks and indicates which are up (online) or down (offline). This general view provides links to a detailed status view for the ISDN stacks on a specific Smart Media device.

name	value
Up cnt	0
Down cnt	0

states	list
Up isdn stack list	
Down isdn stack list	

Figure 98. General View: ISDN Stack List

Viewing the Status of the SIP Stack

General and detailed status information about the SIP stack is accessible from the SIP tab of the Global Status view.

General View

The SIP general view, shown below, provides a listing of the SIP stacks and the Smart Media devices on which they reside as well as SIP decode/encode failure counters. Selecting a SIP stack link from this view displays its detailed information.

The screenshot displays the SIP Status General View. At the top, there is a navigation bar with tabs for various system components: System, Hardware, 1+1, Hosts, Applications, Tdm Lines, Sctp, SS7 Mtp2, and Sigtran M2ua. Below this, a sub-menu for SIP configurations is visible, including Clock, TMS, Nap, H248, and RADIUS. The main content area is divided into two sections: 'Sip configurations' and 'Sip Saps'. The 'Sip configurations' section contains a table with columns 'name' and 'value', listing 'Cfg cnt' (value 1), 'Healthy sip cfg list', 'Alarm sip cfg list' (with a link to 'SIP_STACK'), and 'Falling sip cfg list'. The 'Sip Saps' section contains a table with columns 'name' and 'value', listing 'Sap cnt' (value 1) and 'SIP_STACK' (with buttons for 'states' and 'list').

Figure 100. General View: SIP Status

Detailed View

SIP Stack Configuration Status

The Stack tab of the SIP Configuration status screen, shown below, displays the detailed status counters of one SIP stack. Furthermore, the counters may be reset from this screen. To reset the counters of this screen:

1. Select the 'Reset status' check box.
2. Click 'Now'.

Sip Configuration Status - SIP_STACK

Status Options

Refresh every: Don't refresh Now

Extended status

Reset status

Stack Sip Saps

Name	Value
Name	SIP_STACK
Adapter name	SN00A0BA06E620
Request in cnt	0
Request out cnt	2417
Response in cnt	0
Response out cnt	0

General stat struct

Name	Value
Unsupported url cnt	0
Register timeout cnt	0
Retransmit req cnt	0
Trans timeout cnt	0

Error stat struct

Name	Value
Unkwn user cnt	0
Usr unavail cnt	0
Invalid rsp cnt	0
Invalid req cnt	0
Missing hdr cnt	0
Sdp decode fail cnt	0
Sip decode fail cnt	0
Sip encode fail cnt	0

Name	Value
Congestion period cnt	0
Critical congestion period cnt	0
Call congestion period cnt	0
In congestion	false

Figure 101. Detailed View: SIP Stack Configuration Status

The SIP SAPs tab of the SIP Configuration status screen, shown below, lists the configured SAPs of one SIP stack, as well as call transmit and receive counters. Selecting a SAP link from this screen displays its detailed view. Furthermore, the counters may be reset from this screen:

1. Select the 'Reset status' check box.

2. Click 'Now'.

Name	Calls tx cnt	Calls rx cnt
SIP_SAP_VOIP0_5060	0	0

Figure 102. Detailed View: SIP SAPs Configuration Status

SIP SAP Detailed Status

The SIP SAP status screen, shown below, displays the call transmit and receive counters. The counters may be reset from this screen. To reset the counters of this screen

1. Select the 'Reset status' check box.
2. Click 'Now'.

Name	Value
Calls tx cnt	0
Calls rx cnt	0

Figure 103. Detailed View: SIP SAP Status

Viewing the Status of the NAPs

General and detailed status information about the Network Access Points (NAPs) are accessible from the NAP tab of the Global Status view.

General View

The NAP general view, shown below, provides a listing of the configured NAPs. In addition, the number of assigned circuits, idle circuits, and the incoming/outgoing call counters are indicated for each NAP.

Naps status list

name	value
Available nap cnt	0
Partially available nap cnt	0
Unavailable nap cnt	2
Available nap list	
Partially available nap list	
Unavailable nap list	NAP_SIP_3CX, NAP_SS7_800

Figure 104. NAP Status

Chapter 4 **Configuring SS7 Signaling**

Chapter contents

Overview	82
Configuring the MTP2 Layer	82
Creating an MTP2 Configuration	82
Understanding Parameters for MTP2 Configurations	83
Creating MTP2 Links	83
Understanding Parameters for MTP2 Links	85
Configuring the MTP3 Layer	86
Creating an MTP3 Configuration	86
Understanding Parameters for MTP3 Configurations	87
Creating an MTP3 Network	87
Understanding Parameters for MTP3 Networks	88
Creating an MTP3 Point Code	88
Understanding Parameters for SS7 Point Codes	89
Creating an MTP3 Linkset	90
Understanding Parameters for MTP3 Linksets	91
Creating MTP3 Links	91
Understanding Parameters for MTP3 Links	93
Creating an MTP3 Route	93
Understanding Parameters for MTP3 Routes	95
Configuring the ISUP Layer	95
Creating an ISUP Stack	95
Understanding Parameters for ISUP Stacks	96
Creating an ISUP Network	97
Understanding Parameters for ISUP Networks	98
Creating an ISUP User Part	98
Understanding Parameters for ISUP User Parts	99
Creating an ISUP Interface	100
Understanding Parameters for ISUP Interfaces	101
.....	101
Viewing the Status of SS7 MTP2 Links.....	102
General View	102
Detailed View	102
MTP2 Link Detailed Status	102
MTP2 Link Listing	103
Viewing the Status of SS7 MTP3 Links.....	104
General View	104
Detailed View	104
MTP3 Stack Status	105
MTP3 Linkset	105

MTP3 Linkset Status: Linksets Tab.....	105
MTP3 Linkset Status: Links Tab.....	106
MTP3 Link	107
Viewing the Status of SS7 ISUP Stacks.....	108
General View	108
Detailed View	109
ISUP Stack Status	109
ISUP Stack Status: Stack tab	109
ISUP Stack Status: Interfaces tab.....	109
ISUP Interface Status	110
ISUP Interface Status: Interface Tab	110
ISUP Interface Status: Circuit Groups Tab	110
Circuit Group Status	111

Overview

The following sections explain how to configure the SS7 signaling protocol. Refer to the following sections to configure the SmartNode for SS7:

- “Configuring the MTP2 Layer” on page 82
- “Configuring the MTP3 Layer” on page 86
- “Configuring the ISUP Layer” on page 95

Configuring the MTP2 Layer

The Message Transfer Part Level 2 (MTP2) provides the data link layer functionality within the OSI model and is a service provider to the MTP3 link layer. The steps to configuring the MTP2 layer include creating a configuration and creating a MTP2 link.

Creating an MTP2 Configuration

1. Select **MTP2** from the navigation panel:

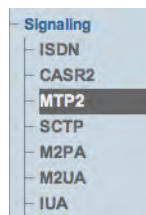


Figure 105. Signaling > MTP2

2. Create the new MTP2 configuration:
 - Enter a **name** for the configuration
 - Click **Save**



Figure 106. Creating the New MTP2 Configuration

3. Verify that the "**Mtp2Cfg was successfully updated**" message appears, and that the Enabled box is checked.

Mtp2Cfg was successfully created.

Figure 107. Successful Configuration Message

Understanding Parameters for MTP2 Configurations

Table 1.5. Configuration Parameters for New MTP2 Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Creating MTP2 Links

Now that you have created an MTP2 configuration, you must create the necessary MTP2 links. An MTP2 link is used to connect the MTP2 physical layer to a line service carrying SS7 signaling.

To create an MTP2 link:

1. Click **Create New Mtp2 Link** in the MTP2 configuration window:



Figure 108. MTP2 Link in MTP2 Configuration Window

2. Configure the new MTP2 link:
 - Enter a **name** for the new link
 - Select a **connection mode**
 - Select a **line service**
 - Assign **timeslots** to the link
 - Select a **protocol type**
 - Select a **DPC length**
 - Select a **timeslot rate**

– Click **Create**

The screenshot shows a configuration window titled "MTP2" with a sub-header "Creating New Mtp2 Link:". The form contains the following fields and options:

- Name:** MTP2_LINK_X
- Connection Mode:** Normal
- Line service:** E1_LS_0
- Timeslots:** A row of 31 checkboxes labeled 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31. The checkbox for slot 17 is checked.
- Protocol Type:** ITU92
- DPC Length:** 14bits format=3.8.3
- Timeslot Rate:** 64Kbps
- Error Correction:** Normal
- Timers:** (empty field)
- Advanced Parameters:** (empty field)
- Live states (Can be changed from 'Status view after configuration is activated'):** (empty field)
- Create:** A button at the bottom left.

Figure 109. Creating a New MTP2 Link

3. Verify that the "**MTP2 link was successfully created**" message displays:

MTP2 link was successfully created.

Figure 110. Successful Link Message

Understanding Parameters for MTP2 Links

Table 16. Configuration Parameters for New MTP2 Links

Parameter	Description																
Name	Used by the Web Portal to indicate a specific object or string in the system																
Connection Mode	Defines the type of connection used in an SS7 system. Possible values: Normal/Hsl (High-speed link)																
Line Service	Indicates which TDM line service is to be associated with the object being created																
Timeslots	Allows the selection of individual voice or data channels of a line. Values for this parameter are listed as check boxes (ranging from 1-24). Individual timeslots can be selected by checking the boxes. Occasionally, all timeslots can be selected at once by clicking the Select All link.																
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: <table border="0" style="margin-left: 20px;"> <tr> <td>ITU</td> <td>TELCORDIA</td> <td>SINGAPORE</td> <td>CHINA</td> </tr> <tr> <td>ITU88</td> <td>ANSI88</td> <td>Q767</td> <td>ETSI</td> </tr> <tr> <td>ITU92</td> <td>ANSI92</td> <td>TTC</td> <td>ETSIV3</td> </tr> <tr> <td>ITU97</td> <td>ANSI95</td> <td>NTT</td> <td>UK</td> </tr> </table>	ITU	TELCORDIA	SINGAPORE	CHINA	ITU88	ANSI88	Q767	ETSI	ITU92	ANSI92	TTC	ETSIV3	ITU97	ANSI95	NTT	UK
ITU	TELCORDIA	SINGAPORE	CHINA														
ITU88	ANSI88	Q767	ETSI														
ITU92	ANSI92	TTC	ETSIV3														
ITU97	ANSI95	NTT	UK														
DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8																
Timeslot Rate	Indicates the data rate for timeslots on a line. Possible values: 64 Kbps/56 Kbps/48 Kbps																

Configuring the MTP3 Layer

The Message Transfer Part Level 3 (MTP3) provides message routing between signaling points in an SS7 network. Refer to the following sections for the steps to configuring the MTP3 layer:

- “Creating an MTP3 Configuration” on page 86
- “Creating an MTP3 Network” on page 87
- “Creating an MTP3 Point Code” on page 88
- “Creating an MTP3 Linkset” on page 90
- “Creating MTP3 Links” on page 91
- “Creating an MTP3 Route” on page 93

Creating an MTP3 Configuration

1. Select **MTP3** from the navigation panel:

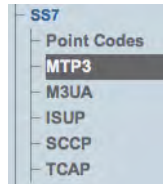


Figure 111. SS7 > MTP3

2. Configure the new MTP3 service:

- Enter a **name** for the MTP3 configuration
- Make sure the **Enabled** and **SSf Validation** boxes are checked
- Select **SP** as the **signaling point type**
- Select a **restart procedure**
- Click **Create**

 A screenshot of a web-based configuration form titled 'Creating New Mtp3 Config:'. The form has several sections:

- Enabled**: A checkbox that is checked.
- Name**: A text input field containing 'MTP3'.
- Signaling Point Type**: A dropdown menu with 'SP' selected.
- Timers**: A section that is currently collapsed.
- Advanced Parameters**: A section containing:
 - Ssf Validation**: A checked checkbox.
 - Restart Procedure**: A dropdown menu with 'ANSI' selected.
 - Transfer Restricted required**: An unchecked checkbox.
- Create**: A button at the bottom left of the form.

Figure 112. Creating the New MTP3 Configuration

3. Verify that the "**Mtp3Cfg was successfully created**" message appears, and that the Enabled box is checked.

Mtp3Cfg was successfully created.

Figure 113. Successful Configuration Message

Understanding Parameters for MTP3 Configurations

Table 17. Configuration Parameters for New MTP3 Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Enabled	Indicates whether or not an object is to be implemented or not
Ssf Validation	Allows the activation of sub-service field validation for an MTP3 configuration
Signaling Point Type	Indicates the intended purpose of an SS7 MTP3 layer object. Possible values: SP (Signaling Point)/STP (Signal Transfer Point)
Restart Procedure	Indicates the standard by which a configuration will carry out a restart process. Possible values: None/ITU88/ITU92/ANSI

Creating an MTP3 Network

After you have created your system's MTP3 configuration, you must create a new MTP3 network. An MTP3 network is created to define its point codes, link sets and routes. This can be done from the MTP3 configuration information panel

To create an MTP3 network:

1. Click **Create New MTP3 Network** in the MTP3 configuration information panel:



Figure 114. MTP3 Networks in MTP3 Configuration Window

2. Configure the settings for the new network:

- Enter a **name** for the network
- Select a **sub service field**
- Select a **link type**
- Select the **SS7 DPC length**
- Click **Create**

Figure 115. Creating a New MTP3 Network

- Verify that the "MTP3 network was successfully created" message displays:

Mtp3Network was successfully created.

Figure 116. Successful Network Message

Understanding Parameters for MTP3 Networks

Table 18. Configuration Parameters for New MTP3 Networks

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Sub Service Field	Differentiates between national and international signals in MTP3 networks. Possible values: International/National/Nat. Reserved/Inter. Reserved
Link Type	Sets a protocol type for signaling links. Possible values: ANSI/ITU/CHINA/ANSI96
SS7 DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8

Creating an MTP3 Point Code

After you have configured your MTP3 network, you must create point codes for your system. Point codes are used to define the Smart Media system network, the adjacent network and the target network so that calls are properly routed from one network to the next.

To create SS7 originating (OPC) and destination (DPC) point codes:

- Select **Point Codes** from the navigation panel:

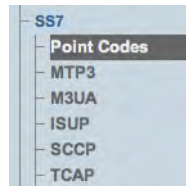


Figure 117. SS7 > Point Codes

- Click **Create New Point Code**:

Point codes:

[Create New Point Code](#)

Common				Used by				Actions
Name	Type	Dpc Length	Point Code	Mtp3	M3ua	Isup	Sccp	

Figure 118. Point Codes

3. Configure the new point code:
 - Enter a **name** for the point code
 - Select a point code **type** (select type-specific parameters)
 - Select a point code **length** (14, 16, 24 bits)
 - Enter a **point code**
 - Click **Create**

The screenshot shows a web-based configuration interface for creating a new point code. The window title is 'Point Codes'. Below the title is a sub-section 'Creating New Point Code:'. It contains four main fields: 'Name' with the value 'OPC_00', 'Type' with a dropdown menu set to 'DPC', 'Dpc Length' with a dropdown menu set to '14bits format=3.8.3', and 'Point Code' with three dropdown menus showing values '2', '3', and '4'. A 'Create' button is located at the bottom left of the form.

Figure 119. Creating the New MTP3 Point Code

4. Verify that the "**Mtp3PointCode was successfully created**" message displays, and the new point code appears in the **Point Codes** list:

The screenshot shows a success message at the top: 'PointCode was successfully created.' Below this is a 'Configuration' tab. Underneath, there is a section titled 'Point codes:' with a sub-section 'Create New Point Code'. This section contains a table with columns for 'Common' (Name, Type, Dpc Length, Point Code) and 'Used by' (Mtp3, M3ua, Isup, Sccp), along with 'Actions' (Edit, Delete).

Common				Used by				Actions	
Name	Type	Dpc Length	Point Code	Mtp3	M3ua	Isup	Sccp	Edit	Delete
OPC_2_10_2	OPC	14bits format=3.8.3	2.10.2	MTP3_LS_800, UP_ROUTE		ISUP_to_800		Edit	Delete
DPC_2_10_3	DPC	14bits format=3.8.3	2.10.3	MTP3_LS_800, MTP3_ROUTE_2_10_3		ISUP_to_800		Edit	Delete
OPC_00	DPC	14bits format=3.8.3	2.3.4					Edit	Delete

Figure 120. Successful Point Code Message

Understanding Parameters for SS7 Point Codes

Table 19. Configuration Parameters for New Point Codes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of point code being created. Possible values: OPC/DPC/Mask
DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8
Point Code	Defines a point code by assigning it numerical values.

Creating an MTP3 Linkset

After you have created an MTP3 network, you are ready to create an MTP3 linkset. This can be done through the MTP3 network configuration window. A linkset is used to logically combine multiple MTP3 links going to the same DPC into a single entity. One linkset could be the links between a point code identifying the Smart Media SS7 node and a point code identifying the adjacent SS7 equipment.

To create an MTP3 linkset:

1. Click **Create New Mtp3 Linkset** in the MTP3 Network configuration panel:



Figure 121. MTP3 Linksets

2. Configure the new linkset:
 - Enter a **name** for the linkset
 - Select an **origin point code (OPC)**
 - Select an **adjacent point code**
 - Make sure the desired state is set to **Active**
 - Click **Create**

Figure 122. Creating the New MTP3 Linkset

3. Verify that the "**Mtp3Linkset was successfully created**" message displays:

Mtp3Linkset was successfully created.

Figure 123. Successful Linkset Message

Understanding Parameters for MTP3 Linksets

Table 20. Configuration Parameters for New MTP3 Linksets

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Origin Point Code	Associates an object with an originating point code (OPC)
Adjacent Point Code	Associates an object with an adjacent point code
Desired State	Indicates whether an object is to be active or inactive upon creation Possible values: Active/Inactive

Creating MTP3 Links

After you have created an MTP3 linkset, you must create MTP3 links for your system. An MTP3 link is used to connect with an MTP2 link; they are connected in a one-to-one fashion. To create an MTP3 link:

1. Click **Create New Mtp3 Link** in the MTP3 linkset configuration window:



Figure 124. MTP3 Links

2. Configure the new MTP3 link:
 - Enter a **name** for the link
 - Under **Type of link to bind**, select **MTP2**
 - Select an **MTP2 link**

– Click **Create**

The screenshot shows a configuration window for MTP3. It is divided into several sections:

- MTP3** (outermost container)
- MTP3_NET_00** (inner container)
- MTP3_LS_00** (inner container)
- Creating New Mtp3 Link:**
 - Name:
 - Type of link to bind:
 - Mtp2 Link:
 - Link Test Slc:
 - Link Test Characters:
- Advanced Parameters**
 - Priority:
 - Messages Priority:
 - C Link:
 - Discard Priority:
 - Flush Continue Flags:
 - Msg Q Len Prio0: %
 - Msg Q Len Prio1: %
 - Msg Q Len Prio2: %
 - Msg Q Len Prio3: %
 - Max Frame Length: bytes
- Timers** (empty section)
- Live states**
 - Desired locally inhibit state:
- Create** button at the bottom left.

Figure 125. Creating the New MTP3 Link

3. Verify that the "**Mtp3Link was successfully created**" message displays:

Mtp3Link was successfully created.

Figure 126. Successful MTP3 Link Message

Understanding Parameters for MTP3 Links

Table 21. Configuration Parameters for New MTP3 Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Link to Bind	Indicates the type of link to bind when creating an MTP3 link Possible values: MTP2/M2PA/M2UA
Links	
MTP2	Selects an MTP2 link to bind to an object
M2PA	Selects an M2PA (MTP2 Peer-to-Peer Adaptation Layer) link to bind to an object
M2UA	Selects an M2UA (MTP2 User Adaptation Layer) link to bind to an object

Creating an MTP3 Route

MTP3 routes are built to route traffic from previously created point codes using linksets. One route is created for each previously defined point code.

To create an MTP3 route:

1. Click **Create New Mtp3 Route** in the MTP3 network configuration window::

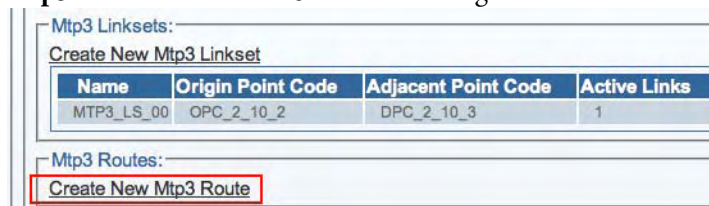


Figure 127. MTP3 Routes

2. Configure the new MTP3 route:
 - Enter a **name** for the route
 - Select a **point code** for the route
 - Select a **restart procedure**
 - Select a **point type**
 - Check the **Route to Adjacent** box, if this route is directed to an adjacent network

– Click **Create**

MTP3

MTP3_NET_00

Creating New Mtp3 Route:

Name: MTP3_ROUTE_00

Point Code: OPC_2_10_2

Point Code Type: SP

Advanced Parameters

Restart Procedure: ANSI

Route To Adjacent:

Sls Range: ANSI 5 bits

Broadcast:

Support Route Congestion Test:

Support MultiMessage Prio:

SlsSelectorBit1:

SlsSelectorBit2:

SlsSelectorBit3:

SlsSelectorBit4:

Timers

Create

Figure 128. Creating the New MTP3 Route

3. Verify that the "**Mtp3Route was successfully created**" message displays:

Mtp3Route was successfully created.

Figure 129. Successful MTP3 Route Message

4. Associate the newly created route with a linkset:

- Select a linkset from the list provided at the bottom of the route configuration window
- Click the "<<" button to associate the linkset with the newly created route

Route<->Linkset:

Linkset	Priority	Actions
MTP3_LS_00	Priority 0	↓ Remove

<<

Figure 130. Associating Routes with Linksets

Understanding Parameters for MTP3 Routes

Table 22. Configuration Parameters for New MTP3 Routes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Point Code	Associates a point code with the MTP3 route
Restart Procedure	Indicates the standard by which a configuration will carry out a restart process. Possible values: None/ITU88/ITU92/ANSI
Point Type	Indicates the intended purpose of an SS7 MTP3 layer object. Possible values: SP (signaling Point)/STP (Signal Transfer Point)
Route to Adjacent	Used when an MTP3 route is directed toward an adjacent network

Configuring the ISUP Layer

The ISDN User Part (ISUP) is the highest layer in the SS7 signaling stack and is responsible for the handling of calls.. Refer to the following sections for the steps to configuring the ISUP layer:

- “Creating an ISUP Stack” on page 95
- “Creating an ISUP Network” on page 97
- “Creating an ISUP User Part” on page 98
- “Creating an ISUP Interface” on page 100

Creating an ISUP Stack

After you have configured the MTP3 layer of your SS7 system, you must create an ISDN user part stack. To create an ISUP stack:

1. Select **ISUP** from the navigation panel:

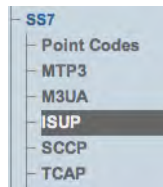


Figure 131. SS7 > ISUP

2. Click **Create New Stack**:

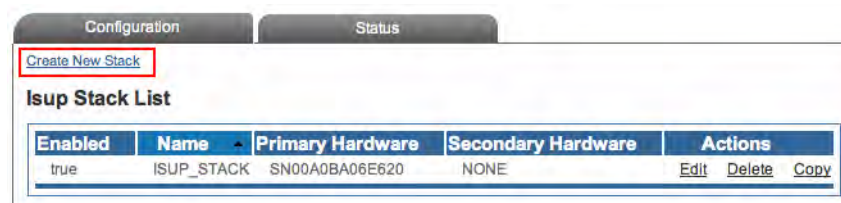


Figure 132. ISUP Stack List

3. Configure the new MTP3 service:
 - Make sure the box labeled **Enabled** is checked
 - Enter a **name** for the stack
 - Select a **primary hardware adapter**
 - Select a **secondary hardware adapter**
 - Click **Create**

Creating New Isup Stack:

Enabled

Name

Primary Hardware

Secondary Hardware

Timers

Advanced Parameters

Create

Figure 133. Creating the New ISUP Stack

4. Verify that the "**IsupStack was successfully created**" message displays.

IsupStack was successfully created.

Figure 134. Successful ISUP Stack Message

Understanding Parameters for ISUP Stacks

Table 23. Configuration Parameters for New ISUP Stack

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Primary Hardware Adapter	Identifies a main Smart Media hardware device to run an ISUP stack
Secondary Hardware Adapter	Identifies a secondary (backup) Smart Media hardware device to run an ISUP stack

Creating an ISUP Network

After you have created an initial ISUP stack, you must create a new ISUP network. The ISUP network tells the ISUP protocol layer about a collection of SS7 nodes that are accessible through MTP3 or M3UA. Based upon your system configuration, one or more ISUP networks are created. Repeat this section for as many networks as you require.

