List of Additional Parameters that Might be Transported from GM to Slaves

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Introduction

- This presentation contains a list of parameters that might be transported from the GM to the slave stations
  - The parameters of the IEEE 1588 time properties data set were used as a starting point
    - P1588 Draft v2-D1, which is the version submitted for sponsor ballot, and is available at http://grouper.ieee.org/groups/1588/private/Standard/1588-V2-D1_06_08_07/1588-v2-D1.doc
  - Except for the last parameter (indication if and when GM last experienced a phase discontinuity), this list is contained in Clause 14 of P802.1AS D0.8
  - The last parameter was discussed subsequent to the preparation of D0.8

- This summary was requested in the June 18, 2007 AVB timing call
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- **current_utc_offset**
  - This is the value of TAI – UTC, in s, where TAI is the current TAI time and UTC is the current UTC time
    - The value of current_utc_offset as of the date of this presentation (25 June 2007) is 33 s

- **current_utc_offset_valid**
  - The value is TRUE if current_utc_offset is known to be correct
    - The value is FALSE otherwise

- **leap_59**
  - A TRUE value indicates that the last minute of the current UTC day will contain 59 seconds

- **leap_61**
  - A TRUE value indicates that the last minute of the current UTC day will contain 61 seconds

- **time_traceable**
  - TRUE if the timescale and the value of current_utc_offset are traceable to a primary standard (e.g., GPS); otherwise FALSE
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- **frequency_traceable**
  - TRUE if the frequency that determines the timescale is traceable to a primary standard (e.g., GPS); otherwise FALSE

- **time_source**
  - The value of the time source attribute of the grandmaster clock, as described in 8.6.2.6 of P802.1AS D0.8. As indicated there, this is an information-only attribute that indicates the source of time
    - The attribute takes on the values given in the table on the next slide (this table is taken from P1588-v2-D1 with minor modifications (version submitted for sponsor ballot); note that Table 4 of P802.1AS D0.8 is missing the PTP entry and must be updated)
### Table 1: timeSource enumeration

<table>
<thead>
<tr>
<th>Value (hex)</th>
<th>Time source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x10</td>
<td>ATOMIC_CLOCK</td>
<td>Any device, or device directly connected to such a device, that is based on atomic resonance for frequency and that has been calibrated against international standards for frequency and, if the PTP timescale is used, time.</td>
</tr>
<tr>
<td>0x20</td>
<td>GPS</td>
<td>Any device synchronized to any of the satellite systems that distribute time and frequency tied to international standards.</td>
</tr>
<tr>
<td>0x30</td>
<td>TERRESTRIAL_RADIO</td>
<td>Any device synchronized via any of the radio distribution systems that distribute time and frequency tied to international standards.</td>
</tr>
<tr>
<td>0x40</td>
<td>PTP</td>
<td>Any device synchronized to a PTP based source of time external to the domain.</td>
</tr>
<tr>
<td>0x50</td>
<td>NTP</td>
<td>Any device synchronized via NTP to servers that distribute time and frequency tied to international standards.</td>
</tr>
<tr>
<td>0x60</td>
<td>HAND_SET</td>
<td>Used in all cases for any device whose time has been set by means of a human interface based on observation of an international standards source of time to within the claimed clock accuracy.</td>
</tr>
<tr>
<td>0x90</td>
<td>OTHER</td>
<td>Other source of time and/or frequency not covered by other values.</td>
</tr>
<tr>
<td>0xA0</td>
<td>INTERNAL_OSCILLATOR</td>
<td>Any device whose frequency is not based on atomic resonance nor calibrated against international standards for frequency, and whose time is based on a free-running oscillator with epoch determined in an arbitrary or unknown manner.</td>
</tr>
</tbody>
</table>

All unused values are reserved.
Indication if and when GM last experienced a phase discontinuity

- This was discussed in the June 18, 2007 AVB timing call
- Possible parameters are
  - Elapsed time since last discontinuity
  - Time of last discontinuity
- A phase discontinuity includes
  - Change in GM
  - Change in GM time that exceeds a threshold
    - Open question as to what the size of the threshold should be, and if its specification should be normative