

MEF

Technical Specification

MEF 31.0.1

Amendment to Service OAM SNMP MIB for Fault Management

January 2012

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1. Introduction

The purpose of this document is to update the TC MIB requirements to include the Textual Conventions needed for the MEF SOAM PM MIB. The updated text is indicated by Tracked Changes for the appropriate sections.

The amendment makes the following changes:

Section 6:

Adds the following textual conventions: *MefSoamTcAvailabilityType*, *MefSoamTcDelayMeasurementBinType*, *MefSoamTcMeasurementPeriodType*, *MefSoamTcSessionType* and *MefSoamTcStatusType*.

Section 8:

Adds the following textual conventions to the MEF-SOAM-TC-MIB: *MefSoamTcAvailabilityType*, *MefSoamTcDelayMeasurementBinType*, *MefSoamTcMeasurementPeriodType*, and *MefSoamTcStatusType*, updates the date, and the references to MEF 30 and PM IA.

Section 10:

Updates reference to MEF 30 and PM IA.

6. SOAM TC MIB Requirements

The SOAM TC MIB defines the Textual Conventions that are to be used with other MEF SOAM MIB modules.

The SOAM TC MIB defines textual conventions for the following:

- *MefSoamTcAvailabilityType* - defines the availability of a MEP during a loss measurement session
- *MefSoamTcConnectivityStatusType* - the connectivity status type of a MEG or MEP
- *MefSoamTcDataPatternType* - defines the data pattern type used in Data TLVs
- *MefSoamTcDelayMeasurementBinType* - distinguishes between measurement bins for Frame Delay, Frame Delay Range, and Inter-frame Delay variation
- *MefSoamTcIntervalTypeAisLck* - defines the interval for sending AIS and LCK PDUs
- *MefSoamTcMegIdType* - defines the MEG ID type
- *MefSoamTcMeasurementPeriodType* - indicates the transmission time between the SOAM PM frames for a PM session
- *MefSoamTcOperationTimeType* - defines when an operation is initiated or stopped

- 40 • *MefSoamTcSessionType* - defines the type of a PM session (proactive or on-demand)
- 41 • *MefSoamTcStatusType* - defines the status of a PM session (measurement instance) of a
- 42 MEP
- 43 • *MefSoamTcTestPatternType* - defines the test pattern used in Test TLVs
- 44

45 8. SOAM TC MIB Definitions

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46
47 MEF-SOAM-TC-MIB DEFINITIONS ::= BEGIN
48
49 -- *****
50 -- TEXTUAL-CONVENTIONS MIB for Metro Ethernet Forum (MEF) SOAM (Service
51 -- Operations, Administration, and Maintenance)
52 -- *****
53
54 IMPORTS
55     MODULE-IDENTITY, enterprises, Unsigned32
56     FROM SNMPv2-SMI          -- RFC 2578
57     TEXTUAL-CONVENTION
58     FROM SNMPv2-TC;         -- RFC 2579
59
60 mefSoamTcMib MODULE-IDENTITY
61     LAST-UPDATED      "201201100000Z" -- January 10, 2012
62     ORGANIZATION      "Metro Ethernet Forum"
63     CONTACT-INFO
64         "Web URL: http://metroethernetforum.org/
65         E-mail:  mibs@metroethernetforum.org
66         Postal:  Metro Ethernet Forum
67                 6033 W. Century Boulevard, Suite 830
68                 Los Angeles, CA 90045
69                 U.S.A.
70         Phone:    +1 310-642-2800
71         Fax:      +1 310-642-2808"
72     DESCRIPTION
73         "This MIB module defines the textual conventions used
74         throughout the Ethernet Services Operations, Administration
75         and Maintenance MIB modules.
76         Copyright 2010 Metro Ethernet Forum.
77         All rights reserved."
78
79     REVISION      "201201100000Z" -- January 10, 2012
80     DESCRIPTION   "Updated text to add textual conventions for the SOAM PM MIB."
81
82     REVISION      "201010110000Z" -- October 11, 2010
83     DESCRIPTION   "Initial Version."
84     ::= { enterprises mef(15007) mefSoam(1) 1 }
85
86 -- *****
87 -- Reference Overview
88 --
89 -- A number of base documents have been used to create the Textual Conventions
90 -- MIB, the SOAM-PM MIB and SOAM-FM MIB. The following are the
91 -- abbreviations for the baseline documents:
92 --
93 -- [CFM] refers to 'Connectivity Fault Management', IEEE 802.1ag-2007,
94 -- December 2007
95 -- [MEF7.1] refers to MEF 7.1 'Phase 2 EMS-NMS Information Model',
96

```