Note An ISUP network can be used by multiple ISUP interfaces even if they are members of different ISUP userpart (e.g., to support multi-switch variants for a single SS7 network).

To create an ISUP network:

1. Click "**Create New ISUP Network**" in the ISUP stack configuration window:



Figure 135. Editing ISUP Networks

2. Configure the new ISUP network:
 - Enter a **name** for the network
 - Select **MTP3** or **M3UA** as the **type of network to bind**
 - Select a **MTP3 network** or a **M3UA network**
 - Click **Create**



Figure 136. Creating the New ISUP Network

3. Verify that the "**IsupNetwork was successfully created**" message displays.

IsupNetwork was successfully created.

Figure 137. Successful ISUP Network Message

Understanding Parameters for ISUP Networks

Table 24. Configuration Parameters for New ISUP Network

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Network to Bind	Indicates the type of network to associate with an ISUP Network Possible values: MTP3/M3UA
Networks	
MTP3 Network	Associates an MTP3 network with a higher level network in an SS7 system
M3UA Network	Associates an MTP3 network with a higher level network in an SS7 system

Creating an ISUP User Part

After you have created your ISUP network, you must create a new ISUP user part. The user part is the container for the multiple ISUP interfaces. One user part is required for each protocol variant.

Multiple ISUP user parts can be instantiated within a single ISUP protocol layer. This allows a user application to interface with multiple SS7 ISUP protocol variants at the same time. Only one ISUP user part is required for a specific variant as it can be assigned to multiple ISUP networks.

A user part can easily be seen as a protocol variant that a host application wants to use on the SS7 network.

To create an ISUP user part:

1. Click **Create New Isup Userpart** in the ISUP stack configuration window:



Figure 138. Editing Userparts

2. Configure the new ISUP user part:
 - Enter a **name** for the user part
 - Select a **protocol variant** (depending on location)
 - Select an **MTP3 sub service field** (the same that was previously set for MTP3)
 - Select an **address indicator type**
 - Select a **Numbering Plan**

– Click **Create**

The screenshot shows a web-based configuration form titled "ISUP_STACK_00". The main section is "Creating New Isup Userpart:". It contains several fields with dropdown menus: "Name" is set to "ISUP_USERPART_00"; "Protocol Variant" is set to "ITU"; "Mtp3 Sub Service Field" is set to "National"; "Default Nature of Address when unspecified" is set to "National number"; and "Default Numbering Plan when unspecified" is set to "ISDN". Below these are sections for "Timers" and "Advanced Parameters", both currently empty. A "Create" button is located at the bottom left of the form.

Figure 139. Creating the New ISUP User Part

3. Verify that the "**IsupUserpart was successfully created**" message appears, and that the Enabled box is checked.

IsupUserpart was successfully created.

Figure 140. Successful ISUP User Part Message

Understanding Parameters for ISUP User Parts

Table 25. Configuration Parameters for New ISUP User Part

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: ITU TELCORDIA SINGAPORE CHINA ITU88 ANSI88 Q767 ETSI ITU92 ANSI92 TTC ETSIV3 ITU97 ANSI95 NTT UK
Sub Service Field	Differentiates between national and international signals in MTP3 networks. Possible values: International/National/Nat. Reserved/Inter. Reserved
Address Indicator Type	Assigns a default address value in ISUP user parts, when unspecified. Possible values: Not Present/Subscriber Number/National Number/International Number
Numbering Plan	Assigns a default numbering plan in ISUP user parts, when unspecified. Possible values: Unknown ISDN Telephony Data Telex National Private Reserved

Creating an ISUP Interface

After you have created an ISUP user part to contain them, you must create new ISUP interfaces.

The ISUP interface creates a binding within the ISUP layer of a particular variant, a specific network, and an OPC/DPC pair to which circuits can be assigned. The ISUP interface contains the circuit identifier codes (CICs) within the ISUP user part. One interface is created for each similar grouping of CICs within one user part protocol variant.

To create an ISUP interface:

1. Click **Create New Isup Interface** in the ISUP stack configuration window:

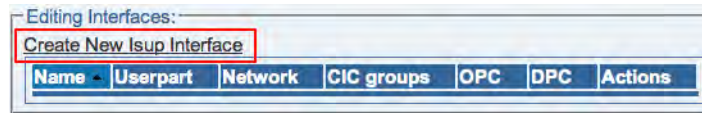


Figure 141. Editing ISUP Interfaces

2. Configure the new ISUP interface:
 - Enter a **name** for the interface
 - Select an **ISUP user part**
 - Select an **ISUP network**
 - Select a **trunk type**
 - Select an **originating point code (OPC)**
 - Select a **destination point code (DPC)**
 - Click **Create**

Figure 142. Creating the New ISUP Interface

3. Verify that the "**IsupInterface was successfully created**" message displays.

Isupinterface was successfully created.

Figure 143. Successful ISUP Interface Message

Understanding Parameters for ISUP Interfaces

Table 26. Configuration Parameters for New ISUP Interface

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
ISUP User Part	Associates an ISUP user part with an ISUP interface
ISUP Network	Associates an ISUP network with an ISUP interface
OPC	Associates an object with an originating point code (OPC)
DPC	Associates an object with a destination point code (DPC)

Viewing the Status of SS7 MTP2 Links

General and detailed status information about the SS7 MTP2 stack is accessible from the SS7 MTP2 tab of the Global Status view.

General View

The SS7 MTP2 general view provides information about the health of the MTP2 links. From this view you can know the status of MTP2 links by seeing if they are up or down. Selecting an active link will display the detailed view for that line.

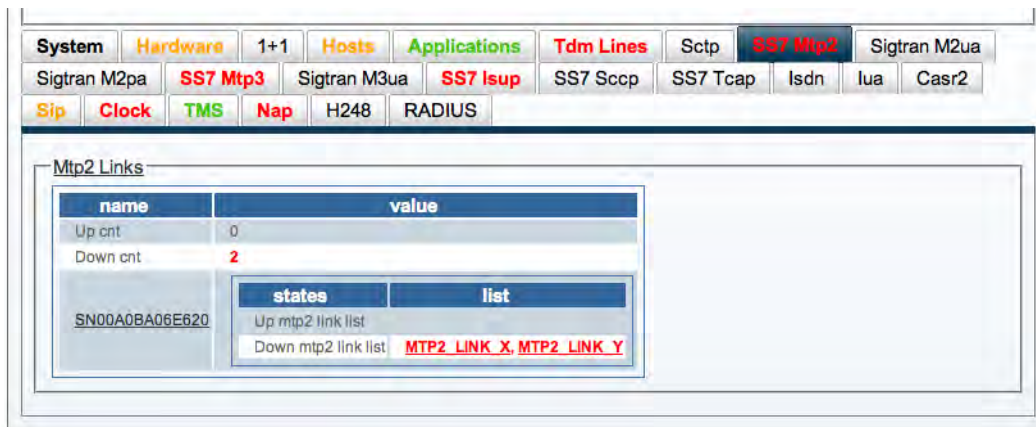


Figure 144. General View: SS7 MTP2

Detailed View

MTP2 Link Detailed Status

The MTP2 Link detailed status screen enables you to view the state of an MTP2 link and to modify the datalink state value for testing purposes.

To modify the datalink state of an MTP2 link:

1. Select a value from the Datalink state combo box.
2. Click 'Apply States' to change the state.

To reset the counters of this screen, do the following:

1. Select the 'Reset' status check box.
2. Click 'Now'.

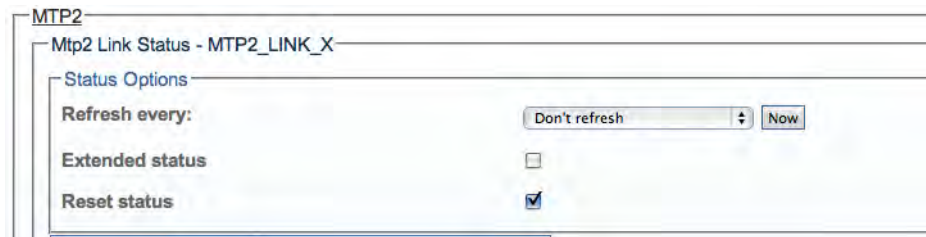


Figure 145. Detailed View: MTP2 Link Status

MTP2 Link Listing

The MTP2 Link listing, shown below, displays an expanded listing of each MTP2 link. In addition to indicating whether a link is up or down, this listing provides supplemental information. Selecting an MTP2 link from this listing displays its detailed information. For a full listing of all MTP2 Links, select MTP2 from the navigation panel, and choose the Status tab in the control panel.

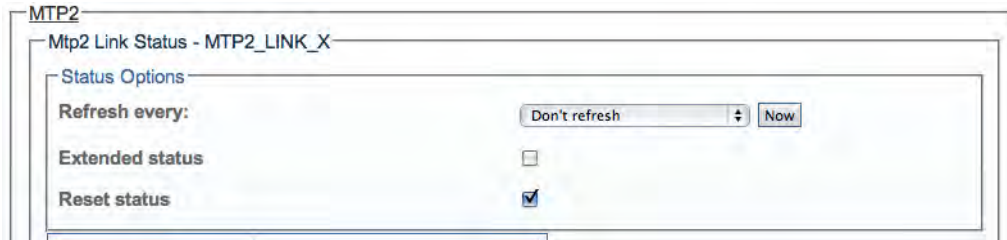


Figure 146. Detailed View: MTP2 Link Listing

Viewing the Status of SS7 MTP3 Links

General and detailed status information about the SS7 MTP3 stack is accessible from the SS7 MTP3 tab of the Global Status view.

General View

The SS7 MTP3 general view, shown below, provides information about the health of the MTP3 links. From this view you can know the status of MTP3 links by seeing if they are up or down. This general view provides links to other detailed status screens for the MTP3 configuration, its links, linksets, and routes.

The screenshot displays the SS7 MTP3 General View. At the top, there is a 'Status Options' section with a 'Refresh every:' dropdown set to 'Don't refresh' and a 'Now' button. Below this is an 'Extended status' checkbox. The main navigation bar includes tabs for System, Hardware, 1+1, Hosts, Applications, Tdm Lines, Sctp, SS7 Mtp2, and Sigtran M2ua. The SS7 Mtp3 tab is active. Below the navigation, there are sub-tabs for Sigtran M2pa, SS7 Mtp3, Sigtran M3ua, SS7 Isup, SS7 Sccp, SS7 Tcap, Isdn, Iua, and Casr2. The SS7 Mtp3 sub-tab is selected. The main content area is divided into two sections: 'Mtp3 Links' and 'Mtp3 Linksets'. The 'Mtp3 Links' section contains a table with the following data:

name	value
Up cnt	0
Down cnt	2
Blocked cnt	0
Congested cnt	0
Emergency cnt	2
Inhibited cnt	0

Below this table is a sub-table for 'states' and 'list' for the MTP3 link:

states	list
Up mtp3 link list	
Down mtp3 link list	MTP3_LINK_X, MTP3_LINK_Y
Blocked mtp3 link list	
Congested mtp3 link list	
Emergency mtp3 link list	MTP3_LINK_X, MTP3_LINK_Y
Inhibited mtp3 link list	

The 'Mtp3 Linksets' section contains a table with the following data:

name	value
Active cnt	0
Inactive cnt	1

Below this table is a sub-table for 'states' and 'list' for the MTP3 linkset:

states	list
Active mtp3 linkset list	
Inactive mtp3 linkset list	MTP3_LS_800

Figure 147. General View: SS7 MTP3

Detailed View

The SS7 MTP3 detailed view groups status information into four screens, as follows:

- “MTP3 Stack Status” on page 105
- “MTP3 Linkset” on page 105
- “MTP3 Link” on page 107

MTP3 Stack Status

The MTP3 Stack Status, shown below, displays counters for a variety of status messages that in turn are used to indicate the current health of the MTP3 stack. This status screen is accessed from the MTP3 CFG 0 link of the General view, shown in the figure above. Counters may be reset from this screen to determine if a problem persists.

To reset the counters of this screen:

1. Select the 'Reset status' check box.
2. Click 'Now'.

Name	Value
Rx unavailable msg cnt	0
Tx unavailable msg cnt	0
Tx tra msg cnt	0
Rx tra msg cnt	0
Tx trw msg cnt	0
Rx trw msg cnt	0
Msu drop for routing err cnt	0

Figure 148. Detailed View: MTP3 Stack Status

MTP3 Linkset

The Linksets status screen, accessible from a linkset link shown in MTP3 Network Status: Linksets Tab, groups status information under two tabs as follows:

- Linksets
- Links

MTP3 Linkset Status: Linksets Tab. The Linkset tab of the MTP3 Network status screen, shown below, displays the detailed information of one MTP3 linkset, such as linkset state, configured values, and counters. From this screen the desired linkset state may be set to Active or Inactive, and counters may be reset.

To reset the counters of this screen:

1. Select the 'Reset status' check box.
2. Click 'Now'.

To modify the Desired Linkset state:

1. Select a linkset state.
2. Click Apply States.

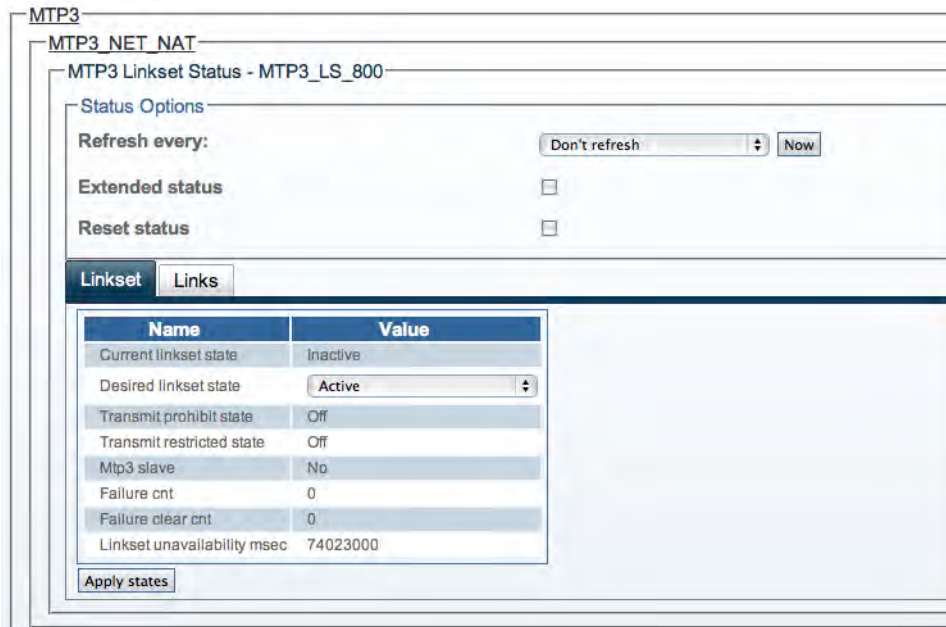


Figure 149. Detailed View: MTP3 Linkset Status-Linkset Tab

MTP3 Linkset Status: Links Tab. The Links tab of the MTP3 Network status screen, shown below, displays a listing of the MTP3 links that are used by a specific MTP3 Linkset. In the listing, the status of each link is displayed as well as a link congestion timer. Accessing a particular MTP3 Link displays its detailed information.

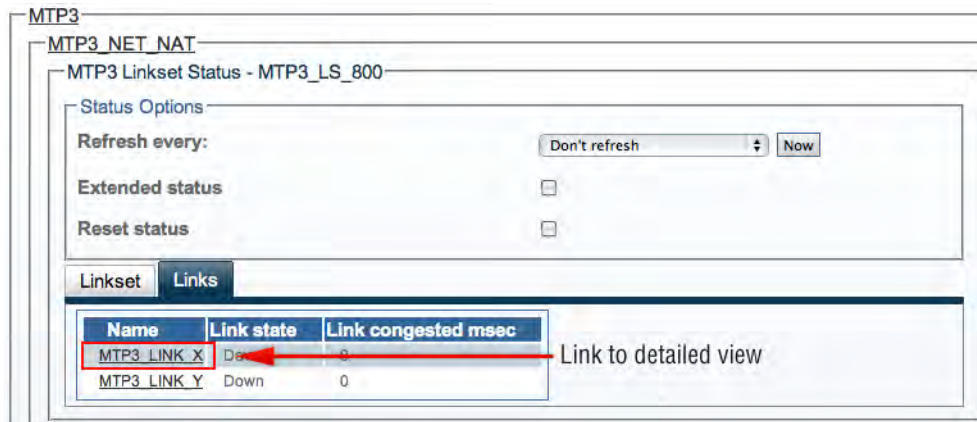


Figure 150. Detailed View: MTP3 Linkset Status-Links Tab

MTP3 Link

The MTP3 Link status screen, shown below, displays the detailed information about one MTP3 link, such as the link state, configured values, and counters. Hovering over fields causes help bubbles to display. For example, in the figure below, an information bubble is displayed for a counter of the number of invalid Protocol Data Units (PDUs) received.

To reset the counters of this screen:

1. Select the 'Reset status' check box.
2. Click 'Now'

To modify the Desired Locally Inhibited state:

1. Select a value.
2. Click 'Apply States'.

MTP3
MTP3_NET_NAT
MTP3_LS_800
Editing MTP3 Link Status - MTP3_LINK_X:

Status Options

Refresh every: Don't refresh [v] Now

Extended status

Reset status

Name	Value
Link state	Down
Current locally inhibit state	No
Desired locally inhibit state	No [v]
Remotely inhibited	No
Locally blocked	No
Remotely blocked	No
Congested	No
Emergency indication	Yes
Link congested msec	0
Rx invalid pdu cnt	0

Apply states

Figure 151. Detailed View: MTP3 Link Status

Viewing the Status of SS7 ISUP Stacks

General and detailed status information about the SS7 ISUP stack is accessible from the SS7 ISUP tab of the Global Status view.

General View

The SS7 ISUP general view, shown below, lists ISUP stacks and indicates which are active, in standby, or out of service (Oos). In addition, the SS7 ISUP general view lists ISUP interfaces and indicates which are available, congested, or unavailable. This general view provides links to detailed status views of the ISUP stacks and networks.

System	Hardware	1+1	Hosts	Applications	Tdm Lines	Sctp	SS7 Mtp2
Sigtran M2ua	Sigtran M2pa	SS7 Mtp3	Sigtran M3ua	SS7 Isup	SS7 Sccp	SS7 Tcap	
Isdn	Iua	Casr2	Sip	Clock	TMS	Nap	H248
RADIUS							

Isups	
name	value
Active cnt	1
Standby cnt	0
Oos cnt	0
Active isup list	ISUP_STACK
Standby isup list	
Oos isup list	

Isup Interfaces	
name	value
Available cnt	0
Unavailable cnt	1
Congested cnt	0

states	list
Available interface list	
Congested interface list	
Unavailable interface list	ISUP TO 800

Cic Groups	
name	value
Idle cnt	0
Incoming cnt	0
Outgoing cnt	0
Locally blocked cnt	0
Remotely blocked cnt	0
Locally remotely blocked cnt	0
Reset cnt	0
Suspended cnt	0
Down cnt	60

states	list
Available cic group list	
Down cic group list	CIC_GROUP_0, CIC_GROUP_1
Reset cic group list	

Figure 152. General View: SS7 ISUP

Detailed View

The SS7 ISUP detailed view groups status information into these main screens:

- “ISUP Stack Status” on page 109
- “ISUP Interface Status” on page 110
- “Circuit Group Status” on page 111

ISUP Stack Status

The ISUP Stack status screen groups status information about the ISUP Stack under two tabs, as follows:

- Stack Tab
- Interfaces Tab

ISUP Stack Status: Stack tab. The Stack tab of the ISUP Stack status screen provides the name of the primary and optionally secondary Smart Media unit that hosts the ISUP stack and the status.

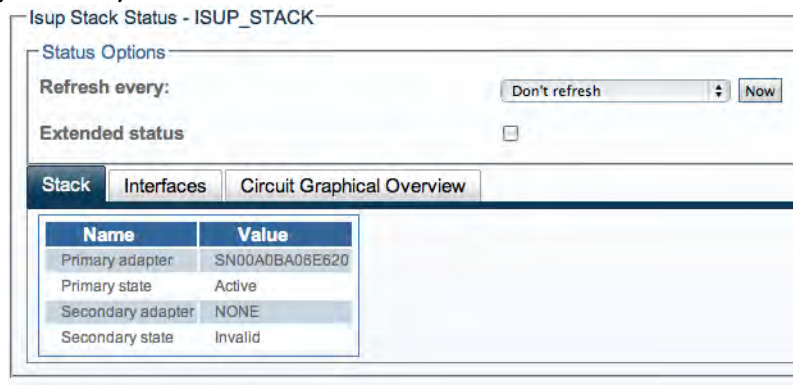


Figure 153. Detailed View: ISUP Stack Status-Stack Tab

ISUP Stack Status: Interfaces tab. The Interfaces tab of the ISUP Stack status screen lists the configured ISUP interfaces of the ISUP stack and provides the states of each network as well as their transmit and receive message counters. Selecting an ISUP Interface link displays its detailed information.

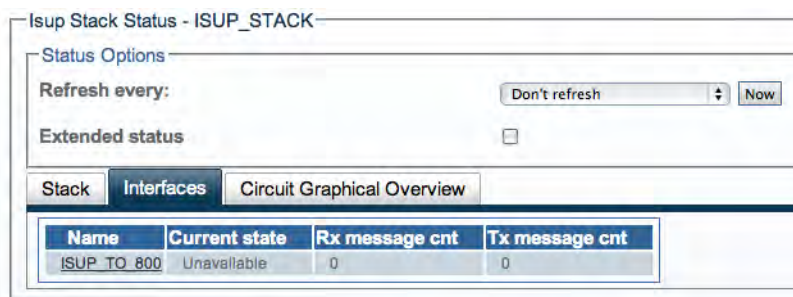


Figure 154. Detailed View: ISUP Stack Status-Interfaces Tab

ISUP Interface Status

The ISUP Interface status screen groups status information about the interface under two tabs, as follows:

- Interface Tab
- Circuit Groups Tab

ISUP Interface Status: Interface Tab. The Interface tab of the MTP3 Network status screen, shown below, provides transmit and receive message counters for a specific ISUP interface.

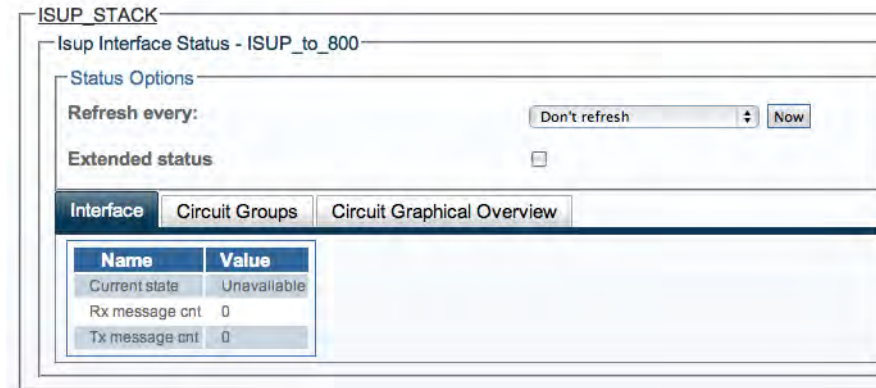


Figure 155. Detailed View: ISUP Interface Status-Interface Tab

ISUP Interface Status: Circuit Groups Tab. The Circuit Groups tab of the ISUP Stack status screen, shown below, lists the configured circuits groups for a specific ISUP interface. In addition, this screen provides status and counters for each circuit group. Selecting a circuit group link displays its detailed information.

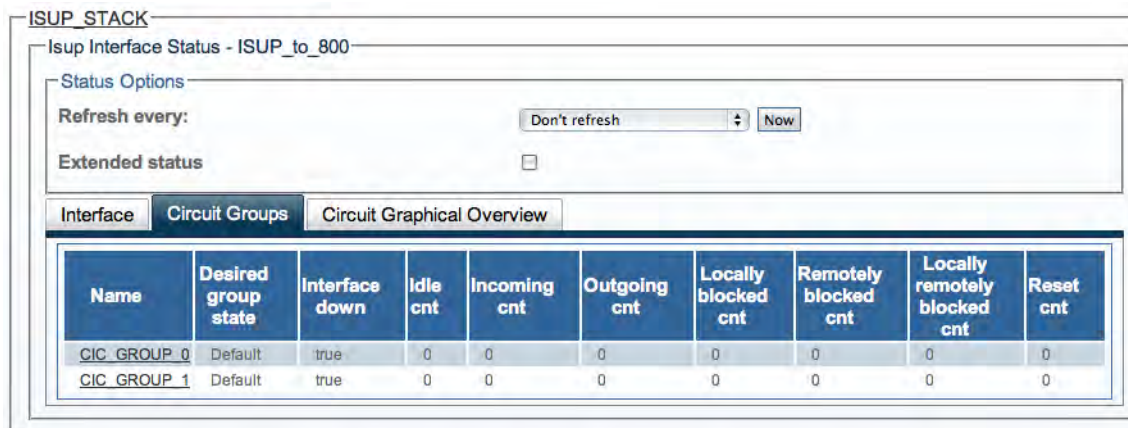


Figure 156. Detailed View: ISUP Interface Status-Circuit Groups Tab

Circuit Group Status

The Circuit Group status screen displays detailed information for one circuit group, such as status counters and configured values. From this screen, the desired group state may be set to Unblocked, Blocked, or Default.

