IEEE P802.3at
Layer 2 Ad Hoc – items to address

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L2 Items still to address

- IEEE Std 802.1AB related items
  - Initialization
  - Shutdown
  - L2 timeout
  - MIB module
  - Annex G
- Other items

Initialization

10.1.2 LLDP receive module initialization

  After the variable portEnabled is equal to TRUE, the LLDP receive module is initialized or re-initialized for frame reception. During this process, the local LLDP agent shall perform the following tasks:

  a) The variable tooManyNeighbors shall be set to FALSE.

  b) The adminStatus object shall be interrogated to determine whether initialization should proceed further. If the value of adminStatus is 'disabled', LLDP receive initialization shall be halted until the value of adminStatus is one of the following:

   1) enabledTxRx: the local LLDP agent can both transmit and receive LLDP frames.

   2) enabledRxOnly: the local LLDP agent can only receive LLDP frames.

  c) All information in the remote systems MIB associated with this port shall be deleted.

10.3.5 LLDP remote systems MIB update

  MIB space is available and an LLDP remote systems MIB update is needed:

  a) Compare the MSAP identifier in the current LLDPDU with the MSAP identifiers in the LLDP remote systems MIB:

   1) If a match is found, replace all current information associated with the MSAP identifier in the LLDP remote systems MIB with the information in the current LLDPDU.

   2) If no match is found, create a new MIB structure to receive information associated with the new MSAP identifier, and set these MIB objects to the values indicated in their respective TLVs.

  b) Set the timing counter rxInfoTTL associated with the MSAP identifier to rxTTL.

  c) Set the flag variable somethingChangedRemote associated with the MSAP identifier to TRUE tonotify the managers of PTOPO and other optional MIBs that something has changed in the LLDP remote systems MIB associated with that MSAP identifier.

- Multiport PSE will have multiple MIB structures
  - Association of MIB structures to port L2 Classification state machine

Shutdown 1

- IEEE Std 802.1AB subclause 10.2.1.2 'Shutdown LLDPDU construction' allows a Time To Live TLV with the TTL field set to zero. This for example can be down if a port is being disabled.

- A special procedure exists for the case in which a LLDP agent knows an associated port is about to become non-operational (for example, the adminStatus for the port is transitioning to 'disabled'). In the event a port, currently configured with LLDP frame transmission enabled, either becomes disabled for LLDP activity, or the interface is administratively disabled, a final LLDP shutdown LLDPDU may be sent with:
  - 1) The Chassis ID and Port ID TLVs.
  - 2) The Time To Live TLV with the TTL field set to zero.
  - 3) An End Of LLDPDU TLV.

- The LLDPDU shall not include any optional TLVs and should be transmitted before the interface is disabled.
  - NOTE - There is an inherent race condition between an interface knowing it is going down and its ability to send 'one more frame.' If possible, the actual termination of the connection should be delayed until after this frame is transmitted. In the event where adminStatus is transitioning to the disabled state and the LLDP agent will be shutting down, then this shutdown procedure should be executed for all local ports.

- With the current proposed comment responses this would mean that a TTL time-out would be caused followed by the second time-out expiring causing a loss of communications and therefore the power to be removed. Is this really what we want when a port on a switch is disabled ?

Shutdown 2

- 10.3.6 LLDP remote systems rxInfoTTL timer expiration
- If rxInfoTTL timer associated with an MSAP identifier expires, all information associated with that MSAP identifier shall be deleted and the flag variable somethingChangedRemote associated with the MSAP identifier shall be set to TRUE to notify the managers of IETF optional MIBs that something has changed in the LLDP remote systems MIB associated with that MSAP identifier.

- 10.5.5.2.1 mibDeleteObjects ()
- The mibDeleteObjects () procedure deletes all information in the LLDP remote systems MIB associated with the MSAP identifier if an LLDPDU is received with an rxTTL value of zero (see 10.3.2) or the timing counter rxInfoTTL expires. (see 10.3.6).

What happens after L2 timeout

- Current comment #208 respect
  - Please append the following sentence: "If a loss of management frame communication persists past the TBD1 LLDP timeout and TBD2 timeout, the PSE shall remove power."
  - TBD1 is set by the TTL of the TLV and TBD2 will be in addition to TBD1 and are work items for the L2 adhoc per comment #268.
- I believe that the expiration of the second timer should simply place the PSE state diagram into IDLE state in the same way that asserting pse_reset=TRUE would.
- Once in that state the PSE takes no account of what placed it in that state and will then simply starting looking for a valid PD signature and proceed from there.
- Hence if removing the power is enough to recover the PD from some lock-up the PD signature will be detected, classification will occur and the PD will function normally.
- If however the PD has malfunctioning to the point that power cycling will not cause it to recover to the point where it can send frames I would assume that there will still be a valid PD signature - it is hardware based - and this will still be detected. Subclause 33.3.4.2 'PD 2-Event Physical Layer classification' states 'A Type 2 PD shall return a Class 4 signature irrespective of the number of classification voltage probes performed by a PSE.' hence the PSE will detect Class 4. The PSE will then power up the PD and attempt to perform classification using DLL - this will fail.

- AGREED ?
  - If so add entry to 33-7

- Generic question - since this can happen at initial power up as well as after LLDP time-out - what should a Type 2 PSE capable of DLL classification do if it detects a Class 4 PD but that Class 4 PD fails to send LLPD frames.

MIB modules

- **IEEE Std 802.1 LLDP MIBs**

- **12.2 LLDP MIB module**

- **G.7.1 IEEE 802.3 LLDP extension MIB module**

  - Adds for IEEE 802.3 TLVs

  - Need to develop a IEEE 802.3 Power over Ethernet Classification LLDP extension MIB module

IEEE Std 802.1AB Annex G

G.1 Requirements of the IEEE 802.3 Organizationally Specific TLV set

If any IEEE 802.3 Organizationally Specific TLV is supported, all IEEE 802.1 Organizationally Specific TLVs shall be supported. All IEEE 802.3 Organizationally Specific TLVs shall conform to the LLDPDU bit and octet ordering conventions of 9.1.

The currently defined IEEE 802.3 Organizationally Specific TLVs are listed in Table G-1. Any adds or changes to these TLVs will be included in this annex.

Table G-1—IEEE 802.3 Organizationally Specific TLVs

IEEE 802.3 subtype	TLV name	Subclause reference
0	reserved	—
1	MAC/PHY Configuration/Status	G.2
2	Power Via MDI	G.3
3	Link Aggregation	G.4
4	Maximum Frame Size	G.5
5–255	reserved	—

Other items

- We have defined what happens when a PSE loses communications – what happens when PD loses communication ?
- Timing - complete TBDs - is it complete
  - L2 coming up after L1 complete
  - Responsiveness of dynamic power allocation
- Definitions of state diagram variables
- Conflict resolution (PSE/PD collision)
- References to TIA 1057 (if required)
- Clean up the TLVs
- Error conditions on L2 coming up
- Indication to user during L2 coming up
- Complete or delete Additional Status TLV
  - Indication that 'I'm providing power'
- Test mode