```

97  --      October 2009
98  --  [MEF17] refers to MEF 17 'Service OAM Requirements & Framework - Phase 1',
99  --      April 2007
100 --  [MEF SOAM-PM] refers to MEF 35 'Service OAM Performance Monitoring
101 --      Implementation Agreement', January 2012
102 --  [MEF SOAM-FM] refers to MEF 30 'Service OAM Fault Management Implementation
103 --      Agreement', January 2011
104 --  [Q.840.1] refers to 'ITU-T Requirements and analysis for NMS-EMS
105 --      management interface of Ethernet over Transport and Metro Ethernet
106 --      Network (EoT/MEN)', March 2007
107 --  [Y.1731] refers to ITU-T Y.1731 'OAM functions and mechanisms for Ethernet
108 --      based networks', February 2008
109 -- *****
110
111 -- *****
112 -- Textual Conventions (TC)
113 -- *****
114 -- TC definitions are placed in alphabetical order
115
116 MefSoamTcAvailabilityType ::= TEXTUAL-CONVENTION
117     STATUS          current
118     DESCRIPTION
119         "This enumeration data type defines the availability of a session,
120         measured by a loss measurement session.
121
122         The valid enumerated values associated with this type are:
123
124         available(1)          indicates the MEP is available.
125
126         unavailable(2)       indicates the MEP is unavailable.
127
128         unknown(3)          indicates the availability is not known, for
129                             instance because insufficient time has passed to
130                             make an availability calculation, the time has been
131                             excluded because of a maintenance interval, or because
132                             availability measurement is not enabled.
133         "
134     SYNTAX          INTEGER {
135                     available(1),
136                     unavailable(2),
137                     unknown(3)
138                     }
139
140 MefSoamTcConnectivityStatusType ::= TEXTUAL-CONVENTION
141     STATUS          current
142     DESCRIPTION
143         "This enumeration data type defines the connectivity status
144         of a Maintenance Entity (ME) or a Maintenance Entity Group (MEG).
145
146         The valid enumerated values associated with this type are:
147
148         inactive(1)          indicates an inactive connectivity state of a group
149                             and refers to the inability to exchange SOAM PDU frame
150                             among any of the entities in a group.
151
152         active(2)           indicates an active connectivity state of a group
153                             and refers to the ability to exchange SOAM PDU frames
154                             among all the entities in a group
155
156         partiallyActive(3)  indicates a partially active connectivity state of a
157                             group and refers to the ability to exchange SOAM PDU
158                             frames among some entities of a group. This enumerated
159                             value is only applicable for Multipoint-to-Multipoint
160                             MEG.

```