Table 27. Circuit Group Status Settings

Circuit Group State	Description
Default	Lets the system decide the state of the circuit or circuit group. For example, a trunk down will block the circuits.
Blocked	Forces a local block condition. No calls can be made on these circuits even if the trunks are up. This function is useful for forcing calls on specific circuits by blocking other circuits in the system.
Unblocked	Forces a local unblock condition. This will force the circuits to be unblocked, even if the trunks are down. To be used for testing only.

To modify the desired group state:

1. Select a value.
2. Click 'Apply States'.

ISUP STACK
ISUP_to_800
Editing Isup Circuit Group Status - CIC_Group_0:

Status Options
Refresh every: Don't refresh [v] Now

Extended status

Circuit Group Circuits Circuit Graphical Overview

Name	Value
Desired group state	Default [v]
Toggle group reset	No [v]
Interface down	true
Idle cnt	0
Incoming cnt	0
Outgoing cnt	0
Locally blocked cnt	0
Remotely blocked cnt	0
Locally remotely blocked cnt	0
Reset cnt	0
Suspended cnt	0

Apply states

Figure 157. Detailed View: Circuit Group Status

Chapter 5 **Configuring SIGTRAN Applications**

Chapter contents

Overview	115
Configuring an M2PA System	116
Adding an Adapter	117
Understanding Parameters for Hardware Adapters	119
Creating Line Interfaces	119
Understanding Parameters for Line Interfaces	120
Creating Line Services	121
Understanding Parameters for Line Services	123
Creating the SCTP Configuration	124
Understanding Parameters for SCTP Configurations	124
Creating an M2PA Configuration	125
Understanding Parameters for M2PA Configurations	125
Creating an M2PA SAP	126
Understanding Parameters for M2PA SAPs	127
Creating M2PA Links	127
Understanding Parameters for M2PA Links	128
Creating SS7 Point Codes	129
Understanding Parameters for SS7 Point Codes	130
Creating an MTP3 Configuration	131
Understanding Parameters for MTP3 Configurations	132
Creating an MTP3 Network	132
Understanding Parameters for MTP3 Networks	133
Creating an MTP3 Linkset	133
Understanding Parameters for MTP3 Linksets	134
Creating MTP3 Links (M2PA)	134
Understanding Parameters for MTP3 (M2PA) Links	136
Creating an MTP3 Route	136
Understanding Parameters for MTP3 Routes	138
Creating an ISUP Stack	138
Understanding Parameters for ISUP Stacks	139
Creating an ISUP Network	139
Understanding Parameters for ISUP Networks	140
Creating an ISUP User Part	141
Understanding Parameters for ISUP User Parts	142
Creating an ISUP Interface	142
Understanding Parameters for ISUP Interfaces	143
Creating ISUP CIC Groups	144
Understanding Parameters for ISUP CIC Groups	145
Creating a NAP (SIGTRAN)	145

Understanding Parameters for NAPs (SIGTRAN)	147
Configuring an M2UA System on a Signaling Gateway.....	148
Creating an MTP2 Configuration	148
Understanding Parameters for MTP2 Configurations	149
Creating MTP2 Links	149
Understanding Parameters for MTP2 Links	151
Creating an M2UA Configuration	151
Understanding Parameters for M2UA Configurations	152
Creating an M2UA SAP	152
Understanding Parameters for M2UA SAPs	153
Creating an M2UA Cluster	153
Understanding Parameters for M2UA Clusters	154
Creating M2UA Links	154
Understanding Parameters for M2UA Links	155
Creating M2UA Peers	156
Understanding Parameters for M2UA Peers	157
Configuring an M2UA System on a Media Gateway Controller.....	158
Creating MTP3 Links (M2UA)	159
Understanding Parameters for MTP3 (M2UA) Links	159
Configuring an IUA System on a Signaling Gateway.....	160
Creating an IUA Configuration	160
Understanding Parameters for IUA Configurations	161
Creating an IUA SAP	161
Understanding Parameters for IUA SAPs	162
Creating an IUA Cluster	162
Understanding Parameters for IUA Clusters	163
Creating IUA Links	163
Understanding Parameters for IUA Links	164
Creating IUA Peers	164
Understanding Parameters for IUA Peers	165
Configuring an M3UA System on IP Signaling Points	166
Creating an M3UA Configuration (IPSP)	167
Understanding Parameters for M3UA Configurations	167
Creating an M3UA SAP	168
Understanding Parameters for M3UA SAPs	169
Creating an M3UA Network	169
Understanding Parameters for M3UA Networks	170
Creating an M3UA User Part	170
Understanding Parameters for M3UA User Parts	171
Creating an M3UA Peer Signaling Process (IPSP)	171
Understanding Parameters for M3UA PSPs	172
Creating an M3UA Peer Server	173
Understanding Parameters for M3UA Peer Servers	174
Creating an M3UA Route	175

Understanding Parameters for M3UA Routes	176
Configuring an M3UA System on a Signaling Gateway.....	177
Creating MTP3 Links (M3UA)	178
Understanding Parameters for MTP3 (M3UA) Links	179
Creating an M3UA Configuration (SGP)	180
Understanding Parameters for M3UA Configurations	180
Creating an M3UA Peer Signaling Process (SGP)	181
Understanding Parameters for M3UA PSPs	182
Creating an M3UA Route (SGP)	183
Understanding Parameters for M3UA Routes	184
Configuring an M3UA System on an Application Server.....	185
Creating an M3UA Configuration (ASP)	186
Understanding Parameters for M3UA Configurations	186
Creating an M3UA Peer Signaling Process (ASP)	187
Understanding Parameters for M3UA PSPs	188
Creating an M3UA ISUP Network	189
Understanding Parameters for M3UA ISUP Networks	190

Overview

The Smart Media system enables you to configure SIGTRAN and extend SS7 signaling functionality to the IP network. Smart Media enables you to configure a number of SIGTRAN applications based upon your requirements. Refer to the following sections for configuring SIGTRAN applications:

- **M2PA System:** See “[Configuring an M2PA System](#)” on page 116.
In this configuration, the SS7 MTP2 layer is replaced by the SIGTRAN M2PA layer which extends MTP2 signalling functionality into the IP network. This application is typically used between a Signalling Gateway and an IP Signalling Point, or between two IP Signalling Points.
- **M2UA System:** See “[Configuring an M2UA System on a Signaling Gateway](#)” on page 148, and “[Configuring an M2UA System on a Media Gateway Controller](#)” on page 158.
An M2UA system on a Signalling Gateway Controller interfaces with an M2UA system on a Media Gateway Controller. In this configuration, M2UA bridges the SS7 MTP2 layer of a Signalling Gateway, across an IP network, with the SS7 MTP3 layer of a Media Gateway Controller.
- **IUA System:** See “[Configuring an IUA System on a Signaling Gateway](#)” on page 160.
An IUA system on a Signalling Gateway Controller interfaces with an IUA system on a Media Gateway Controller. In this configuration, IUA bridges the SS7 MTP2 layer of a Signalling Gateway, across an IP network, with the SS7 MTP3 layer of a Media Gateway Controller.
- **M3UA System on two IP signaling points:** See “[Configuring an M3UA System on IP Signaling Points](#)” on page 166.
In this configuration, the SS7 MTP2 and MTP3 layers are replaced entirely by the SIGTRAN M3UA layer. This application is typically used between two IP Signalling Points.
- **M3UA System:** See “[Configuring an M3UA System on a Signaling Gateway](#)” on page 177, and “[Configuring an M3UA System on an Application Server](#)” on page 185.
An M3UA system on a Signalling Gateway Process interfaces with an M3UA system on an Application Server Process. In this configuration, the MTP3 links are extended across the IP network.

Configuring an M2PA System

In this configuration, the SS7 MTP2 layer is replaced by the SIGTRAN M2PA layer which extends MTP2 signalling functionality into the IP network. This application is typically used between a Signaling Gateway and an IP Signaling Point, or between two IP Signaling Points. Refer to the following sections to configure an M2PA system:

1. “Adding an Adapter” on page 117
2. “Creating Line Interfaces” on page 119
3. “Creating Line Services” on page 121
4. “Creating the SCTP Configuration” on page 124
5. “Creating an M2PA Configuration” on page 125
 - “Creating an M2PA SAP” on page 126
 - “Creating M2PA Links” on page 127
6. “Creating SS7 Point Codes” on page 129
7. “Creating an MTP3 Configuration” on page 131
 - “Creating an MTP3 Network” on page 132
 - “Creating an MTP3 Linkset” on page 133
 - “Creating MTP3 Links (M2PA)” on page 134
 - “Creating an MTP3 Route” on page 136
8. “Creating an ISUP Stack” on page 138
 - “Creating an ISUP Network” on page 139
 - “Creating an ISUP User Part” on page 141
 - “Creating an ISUP Interface” on page 142
 - “Creating ISUP CIC Groups” on page 144
 - “Creating a NAP (SIGTRAN)” on page 145

Adding an Adapter

When you receive a new system, at least one hardware configuration will have been set in the Smart Media application server, by default. To add other hardware devices, you must use the Smart Media Web Portal. To add one or more additional hardware devices to the Smart Media system configuration, their serial numbers must be registered with the Smart Media application server.

To add a hardware device:

1. Select **Hardware** from the navigation panel:



Figure 158. config_patton > Hardware

2. Click **Create New Hardware** to add a new hardware device:

 A screenshot of the 'Hardware List' page. At the top, there are two tabs: 'Configuration' and 'Status'. Below the tabs, there are two buttons: 'Create New Hardware' (highlighted with a red box) and 'Create Multiple New Hardware'. The main content area is divided into two sections: 'TMP Hardware List' and 'TMS Hardware List'. The 'TMP Hardware List' contains a table with the following data:

Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location	Description	Co No
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab	TMG3200-16E1	

 The 'TMS Hardware List' section below it has a table with headers: Name, Serial Number, Location, Description, and Actions.

Figure 159. Hardware List

3. Configure the new adapter:
 - Enter a **name** for the hardware device
 - Enter the **serial number** of the new hardware device (filling in the Serial Number field will cause auto-completion of the field to occur).
 - Select the appropriate **hardware device** from the Adapter Type field.
 - Select **Enabled** from the Target State field.

– Click **Create**

Creating New Hardware:

Name

Serial Number

Type

TDM Lines Type

Is 1+1 Backup

Graceful upgrade timeout (sec)

Location

Description

Advanced Parameters

Call rate limiting

Live states

Target State

Figure 160. Creating the New Hardware Device

4. Verify that the "**Adapter was successfully created**" message displays, and that the newly added hardware device appears in the **Hardware List** below.

Adapter was successfully created.

Configuration Status

[Create New Hardware](#) \ [Create Multiple New Hardware](#)

TMP Hardware List

Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab
System_00		0 UNKNOWN	0	0	0	0	-	Workspace

Figure 161. Successful Device Message

Understanding Parameters for Hardware Adapters

Table 28. Configuration Parameters for New Hardware Adapters

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Serial	Defines a product serial number, when creating a new hardware device. Entering characters into the Serial field will cause the number to auto-complete.
Adapter Type	Specifies the type of hardware device being created, when adding a new adapter. Possible values: TMP/TMS
Graceful Upgrade Timeout	Sets a maximal delay for calls to terminate normally before an adapter is upgraded
Location	Identifies the physical location of a hardware adapter
Description	Describes the purpose of a particular hardware adapter
Target State	Sets the live state of a hardware adapter. Possible values: Disabled/Probation/Enabled

Creating Line Interfaces

Line interface is a generic term for TDM physical interfaces. The SmartNode 10200 Series supports three types of physical interfaces: T1/E1/J1 interfaces, DS3 interfaces, and Oc3/STM1 interfaces.

To create a new line interface:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 162. TDM Interfaces > Line Interfaces

2. Click **Create New Line Interface** to create a single interface, or **Create Multiple Line Interfaces** to create many interfaces at once:

 A screenshot of the 'Line Interface List' configuration page. At the top, there are tabs for 'Configuration' and 'Status'. Below the tabs, there are three buttons: 'Create New Line Interface' (highlighted with a red box), 'Create Multiple Line Interfaces', and 'Delete All'. The main content is a table with the following data:

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 163. Line Interface List

3. Create the new line interface:
 - Enter a **name** for the interface
 - Set a **type** for the interface

- Set a **local index** for the line
- Select a **length** and an **encoding scheme**
- Click **Create**

Figure 164. Create New Line Interface

4. Verify that the "**Line interface was successfully created**" message is displayed.

Line interface was successfully created.

Figure 165. Confirmation Message for New Line Interface

Understanding Parameters for Line Interfaces

Table 29. Configuration Parameters for New Line Interfaces

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of line interface: E1/DS3/T1/J1/STM1/OC3
Local Index	Assigns an integer to represent an object
Length	Indicates the physical length of a line: Short/Long/Autodetect/Monitoring
Encoding	Sets an encoding scheme for a line interface. Values depend on the interface type: E1 : HDB3/AMI DS3 : B3ZS T1/J1 : B8ZS/AMI/AMI CLEAR STM1/OC3 : (None)

Creating Line Services

You must create a new line service for your line interface. A line service defines the payload type of a line interface or another line service. The line service chain stops when it reaches the E1/J1/T1 line service. The E1/J1/T1 line services are also known as trunks or spans.

To create a new line service:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 166. TDM Interfaces > Line Interfaces

2. Click **Edit** next to the line service for which you wish to create a line service:

Create New Line Interface | Create Multiple Line Interfaces | Delete All

Line Interface List

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
TDM_Line_00	2	E1			Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 167. Line Interface List

3. In the following window, click **Create New Child Line Service** (also, a number can be created at once by selecting **Create Multiple Child Line Service**):

Configuration | Status

List | **Create New Child Line Service** | Create Multiple Child Line Service

Editing E1 Line Interface:

Name: TDM_Line_00

Type: E1

Local index: 2

Length: Short

Encoding: HDB3

Advanced Parameters

Figure 168. Editing a Line Interface to Create a New Service

4. Create the new line service:
 - Enter a **name** for the new line
 - Select an available **local index**, from the drop-down box
 - Select appropriate **framing** and **loopback modes**

– Click **Create**



The screenshot shows a web-based configuration form titled "Creating New E1 Line Service:". The form contains several input fields and dropdown menus. The "Name" field is set to "Line_Service_00". The "Local index" dropdown is set to "0". The "Framing" dropdown is set to "AUTO". Below these fields is a section titled "Advanced Parameters" which is currently collapsed. Under "Advanced Parameters", the "Live states" section is also collapsed, and the "Loopback" dropdown is set to "None". At the bottom of the form is a "Create" button.

Figure 169. Create New Line Service

5. Navigate back to the line interface page, by following link displayed in the upper-left corner of the screen. The new line service should be displayed in the **Line Services** list.



The screenshot shows a table titled "Line Services:". The table has four columns: "Name", "Local Index", "Line Services", and "Actions". There is one row of data with the following values: "Line_Service_00", "0", and "Edit Delete".

Name	Local Index	Line Services	Actions
Line_Service_00	0		Edit Delete

Figure 170. Line Services List

Understanding Parameters for Line Services

Table 30. Configuration Parameters for New Line Services

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Local Index	Assigns an integer to represent an object
Framing	Sets a framing type for a line service. Select from: AUTO (typical for E1)/STD/MFRAME/SF/ESF (typical for T1)/SLC96
Loopback	Used to set a loopback state for a line service. Refer to Table 31 for details.

Table 31. Loopback Types

Loopback Type	Description	Behavior	Use
NONE	Normal Operation	All traffic is received and sent on the line	Always
LINE	Analog Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs of the analog transceiver bypassing the framer modules.	First step in testing a physical connection
PAYLOAD	Digital Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs after the deframer/framer.	Second step in testing a physical connection. This tests the framer configuration.
GENERATE_LOS	Generate Loss of Signal	This forces the transmit line to stop sending.	This is the second-best thing to disconnecting the line interface physically.
LOCAL	Local Loopback	All received traffic is dropped. The traffic sent is re-routed internally.	Never. Used for internal testing only

Creating the SCTP Configuration

Stream Control Transmission Protocol (SCTP), a Transport Layer protocol, ensures reliable, in-sequence transport of messages. To edit your system's SCTP configuration:

1. Select **SCTP** from the navigation panel:

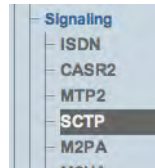


Figure 171. Signaling > Sctp

2. Configure the new Sctp service:
 - Make sure the box labeled **Enabled** is checked
 - Enter a **name** for the Sctp service
 - Select an appropriate **service type**: RAW_IP or UDP
 - Click **Create**

 A screenshot of a configuration dialog box titled 'Creating New Sctp Config:'. It contains the following fields:

- Enabled**: A checkbox that is checked.
- Name**: A text input field containing 'SCTP_00'.
- Service Type**: A dropdown menu with 'RAW_IP' selected.
- DNS Params**: A section with a collapsed arrow.
- Advanced Parameters**: A section with a collapsed arrow.
- Create**: A button at the bottom left.

Figure 172. Creating a New MTP2 Link

3. Verify that the "**Sctp Cfg was successfully created**" message displays:

Sctp Cfg was successfully created.

Figure 173. Successful Sctp Configuration Message

Understanding Parameters for Sctp Configurations

Table 32. Configuration Parameters for New Sctp Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Service Type	Defines the purpose of an Sctp configuration. Possible values: <ul style="list-style-type: none"> RAW IP: Enables the direct transmission and reception of network packets by applications, bypassing all encapsulation in the networking software of the operating system. UDP: Provides a direct way to send and receive datagrams over IP networks.

Creating an M2PA Configuration

For the configuration of your SIGTRAN M2PA system, you will need to create a new M2PA configuration. In this system, the SS7 MTP2 layer is replaced by the SIGTRAN M2PA layer which extends MTP2 signaling functionality into the IP network.

Note M2PA replaces the MTP2 layer entirely; however, it still requires the MTP3 layer.

To create an M2PA configuration:

1. Select **M2PA** from the navigation panel:

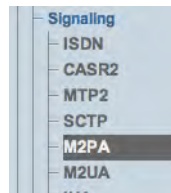


Figure 174. Signaling > M2PA

2. Configure the new M2PA service:
 - Verify that the **Enabled** box is checked
 - Enter a **name** for the M2PA configuration
 - Click **Create**

 A screenshot of a web form titled 'Creating New M2pa Config:'. The form contains several fields:

- 'Enabled': A checkbox that is checked.
- 'Name': A text input field containing the value 'M2PA_00'.
- 'Timers': A section with a collapsed arrow icon.
- 'Create': A button at the bottom left of the form.

Figure 175. Creating the New M2PA Configuration

3. Verify that the "**M2pa Cfg was successfully created**" message displays.

M2pa Cfg was successfully created.

Figure 176. Successful M2PA Configuration Message

Understanding Parameters for M2PA Configurations

Table 33. Configuration Parameters for New M2PA Configurations

Parameter	Description
Enabled	Indicates whether or not an object is to be implemented or not
Name	Used by the Web Portal to indicate a specific object or string in the system

Creating an M2PA SAP

After you have created an M2PA configuration, you must create a new M2PA service access point (SAP) for your system. The SAP is an identifying label for endpoints in your network.

To create a new M2PA SAP:

1. Select **M2PA** from the navigation panel (Figure 174 on page 125).
2. Click **Create new M2pa Sap**:

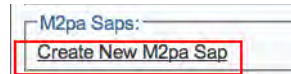


Figure 177. M2PA SAPs

3. Configure the new M2PA SAP:
 - Enter a **name** for the SAP
 - Enter an **SCTP source port** for the SAP
 - Click **Create**

 A screenshot of a configuration form titled "M2PA_00" and "Creating New m2pa Sap:". The form contains several input fields:

- Name:** A text box containing "M2PA_SAP_00".
- SCTP Source Port:** A text box containing "3565".
- M2PA SAP Timers:** A section with a collapsed arrow.
- SCTP SAP Advanced Parameters:** A section with a collapsed arrow.
- Create:** A button at the bottom left of the form.

Figure 178. Creating the New M2PA SAP

4. Verify that the "**M2pa Cfg was successfully created**" message displays.

M2pa Sap was successfully created.

Figure 179. Successful M2PA Configuration Message

5. Associate IP interfaces:
 - Select an **IP interface** from the list in the information panel
 - Click the "<<" button to add the selected IP interface. This is the outgoing route from the hardware adapter.

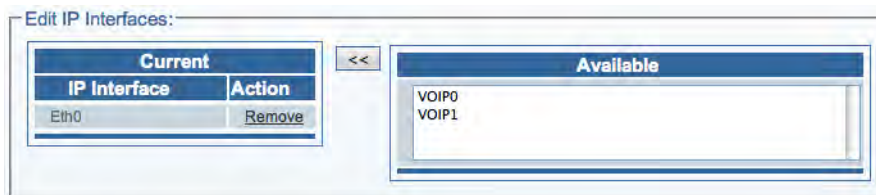


Figure 180. Associating IP Interfaces

Understanding Parameters for M2PA SAPs

Table 34. Configuration Parameters for New M2PA SAP

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
SCTP Source Port	Defines a source port for a service access point (SAP) in a system using SIGTRAN protocols

Creating M2PA Links

After you have created an M2PA service access point (SAP), you must create a new M2PA link. This can be done from the M2PA SAP configuration window.

To create an M2PA link:

1. Click **Create new M2pa link** in the M2PA SAP configuration window:

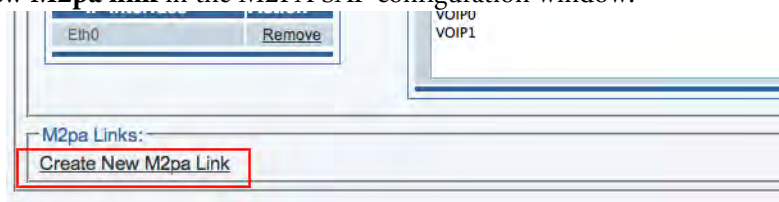


Figure 181. M2PA Links

2. Configure the new M2PA link:
 - Enter a **name** for the new link
 - Select a **protocol type**: ITU / ANSI / TTC
 - Set other features, as needed: **Number of SCTP Streams** / **IP Header TOS** / **Destination port** (same value as the one configured on the destination side)
 - Click **Create**

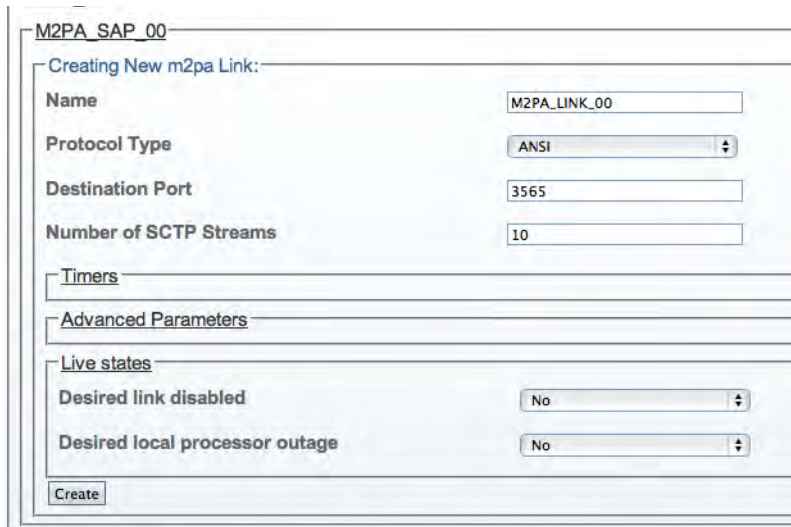


Figure 182. Creating a New M2PA Link

3. Enter a **destination address** in the appropriate box in the information panel:
 - Click the "<<" button to add the destination address to the address list

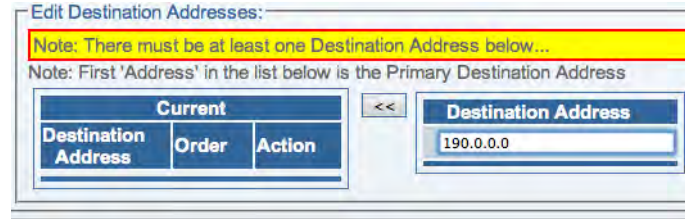


Figure 183. Designating a Destination Address

4. Verify that the address has been added to the list, and that the "**(your address) was successfully added**" message displays (ex.: here the address is 190.0.0.0):

190.0.0.0 was successfully added.

Figure 184. Successful M2PA Link Message

Understanding Parameters for M2PA Links

Table 35. Configuration Parameters for New M2PA Links

Parameter	Description																
Name	Used by the Web Portal to indicate a specific object or string in the system																
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td>ITU</td> <td>TELCORDIA</td> <td>SINGAPORE</td> <td>CHINA</td> </tr> <tr> <td>ITU88</td> <td>ANSI88</td> <td>Q767</td> <td>ETSI</td> </tr> <tr> <td>ITU92</td> <td>ANSI92</td> <td>TTC</td> <td>ETSIV3</td> </tr> <tr> <td>ITU97</td> <td>ANSI95</td> <td>NTT</td> <td>UK</td> </tr> </table>	ITU	TELCORDIA	SINGAPORE	CHINA	ITU88	ANSI88	Q767	ETSI	ITU92	ANSI92	TTC	ETSIV3	ITU97	ANSI95	NTT	UK
ITU	TELCORDIA	SINGAPORE	CHINA														
ITU88	ANSI88	Q767	ETSI														
ITU92	ANSI92	TTC	ETSIV3														
ITU97	ANSI95	NTT	UK														
Number of SCTP Streams	Sets the number of streams on a link in a system using the SCTP protocol																
IP Header TOS	Assigns a Type of Service (TOS) value to a line																
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols																

Creating SS7 Point Codes

Point codes are used to define the Smart Media system network, the adjacent network and the target network so that calls are properly routed from one network to the next.

To create SS7 originating (OPC) and destination (DPC) point codes:

1. Select **Point Codes** from the navigation panel:

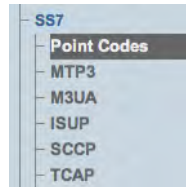


Figure 185. SS7 > Point Codes

2. Click **Create New Point Code**:



Figure 186. Point Codes

3. Configure the new point code:
 - Enter a **name** for the point code
 - Select a point code **type** (select type-specific parameters)
 - Select a point code **length** (14, 16, 24 bits)
 - Enter a **point code**
 - Click **Create**



Figure 187. Creating the New MTP3 Point Code

4. Verify that the "**Mtp3PointCode was successfully created**" message displays, and the new point code appears in the **Point Codes** list:

The screenshot shows a configuration window with a success message at the top: "PointCode was successfully created." Below this is a "Configuration" tab and a "Point codes:" section. Under "Point codes:", there is a "Create New Point Code" button and a table listing existing point codes.

Common				Used by				Actions	
Name	Type	Dpc Length	Point Code	Mtp3	M3ua	Isup	Sccp		
OPC_2_10_2	OPC	14bits format=3.8.3	2.10.2	MTP3_LS_800, UP_ROUTE		ISUP_to_800		Edit	Delete
DPC_2_10_3	DPC	14bits format=3.8.3	2.10.3	MTP3_LS_800, MTP3_ROUTE_2_10_3		ISUP_to_800		Edit	Delete
OPC_00	DPC	14bits format=3.8.3	2.3.4					Edit	Delete

Figure 188. Successful Point Code Message

Understanding Parameters for SS7 Point Codes

Table 36. Configuration Parameters for New Point Codes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of point code being created. Possible values: OPC/DPC/Mask
DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8
Point Code	Defines a point code by assigning it numerical values.

Creating an MTP3 Configuration

MTP3 provides message routing between signaling points in an SS7 network.

To create an MTP3 configuration:

1. Select **MTP3** from the navigation panel:

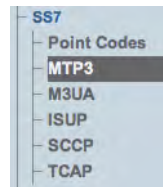


Figure 189. SS7 > MTP3

2. Configure the new MTP3 service:
 - Enter a **name** for the MTP3 configuration
 - Make sure the **Enabled** and **SSf Validation** boxes are checked
 - Select **SP** as the **signaling point type**
 - Select a **restart procedure**
 - Click **Create**

 A screenshot of a configuration form titled 'Creating New Mtp3 Config:'. The form has several sections:

- Enabled**: A checkbox that is checked.
- Name**: A text input field containing 'MTP3'.
- Signaling Point Type**: A dropdown menu with 'SP' selected.
- Timers**: A section that is currently collapsed.
- Advanced Parameters**: A section containing:
 - Ssf Validation**: A checkbox that is checked.
 - Restart Procedure**: A dropdown menu with 'ANSI' selected.
 - Transfer Restricted required**: A checkbox that is unchecked.
- Create**: A button at the bottom left of the form.

Figure 190. Creating the New MTP3 Configuration

3. Verify that the "**Mtp3Cfg was successfully created**" message appears, and that the Enabled box is checked.

Mtp3Cfg was successfully created.

Figure 191. Successful Configuration Message

Understanding Parameters for MTP3 Configurations

Table 37. Configuration Parameters for New MTP3 Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Enabled	Indicates whether or not an object is to be implemented or not
Ssf Validation	Allows the activation of sub-service field validation for an MTP3 configuration
Signaling Point Type	Indicates the intended purpose of an SS7 MTP3 layer object. Possible values: SP (Signaling Point)/STP (Signal Transfer Point)
Restart Procedure	Indicates the standard by which a configuration will carry out a restart process. Possible values: None/ITU88/ITU92/ANSI

Creating an MTP3 Network

After you have created your system's MTP3 configuration, you must create a new MTP3 network. An MTP3 network is created to define its point codes, link sets and routes. This can be done from the MTP3 configuration information panel.

To create an MTP3 network:

1. Click **Create New MTP3 Network** in the MTP3 configuration information panel:



Figure 192. MTP3 Networks in MTP3 Configuration Window

2. Configure the settings for the new network:

- Enter a **name** for the network
- Select a **sub service field**
- Select a **link type**
- Select the **SS7 DPC length**
- Click **Create**



Figure 193. Creating a New MTP3 Network

3. Verify that the "**MTP3 network was successfully created**" message displays:

Mtp3Network was successfully created.

Figure 194. Successful Network Message

Understanding Parameters for MTP3 Networks

Table 38. Configuration Parameters for New MTP3 Networks

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Sub Service Field	Differentiates between national and international signals in MTP3 networks. Possible values: International/National/Nat. Reserved/Inter. Reserved
Link Type	Sets a protocol type for signaling links. Possible values: ANSI/ITU/CHINA/ANSI96
SS7 DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8

Creating an MTP3 Linkset

After you have created an MTP3 network, you are ready to create an MTP3 linkset. This can be done through the MTP3 network configuration window. A linkset is used to logically combine multiple MTP3 links going to the same DPC into a single entity. One linkset could be the links between a point code identifying the Smart Media SS7 node and a point code identifying the adjacent SS7 equipment.

To create an MTP3 linkset:

1. Click **Create New Mtp3 Linkset** in the MTP3 Network configuration panel:



Figure 195. MTP3 Linksets

2. Configure the new linkset:
 - Enter a **name** for the linkset
 - Select an **origin point code (OPC)**
 - Select an **adjacent point code**
 - Make sure the desired state is set to **Active**

- Click **Create**

The screenshot shows a configuration window titled 'MTP3' with a sub-section 'MTP3_NET_00'. Inside, there is a 'Creating New Mtp3 Linkset:' dialog. It contains the following fields:

- Name:** MTP3_LS_00
- Origin Point Code:** OPC_2_10_2
- Adjacent Point Code:** DPC_2_10_3
- Live states:**
 - Desired state:** Active

 A 'Create' button is located at the bottom left of the dialog.

Figure 196. Creating the New MTP3 Linkset

3. Verify that the "Mtp3Linkset was successfully created" message displays:

Mtp3Linkset was successfully created.

Figure 197. Successful Linkset Message

Understanding Parameters for MTP3 Linksets

Table 39. Configuration Parameters for New MTP3 Linksets

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Origin Point Code	Associates an object with an originating point code (OPC)
Adjacent Point Code	Associates an object with an adjacent point code
Desired State	Indicates whether an object is to be active or inactive upon creation Possible values: Active/Inactive

Creating MTP3 Links (M2PA)

This can be done from the MTP3 linkset configuration window. A linkset is used to logically combine multiple MTP3 links going to the same DPC into a single entity. One linkset could be comprised of the links between a point code identifying the Smart Media SS7 node and a point code identifying the adjacent SS7 equipment.

To create an MTP3 link:

1. Click **Create New Mtp3 Link** in the MTP3 linkset configuration window:



Figure 198. M2PA Links

2. Configure the new MTP3 link:
 - Enter a **name** for the link

- Under **Type of link to bind**, select **M2PA**
- Select an **MTP2 link**
- Select a **priority level** (from 0 to 3)
- Select a **message priority** (from "none" to 3)
- Set the **C Link** value
- Enter a **Link Test Slc** (this value is unique in the link list)
- Enter **Link Test Characters**
- Click **Create**

Creating New Mtp3 Link:

Name: MTP3_LINK_M2PA_00

Type of link to bind: M2PA

M2pa Link: M2PA_LINK_00

Link Test Slc: 0

Link Test Characters: TEST PACKET

Advanced Parameters

Priority: Priority 0

Messages Priority: None

C Link:

Discard Priority: Priority 0

Flush Continue Flags:

Msg Q Len Prio0: 20 %

Msg Q Len Prio1: 30 %

Msg Q Len Prio2: 50 %

Msg Q Len Prio3: 80 %

Max Frame Length: 272 bytes

Timers

Live states

Desired locally inhibit state: No

Create

Figure 199. Creating the New MTP3 (M2PA) Link

3. Verify that the "**Mtp3Link was successfully created**" message displays:

Mtp3Link was successfully created.

Figure 200. Successful MTP3 Link Message

Understanding Parameters for MTP3 (M2PA) Links

Table 40. Configuration Parameters for New MTP3 (M2PA) Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Link to Bind	Indicates the type of link to bind when creating an MTP3 link Possible values: MTP2/M2PA/M2UA
MTP2 Link	Selects an MTP2 link to bind to an object
Priority Level	Sets a priority for MTP3 links. Possible values: Priority 0/Priority 1/Priority 2/Priority 3
Message Priority	Sets a priority for messages on an MTP3 link. Possible values: None/Priority 0/Priority 1/Priority 2/Priority 3
C Link	Used only when two identical signal transfer points (STPs) are interconnected
Link Test Slc	Used in SLTM/SLTA messages on MTP3 links. Possible values: 0-15 *NOTE: Both ends of the line must use the same value, or the line will fail.
Link Test Characters	Creates a test packet for MTP3 lines

Creating an MTP3 Route

MTP3 routes are built to route traffic from previously created point codes using linksets. One route is created for each previously defined point code.

To create an MTP3 route:

1. Click **Create New Mtp3 Route** in the MTP3 network configuration window::

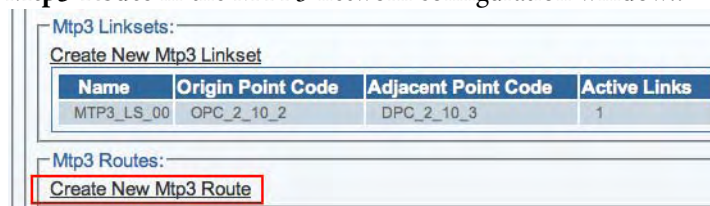


Figure 201. MTP3 Routes

2. Configure the new MTP3 route:
 - Enter a **name** for the route
 - Select a **point code** for the route
 - Select a **restart procedure**
 - Select a **point type**
 - Check the **Route to Adjacent** box, if this route is directed to an adjacent network

– Create

The screenshot shows the 'Creating New Mtp3 Route' dialog box within the MTP3 configuration environment. The dialog is titled 'MTP3' and 'MTP3_NET_00'. It contains the following fields and options:

- Name:** MTP3_ROUTE_00
- Point Code:** OPC_2_10_2
- Point Code Type:** SP
- Advanced Parameters:**
 - Restart Procedure:** ANSI
 - Route To Adjacent:**
 - Sls Range:** ANSI 5 bits
 - Broadcast:**
 - Support Route Congestion Test:**
 - Support MultiMessage Prio:**
 - SlsSelectorBit1:**
 - SlsSelectorBit2:**
 - SlsSelectorBit3:**
 - SlsSelectorBit4:**
- Timers:** (empty field)
- Create:** (button)

Figure 202. Creating the New MTP3 Route

3. Verify that the "**Mtp3Route was successfully created**" message displays:

Mtp3Route was successfully created.

Figure 203. Successful MTP3 Route Message

4. Associate the newly created route with a linkset:
- Select a linkset from the list provided at the bottom of the route configuration window
 - Click the "<<" button to associate the linkset with the newly created route

The screenshot shows the 'Route<->Linkset' dialog box. It features a table with the following data:

Linkset	Priority	Actions
MTP3_LS_00	Priority 0	↓ Remove

To the right of the table is a '<<' button and an empty text input field.

Figure 204. Associating Routes with Linksets

Understanding Parameters for MTP3 Routes

Table 41. Configuration Parameters for New MTP3 Routes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Point Code	Associates a point code with the MTP3 route
Restart Procedure	Indicates the standard by which a configuration will carry out a restart process. Possible values: None/ITU88/ITU92/ANSI
Point Type	Indicates the intended purpose of an SS7 MTP3 layer object. Possible values: SP (signaling Point)/STP (Signal Transfer Point)
Route to Adjacent	Used when an MTP3 route is directed toward an adjacent network

Creating an ISUP Stack

After you have configured the MTP3 layer of your SS7 system, you must create an ISDN user part stack. To create an ISUP stack:

1. Select **ISUP** from the navigation panel:

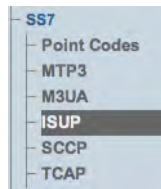


Figure 205. SS7 > ISUP

2. Click **Create New Stack**:

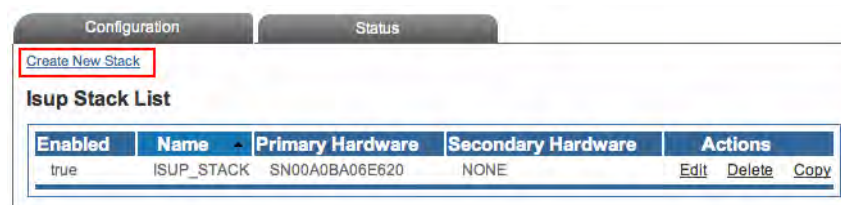


Figure 206. ISUP Stack List

3. Configure the new MTP3 service:
 - Make sure the box labeled **Enabled** is checked
 - Enter a **name** for the stack
 - Select a **primary hardware adapter**
 - Select a **secondary hardware adapter**

– Click **Create**

Figure 207. Creating the New ISUP Stack

4. Verify that the "**IsupStack was successfully created**" message displays.

IsupStack was successfully created.

Figure 208. Successful ISUP Stack Message

Understanding Parameters for ISUP Stacks

Table 42. Configuration Parameters for New ISUP Stack

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Primary Hardware Adapter	Identifies a main Smart Media hardware device to run an ISUP stack
Secondary Hardware Adapter	Identifies a secondary (backup) Smart Media hardware device to run an ISUP stack

Creating an ISUP Network

After you have created an initial ISUP stack, you must create a new ISUP network. The ISUP network tells the ISUP protocol layer about a collection of SS7 nodes that are accessible through MTP3 or M3UA. Based upon your system configuration, one or more ISUP networks are created. Repeat this section for as many networks as you require.

Note An ISUP network can be used by multiple ISUP interfaces even if they are members of different ISUP userpart (e.g., to support multiple switch variants for a single SS7 network).

To create an ISUP network:

1. Click "**Create New ISUP Network**" in the ISUP stack configuration window:



Figure 209. Editing ISUP Networks

2. Configure the new ISUP network:
 - Enter a **name** for the network
 - Select **MTP3** or **M3UA** as the **type of network to bind**
 - Select a **MTP3 network** or a **M3UA network**
 - Click **Create**

Figure 210. Creating the New ISUP Network

3. Verify that the "**IsupNetwork was successfully created**" message displays.

IsupNetwork was successfully created.

Figure 211. Successful ISUP Network Message

Understanding Parameters for ISUP Networks

Table 43. Configuration Parameters for New ISUP Network

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Network to Bind	Indicates the type of network to associate with an ISUP Network Possible values: MTP3/M3UA
Networks	
MTP3 Network	Associates an MTP3 network with a higher level network in an SS7 system
M3UA Network	Associates an MTP3 network with a higher level network in an SS7 system

Creating an ISUP User Part

After you have created your ISUP network, you must create a new ISUP user part. The user part is the container for the multiple ISUP interfaces. One user part is required for each protocol variant.

Multiple ISUP user parts can be instantiated within a single ISUP protocol layer. This allows a user application to interface with multiple SS7 ISUP protocol variants at the same time. Only one ISUP user part is required for a specific variant as it can be assigned to multiple ISUP networks.

A user part can easily be seen as a protocol variant that a host application wants to use on the SS7 network.

To create an ISUP user part:

1. Click **Create New Isup Userpart** in the ISUP stack configuration window:

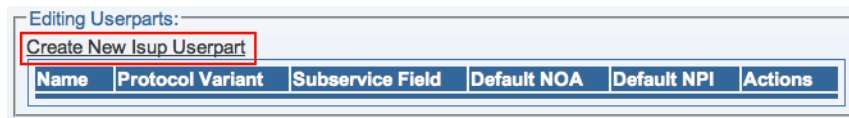


Figure 212. Editing Userparts

2. Configure the new ISUP user part:
 - Enter a **name** for the user part
 - Select a **protocol variant** (depending on location)
 - Select an **MTP3 sub service field** (the same that was previously set for MTP3)
 - Select an **address indicator type**
 - Select a **Numbering Plan**
 - Click **Create**

Figure 213. Creating the New ISUP User Part

3. Verify that the "**IsupUserpart was successfully created**" message appears, and that the Enabled box is checked.

IsupUserpart was successfully created.

Figure 214. Successful ISUP User Part Message

Understanding Parameters for ISUP User Parts

Table 44. Configuration Parameters for New ISUP User Part

Parameter	Description																
Name	Used by the Web Portal to indicate a specific object or string in the system																
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: <table border="0"> <tr> <td>ITU</td> <td>TELCORDIA</td> <td>SINGAPORE</td> <td>CHINA</td> </tr> <tr> <td>ITU88</td> <td>ANSI88</td> <td>Q767</td> <td>ETSI</td> </tr> <tr> <td>ITU92</td> <td>ANSI92</td> <td>TTC</td> <td>ETSIV3</td> </tr> <tr> <td>ITU97</td> <td>ANSI95</td> <td>NTT</td> <td>UK</td> </tr> </table>	ITU	TELCORDIA	SINGAPORE	CHINA	ITU88	ANSI88	Q767	ETSI	ITU92	ANSI92	TTC	ETSIV3	ITU97	ANSI95	NTT	UK
ITU	TELCORDIA	SINGAPORE	CHINA														
ITU88	ANSI88	Q767	ETSI														
ITU92	ANSI92	TTC	ETSIV3														
ITU97	ANSI95	NTT	UK														
Sub Service Field	Differentiates between national and international signals in MTP3 networks. Possible values: International/National/Nat. Reserved/Inter. Reserved																
Address Indicator Type	Assigns a default address value in ISUP user parts, when unspecified. Possible values: Not Present/Subscriber Number/National Number/International Number																
Numbering Plan	Assigns a default numbering plan in ISUP user parts, when unspecified. Possible values: <table border="0"> <tr> <td>Unknown</td> <td>ISDN</td> <td>Telephony</td> <td>Data</td> </tr> <tr> <td>Telex</td> <td>National</td> <td>Private</td> <td>Reserved</td> </tr> </table>	Unknown	ISDN	Telephony	Data	Telex	National	Private	Reserved								
Unknown	ISDN	Telephony	Data														
Telex	National	Private	Reserved														

Creating an ISUP Interface

After you have created an ISUP user part to contain them, you must create new ISUP interfaces.

The ISUP interface creates a binding within the ISUP layer of a particular variant, a specific network, and an OPC/DPC pair to which circuits can be assigned. The ISUP interface contains the circuit identifier codes (CICs) within the ISUP user part. One interface is created for each similar grouping of CICs within one user part protocol variant.

To create an ISUP interface:

1. Click **Create New Isup Interface** in the ISUP stack configuration window:

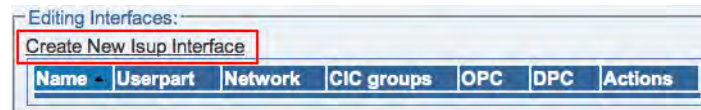


Figure 215. Editing ISUP Interfaces

2. Configure the new ISUP interface:
 - Enter a **name** for the interface
 - Select an **ISUP user part**
 - Select an **ISUP network**
 - Select a **trunk type**
 - Select an **originating point code (OPC)**
 - Select a **destination point code (DPC)**
 - Click **Create**

Figure 216. Creating the New ISUP Interface

3. Verify that the "**IsupInterface was successfully created**" message displays.

Isupinterface was successfully created.

Figure 217. Successful ISUP Interface Message

Understanding Parameters for ISUP Interfaces

Table 45. Configuration Parameters for New ISUP Interface

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
ISUP User Part	Associates an ISUP user part with an ISUP interface
ISUP Network	Associates an ISUP network with an ISUP interface
OPC	Associates an object with an originating point code (OPC)
DPC	Associates an object with a destination point code (DPC)

Creating ISUP CIC Groups

After you have created an ISUP interface, you must create a new ISUP Circuit Identification Code (CIC) group for your system. A CIC represents a physical timeslot between two SS7 nodes. Both of those nodes must commonly agree upon a CIC numbering scheme.

To create an ISUP CIC group:

1. Click **Create New Isup Cic Group** in the ISUP interface configuration window (a number of groups can be created at once by clicking **Create Multiple New Isup Cic Group**):



Figure 218. Editing CIC Groups

2. Configure the new ISUP CIC group:
 - Enter a **name** for the group
 - Enter a number for the **first CIC** in the group (this value must follow other CIC group values, and not overlap)
 - Select a **line service**
 - Check the appropriate **timeslots** (click "Select all" to check all timeslots)
 - Select a **call control method**
 - Click **Create**

Figure 219. Creating the New ISUP CIC Group

3. Verify that the "**IsupCicGroup was successfully created**" message displays.

IsupCicGroup was successfully created.

Figure 220. Successful ISUP CIC Group Message

Understanding Parameters for ISUP CIC Groups

Table 46. Configuration Parameters for New ISUP CIC Group

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
First CIC	Sets a value for the first circuit identification code in an ISUP CIC group
Line Service	Indicates which TDM line service is to be associated with the object being created
Timeslots	Allows the selection of individual voice or data channels of a line. Values for this parameter are listed as check boxes (ranging from 1-24). Individual timeslots can be selected by checking the boxes. Occasionally, all timeslots can be selected at once by clicking the Select All link.
Call Control	Sets a call control method for ISUP CIC groups. Possible values: Incoming/Outgoing/Bothway/Controlled/Controlling

Creating a NAP (SIGTRAN)

After you have created an ISUP CIC group, you must create a network access point, in order to finish configuring your system. A Network Access Point (NAP) represents the entry point to another network or destination peer.

To create a network access point (NAP):

1. Click **NAP** in the navigation panel:

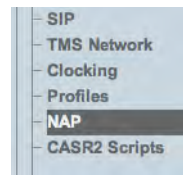


Figure 221. Menu: NAP

2. Click **Create New NAP**:

 A screenshot of a web interface showing the 'Network Access Point List'. At the top, there are tabs for 'Configuration' and 'Status'. Below them is a 'Create New NAP' button. The main area contains a table with the following data:

Name	Profile	Channel Usage	Sip Proxy	Members	Actions
NAP_ISDN_4960A	default	Highest timeslot		ISDN_4960A	Edit Delete
NAP_ISDN_800	default	Lowest timeslot		ISDN_800A, ISDN_800B	Edit Delete
NAP_SIP_3CX	default		UDP 192.168.49.191:5060	SIP_SAP_VOIP0_5060, VOIP0_FULLL	Edit Delete
NAP_SS7_800	default	Highest timeslot		CIC_Group_0, CIC_Group_1	Edit Delete

Figure 222. Edit NAP List

3. Configure the new NAP:
 - Enter a **name** for the NAP
 - Select a **user-created profile**, if not, select **default**

- Click **Create**:

Figure 223. Creating a New NAP (SIGTRAN)

4. Verify that the **NAP was successfully created** message appears:

NAP was successfully created.