```
161     "
162     REFERENCE
163     "[MEF17] 9.2 and [MEF7.1] III.2 Enumeration"
164     SYNTAX      INTEGER {
165                 inactive(1),
166                 active(2),
167                 partiallyActive(3)
168             }
169
170 MefSoamTcDataPatternType ::= TEXTUAL-CONVENTION
171     STATUS      current
172     DESCRIPTION
173     "This enumeration data type indicates the type of data pattern to be
174     sent in an OAM PDU Data TLV.
175
176     The valid enumerated values associated with this type are:
177
178     zeroPattern(1)          indicates the Data TLV contains all zeros
179     onesPattern(2)         indicates the Data TLV contains all ones
180     "
181     SYNTAX      INTEGER {
182                 zeroPattern(1),
183                 onesPattern(2)
184             }
185
186 MefSoamTcDelayMeasurementBinType ::= TEXTUAL-CONVENTION
187     STATUS      current
188     DESCRIPTION
189     "This enumeration data type is used to distinguish between
190     measurement bins for Frame Delay, Frame Delay Range, and
191     Inter-frame Delay variation.
192
193     The valid enumerated values associated with this type are:
194
195     twoWayFrameDelay(1)    indicates a measurement bin for two-way
196                             Frame Delay.
197     forwardFrameDelay(2)  indicates a measurement bin for one-way
198                             Frame Delay in the forward direction.
199     backwardFrameDelay(3) indicates a measurement bin for one-way
200                             Frame Delay in the backward direction.
201     twoWayIfdv(4)         indicates a measurement bin for two-way
202                             Inter-frame Delay Variation.
203     forwardIfdv(5)        indicates a measurement bin for one-way
204                             Inter-frame Delay Variation in the forward
205                             direction.
206     backwardIfdv(6)       indicates a measurement bin for one-way
207                             Inter-frame Delay Variation in the backward
208                             direction.
209     twoWayFrameDelayRange(7) indicates a measurement bin for two-way
210                             Frame Delay Range.
211     forwardFrameDelayRange(8) indicates a measurement bin for one-way
212                             Frame Delay Range in the forward direction.
213     backwardFrameDelayRange(9) indicates a measurement bin for one-way
214                             Frame Delay Range in the backward direction.
215     "
216     SYNTAX      INTEGER {
217                 twoWayFrameDelay(1),
218                 forwardFrameDelay(2),
219                 backwardFrameDelay(3),
220                 twoWayIfdv(4),
221                 forwardIfdv(5),
222                 backwardIfdv(6),
223                 twoWayFrameDelayRange(7),
224                 forwardFrameDelayRange(8),
```

```

225         backwardFrameDelayRange(9)
226     }
227
228 MefSoamTcIntervalTypeAisLck ::= TEXTUAL-CONVENTION
229     STATUS         current
230     DESCRIPTION
231         "This enumeration data type defines the AIS/LCK transmission time
232         interval for an Alarm Indication Signal (AIS) or LCK frame.
233
234         The valid enumerated values associated with this type are:
235
236         oneSecond(1)  indicates a one second transmission interval.
237         oneMinute(2)  indicates a one minute transmission interval.
238     "
239     REFERENCE
240         "[MEF7.1] III.2 Enumeration, [Y.1731] 7.4, 7.6"
241     SYNTAX         INTEGER {
242         oneSecond(1),
243         oneMinute(2)
244     }
245
246 MefSoamTcMeasurementPeriodType ::= TEXTUAL-CONVENTION
247     DISPLAY-HINT "d"
248     STATUS         current
249     DESCRIPTION
250         "Indicates the transmission time between the SOAM PM frames for a
251         PM session, in ms.
252     "
253     REFERENCE
254         "[MEF SOAM-PM] R56"
255     SYNTAX         Unsigned32 (3..3600000)
256
257 MefSoamTcMegIdType ::= TEXTUAL-CONVENTION
258     STATUS         current
259     DESCRIPTION
260         "This enumeration data type indicates the format of the MEG ID
261         that is sent in the OAM PDUs. Types 1-4 are more fully explained
262         in [CFM] 17.5. Type 32 is from [Y.1731] Annex A.
263
264         The valid enumerated values associated with this type are:
265
266         primaryVid(1)      Primary VLAN ID.
267                             12 bits represented in a 2-octet integer:
268                             - 4 least significant bits of the first
269                             byte contains the 4 most significant
270                             bits of the 12 bits primary VID
271                             - second byte contains the 8 least
272                             significant bits of the primary VID
273
274                             0 1 2 3 4 5 6 7 8
275                             +--+--+--+--+--+--+--+
276                             |0 0 0 0| (MSB) |
277                             +--+--+--+--+--+--+
278                             |  VID  LSB  |
279                             +--+--+--+--+--+--+
280
281         charString(2)      RFC2579 DisplayString, except that the
282                             character codes 0-31 (decimal) are not
283                             used. (1..45) octets
284
285         unsignedInt16 (3)  2-octet integer/big endian
286
287         rfc2865VpnId(4)    RFC 2685 VPN ID
288                             3 octet VPN authority Organizationally

```