Figure 224. Confirmation Message for New NAP

5. Associate an ISUP interface with the new NAP:
 - Select an **interface** (the newly-created **ISUP CIC group**)
 - Click the "<<" button to associate it with the NAP

Figure 225. Associating ISUP CIC Groups with NAPs

The following screen displays:

Figure 226. Saving the New NAP SS7 Parameters

- Select a value for **Channel Usage** to avoid call collision.
- Click **Save**

6. Verify that the **NAP was successfully updated** message displays:

NAP was successfully updated.

Figure 227. Confirmation Message for Updated NAP

Understanding Parameters for NAPs (SIGTRAN)

Table 47. Configuration Parameters for NAPs (SIGTRAN)

Parameter	Description	
Name	Used by the Web Portal to indicate a specific object or string in the system	
Default Profile	Sets a profile for a NAP. The default value is simply labeled "Default", but can be changed if alternate profiles have been created.	
Channel Usage	Sets a channel usage scheme for Network Access Points (NAPs), also called trunk groups, in order to avoid call collision. Possible values:	
	Round-Robin:	Traverse, in order, all timeslots of the NAP from first timeslot of first trunk to last timeslot of last trunk, before starting to use first timeslot of first trunk again.
	Lowest Timeslot:	Start from lowest timeslot of every trunk and will reuse them if they are idle.
	Highest Timeslot:	Start from highest timeslot of every trunk and will reuse them if they are idle.
	Lowest Mapping ID:	Start from lowest timeslot of first trunk, second lowest of first trunk, etc. Once the first trunk is full, will start using second trunk. Will reuse the channels if they are idle.
	Highest Mapping ID:	Start from highest timeslot of last trunk, second highest of last trunk, etc. Once the last trunk is full, will start using second-to-last trunk. Will reuse the channels if they are idle.
	Lowest CIC:	Start from lowest CIC value of the NAP and will reuse them if they are idle.
	Highest CIC:	Start from highest CIC value of the NAP and will reuse them if they are idle.
	Odd Lowest CIC:	Start from lowest CIC, odd value, and will reuse them if they are idle. Will only use even CICs when all odd CICs are used.
	Odd Highest CIC:	Start from highest CIC, odd value, and will reuse them if they are idle. Will only use even CICs when all odd CICs are used.
Even Lowest CIC:	Start from lowest CIC, even value, and will reuse them if they are idle. Will only use even CICs when all even CICs are used.	
Even Highest CIC:	Start from highest CIC, even value, and will reuse them if they are idle. Will only use even CICs when all odd CICs are used.	

Configuring an M2UA System on a Signaling Gateway

In this configuration, M2UA bridges the SS7 MTP2 layer of a Signaling Gateway across an IP network . Refer to the following sections to configure an M2UA system:

1. “Adding an Adapter” on page 117
2. “Creating Line Interfaces” on page 119
3. “Creating Line Services” on page 121
4. “Creating an MTP2 Configuration” on page 148
 - “Creating MTP2 Links” on page 149
5. “Creating the SCTP Configuration” on page 124
6. “Creating an M2UA Configuration” on page 151
 - “Creating an M2UA SAP” on page 152
 - “Creating an M2UA Cluster” on page 153
 - “Creating M2UA Links” on page 154
 - “Creating M2UA Peers” on page 156

Creating an MTP2 Configuration

1. Select **MTP2** from the navigation panel:

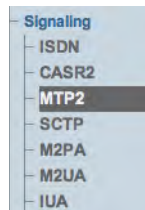


Figure 228. Signaling > MTP2

2. Create the new MTP2 configuration:
 - Enter a **name** for the configuration
 - Click **Save**



Figure 229. Creating the New MTP2 Configuration

3. Verify that the "**Mtp2Cfg was successfully updated**" message appears, and that the Enabled box is checked.

Mtp2Cfg was successfully created.

Figure 230. Successful Configuration Message

Understanding Parameters for MTP2 Configurations

Table 48. Configuration Parameters for New MTP2 Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Creating MTP2 Links

Now that you have created an MTP2 configuration, you must create the necessary MTP2 links. An MTP2 link is used to connect the MTP2 physical layer to a line service carrying SS7 signaling.

To create an MTP2 link:

1. Click **Create New Mtp2 Link** in the MTP2 configuration window:



Figure 231. MTP2 Link in MTP2 Configuration Window

2. Configure the new MTP2 link:
 - Enter a **name** for the new link
 - Select a **connection mode**
 - Select a **line service**
 - Assign **timeslots** to the link
 - Select a **protocol type**
 - Select a **DPC length**
 - Select a **timeslot rate**

– Click **Create**

The screenshot shows a configuration window titled "MTP2" with the following fields and options:

- Creating New Mtp2 Link:**
 - Name:** MTP2_LINK_X
 - Connection Mode:** Normal
 - Line service:** E1_LS_0
- Timeslots:** A row of checkboxes for timeslots 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31. The checkbox for timeslot 17 is checked.
- Protocol Type:** ITU92
- DPC Length:** 14bits format=3.8.3
- Timeslot Rate:** 64Kbps
- Error Correction:** Normal
- Timers:** (empty field)
- Advanced Parameters:** (empty field)
- Live states (Can be changed from 'Status view after configuration is activated'):** (empty field)
- Create:** A button at the bottom left.

Figure 232. Creating a New MTP2 Link

3. Verify that the "**MTP2 link was successfully created**" message displays:

MTP2 link was successfully created.

Figure 233. Successful Link Message

Understanding Parameters for MTP2 Links

Table 49. Configuration Parameters for New MTP2 Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Connection Mode	Defines the type of connection used in an SS7 system. Possible values: Normal/Hsl (High-speed link)
Line Service	Indicates which TDM line service is to be associated with the object being created
Timeslots	Allows the selection of individual voice or data channels of a line. Values for this parameter are listed as check boxes (ranging from 1-24). Individual timeslots can be selected by checking the boxes. Occasionally, all timeslots can be selected at once by clicking the Select All link.
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: ITU TELCORDIA SINGAPORE CHINA ITU88 ANSI88 Q767 ETSI ITU92 ANSI92 TTC ETSIV3 ITU97 ANSI95 NTT UK
DPC Length	Sets a format for the Destination Point Code (DPC) used by an object. Possible values: 14bits format=3.8.3/16bits format=7.4.5/24bits format=8.8.8
Timeslot Rate	Indicates the data rate for timeslots on a line. Possible values: 64 Kbps/56 Kbps/48 Kbps

Creating an M2UA Configuration

To create your M2UA system, you must create a new M2UA configuration.

M2UA (Message Transfer Part 2 User Adaptation Layer) is used to interface the MTP2 Layer of a signaling gateway to the MTP3 Layer of a media gateway controller (MGC). M2UA can also be seen as a way to extend an MTP2 link. An M2UA link is always bound to an MTP2 link.

To create an M2UA configuration:

1. Select **M2UA** from the navigation panel:

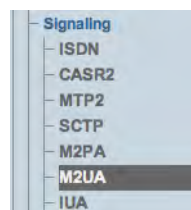


Figure 234. Signaling > M2UA

2. Configure the new M2UA configuration:
 - Enter a **name** for the M2UA service

- Click **Create**

Figure 235. Creating the New M2UA Configuration

3. Verify that the "**M2ua Cfg was successfully created**" message displays.

M2ua Cfg was successfully created.

Figure 236. Successful M2UA Configuration Message

Understanding Parameters for M2UA Configurations

Table 50. Configuration Parameters for New M2UA Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Creating an M2UA SAP

After you have created an M2UA configuration, you must create a new M2UA service access point (SAP) for your system. The SAP is an identifying label for endpoints in your network.

To create an M2UA SAP:

1. Click **Create New M2ua Sap** in the M2UA configuration window:

Figure 237. M2UA SAPs

2. Configure the new M2UA SAP:
 - Enter a **name** for the SAP
 - Enter an **SCTP source port** for the SAP

- Click **Create**

Figure 238. Creating the New M2UA SAP

3. Verify that the "**M2ua Sap was successfully created**" message displays.

M2ua Sap was successfully created.

Figure 239. Successful M2UA Configuration Message

4. Associate an IP interface with the new SAP:
 - Select an **IP interface** from the Edit IP Interfaces list
 - Associate the interface with the SAP, using the "<<" button.

Figure 240. Associating IP Interfaces

Understanding Parameters for M2UA SAPs

Table 51. Configuration Parameters for New M2UA SAP

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
SCTP Source Port	Defines a source port for a service access point (SAP) in a system using SIGTRAN protocols

Creating an M2UA Cluster

After you have created an M2UA SAP, you must create an M2UA cluster for your system.

To create an M2UA cluster:

1. Click **Create New M2ua Cluster** in the M2UA SAP configuration window:

Figure 241. M2UA Clusters

2. Configure the new M2UA cluster:
 - Enter a **name** for the cluster
 - Select a **traffic mode**
 - Select a **load share mode**
 - Click **Create**

Figure 242. Creating the New M2UA Cluster

3. Verify that the "**M2ua Cluster was successfully created**" message displays.

M2ua Cluster was successfully created.

Figure 243. Successful M2UA Cluster Message

Understanding Parameters for M2UA Clusters

Table 52. Configuration Parameters for New M2UA Cluster

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Traffic Mode	Sets the scheme for managing traffic on an M2UA cluster. Possible values: ACTIVE_STANDBY/LOADSHARE
Load Share Mode	Sets a scheme for sharing traffic loads on M2UA clusters. Possible values: ROUND_ROBIN/PER_LINK

Creating M2UA Links

After you have created an M2UA cluster, you must create M2UA links for your system. An M2UA link is always bound to an MTP2 link, and can be seen a way of extending MTP2 functionality.

To create an M2UA link:

1. Click **Create New M2ua Link** in the M2UA cluster configuration window:



Figure 244. M2UA Links

2. Configure the new M2UA link:
 - Enter a name for the link
 - **IMPORTANT!**

- **For a system on a signaling gateway:** Select an **MTP2 link**
- **For a system on a media gateway controller:** Select **NONE**
- Select a **protocol type** (same as MTP2)
- Select an **interface ID type**
- Enter an appropriate **interface ID** (must be unique to each link)
- Click **Create**

The screenshot shows a dialog box titled "Creating New M2ua Link:" within a window labeled "M2UA_CLUSTER_00". The dialog contains the following fields and values:

- Name:** M2UA_LINK_00
- Mtp2 Link:** NONE
- Protocol Type:** ITU
- Interface Id Type:** Integer
- Interface Id:** 1

A "Create" button is located at the bottom left of the dialog.

Figure 245. Creating a New M2UA Link

3. Verify that the "**M2ua Link was successfully created**" message displays:

M2ua Link was successfully created.

Figure 246. Successful M2UA Link Message

Understanding Parameters for M2UA Links

Table 53. Configuration Parameters for New M2UA Links

Parameter	Description																
Name	Used by the Web Portal to indicate a specific object or string in the system																
MTP2 Link	Selects an MTP2 link to bind to an object																
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: <table border="1" style="margin-left: 20px;"> <tr> <td>ITU</td> <td>TELCORDIA</td> <td>SINGAPORE</td> <td>CHINA</td> </tr> <tr> <td>ITU88</td> <td>ANSI88</td> <td>Q767</td> <td>ETSI</td> </tr> <tr> <td>ITU92</td> <td>ANSI92</td> <td>TTC</td> <td>ETSIV3</td> </tr> <tr> <td>ITU97</td> <td>ANSI95</td> <td>NTT</td> <td>UK</td> </tr> </table>	ITU	TELCORDIA	SINGAPORE	CHINA	ITU88	ANSI88	Q767	ETSI	ITU92	ANSI92	TTC	ETSIV3	ITU97	ANSI95	NTT	UK
ITU	TELCORDIA	SINGAPORE	CHINA														
ITU88	ANSI88	Q767	ETSI														
ITU92	ANSI92	TTC	ETSIV3														
ITU97	ANSI95	NTT	UK														
Interface ID Type	Defines the data type of an M2UA Link's interface ID. Possible values: Integer/String																
Interface ID	Identifies the interface of an M2UA link																

Creating M2UA Peers

After you have created the M2UA links, you must define M2UA peers for your system.

To create an M2UA peer:

1. Click **Create New M2ua Peer** in the M2UA cluster configuration window:



Figure 247. M2UA Peers

2. Configure the new M2UA peer:
 - Enter a **name** for the peer
 - Enter a **destination port** (as configured in the destination element)
 - Click **Create**

 A screenshot of a form titled "Creating New M2ua Peer:". The form contains three input fields: "Name" with the value "M2UA_PEER_00", "Destination Port" with the value "2904", and "Number of SCTP Streams" with the value "32". Below these fields is an "Advanced Parameters" section which is currently collapsed. At the bottom left of the form is a "Create" button.

Figure 248. Creating the New M2UA Peer

3. Verify that the "**M2ua Peer was successfully created**" message displays.

M2ua Peer was successfully created.

Figure 249. Successful M2UA Peer Message

4. Enter a destination address for the peer:
 - Enter a **destination address**
 - Click the "<<" button to add it to the list of destination addresses
 - Verify that the "**(your address) was successfully added**" message displays

 A screenshot of a window titled "Edit Destination Addresses:". At the top, there is a note: "Note: First 'Address' in the list below is the Primary Destination Address". Below the note is a table with three columns: "Destination Address", "Order", and "Action". The table contains one row with the value "120.0.0.0" in the "Destination Address" column and a "Remove" button in the "Action" column. To the right of the table is a "<<" button and a "Destination Address" input field.

Figure 250. Editing Destination Addresses

Understanding Parameters for M2UA Peers

Table 54. Configuration Parameters for New M2UA Peers

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols
Destination Address	Indicates the destination for a line in a system using SIGTRAN protocols

Configuring an M2UA System on a Media Gateway Controller

In this configuration, M2UA bridges the SS7 MTP2 layer of a Signaling Gateway across an IP network with the SS7 MTP3 layer of a Media Gateway Controller. Refer to the following sections to configure an M2UA system:

1. “Adding an Adapter” on page 117
2. “Creating the SCTP Configuration” on page 124
3. “Creating an M2UA Configuration” on page 151
 - “Creating an M2UA SAP” on page 152
 - “Creating an M2UA Cluster” on page 153
 - “Creating M2UA Links” on page 154
 - “Creating M2UA Peers” on page 156
4. “Creating SS7 Point Codes” on page 129
5. “Creating an MTP3 Configuration” on page 131
 - “Creating an MTP3 Network” on page 132
 - “Creating an MTP3 Linkset” on page 133
 - “Creating MTP3 Links (M2UA)” on page 159
 - “Creating an MTP3 Route” on page 136
6. “Creating an ISUP Stack” on page 138
 - “Creating an ISUP Network” on page 139
 - “Creating an ISUP User Part” on page 141
 - “Creating an ISUP Interface” on page 142
 - “Creating ISUP CIC Groups” on page 144
 - “Creating a NAP (SIGTRAN)” on page 145

Creating MTP3 Links (M2UA)

After you have created an MTP3 linkset, you must create MTP3 links for your system. An MTP3 link is used to connect with a M2UA link; they are connected in a one-to-one fashion.

To create an MTP3 link on your M2UA system:

1. Click **Create New Mtp3 Link** in the MTP3 linkset configuration window:



Figure 251. MTP3 Links

2. Configure the new MTP3 link:
 - Enter a **name** for the link
 - Under **Type of link to bind**, select **M2UA**
 - Select an **M2UA link**
 - Click **Create**

Figure 252. Creating the New MTP3 (M2UA) Link

3. Verify that the "**Mtp3Link was successfully created**" message displays:

Mtp3Link was successfully created.

Figure 253. Successful MTP3 Link Message

Understanding Parameters for MTP3 (M2UA) Links

Table 55. Configuration Parameters for New MTP3 (M2UA) Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Link to Bind	Indicates the type of link to bind when creating an MTP3 link Possible values: MTP2/M2PA/M2UA
M2UA Link	Selects an M2UA link to bind to an object

Configuring an IUA System on a Signaling Gateway

In this configuration, IUA bridges the SS7 MTP2 layer of a Signaling Gateway across an IP network with the SS7 MTP3 layer of a Media Gateway Controller. Refer to the following sections to configure an IA system:

1. “Adding an Adapter” on page 117
2. “Creating Line Interfaces” on page 119
3. “Creating Line Services” on page 121
4. “Creating the SCTP Configuration” on page 124
5. “Creating an IUA Configuration” on page 160
 - “Creating an IUA SAP” on page 161
 - “Creating an IUA Cluster” on page 162
 - “Creating IUA Links” on page 163
 - “Creating IUA Peers” on page 164

Creating an IUA Configuration

An IUA system on a Signaling Gateway Controller interfaces with an IUA system on a Media Gateway Controller. To create your IUA system, you must create a new IUA configuration.

To create an IUA configuration:

1. Select **IUA** from the navigation panel:

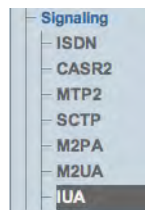


Figure 254. Signaling > IUA

2. Create the IUA configuration:
 - Enter a **name** for the IUA service
 - Click **Save**

 A screenshot of a dialog box titled "Creating New Iua Config:". It contains several fields and controls:

- An "Enabled" checkbox, which is checked.
- A "Name" field containing the text "IUA_CONFIG".
- A "Timers" section with a sub-section for "Timers for Signaling Gateway mode".
- A "Create" button at the bottom left.

Figure 255. Creating the New IUA Configuration

3. Verify that the "**Iua Cfg was successfully created**" message displays.

Understanding Parameters for IUA Configurations

Table 56. Configuration Parameters for New IUA Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Creating an IUA SAP

After you have created an IUA configuration, you must create a new IUA service access point (SAP) for your system. The SAP is an identifying label for endpoints in your network.

To create an IUA SAP:

1. Click **Create New Iua Sap** in the IUA configuration window:

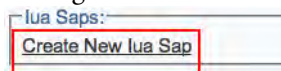


Figure 256. IUA SAPs

2. Configure the new IUA SAP:
 - Enter a **name** for the SAP
 - Enter a number for the **SCTP source port**
 - Click **Create**

Figure 257. Creating the New IUA SAP

3. Verify that the "**Iua Sap was successfully created**" message displays.

Iua Sap was successfully created.

Figure 258. Successful IUA Configuration Message

4. Associate an IP interface with the new SAP:
 - Select an **IP interface** from the **Edit IP Interfaces** list
 - Associate the interface with the SAP, using the "<<" button.

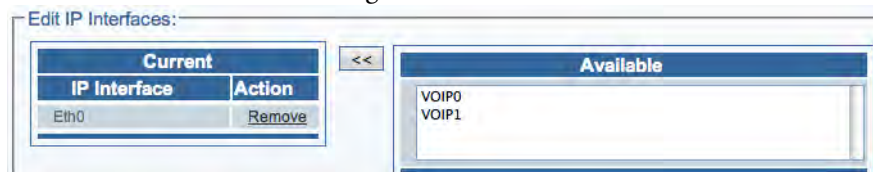


Figure 259. Associating IP Interfaces with the IUA SAP

Understanding Parameters for IUA SAPs

Table 57. Configuration Parameters for New IUA SAP

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
SCTP Source Port	Defines a source port for a service access point (SAP) in a system using SIGTRAN protocols

Creating an IUA Cluster

After you have created an IUA SAP, you must create an IUA cluster for your system.

To create an IUA cluster:

1. Click **Create New Iua Cluster** in the IUA SAP configuration window:

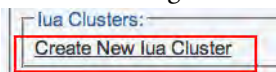


Figure 260. IUA Clusters

2. Configure the new IUA cluster:

- Enter a **name** for the cluster
- Select a **traffic mode**
- Select a **load share mode**
- Click **Create**

 A screenshot of a web interface titled "IUA_CONFIG". Underneath, there is a section titled "IUA_SAP" containing a sub-section "Creating New Iua Cluster:". This section has three input fields: "Name" with the value "IUA_CLUSTER", "Traffic Mode" with a dropdown menu set to "ACTIVE_STANDBY", and "Load Share Mode" with a dropdown menu set to "PER_LINK". Below these fields is an "Advanced Parameters" section and a "Create" button.

Figure 261. Creating the New IUA Cluster

3. Verify that the "**Iua Cluster was successfully created**" message displays.

Iua Cluster was successfully created.

Figure 262. Successful IUA Cluster Message

Understanding Parameters for IUA Clusters

Table 58. Configuration Parameters for New IUA Cluster

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Traffic Mode	Sets the scheme for managing traffic on an IUA cluster. Possible values: ACTIVE_STANDBY/LOADSHARE
Load Share Mode	Sets a scheme for sharing traffic loads on IUA clusters. Possible values: ROUND_ROBIN/PER_LINK

Creating IUA Links

After you have created an IUA cluster, you must create IUA links for your system. To create an IUA link:

1. Click **Create New Iua Link** in the IUA cluster configuration window:

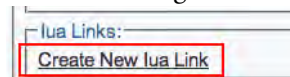


Figure 263. IUA Links

2. Configure the new IUA link:
 - Enter a **name** for the link
 - Enter an appropriate **interface ID** (must be unique to each link)
 - Select a **line service**
 - Select a **variant**
 - Select a **side**
 - Click **Create**

Figure 264. Creating a New IUA Link

3. Verify that the "**Iua Link was successfully created**" message displays:

Iua Link was successfully created.

Figure 265. Successful IUA Link Message

Understanding Parameters for IUA Links

Table 59. Configuration Parameters for New IUA Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Interface ID	Identifies the interface of an IUA link
Variants	Indicates the protocol variant to be used on a signaling stack. Possible values: 4ESS AUS 5ESS DMS NI2 HONG-KONG JAPAN INS
Side	Defines each side of an ISDN stack. Possible values: Network/User

Creating IUA Peers

After you have created the IUA links, you must define IUA peers for your system. To create an IUA peer:

1. Click **Create New Iua Peer** in the IUA cluster configuration window:



Figure 266. IUA Peers

2. Configure the new IUA peer:
 - Enter a **name** for the peer
 - Enter a **destination port** (as configured in the destination element)
 - Click **Create**

Figure 267. Creating the New IUA Peer

3. Verify that the "**Iua Peer was successfully created**" message displays.

Iua Peer was successfully created.

Figure 268. Successful IUA Peer Message

4. Enter a destination address for the peer:
 - Enter a **destination address**
 - Click the "<<" button to add it to the list of destination addresses

- Verify that the “(your address) was successfully added” message displays



Figure 269. Editing Destination Addresses

Understanding Parameters for IUA Peers

Table 60. Configuration Parameters for New IUA Peers

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols
Destination Address	Indicates the destination for a line in a system using SIGTRAN protocols

Configuring an M3UA System on IP Signaling Points

In this configuration, the SS7 MTP2 and MTP3 layers are replaced entirely by the SIGTRAN M3UA layer. This application is typically used between two IP Signaling Points. Refer to the following sections to configure an M3UA system:

1. “Adding an Adapter” on page 117
2. “Creating the SCTP Configuration” on page 124
3. “Creating SS7 Point Codes” on page 129
4. “Creating an M3UA Configuration (IPSP)” on page 167
 - “Creating an M3UA SAP” on page 168
 - “Creating an M3UA Network” on page 169
 - “Creating an M3UA User Part” on page 170
 - “Creating an M3UA Peer Signaling Process (IPSP)” on page 171
 - “Creating an M3UA Peer Server” on page 173
 - “Creating an M3UA Route” on page 175
5. “Creating an ISUP Stack” on page 138
 - “Creating an ISUP Network” on page 139
 - “Creating an ISUP User Part” on page 141
 - “Creating an ISUP Interface” on page 142
 - “Creating ISUP CIC Groups” on page 144
 - “Creating a NAP (SIGTRAN)” on page 145

Creating an M3UA Configuration (IPSP)

To set up your M3UA system on an IP server process (IPSP), you must first create a new M3UA configuration. In this configuration the SS7 MTP2 and MTP3 layers are replaced entirely by the SIGTRAN M3UA layer. This system is typically set up on two IP signaling points. To create an M3UA configuration on IPSP:

1. Select **M3UA** from the navigation panel:

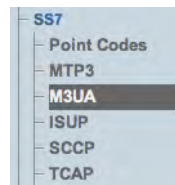


Figure 270. SS7 > M3UA

2. Configure the M3UA service for IPSP:
 - Enter a **name** for the configuration
 - Select **IP Server Process (IPSP)** as the node type
 - Click **Create**

 A screenshot of a web-based configuration dialog box titled 'Creating New M3ua Config:'. It contains several fields:

- 'Enabled': A checkbox that is checked.
- 'Name': A text input field containing 'M3UA_IPSP_00'.
- 'Node Type': A dropdown menu showing 'IP Server Process (IPSP)'.
- 'Advanced Parameters': A section with a collapsed arrow.
- 'Create': A button at the bottom left.

Figure 271. Creating the New M3UA Configuration

3. Verify that the "**M3uaCfg was successfully created**" message displays.

M3ua Cfg was successfully created.

Figure 272. Successful Configuration Message

Understanding Parameters for M3UA Configurations

Table 61. Configuration Parameters for New M3UA Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Node Type	Assigns a configuration to an M3UA network. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)

Creating an M3UA SAP

After you have created an M3UA configuration, you must create a new M3UA service access point (SAP) for your system. The SAP is an identifying label for endpoints in your network. To create an M3UA SAP:

1. Click **Create New M3ua Sap** in the M3UA configuration panel:

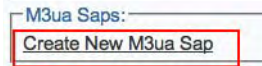


Figure 273. M3UA SAPs

2. Configure the new SAP:
 - Enter a **name** for the SAP
 - Select an **SCTP adapter** to use
 - Select an **SCTP source port**
 - Click **Create**

Figure 274. Creating a New M3UA SAP

3. Verify that the "**M3ua Sap was successfully created**" message displays:

M3ua Sap was successfully created.

Figure 275. Successful Link Message

4. Associate an IP interface with the new SAP:
 - Select an **IP interface** from the **Edit IP Interfaces** list
 - Associate the interface with the SAP, using the "<<" button.

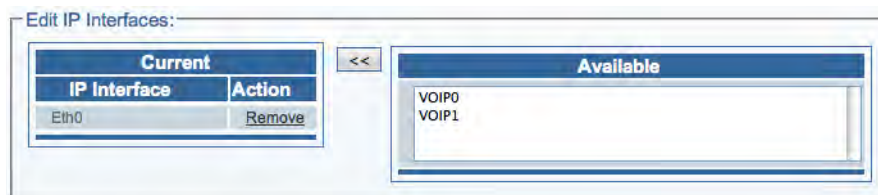


Figure 276. Associating IP Interfaces with the M3UA SAP

Understanding Parameters for M3UA SAPs

Table 62. Configuration Parameters for New M3UA SAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
SCTP Adapter	Defines a virtual adapter for a service access point (SAP) in a system using SIGTRAN protocols
SCTP Source Port	Defines a source port for a service access point (SAP) in a system using SIGTRAN protocols

Creating an M3UA Network

After you have created M3UA SAPs, you must create a new M3UA network to be used with them. To create an M3UA network:

1. Click **Create New M3ua Network** in the M3UA configuration panel:



Figure 277. M3UA Networks List

2. Configure the new M3UA network:
 - Enter a **name** for the network
 - Select a **protocol type**
 - Select a **sub-service field**
 - Select a **Destination Point Code (DPC)length**
 - Select an **Signaling Link Selection (SLS) range**
 - Click **Create**

 A screenshot of a web form titled "Creating New m3ua Network:". The form contains several input fields:

- Name:** M3UA_NET_00
- Protocol Type:** ANSI (dropdown menu)
- Subservice Field Type:** National (dropdown menu)
- DPC Length:** 14bits format=3.8.3 (dropdown menu)
- SLS Range:** 4 bits (dropdown menu)

 At the bottom left of the form is a "Create" button.

Figure 278. Creating the New M3UA Network

3. Verify that the "**M3ua Network was successfully created**" message displays.

M3ua Network was successfully created.

Figure 279. Successful M3UA Network Message

Understanding Parameters for M3UA Networks

Table 63. Configuration Parameters for New M3UA Networks

Parameter	Description																
Name	Used by the Web Portal to indicate a specific object or string in the system																
Protocol Type	Identifies the SS7 protocol variant that will be used with a particular object. The appropriate protocol variant depends on the user's geographical location. Values are chosen from a drop-down list. The Protocol Type parameter can take on the following values, depending on the object being configured: <table border="0"> <tr> <td>ITU</td> <td>TELCORDIA</td> <td>SINGAPORE</td> <td>CHINA</td> </tr> <tr> <td>ITU88</td> <td>ANSI88</td> <td>Q767</td> <td>ETSI</td> </tr> <tr> <td>ITU92</td> <td>ANSI92</td> <td>TTC</td> <td>ETSIV3</td> </tr> <tr> <td>ITU97</td> <td>ANSI95</td> <td>NTT</td> <td>UK</td> </tr> </table>	ITU	TELCORDIA	SINGAPORE	CHINA	ITU88	ANSI88	Q767	ETSI	ITU92	ANSI92	TTC	ETSIV3	ITU97	ANSI95	NTT	UK
ITU	TELCORDIA	SINGAPORE	CHINA														
ITU88	ANSI88	Q767	ETSI														
ITU92	ANSI92	TTC	ETSIV3														
ITU97	ANSI95	NTT	UK														
Sub Service Field	Differentiates between national and international signals in MTP3 networks. Possible values: International/National/Nat. Reserved/Inter. Reserved																
DPC Length	Sets a format for the destination point code (DPC) used by an object. Possible values: 14bits format=3.8.3 / 16bits format=7.4.5 / 24bits format=8.8.8																
SLS Range	Used to route MPT3 links in the SS7 network																

Creating an M3UA User Part

After you have created an M3UA network, you must create a new M3UA user part. To create an M3UA user part:

1. Click **Create New M3ua Userpart** in the M3UA network configuration window:



Figure 280. M3UA Network Configuration Window: Create M3UA User Part

2. Configure the new M3UA user part:
 - Enter a **name** for the user part
 - **IMPORTANT:**
 - For a system set up on a **Signaling Gateway**: Select an **MTP3 network**
 - For a system set up on **IPSP** or **ASP**, the MTP3 network field is not visible.
 - Click **Create**



Figure 281. Creating the New M3UA User Part

3. Verify that the "**M3ua Userpart was successfully created**" message displays.

M3ua Userpart was successfully created.

Figure 282. Successful M3UA User Part Message

Understanding Parameters for M3UA User Parts

Table 64. Configuration Parameters for New M3UA User Part

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
MTP3 Network	(Only displays for Signaling Gateway) Associates an MTP3 network with a higher level network in an SS7 system

Creating an M3UA Peer Signaling Process (IPSP)

After you have created M3UA user part, you must create a new M3UA peer signaling process (PSP). A PSP is used to describe a remote IPSP that is accessible through the M3UA system.

To create an M3UA Peer Signalling Process (PSP) on IPSP:

1. Click **Create New M3ua Peer Signaling Process** in the M3UA network configuration window:



Figure 283. M3UA Network Configuration Window: Create M3UA PSP

2. Configure the new M3UA PSP:
 - Enter a **name** for the PSP
 - Select **IP Server Process (IPSP)** as the PSP type
 - Enter a **destination port** (as configured in the destination element)
 - Click **Create**

Figure 284. Creating the New M3UA PSP

3. Verify that the "**M3ua PSP was successfully created**" message displays.

M3ua PSP was successfully created.

Figure 285. Successful M3UA PSP Message

4. Associate a SAP with the new PSP:
- Select a **SAP** from the list of available SAPs
 - Click the "<<" button to associate it with the PSP.



Figure 286. Associating SAPs with the M3UA PSP

5. Enter a destination address for the PSP:
- Enter a **destination address**
 - Click the "<<" button to add the destination address to the PSP
 - Verify that the "**(your address) was successfully added**" message appears.



Figure 287. Editing Destination Address for the PSP

Understanding Parameters for M3UA PSPs

Table 65. Configuration Parameters for New M3UA PSPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
PSP Type	Assigns a configuration to an M3UA peer signaling process. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols

Creating an M3UA Peer Server

After you have created an M3UA peer signaling process (PSP), you must create a new Peer server. A peer server is a logical entity on the IP network that is served by one or more PSPs. To create an M3UA peer server:

1. Click **Create New M3ua Peer Server** in the M3UA network configuration window:

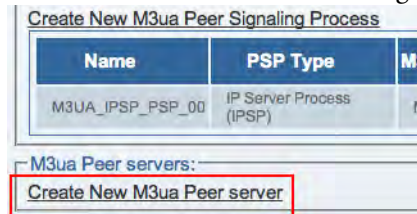


Figure 288. M3UA Network Configuration Window: Create M3UA Peer Server

2. Configure the new M3UA peer server:
 - Enter a **name** for the peer server
 - Check the **Local** box for **local peer server (OPC)**.
For **remote peer server (DPC)**, do not check this box.

Note For **Signaling Gateway (SG)**, this option does not appear, SG uses only remote peer servers.

- Enter a value for the **routing context** (must be unique within a local or non-local server list. However, this value does not need to be unique across lists).
- Click **Create**



Figure 289. Creating the New M3UA Peer Server

3. Verify that the "**M3ua Peer server was successfully created**" message displays.

M3ua Peer server was successfully created.

Figure 290. Successful M3UA Peer Server Message

4. Associate the newly created peer server with a peer signaling process (PSP):
 - Select a **PSP** from the list of available PSPs

- Click the "<<" button to associate the PSP with the peer server.

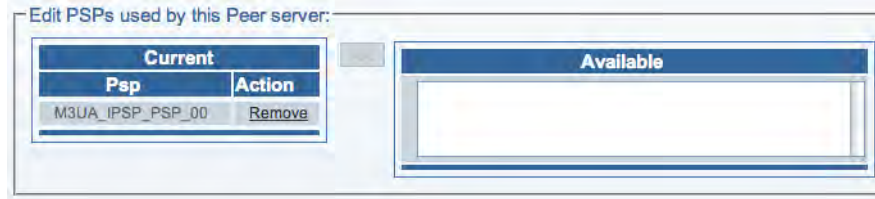


Figure 291. Associating PSPs with the New Peer Server

Understanding Parameters for M3UA Peer Servers

Table 66. Configuration Parameters for New M3UA Peer Servers

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Local	Defines an M3UA peer server as a local server
Routing Context	Sets an integer value for an M3UA peer server, to identify information sent. Values for this parameter are entered into a field, and must be unique within a single server list.

Creating an M3UA Route

After you have configured M3UA user parts, PSPs, and peer servers, you must create an M3UA route for your system. To create an M3UA route:

1. Click **Create New M3ua Route** in the M3UA network configuration window:

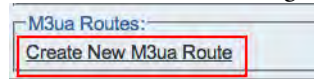


Figure 292. M3UA Network Configuration Window: Create M3UA Route

2. Configure the new M3UA route:

- Enter a **name** for the route
- Select a **route type**
- Select an **M3UA peer server** (choose Local Peer server, if associated with an OPC, select Remote Peer server, if using DPC)
- Select an **M3UA user part** (select NONE, if associated with a DPC)
- Select a **point code**
- Select a **point code mask** (Recommended value: Exact-match)
- Select a **sub-service field type**
- Click **Create**

 A screenshot of a dialog box titled "Creating New M3ua Route:". The dialog contains several fields with dropdown menus:

- Name: M3UA_ROUTE_00
- Route Type: Psrv
- M3ua Peer server: M3UA_PEER_SERVER_00
- M3ua Userpart: M3UA_USERPART_00
- Point Code: OPC_2_10_2
- Point Code Mask: Exact match
- Subservice Field Type: Isup

 At the bottom of the dialog, there is a "Create" button.

Figure 293. Creating the New M3UA Route

3. Verify that the "**M3ua route was successfully created**" message displays.

M3ua Route was successfully created.

Figure 294. Successful M3UA Route Message

Understanding Parameters for M3UA Routes

Table 67. Configuration Parameters for New M3UA Routes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Route Type	Assigns a type to an M3UA Route. Possible values: Local / Psvr
M3UA Peer Server	(Only available if Psvr was chosen as the route type) Associates a peer server with an M3UA route
M3UA User Part	Associates a userpart with an M3UA route
Point Code	Associates a point code with the M3UA route
Point Code Mask	Sets a scheme for accepting point codes in an M3UA route. By default, the only available value is "Exact match".
Sub-Service Field Type	Sets a type for the sub-service field (SSF) of an M3UA route. Possible values: None / SCCP / ISUP

Configuring an M3UA System on a Signaling Gateway

An M3UA system on a Signaling Gateway Process interfaces with an M3UA system on an Application Server Process. In this configuration, the MTP3 links are extended across the IP network. Refer to the following sections to configure an M3UA system:

1. “Adding an Adapter” on page 117
2. “Creating Line Interfaces” on page 119
3. “Creating an MTP2 Configuration” on page 148
4. “Creating MTP2 Links” on page 149
5. “Creating the SCTP Configuration” on page 124
6. “Creating SS7 Point Codes” on page 129
7. “Creating an MTP3 Configuration” on page 131
 - “Creating an MTP3 Network” on page 132
 - “Creating an MTP3 Linkset” on page 133
 - “Creating MTP3 Links (M3UA)” on page 178
 - “Creating an MTP3 Route” on page 136
8. “Creating an M3UA Configuration (SGP)” on page 180
 - “Creating an M3UA SAP” on page 168
 - “Creating an M3UA Network” on page 169
 - “Creating an M3UA User Part” on page 170
 - “Creating an M3UA Peer Signaling Process (SGP)” on page 181
 - “Creating an M3UA Peer Server” on page 173
 - “Creating an M3UA Route (SGP)” on page 183

Creating MTP3 Links (M3UA)

After you have created an MTP3 linkset, you must create MTP3 links for your system. An MTP3 link is used to connect with a MTP2 link; they are connected in a one-to-one fashion.

To create an MTP3 link on your M3UA system:

1. Click **Create New Mtp3 Link** in the MTP3 linkset configuration window:



Figure 295. MTP3 Links

2. Configure the new MTP3 link:
 - Enter a **name** for the link
 - Select **MTP2** as the type of link to bind
 - Select an **MTP2 link**
 - Select a **priority level**
 - Select a **Messages priority**
 - Set the **C Link value**
 - Enter a **Link Test Slc** (this value is unique in the link list)
 - Enter **Link Test Characters**
 - Click **Create**

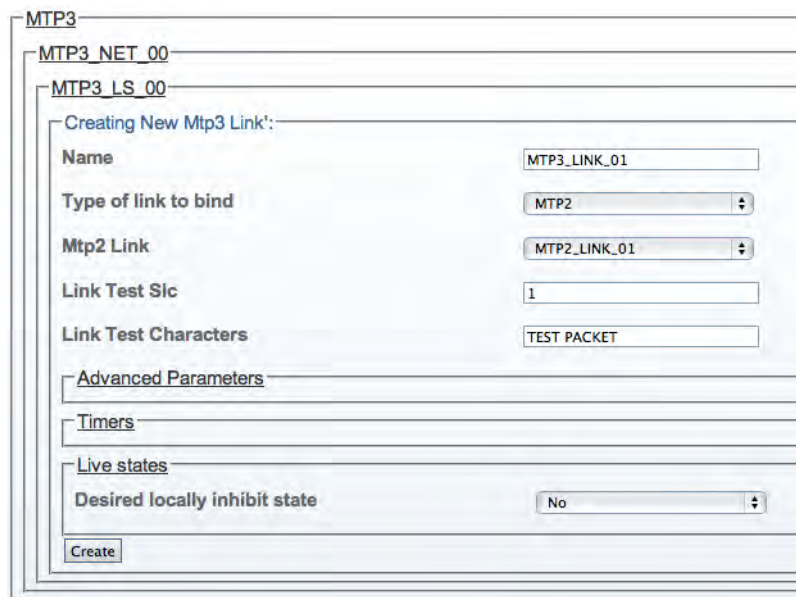


Figure 296. Creating the New MTP3 (M3UA) Link

3. Verify that the "**Mtp3Link was successfully created**" message displays:

Mtp3Link was successfully created.

Figure 297. Successful MTP3 Link Message

Understanding Parameters for MTP3 (M3UA) Links

Table 68. Configuration Parameters for New MTP3 (M3UA) Links

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Link to Bind	Indicates the type of link to bind when creating an MTP3 link Possible values: MTP2/M2PA/M2UA
MTP2 Link	Selects an MTP2 link to bind to an object
Priority Level	Sets a priority for MTP3 links. Possible values: Priority 0/Priority 1/Priority 2/Priority 3
Message Priority	Sets a priority for messages on an MTP3 link. Possible values: None/Priority 0/Priority 1/Priority 2/Priority 3
C Link	Used only when two identical signal transfer points (STPs) are interconnected
Link Test Slc	Used in SLTM/SLTA messages on MTP3 links. Possible values: 0-15 *NOTE: Both ends of the line must use the same value, or the line will fail.
Link Test Characters	Creates a test packet for MTP3 lines

Creating an M3UA Configuration (SGP)

To set up your M3UA system on a signaling gateway process (SGP), you must first create a new M3UA configuration. In this configuration the SS7 MTP2 layer is replaced entirely by the SIGTRAN M3UA layer, and the MTP3 layer is extended over the IP network. To create an M3UA configuration on an SGP:

1. Select **M3UA** from the navigation panel:

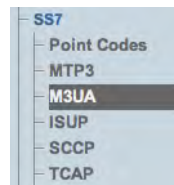


Figure 298. SS7 > M3UA

2. Configure the M3UA service for SGP:
 - Enter a **name** for the configuration
 - Select **Signaling Gateway Process (SGP)** as the node type
 - Click **Create**

 A screenshot of a web form titled "Editing M3ua Config:". The form has the following fields:

- Enabled**: A checkbox that is checked.
- Name**: A text input field containing "M3UA_SGP_00".
- Node Type**: A dropdown menu showing "Signaling Gateway Process (SGP)".
- Advanced Parameters**: A section with a collapsed arrow.
- Save**: A button at the bottom left.

Figure 299. Creating the New M3UA (SGP) Configuration

3. Verify that the "**M3uaCfg was successfully updated**" message displays.

M3ua Cfg was successfully created.

Figure 300. Successful Configuration Message

Understanding Parameters for M3UA Configurations

Table 69. Configuration Parameters for New M3UA Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Node Type	Assigns a configuration to an M3UA network. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)

Creating an M3UA Peer Signaling Process (SGP)

After you have created M3UA user part, you must create a new M3UA peer signaling process (PSP). A PSP is used to describe a remote ASP that is accessible through the M3UA system.

To create an M3UA Peer Signaling Process (PSP) on an SGP system:

1. Click **Create New M3ua Peer Signaling Process** in the M3UA network configuration window:

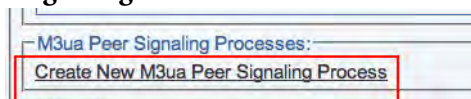


Figure 301. M3UA Network Configuration Window: Create M3UA PSP

2. Configure the new M3UA PSP:
 - Enter a **name** for the PSP
 - Select **Signaling Gateway Process (SGP)** as the PSP type
 - Enter a **destination port** (as configured in the destination element)
 - Click **Create**

Figure 302. Creating the New M3UA PSP (ASP)

3. Verify that the "**M3ua PSP was successfully created**" message displays.

M3ua PSP was successfully created.

Figure 303. Successful M3UA PSP Message

4. Associate a SAP with the new PSP:
 - Select a **SAP** from the list of available SAPs

- Click the "<<" button to associate it with the PSP.



Figure 304. Associating SAPs with the M3UA PSP

5. Enter a destination address for the PSP:
 - Enter a **destination address**
 - Click the "<<" button to add the destination address to the PSP
 - Verify that the "**(your address) was successfully added**" message appears.



Figure 305. Editing Destination Address for the PSP

Understanding Parameters for M3UA PSPs

Table 70. Configuration Parameters for New M3UA PSPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
PSP Type	Assigns a configuration to an M3UA peer signaling process. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols

Creating an M3UA Route (SGP)

After you have configured M3UA user parts, PSPs, and peer servers, you must create an M3UA route for your system. To create an M3UA route on an SGP:

1. Click **Create New M3ua Route** in the M3UA network configuration window:

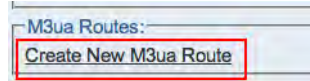


Figure 306. M3UA Network Configuration Window: Create M3UA Route

2. Configure the new M3UA route:

- Enter a **name** for the route
- Select a **route type**
- Select an **M3UA peer server** (choose Remote Peer server, if associated with an OPC, select NONE, if using DPC)
- Select an **M3UA user part** (if associated with a DPC, select NONE for OPC)
- Select a **point code**
- Select a **point code mask** (Recommended value: Exact-match)
- Select a **sub-service field type**
- Click **Create**

 A screenshot of a dialog box titled "Creating New M3ua Route:". The dialog box contains several fields with dropdown menus:

- Name: M3UA_ROUTE_00
- Route Type: Psrv
- M3ua Peer server: M3UA_PEER_SERVER_00
- M3ua Userpart: M3UA_USERPART_00
- Point Code: OPC_2_10_2
- Point Code Mask: Exact match
- Subservice Field Type: Isup

 At the bottom of the dialog box, there is a "Create" button.

Figure 307. Creating the New M3UA Route

3. Verify that the "**M3ua route was successfully created**" message displays.

M3ua Route was successfully created.

Figure 308. Successful M3UA Route Message

Understanding Parameters for M3UA Routes

Table 71. Configuration Parameters for New M3UA Routes

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Route Type	Assigns a type to an M3UA Route. Possible values: Local / Psvr
M3UA Peer Server	(Only available if Psvr was chosen as the route type) Associates a peer server with an M3UA route
M3UA User Part	Associates a userpart with an M3UA route
Point Code	Associates a point code with the M3UA route
Point Code Mask	Sets a scheme for accepting point codes in an M3UA route. By default, the only available value is "Exact match".
Sub-Service Field Type	Sets a type for the sub-service field (SSF) of an M3UA route. Possible values: None / SCCP / ISUP

Configuring an M3UA System on an Application Server

An M3UA system on a Signaling Gateway Process interfaces with an M3UA system on an Application Server Process. In this configuration, the MTP3 links are extended across the IP network. Refer to the following sections to configure an M3UA system:

1. “Adding an Adapter” on page 117
2. “Creating the SCTP Configuration” on page 124
3. “Creating SS7 Point Codes” on page 129
4. “Creating an M3UA Configuration (ASP)” on page 186
 - “Creating an M3UA SAP” on page 168
 - “Creating an M3UA Network” on page 169
 - “Creating an M3UA User Part” on page 170
 - “Creating an M3UA Peer Signaling Process (ASP)” on page 187
 - “Creating an M3UA Peer Server” on page 173
 - “Creating an M3UA Route (SGP)” on page 183
5. “Creating an ISUP Stack” on page 138
 - “Creating an M3UA ISUP Network” on page 189
 - “Creating an ISUP User Part” on page 141
 - “Creating an ISUP Interface” on page 142
 - “Creating ISUP CIC Groups” on page 144
 - “Creating a NAP (SIGTRAN)” on page 145

Creating an M3UA Configuration (ASP)

To set up your M3UA system on an application server process (ASP), you must first create a new M3UA configuration. In this configuration the SS7 MTP2 layer is replaced entirely by the SIGTRAN M3UA layer, and the MTP3 layer is extended over the IP network. To create an M3UA configuration on an ASP:

1. Select **M3UA** from the navigation panel:

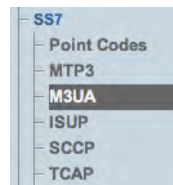


Figure 309. SS7 > M3UA

2. Configure the M3UA service for SGP:
 - Enter a **name** for the configuration
 - Select **Application Server Process (ASP)** as the node type
 - Click **Create**

 A screenshot of a web-based configuration form titled 'Editing M3ua Config:'. The form contains several fields:

- 'Enabled': A checkbox that is checked.
- 'Name': A text input field containing the value 'M3UA_ASP_00'.
- 'Node Type': A dropdown menu with 'Application Server Process (ASP)' selected.
- 'Advanced Parameters': A section that is currently collapsed.
- 'Save': A button at the bottom left of the form.

Figure 310. Creating the New M3UA (ASP) Configuration

3. Verify that the "**M3uaCfg was successfully updated**" message displays.

M3ua Cfg was successfully created.

Figure 311. Successful Configuration Message

Understanding Parameters for M3UA Configurations

Table 72. Configuration Parameters for New M3UA Configurations

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Node Type	Assigns a configuration to an M3UA network. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)

Creating an M3UA Peer Signaling Process (ASP)

After you have created M3UA user part, you must create a new M3UA peer signaling process (PSP). A PSP is used to describe a remote SGP that is accessible through the M3UA system. To create an M3UA Peer Signaling Process (PSP) on an ASP system:

1. Click **Create New M3ua Peer Signaling Process** in the M3UA network configuration window:

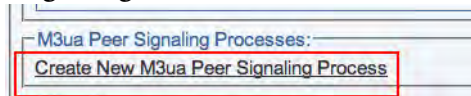


Figure 312. M3UA Network Configuration Window: Create M3UA PSP

2. Configure the new M3UA PSP:
 - Enter a **name** for the PSP
 - Select **Application Server Process (ASP)** as the PSP type
 - Enter a **destination port** (as configured in the destination element)
 - Click **Create**

Figure 313. Creating the New M3UA PSP (ASP)

3. Verify that the "**M3ua PSP was successfully created**" message displays.

M3ua PSP was successfully created.