```

289         Unique Identifier followed by 4 octet VPN
290         index identifying VPN according to the OUI:
291
292         0 1 2 3 4 5 6 7 8
293         +---+---+---+---+
294         | VPN OUI (MSB) |
295         +---+---+---+---+
296         | VPN OUI |
297         +---+---+---+---+
298         | VPN OUI (LSB) |
299         +---+---+---+---+
300         |VPN Index (MSB)|
301         +---+---+---+---+
302         | VPN Index |
303         +---+---+---+---+
304         | VPN Index |
305         +---+---+---+---+
306         |VPN Index (LSB)|
307         +---+---+---+---+
308
309         iccBased (32)      ICC-based MEG ID Format, thirteen octet field
310         "
311     REFERENCE
312         "[Y.1731] Table A-1, [CFM] 17.5, 21.6.5.1"
313     SYNTAX      INTEGER {
314         primaryVid (1),
315         charString (2),
316         unsignedInt16 (3),
317         rfc2865VpnId (4),
318         iccBased (32)
319     }
320
321 MefSoamTcOperationTimeType ::= TEXTUAL-CONVENTION
322     STATUS      current
323     DESCRIPTION
324         "This enumeration data type indicates the operation type start
325         or end time to indicate when an OAM operation is
326         initiated or stopped.
327
328         The valid enumerated values associated with this type are:
329
330         none(1)          The operation is never started or is stopped immediately
331                         if used to indicate a start time, or the operation never
332                         ends if it is used to indicate an end time
333         immediate(2)     The operation is to begin immediately
334         relative(3)      The operation is to begin at a relative time from the
335                         current time or stop a relative time after it has started
336         fixed(4)         The operation is to begin/stop at the given UTC time/date
337     "
338     REFERENCE
339         "[SOAM-PM] R2, [SOAM-FM] 8.7"
340     SYNTAX      INTEGER {
341         none(1),
342         immediate(2),
343         relative(3),
344         fixed(4)
345     }
346
347 MefSoamTcSessionType ::= TEXTUAL-CONVENTION
348     STATUS      current
349     DESCRIPTION
350         "This enumeration data type defines the status of PM session of a MEP.
351

```

```
352         The valid enumerated values associated with this type are:
353
354         proactive(1)      indicates the measurement instance is Proactive
355         onDemand(2)      indicates the measurement instance is On-demand
356     "
357     SYNTAX      INTEGER {
358                 proactive(1),
359                 onDemand(2)
360             }
361
362 MefSoamTcStatusType ::= TEXTUAL-CONVENTION
363     STATUS      current
364     DESCRIPTION
365         "This enumeration data type defines the status of PM session of a MEP.
366
367         The valid enumerated values associated with this type are:
368
369         active(1)         indicates the measurement instance is active
370         notActive(2)      indicates the measurement instance is not active
371     "
372     SYNTAX      INTEGER {
373                 active(1),
374                 notActive(2)
375             }
376
377 MefSoamTcTestPatternType ::= TEXTUAL-CONVENTION
378     STATUS      current
379     DESCRIPTION
380         "This enumeration data type indicates the type of test pattern to be
381         sent in an OAM PDU Test TLV.
382
383         The valid enumerated values associated with this type are:
384
385         null(1)           Null signal without CRC-32
386         nullCrc32(2)     Null signal with CRC-32
387         prbs(3)          PRBS 2^31-1 without CRC-32
388         prbsCrc32(4)     PRBS 2^31-1 with CRC-32
389     "
390     REFERENCE
391         "[MEF7.1], Appendix III.2 Enumeration, [Y.1731] 7.7"
392     SYNTAX      INTEGER {
393                 null(1),
394                 nullCrc32(2),
395                 prbs(3),
396                 prbsCrc32(4)
397             }
398
399     END
400
```

401

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