Figure 314. Successful M3UA PSP Message

4. Associate a SAP with the new PSP:
 - Select a **SAP** from the list of available SAPs
 - Click the "<<" button to associate it with the PSP.



Figure 315. Associating SAPs with the M3UA PSP

5. Enter a destination address for the PSP:
 - Enter a **destination address**
 - Click the "<<" button to add the destination address to the PSP
 - Verify that the "**(your address) was successfully added**" message appears.



Figure 316. Editing Destination Address for the PSP

Understanding Parameters for M3UA PSPs

Table 73. Configuration Parameters for New M3UA PSPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
PSP Type	Assigns a configuration to an M3UA peer signaling process. Possible values: Signaling Gateway Process (SGP) Application Server Process (ASP) IP Server Process (IPSP)
Destination Port	Sets a destination for a line in a system using SIGTRAN protocols

Creating an M3UA ISUP Network

After you have created an initial ISUP stack, you must create a new ISUP network. The ISUP network tells the ISUP protocol layer about a collection of SS7 nodes that are accessible through MTP3 or M3UA. Based upon your system configuration, one or more ISUP networks are created. Repeat this section for as many networks as you require.

Note An ISUP network can be used by multiple ISUP interfaces even if they are members of different ISUP userpart (e.g., to support multi-switch variants for a single SS7 network).

To create an M3UA ISUP network:

1. Click "**Create New ISUP Network**" in the ISUP stack configuration window:



Figure 317. Editing ISUP Networks

2. Configure the new ISUP network:
 - Enter a **name** for the network
 - Select **M3UA** as the **type of network to bind**
 - Select an **M3UA Userpart**
 - Click **Create**

Figure 318. Creating the New M3UA ISUP Network

3. Verify that the "**IsupNetwork was successfully created**" message displays.

IsupNetwork was successfully created.

Figure 319. Successful ISUP Network Message

Understanding Parameters for M3UA ISUP Networks

Table 74. Configuration Parameters for New M3UA ISUP Network

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type of Network to Bind	Indicates the type of network to associate with an ISUP Network Possible values: MTP3/M3UA
M3UA Userpart	Associates a userpart with an M3UA route

Figure 320. General View: SS7 M3UA Stack

Chapter 6 **Configuring CAS R2**

Chapter contents

Overview	192
Adding an Adapter	192
Understanding Parameters for Hardware Adapters	194
Creating Line Interfaces	194
Understanding Parameters for Line Interfaces	195
Creating Line Services	196
Understanding Parameters for Line Services	198
Copying a Variant Script (optional).....	199
Creating a CAS R2 Stack.....	200
Understanding Parameters for CAS R2 Stacks	201
Creating a CAS R2 NAP	201
Understanding Parameters for NAPs	202

Overview

The Smart Media Software allows you to configure CAS R2 signaling stacks. Refer to the following sections to configure CAS R2:

1. “Adding an Adapter” on page 192
2. “Creating Line Interfaces” on page 194
3. “Creating Line Services” on page 196
4. “Copying a Variant Script (optional)” on page 199
5. “Creating a CAS R2 Stack” on page 200
6. “Creating a CAS R2 NAP” on page 201

Adding an Adapter

When you receive a new system, at least one hardware configuration will have been set in the Smart Media application server, by default. To add other hardware devices, you must use the Smart Media Web Portal. To add one or more additional hardware devices to the Smart Media system configuration, their serial numbers must be registered with the Smart Media application server.

To add a hardware device:

1. Select **Hardware** from the navigation panel:



Figure 321. config_patton > Hardware

2. Click **Create New Hardware** to add a new hardware device:

Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location	Description	Co No
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab	TMG3200-16E1	Co No

Figure 322. Hardware List

3. Configure the new adapter:
 - Enter a **name** for the hardware device
 - Enter the **serial number** of the new hardware device (filling in the Serial Number field will cause auto-completion of the field to occur).

- Select the appropriate **hardware device** from the Adapter Type field.
- Select **Enabled** from the Target State field.
- Click **Create**

Creating New Hardware:

Name	System_00
Serial Number	
Type	TMP
TDM Lines Type	UNKNOWN
Is 1+1 Backup	<input type="checkbox"/>
Graceful upgrade timeout (sec)	0
Location	Workspace
Description	Description
Advanced Parameters	
Call rate limiting	
Live states	
Target State	Enabled
<input type="button" value="Create"/>	

Figure 323. Creating the New Hardware Device

4. Verify that the "**Adapter was successfully created**" message displays, and that the newly added hardware device appears in the **Hardware List** below.

Adapter was successfully created.

Configuration		Status						
Create New Hardware	Create Multiple New Hardware							
TMP Hardware List								
Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab
System_00		0 UNKNOWN	0	0	0	0	-	Workspace

Figure 324. Successful Device Message

Understanding Parameters for Hardware Adapters

Table 75. Configuration Parameters for New Hardware Adapters

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Serial	Defines a product serial number, when creating a new hardware device. Entering characters into the Serial field will cause the number to auto-complete.
Adapter Type	Specifies the type of hardware device being created, when adding a new adapter. Possible values: TMP/TMS
Graceful Upgrade Timeout	Sets a maximal delay for calls to terminate normally before an adapter is upgraded
Location	Identifies the physical location of a hardware adapter
Description	Describes the purpose of a particular hardware adapter
Target State	Sets the live state of a hardware adapter. Possible values: Disabled/Probation/Enabled

Creating Line Interfaces

Line interface is a generic term for TDM physical interfaces. The SmartNode 10200 Series supports three types of physical interfaces: T1/E1/J1 interfaces, DS3 interfaces, and Oc3/STM1 interfaces.

To create a new line interface:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 325. TDM Interfaces > Line Interfaces

2. Click **Create New Line Interface** to create a single interface, or **Create Multiple Line Interfaces** to create many interfaces at once:

 A screenshot of the 'Line Interface List' configuration page. At the top, there are tabs for 'Configuration' and 'Status'. Below the tabs, there are three buttons: 'Create New Line Interface' (highlighted with a red box), 'Create Multiple Line Interfaces', and 'Delete All'. The main content is a table with the following data:

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 326. Line Interface List

3. Create the new line interface:
 - Enter a **name** for the interface
 - Set a **type** for the interface

- Set a **local index** for the line
- Select a **length** and an **encoding scheme**
- Click **Create**

Figure 327. Create New Line Interface

4. Verify that the "**Line interface was successfully created**" message is displayed.

Line interface was successfully created.

Figure 328. Confirmation Message for New Line Interface

Understanding Parameters for Line Interfaces

Table 76. Configuration Parameters for New Line Interfaces

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of line interface: E1/DS3/T1/J1/STM1/OC3
Local Index	Assigns an integer to represent an object
Length	Indicates the physical length of a line: Short/Long/Autodetect/Monitoring
Encoding	Sets an encoding scheme for a line interface. Values depend on the interface type: E1 : HDB3/AMI DS3 : B3ZS T1/J1 : B8ZS/AMI/AMI CLEAR STM1/OC3 : (None)

Creating Line Services

You must create a new line service for your line interface. A line service defines the payload type of a line interface or another line service. The line service chain stops when it reaches the E1/J1/T1 line service. The E1/J1/T1 line services are also known as trunks or spans.

To create a new line service:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 329. TDM Interfaces > Line Interfaces

2. Click **Edit** next to the line service for which you wish to create a line service:

Create New Line Interface | Create Multiple Line Interfaces | Delete All

Line Interface List

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
TDM_Line_00	2	E1			Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 330. Line Interface List

3. In the following window, click **Create New Child Line Service** (also, a number can be created at once by selecting **Create Multiple Child Line Service**):

Configuration | Status

List | **Create New Child Line Service** | Create Multiple Child Line Service

Editing E1 Line Interface:

Name: TDM_Line_00

Type: E1

Local index: 2

Length: Short

Encoding: HDB3

Advanced Parameters

Figure 331. Editing a Line Interface to Create a New Service

4. Create the new line service:
 - Enter a **name** for the new line
 - Select an available **local index**, from the drop-down box
 - Select appropriate **framing** and **loopback modes**

– Click **Create**



The screenshot shows a web-based configuration form titled "Creating New E1 Line Service:". The form contains several fields and sections:

- Name:** A text input field containing "Line_Service_00".
- Local index:** A dropdown menu with "0" selected.
- Framing:** A dropdown menu with "AUTO" selected.
- Advanced Parameters:** A section header with a downward arrow.
- Live states:** A section header with a downward arrow.
- Loopback:** A dropdown menu with "None" selected.
- Create:** A button at the bottom left of the form.

Figure 332. Create New Line Service

5. Navigate back to the line interface page, by following link displayed in the upper-left corner of the screen. The new line service should be displayed in the **Line Services** list.



The screenshot shows a table titled "Line Services:" with the following data:

Name	Local Index	Line Services	Actions
Line_Service_00	0		Edit Delete

Figure 333. Line Services List

Understanding Parameters for Line Services

Table 77. Configuration Parameters for New Line Services

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Local Index	Assigns an integer to represent an object
Framing	Sets a framing type for a line service. Select from: AUTO (typical for E1)/STD/MFRAME/SF/ESF (typical for T1)/SLC96
Loopback	Used to set a loopback state for a line service. Refer to table 78 for details.

Table 78. Loopback Types

Loopback Type	Description	Behavior	Use
NONE	Normal Operation	All traffic is received and sent on the line	Always
LINE	Analog Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs of the analog transceiver bypassing the framer modules.	First step in testing a physical connection
PAYLOAD	Digital Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs after the deframer/framer.	Second step in testing a physical connection. This tests the framer configuration.
GENERATE_LOS	Generate Loss of Signal	This forces the transmit line to stop sending.	This is the second-best thing to disconnecting the line interface physically.
LOCAL	Local Loopback	All received traffic is dropped. The traffic sent is re-routed internally.	Never. Used for internal testing only

Copying a Variant Script (optional)

If you plan to modify an existing CASR2 script, you may optionally create a copy of that script first.

1. Select **CASR2 Scripts** from the navigation pane:

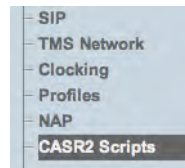


Figure 334. Menu > CASR2 Scripts

2. Click **Copy** next to the desired configuration.

Default Scripts:

Name	Revision	Variant	Used By	Actions
brazil.lua	95512	2		Copy Delete
brazil.lua	105591	2		Copy
itu.lua	95520	1		Copy Delete
itu.lua	105591	1		Copy
mexico.lua	98319	3		Copy Delete
mexico.lua	105591	3		Copy

Figure 335. Copy from Scripts List

3. Copy the CAS R2 Script:
 - Enter a new **name** for the script
 - Click **Create**

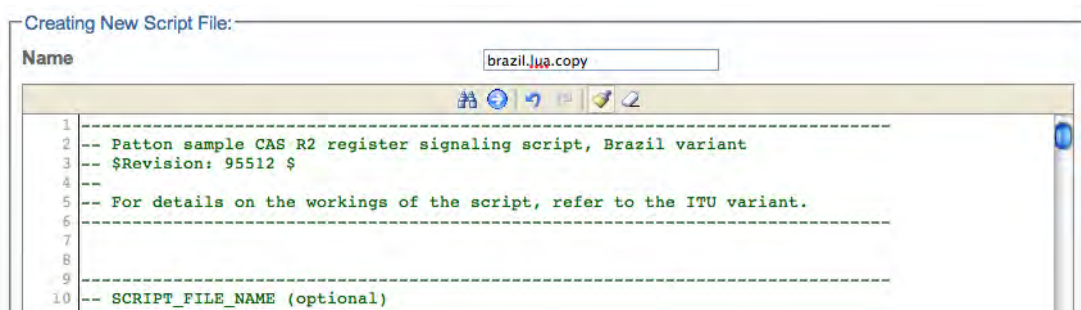


Figure 336. Creating a New Script File

4. Verify that the "**Script file was successfully created**" message displays.

Script file was successfully created.

Figure 337. Successful Script File Message

5. The copied script now appears in the **User Scripts** list.

User Scripts:

Name	Revision	Variant	Used By	Actions
brazil.lua.copy	95512	2		Edit Delete

Figure 338. User Scripts List

Creating a CAS R2 Stack

Now that the necessary underlying structures have been configured, you must create a new CAS R2 stack.

The Smart Media CAS R2 stack features a scriptable register signaling engine that, in practice, allows the complete customization of communication processes using tones. More specifically, it is possible to modify the timing(s) of the tone exchanges, change the meaning(s) of each tone and dynamically specify the sequence in which the tones are played. The CAS R2 stack also provides integrated interoperability between variants and between other signaling types. For instance, the calling party category can be converted between variants and propagated to a SS7 call leg. To create a CAS R2 stack:

1. Select **CAS R2** from the navigation pane:

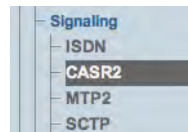


Figure 339. Signaling > CASR2

2. Click **Create New CASR2 Stack**.

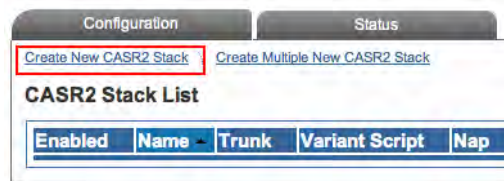


Figure 340. CASR2 Stack List

3. Configure the new CAS R2 stack:
 - Make sure the **Enabled** box is checked
 - Enter a **name** for the stack
 - Select a **line service**
 - Select a **variant script**
 - Click **Create**



Figure 341. Creating the New CAS R2 Stack

Understanding Parameters for CAS R2 Stacks

Table 79. Configuration Parameters for CAS R2 Stacks

Parameter	Description
Enabled	Indicates whether or not an object is to be implemented or not
Name	Used by the Web Portal to indicate a specific object or string in the system
Line Service	Indicates which TDM line service is to be associated with the object being created
Variant Script	Sets a regional script for a CAS R2 signaling. Possible values: brazil.lua / itu.lua

Creating a CAS R2 NAP

After you have created a CAS R2 stack, you must create a network access point, in order to finish configuring your system. A Network Access Point (NAP) represents the entry point to another network or destination peer.

To create a network access point (NAP):

1. Select **NAP** from the navigation pane:

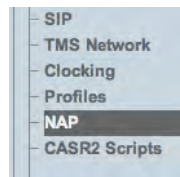


Figure 342. Menu > NAP

2. Click **Create New NAP**.

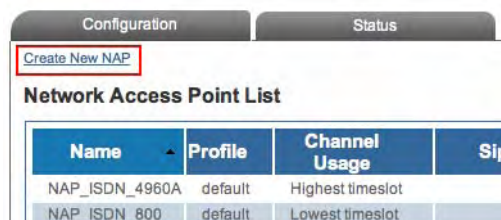


Figure 343. Network Access Point List

3. Configure the new NAP:
 - Enter a **name** for the NAP
 - Select a **user-created profile**. If none, select **default**.

- Click **Create**

Figure 344. Creating New CAS R2 NAP

4. Verify that the "**NAP was successfully created**" message displays.

NAP was successfully created.

Figure 345. Successful NAP Message

5. Associate a CASR2 stack with the NAP:
 - Select an **interface** (the **newly-created CASR2 stack**)
 - Click the "<<" button to add the interface to the list
 - Click **Save**

Figure 346. Associating a CAS R2 Stack with the NAP

6. Verify that the "**NAP was successfully updated**" message displays.

NAP was successfully updated.

Figure 347. Successful NAP Update Message

Understanding Parameters for NAPs

Table 80. Configuration Parameters for NAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Default Profile	Sets a profile for a NAP. The default value is simply labeled "Default", but can be changed if alternate profiles have been created.

Chapter 7 **Configuring H.248**

Chapter contents

Overview	204
Adding an Adapter	204
Understanding Parameters for Hardware Adapters	206
Creating Line Interfaces	206
Understanding Parameters for Line Interfaces	207
Creating Line Services	208
Creating an IP Port Range.....	210
Creating an IP port range	210
Understanding Parameters for IP Port Ranges	211
Configuring Network Access Points (NAPs).....	212
Allocating a VoIP network access point (NAP)	212
Understanding Parameters for VoIP NAPs	213
Allocating a TDM Network Access Point (NAP)	213
Understanding Parameters for TDM NAPs	214
Configuring the Media Gateway for H.248 Mode.....	215
Creating an H.248 Configuration	216
Understanding Parameters for H.248 Configuration	217
Adding a New Media Gateway Controller (MGC).....	217
Understanding Parameters for Media Gateway Controller	218
Associating NAPs with the H.248 Configuration	218
Selecting Timeslots for TDM Interfaces	219

Overview

Refer to the following sections to configure the H.248 media gateway control protocol:

1. “Adding an Adapter” on page 204
2. “Creating Line Interfaces” on page 206
3. “Creating Line Services” on page 208
4. “Creating an IP Port Range” on page 210
5. “Configuring Network Access Points (NAPs)” on page 212
 - “Allocating a VoIP network access point (NAP)” on page 212
 - “Allocating a TDM Network Access Point (NAP)” on page 213
6. “Configuring the Media Gateway for H.248 Mode” on page 215
7. “Creating an H.248 Configuration” on page 216
8. “Adding a New Media Gateway Controller (MGC)” on page 217
9. “Associating NAPs with the H.248 Configuration” on page 218
10. “Selecting Timeslots for TDM Interfaces” on page 219

Adding an Adapter

When you receive a new system, at least one hardware configuration will have been set in the Smart Media application server, by default. To add other hardware devices, you must use the Smart Media Web Portal. To add a hardware device:

1. Select **Hardware** from the navigation panel:



Figure 348. config_patton > Hardware

2. Click **Create New Hardware** to add a new hardware device:

Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location	Description	Co No
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab	TMG3200-16E1	

Figure 349. Hardware List

3. Configure the new adapter:

- Enter a **name** for the hardware device
- Enter the **serial number** of the new hardware device (filling in the Serial Number field will cause auto-completion of the field to occur).
- Select the appropriate **hardware device** from the Adapter Type field.
- Select **Enabled** from the Target State field.
- Click **Create**

Creating New Hardware:

Name: System_00

Serial Number:

Type: TMP

TDM Lines Type: UNKNOWN

Is 1+1 Backup:

Graceful upgrade timeout (sec): 0

Location: Workspace

Description: Description

Advanced Parameters

Call rate limiting

Live states

Target State: Enabled

Create

Figure 350. Creating the New Hardware Device

4. Verify that the "**Adapter was successfully created**" message displays, and that the newly added hardware device appears in the **Hardware List** below.

Adapter was successfully created.

Configuration Status

[Create New Hardware](#) [Create Multiple New Hardware](#)

TMP Hardware List

Name	Serial Nb	Line Interfaces	Line Services	ISUP LS	ISDN LS	CASR2 LS	1+1 Role	Location
SN00A0BA06E620	SN00A0BA06E620	5 UNKNOWN	5	2	3	0	-	Patton's Lab
System_00		0 UNKNOWN	0	0	0	0	-	Workspace

Figure 351. Successful Device Message

Understanding Parameters for Hardware Adapters

Table 81. Configuration Parameters for New Hardware Adapters

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Serial	Defines a product serial number, when creating a new hardware device. Entering characters into the Serial field will cause the number to auto-complete.
Adapter Type	Specifies the type of hardware device being created, when adding a new adapter. Possible values: TMP/TMS
Graceful Upgrade Timeout	Sets a maximal delay for calls to terminate normally before an adapter is upgraded
Location	Identifies the physical location of a hardware adapter
Description	Describes the purpose of a particular hardware adapter
Target State	Sets the live state of a hardware adapter. Possible values: Disabled/Probation/Enabled

Creating Line Interfaces

Line interface is a generic term for TDM physical interfaces. The SmartNode 10200 Series supports three types of physical interfaces: T1/E1/J1 interfaces, DS3 interfaces, and Oc3/STM1 interfaces.

To create a new line interface:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 352. TDM Interfaces > Line Interfaces

2. Click **Create New Line Interface** to create a single interface, or **Create Multiple Line Interfaces** to create many interfaces at once:

 A screenshot of a web configuration page titled 'Line Interface List'. At the top, there are tabs for 'Configuration' and 'Status'. Below the tabs are three buttons: 'Create New Line Interface' (highlighted with a red box), 'Create Multiple Line Interfaces', and 'Delete All'. The main content is a table with the following data:

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 353. Line Interface List

3. Create the new line interface:
 - Enter a **name** for the interface
 - Set a **type** for the interface

- Set a **local index** for the line
- Select a **length** and an **encoding scheme**
- Click **Create**

Figure 354. Create New Line Interface

4. Verify that the "**Line interface was successfully created**" message is displayed.

Line interface was successfully created.

Figure 355. Confirmation Message for New Line Interface

Understanding Parameters for Line Interfaces

Table 82. Configuration Parameters for New Line Interfaces

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Type	Defines the type of line interface: E1/DS3/T1/J1/STM1/OC3
Local Index	Assigns an integer to represent an object
Length	Indicates the physical length of a line: Short/Long/Autodetect/Monitoring
Encoding	Sets an encoding scheme for a line interface. Values depend on the interface type: E1 : HDB3/AMI DS3 : B3ZS T1/J1 : B8ZS/AMI/AMI CLEAR STM1/OC3 : (None)

Creating Line Services

You must create a new line service for your line interface. A line service defines the payload type of a line interface or another line service. The line service chain stops when it reaches the E1/J1/T1 line service. The E1/J1/T1 line services are also known as trunks or spans.

To create a new line service:

1. Select **Tdm Interfaces-->Line Interfaces** from the navigation panel:



Figure 356. TDM Interfaces > Line Interfaces

2. Click **Edit** next to the line service for which you wish to create a line service:

Create New Line Interface | Create Multiple Line Interfaces | Delete All

Line Interface List

Name	Local Index	Type	Line Services	Leaf Line Services	Actions
E1_0	0	E1	E1 LS 0	E1 LS 0	Edit Delete
E1_1	1	E1	E1 LS 1	E1 LS 1	Edit Delete
TDM_Line_00	2	E1			Edit Delete
E1_8	8	E1	E1 LS 8	E1 LS 8	Edit Delete
E1_10	10	E1	E1 LS 10	E1 LS 10	Edit Delete
E1_11	11	E1	E1 LS 11	E1 LS 11	Edit Delete

Figure 357. Line Interface List

3. In the following window, click **Create New Child Line Service** (also, a number can be created at once by selecting **Create Multiple Child Line Service**):

Configuration | Status

List | **Create New Child Line Service** | Create Multiple Child Line Service

Editing E1 Line Interface:

Name: TDM_Line_00

Type: E1

Local index: 2

Length: Short

Encoding: HDB3

Advanced Parameters

Figure 358. Editing a Line Interface to Create a New Service

4. Create the new line service:
 - Enter a **name** for the new line
 - Select an available **local index**, from the drop-down box
 - Select appropriate **framing** and **loopback modes**

– Click **Create**

Creating New E1 Line Service:

Name: Line_Service_00

Local index: 0

Framing: AUTO

Advanced Parameters:

Live states:

Loopback: None

Create

Figure 359. Create New Line Service

5. Navigate back to the line interface page, by following link displayed in the upper-left corner of the screen. The new line service should be displayed in the **Line Services** list.

Line Services:

Name	Local Index	Line Services	Actions
Line_Service_00	0		Edit Delete

Figure 360. Line Services List

Understanding Parameters for Line Services

Table 83. Configuration Parameters for New Line Services

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
Local Index	Assigns an integer to represent an object
Framing	Sets a framing type for a line service. Select from: AUTO (typical for E1)/STD/MFRAME/SF/ESF (typical for T1)/SLC96
Loopback	Used to set a loopback state for a line service. Refer to table 84 for details.

Table 84. Loopback Types

Loopback Type	Description	Behavior	Use
NONE	Normal Operation	All traffic is received and sent on the line	Always
LINE	Analog Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs of the analog transceiver bypassing the framer modules.	First step in testing a physical connection
PAYLOAD	Digital Line Loopback	All received traffic is re-routed on the transmit line. The clock and data recovered from the line inputs are routed back to the line outputs after the deframer/framer.	Second step in testing a physical connection. This tests the framer configuration.

Table 84. Loopback Types

Loopback Type	Description	Behavior	Use
GENERATE_LOS	Generate Loss of Signal	This forces the transmit line to stop sending.	This is the second-best thing to disconnecting the line interface physically.
LOCAL	Local Loopback	All received traffic is dropped. The traffic sent is re-routed internally.	Never. Used for internal testing only

Creating an IP Port Range

Creating an IP port range

After you have properly allocated all of your system's physical interfaces, you must create a new IP port range.

1. Click **IP Interfaces** in the navigation panel:

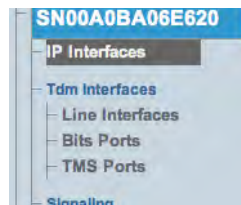


Figure 361. Menu: IP Interfaces

2. In the **IP Interfaces** window, click **Create New Port Range**:

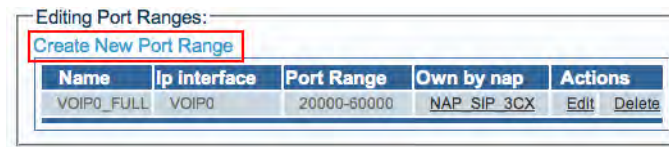


Figure 362. Editing Port Ranges

3. Create the new IP port range:
 - Enter a **name** for the port range
 - Select an **IP interface**
 - Enter a **port min value** (must be at least 1024)
 - Enter a **port max value**

– Click **Create**

Figure 363. Creating a New Port Range

4. Verify that the "**Port Range was successfully created**" message appears:

PortRange was successfully created.

Figure 364. Confirmation Message for Port Range

Understanding Parameters for IP Port Ranges

Table 85. Configuration Parameters for New IP Port Ranges

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
IP Interface	Identifies an IP interface that is to be associated with the structure being created
Port Min	Sets a minimum value for an IP port range. Since only even-numbered ports will be used to send RTP over, it is recommended that the Port Min value be at least 1000
Port Max	Sets a maximum value for an IP port range. Since only even-numbered ports will be used to send RTP over, it is recommended that the Port Min value be at least 1000. Ex.: 10000-20000 -> 5000 connections

Configuring Network Access Points (NAPs)

A network access point or NAP represents the entry point to another network or destination peer (e.g. SIP proxy, ISUP interface peer, etc).

Allocating a VoIP network access point (NAP)

Now that you have created the necessary IP port ranges, you must allocate a VoIP network access point for your system.

1. Click **NAP** in the navigation panel:

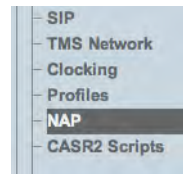


Figure 365. Menu: NAP

2. Click **Create New NAP**:

Name	Profile	Channel Usage	Sip Proxy	Members	Actions
NAP_ISDN_4960A	default	Highest timeslot		ISDN_4960A	Edit Delete
NAP_ISDN_800	default	Lowest timeslot		ISDN_800A, ISDN_800B	Edit Delete
NAP_SIP_3CX	default		UDP 192.168.49.191:5060	SIP_SAP_VOIP0_5060, VOIP0_FULL	Edit Delete
NAP_SS7_800	default	Highest timeslot		CIC_Group_0, CIC_Group_1	Edit Delete

Figure 366. Edit NAP List

3. Create the new NAP:
 - Enter a **name** for the NAP
 - Click **Create**

Creating New NAP:

Name: VoIP_NAP

Default Profile: default

Calls rate limiting

Figure 367. Creating the New VoIP NAP

4. Verify that the **NAP was successfully created** message appears:

NAP was successfully created.

Figure 368. Confirmation Message for New NAP

5. Associate VoIP media with the new NAP:
 - Select **VoIP media** from the VoIP Media Only menu (this is the port range that was created earlier)
 - Click the "<<" button to associate it with the NAP



Figure 369. Associating VoIP Media with the New NAP

Understanding Parameters for VoIP NAPs

Table 86. Configuration Parameters for VoIP NAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Allocating a TDM Network Access Point (NAP)

You must now allocate a TDM network access point for your system. A network access point or NAP represents the entry point to another network or destination peer (e.g. SIP proxy, ISUP interface peer, etc).

1. Click **NAP** in the navigation panel:

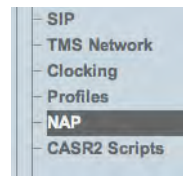


Figure 370. Menu: NAP

2. Click **Create New NAP**:

Name	Profile	Channel Usage	Sip Proxy	Members	Actions
NAP_ISDN_4960A	default	Highest timeslot		ISDN_4960A	Edit Delete
NAP_ISDN_800	default	Lowest timeslot		ISDN_800A, ISDN_800B	Edit Delete
NAP_SIP_3CX	default		UDP 192.168.49.191:5060	SIP_SAP_VOIP0_5060, VOIP0_FULL	Edit Delete
NAP_SS7_800	default	Highest timeslot		CIC_Group_0, CIC_Group_1	Edit Delete

Figure 371. Edit NAP List

3. Create the new NAP:
 - Enter a **name** for the NAP

- Click **Create**

Figure 372. Creating the New TDM NAP

4. Verify that the **NAP was successfully created** message appears:

NAP was successfully created.

Figure 373. Confirmation Message for New NAP

5. Associate TDM media with the new NAP:
 - Select a **line service** from the LS Media Only menu (this is the line service that was created earlier)
 - Click the "<<" button to associate it with the NAP

Figure 374. Associating VoIP Media with the New NAP

Understanding Parameters for TDM NAPs

Table 87. Configuration Parameters for TDM NAPs

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system

Configuring the Media Gateway for H.248 Mode

To configure the media gateway for H.248:

1. Select **Configurations** from the navigation pane:

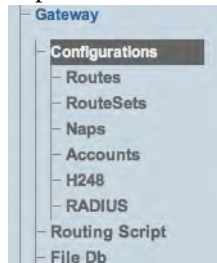


Figure 375. Menu > Configurations

2. Configure the Application Mode:

- Select **H248**
- Click **Save**

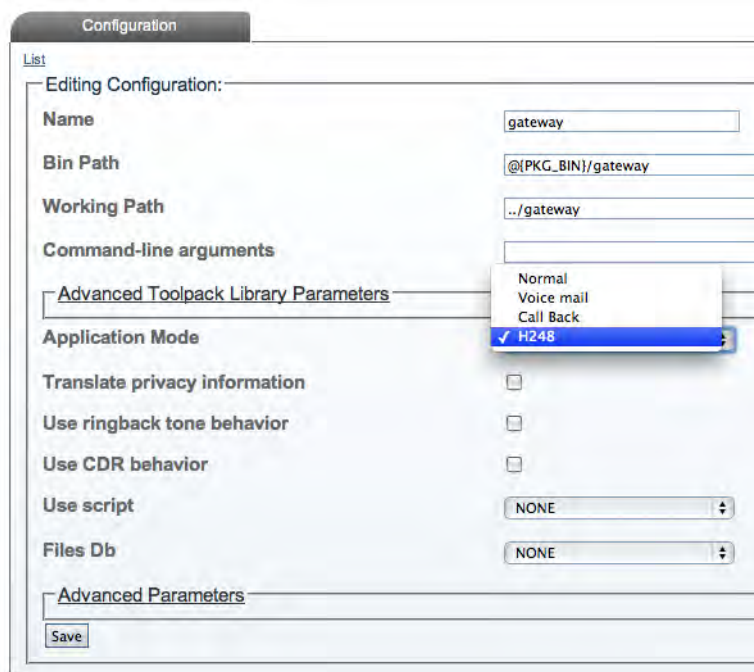


Figure 376. Setting the Application Mode to H.248

Creating an H.248 Configuration

After you have created the necessary VoIP and TDM NAPs, you are ready to create a new H.248 configuration.

1. Select **H248** from the navigation panel:

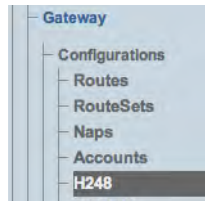


Figure 377. Gateway > H248

2. Create the new configuration:
 - Select a **transport protocol type**
 - Enter a **public IP address**
 - Enter a **private IP address**
 - Click **Create**

 A screenshot of a web form titled "Creating New H248 Config:". The form is divided into several sections. The "Transport Protocol" section is expanded and contains the following fields:

- Public IP Address:** 120.0.0.0
- Use virtual ip address:**
- Local IP Address:** 132.0.1.3
- Local Port to Receive for Text Encoding:** 2944
- IP ToS value:** 0

 Below the "Transport Protocol" section are sections for "Advanced Parameters" and "Timers", both of which are currently collapsed. At the bottom of the form is a "Create" button.

Figure 378. Creating the New H.248 Configuration

3. Verify that the "**TbgwH248Cfg was successfully created**" message displays.

TbgwH248Cfg was successfully created.

Figure 379. Successful Configuration Message

Understanding Parameters for H.248 Configuration

Table 88. Configuration Parameters for H.248 Configuration

Parameter	Description
Transport Protocol Type	Sets the kind of protocol handled by an H.248 configuration. Possible values: UDP / SCTP
Public IP Address	Sets an address for externally accessing an H.248 configuration
Private IP Address	Sets an address for privately accessing an H.248 configuration

Adding a New Media Gateway Controller (MGC)

After you have created the H.248 configuration, you must create a new media gateway controller (MGC).

A Media Gateway Controller (MGC) is a system used in VoIP architectures to control a number of Media Gateway terminals.:

1. Click **Create New H248 MGC** in the H.248 configuration window.

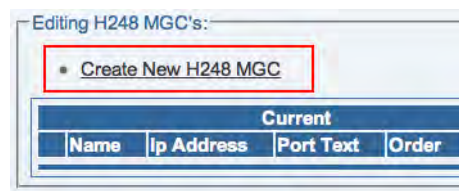


Figure 380. H.248 MGCs

2. Configure the new MGC:
 - Enter a **name** for the MGC
 - Enter an **IP address**
 - Click **Create**

Figure 381. Creating a New H.248 MGC

3. Verify that the "**h248_mgc_cfg was successfully created**" message displays.

h248_mgc_cfg was successfully created.

Figure 382. Successful MGC Message

Understanding Parameters for Media Gateway Controller

Table 89. Configuration Parameters for Media Gateway Controller

Parameter	Description
Name	Used by the Web Portal to indicate a specific object or string in the system
IP Address	Sets an address for accessing a new media gateway controller (MGC)

Associating NAPs with the H.248 Configuration

You must now associate the TDM and VoIP network access points (NAPs) you previously created with the H.248 configuration:

1. Select **H248** from the navigation pane:

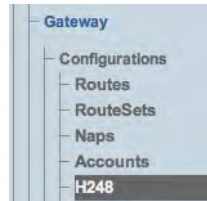


Figure 383. Gateway > H248

2. Associate a TDM NAP with the configuration:
 - Select a **NAP** from the TDM Media list
 - Click the "<<" button to associate the NAP with your H.248 configuration.

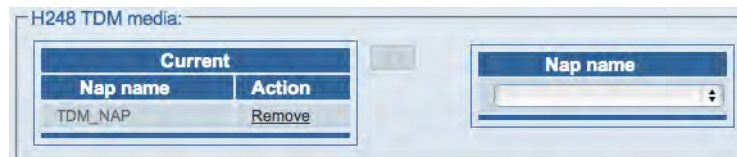


Figure 384. Associating a TDM NAP

3. Associate a VoIP NAP with the configuration:
 - Select a **NAP** from the TDM Media list
 - Click the "<<" button to associate the NAP with your H.248 configuration

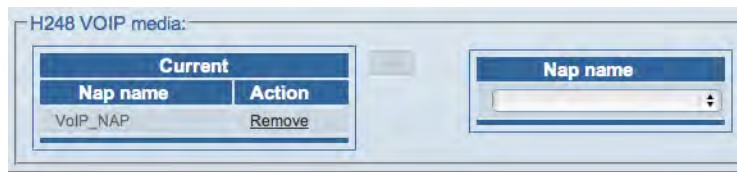


Figure 385. Associating a VoIP NAP

Chapter 8 **Configuring SNMP**

Chapter contents

Overview	221
Activating the tbSnmpAgent.....	221
Disabling the SELinux Service	221
Activating the tbSnmpAgent application	222
Configuring the tbSnmpAgent	223
Configuring SNMP system parameters	223
Configuring SNMPv1, SNMPv2c	225
Configuring SNMPv3	225
Configuring traps	225

Overview

To use the Simple Network Management Protocol (SNMP) on your machine, you must first configure the `tbSnmpAgent`. The `tbSnmpAgent` is a software application that interfaces between the Smart Media system hardware and the `NetSnmp` implementation of the SNMP that is supported by Patton. By default, `tbSnmpAgent` is disabled. In order to use the SNMP protocol to monitor and manage your hardware, complete the following tasks:

- “Activating the `tbSnmpAgent`” on page 221
- “Configuring the `tbSnmpAgent`” on page 223

Once these tasks are completed, your Smart Media platform is ready to expose system variables for polling with the Simple Network Management Protocol (SNMP).

Activating the `tbSnmpAgent`

Before starting, make sure that the SELinux service is disabled, or else it will prevent the SNMP service from starting. Then, you may activate SNMP through the Web Portal.

Disabling the SELinux Service

To disable the SELinux service (so that it does not interfere with the SNMP agent):

1. Connect to the **Console Management** port on the front of the unit and log into the system.
2. To view the current status of SELinux, enter the following command:

```
sestatus
```

3. To change the status of SELinux, enter the following command to edit the file:

```
vi /etc/selinux/config
```

4. Set the line to **SELINUX=disabled**:

```
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled  - SELinux is fully disabled.
SELINUX=disabled
# SELINUXTYPE= type of policy in use. Possible values are:
#     targeted - Only targeted network daemons are protected.
#     strict   - Full SELinux protection.
SELINUXTYPE=targeted
```

5. **Reboot** or use the `setenforce` command:

```
shutdown -r now
or
setenforce 0
```

Activating the *tbSnmAgent* application

After you have disabled the SELinux service, log into the Web Portal and follow the steps below to activate SNMP:

1. Click on **Status** in the navigation panel:

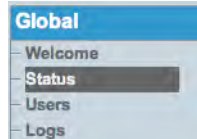


Figure 389. Global > Status

2. In the **Status** information window, click on the **Applications** tab:

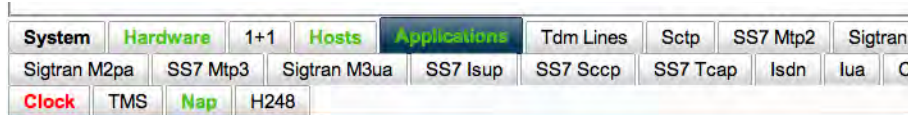


Figure 390. Status > Applications tab

3. In the **Applications** information window, **tbsnmpagent** should appear in the **Not running list**. Click **tbsnmpagent**.



Figure 391. Applications > Not running list

4. In the **Application instance status** window for *tbSnmAgent*, click the **Oam target state** dropdown box and select **Run**. Click **Apply states**.

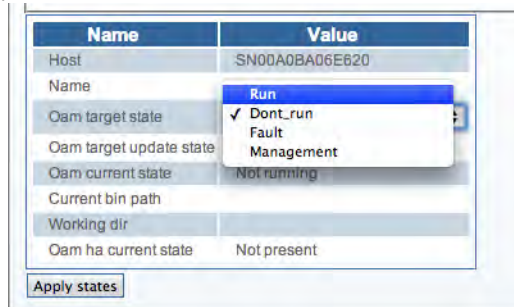


Figure 392. Application Instance Status Window

- Return to the **Applications** information window. The **tbSnmpAgent** should now appear in the **Ready list**.

name	value								
Ready cnt	8								
Fault cnt	0								
<table border="1"> <thead> <tr> <th>states</th> <th>list</th> </tr> </thead> <tbody> <tr> <td>Ready list</td> <td>logtrace, gateway, tboam_app, tbSnmpAgent, toolpack_engine, toolpack_sys_mgr, tbsigtrace, tbuctwriter</td> </tr> <tr> <td>Fault list</td> <td></td> </tr> <tr> <td>Not running list</td> <td>stream_server</td> </tr> </tbody> </table>		states	list	Ready list	logtrace, gateway, tboam_app, tbSnmpAgent , toolpack_engine, toolpack_sys_mgr, tbsigtrace, tbuctwriter	Fault list		Not running list	stream_server
states	list								
Ready list	logtrace, gateway, tboam_app, tbSnmpAgent , toolpack_engine, toolpack_sys_mgr, tbsigtrace, tbuctwriter								
Fault list									
Not running list	stream_server								

Figure 393. Applications > Ready list

The tbSnmpAgent application has now been activated.

Configuring the tbSnmpAgent

Once you are logged into the Web Portal and have successfully activated the tbSnmpAgent application, follow these steps to configure the application to suit your needs:

- “Configuring SNMP system parameters” on page 223
- “Configuring SNMPv1, SNMPv2c” on page 225
- “Configuring SNMPv3” on page 225
- “Configuring traps” on page 225

Configuring SNMP system parameters

- Under the **Applications** heading, in the Web Portal navigation panel, click the **Configurations** tab.

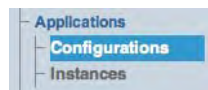



Figure 394. Applications > Configurations

- In the **Application Configuration List**, find the entry for **tbSnmpAgent** and click the link labeled **edit**, next to that entry.

Name	Application Type	Bin Path	Actions
gateway	User specific	@{PKG_BIN}/gateway	Edit Delete
logtrace	TbLogTrace	@{PKG_BIN}/tblogtrace	Edit Delete
stream_server_1	Stream server	@{PKG_BIN}/tbstreamserver	Edit Delete
tbdebug	TbDebug	@{PKG_BIN}/tbdebug	Edit Delete
tboamapp	TBOAM application	@{PKG_BIN}/tboamapp	Edit Delete
tbsigtrace	User specific	@{PKG_BIN}/tbsigtrace	Edit Delete
tbSnmpAgent	TbSnmpAgent	@{PKG_BIN}/tbSnmpAgent	Edit Delete
tbuctwriter	TbUctWriter	@{PKG_BIN}/tbuctwriter	Edit Delete
toolpack_engine	Toolpack Engine	@{PKG_BIN}/toolpack_engine	Edit Delete
toolpack_sys_mgr	Toolpack Sys Manager	@{PKG_BIN}/toolpack_sys_manager	Edit Delete

Figure 395. Application Configuration List

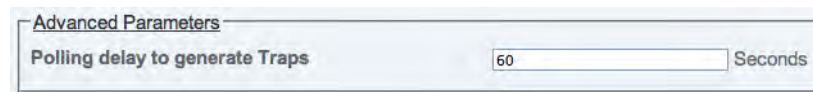
3. The tbSnmpAgent Application Configuration window is divided into several sections. Under the Application Params heading, the following general application parameters can be configured:
 - **SNMP IP Port:** the IP port to use for making SNMP requests (standard default value is 161)
 - **SNMP System Description:** the textual description that will appear when polling the sysDescr variable of the SNMPv2-MIB
 - **SNMP System Object ID:** the value appended to Patton' value (.1.3.6.1.4.1.21776.3) for the SNMPv2-MIB variable sysObjectId
 - **SNMP System Name:** the textual description that will appear when polling the sysName variable of the SNMPv2-MIB
 - **SNMP System Location:** the textual description that will appear when polling the sysLocation variable of the SNMPv2-MIB
 - **SNMP System Contact:** the textual description that will appear when polling the sysContact variable of the SNMPv2-MIB



Application Params	
SNMP IP port	161
SNMP System Description	SN10200_SNMP_Agent
SNMP System Object ID	1
SNMP System Name	SNMP_0
SNMP System Location	Enterprise
SNMP System Contact	support@patton.com

Figure 396. Application Params section

4. Under the **Advanced Params** heading, the following general application parameter can be configured:
 - **Polling delay to generate traps:** this sets the length for the time intervals at which the SNMP agent polls for newly generated traps. The value entered is in seconds.



Advanced Parameters	
Polling delay to generate Traps	60 Seconds

Figure 397. Application Params > Polling Delay

Configuring SNMPv1, SNMPv2c

- Under the **SNMPv1 SNMPv2c Communities** heading, new communities can be created for SNMP:
 - By default, there are standard communities: **public** (read-only access), and **private** (read-write access).
 - Click **Create new community** to create a new community for SNMPv1 or SNMPv2.



Figure 398. Create New SNMP Community window

Configuring SNMPv3

- Under the **SNMPv3 Users** heading, new users can be created for SNMP version 3:
 - By default, no SNMPv3 users are created
 - Click **Create new SNMPv3 user** to create a new user definition for SNMPv3



Figure 399. Create New SNMP User window

Configuring traps

- Under the **SNMP Trap Destinations** heading, destination addresses for SNMP traps can be defined:
 - By default, no SNMP trap destinations are defined
 - Click **Create New SNMP Trap Destination** to create a new destination to send SNMP traps

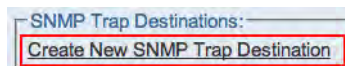


Figure 400. Create New SNMP Trap Destination window

- Under the **Log Params** heading, logging parameters for the application can be set. The directory and format that logs are stored in can be selected.
- Under the **Advance Params** heading, operational time delays can be modified.

Chapter 9 **Contacting Patton**

Chapter contents

Introduction.....	227
Contact information.....	227
Patton support headquarters in the USA	227
Alternate Patton support for Europe, Middle East, and Africa (EMEA)	227
Warranty Service and Returned Merchandise Authorizations (RMAs).....	227
Warranty coverage	227
Out-of-warranty service	228
Returns for credit	228
Return for credit policy	228
RMA numbers	228
Shipping instructions	228

Introduction

This chapter contains the following information:

- “Contact information”—describes how to contact Patton technical support for assistance.
- “Warranty Service and Returned Merchandise Authorizations (RMAs)” —contains information about the RAS warranty and obtaining a return merchandise authorization (RMA).

Contact information

Patton Electronics offers a wide array of free technical services. If you have questions about any of our other products we recommend you begin your search for answers by using our technical knowledge base. Here, we have gathered together many of the more commonly asked questions and compiled them into a searchable database to help you quickly solve your problems.

Patton support headquarters in the USA

- Online support: available at www.patton.com
- E-mail support: e-mail sent to support@patton.com will be answered within 1 business day
- Telephone support: standard telephone support is available five days a week—from 8:00 am to 5:00 pm EST (1300 to 2200 UTC/GMT)—by calling +1 (301) 975-1007
- Fax: +1 (253) 663-5693

Alternate Patton support for Europe, Middle East, and Africa (EMEA)

- Online support: available at www.patton.com
- E-mail support: e-mail sent to support@patton.com will be answered within 1 business day
- Telephone support: standard telephone support is available five days a week—from 9:00 am to 5:30 pm CET (0800 to 1630 UTC/GMT)—by calling +41 (0)31 985 25 55
- Fax: +41 (0)31 985 25 26

Warranty Service and Returned Merchandise Authorizations (RMAs)

Patton Electronics is an ISO-9001 certified manufacturer and our products are carefully tested before shipment. All of our products are backed by a comprehensive warranty program.

Note If you purchased your equipment from a Patton Electronics reseller, ask your reseller how you should proceed with warranty service. It is often more convenient for you to work with your local reseller to obtain a replacement. Patton services our products no matter how you acquired them.

Warranty coverage

Our products are under warranty to be free from defects, and we will, at our option, repair or replace the product should it fail within one year from the first date of shipment. Our warranty is limited to defects in workmanship or materials, and does not cover customer damage, lightning or power surge damage, abuse, or unauthorized modification.

Out-of-warranty service

Patton services what we sell, no matter how you acquired it, including malfunctioning products that are no longer under warranty. Our products have a flat fee for repairs. Units damaged by lightning or other catastrophes may require replacement.

Returns for credit

Customer satisfaction is important to us, therefore any product may be returned with authorization within 30 days from the shipment date for a full credit of the purchase price. If you have ordered the wrong equipment or you are dissatisfied in any way, please contact us to request an RMA number to accept your return. Patton is not responsible for equipment returned without a Return Authorization.

Return for credit policy

- Less than 30 days: No Charge. Your credit will be issued upon receipt and inspection of the equipment.
- 30 to 60 days: We will add a 20% restocking charge (crediting your account with 80% of the purchase price).
- Over 60 days: Products will be accepted for repairs only.

RMA numbers

RMA numbers are required for all product returns. You can obtain an RMA by doing one of the following:

- Completing a request on the RMA Request page in the *Support* section at **www.patton.com**
- By calling **+1 (301) 975-1007** and speaking to a Technical Support Engineer
- By sending an e-mail to **returns@patton.com**

All returned units must have the RMA number clearly visible on the outside of the shipping container. Please use the original packing material that the device came in or pack the unit securely to avoid damage during shipping.

Shipping instructions

The RMA number should be clearly visible on the address label. Our shipping address is as follows:

Patton Electronics Company

RMA#: xxxx

7622 Rickenbacker Dr.

Gaithersburg, MD 20879-4773 USA

Patton will ship the equipment back to you in the same manner you ship it to us. Patton will pay the return shipping costs.

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