



PLDM for Firmware Update DSP0267 Version 1.1.0 New Features

Work In Progress – July 2018

PMCI Workgroup



Disclaimer

- The information in this presentation represents a snapshot of work in progress within the DMTF.
- This information is subject to change without notice. The standard specifications remain the normative reference for all information.
- For additional information, see the Distributed Management Task Force (DMTF) website.



PLDM Firmware Update Version 1.1.0 - Scope

Add three new features to the specification

- 1) Support firmware update of downstream devices
- 2) Support the ability to activate firmware independent of file transfer
- 3) Enhance the current list of error codes



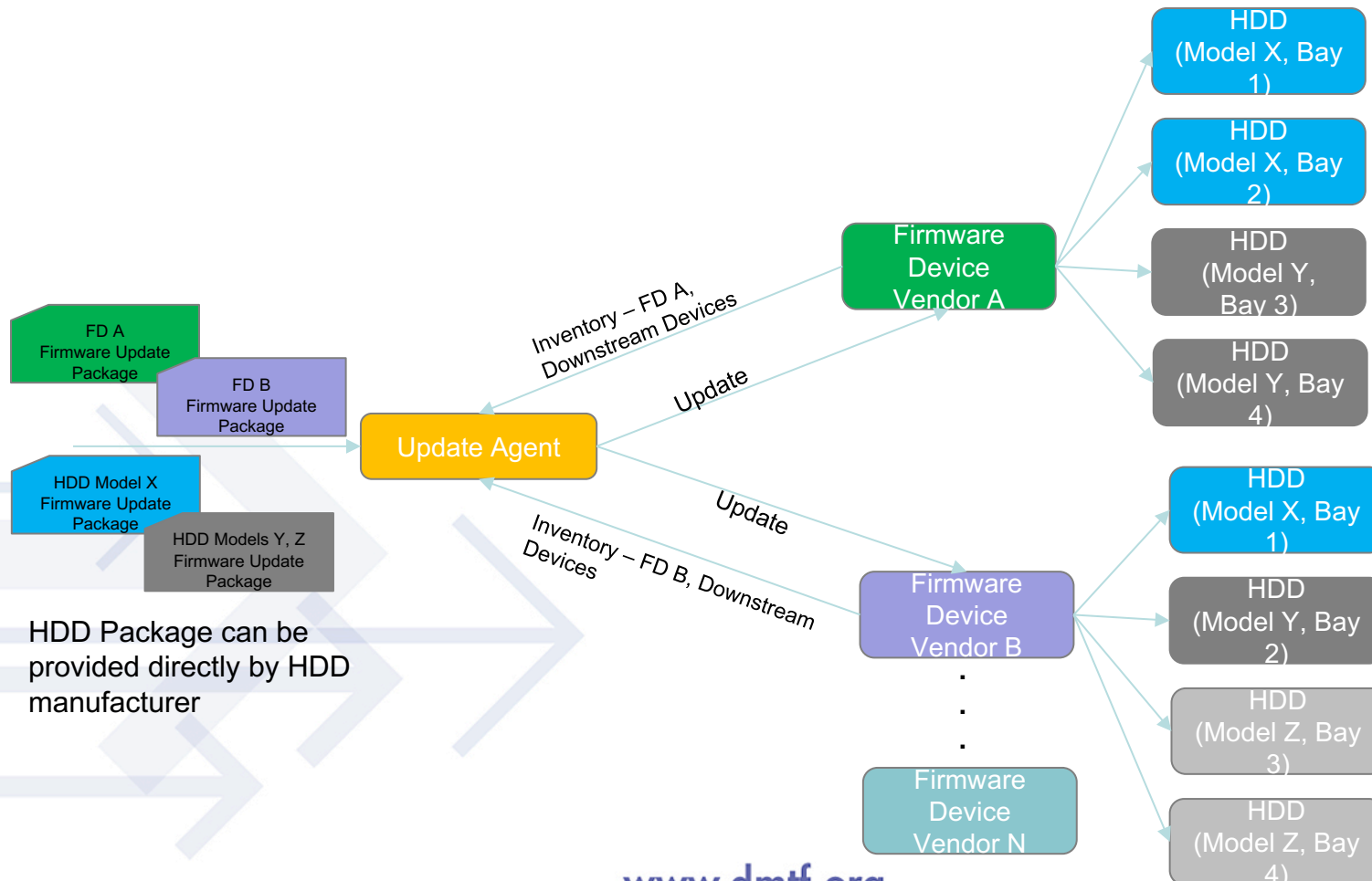
PLDM Firmware Update Version 1.1.0

- New Feature - Firmware update of downstream devices
 - Support Configurations such as RAID controllers with drives/expanders attached
 - Must enable the ability to have the FD proxy the download with no requirement for the FD to store the entire image prior to sending it to the downstream device
 - UA must have the ability to update the FD separately from the downstream device or the ability to update the downstream device without updating the FD
 - The PLDM update package must be able to provide identifiers only for a downstream device without listing identifiers for the FD which will proxy the download. The UA will discover the identifiers of a downstream device via an FD, and the FD will report whether it is capable of updating the firmware on the downstream device.
 - Enable the optional ability to update downstream devices as a group (parallel download)



PLDM Firmware Update Version 1.1.0

- Enable firmware update of devices downstream of PLDM terminus endpoint





Downstream Device Support – Specification Proposal

- Expand header structure to create new Downstream Component Image
 - Must provide new descriptors for downstream devices in both the header and in the inventory commands

- Expand state machine to include downstream devices
 - Recommend that this be a separate flow from the primary firmware device to maintain backward compatibility
 - Existing commands must be leveraged in a manner that remains backward compatible
 - Does not require FD to store entire image before transmitting to downstream device
 - If error occurs during update, the existing 'Component Update Failure Retry Capability' flag would be applicable
 - An FD can re-request firmware data for the downstream device similar to the existing capability in the spec

- Create new inventory commands for downstream devices
 - New commands should be created to maintain backward compatibility
 - Inventory commands retained some reserved command numbers in 1.0 spec which would be leveraged for this new feature



PLDM Firmware Update Version 1.1.0

- New Feature - Ability to activate firmware independent of file transfer
 - Support capability to flash and then at a later time execute an activate command
 - This command can be used directly with an FD, or with a downstream device
 - Exactly when the command is to be issued is out of scope for the spec as a higher level entity (above the UA) may be responsible for determining when a activation from an idle state should occur. This command simply allows the UA to send a PLDM request to ask the FD to activate a pending image.



Activation After Transfer – Specification Proposal

- Create new activation command
 - Recommend new command that can be sent in IDLE state to maintain backward compatibility.



PLDM Firmware Update Version 1.1.0

- New Feature - Enhance the current list of error codes
 - Add or enhance error codes in the specification to support firmware update use cases
 - On Transfer of Image - Invalid Parameter, Image is corrupt, Generic failure, etc
 - On Verification of Image – Image Incomplete, Update not allowed, etc
 - Support error codes for both FD and downstream device update transfers



Error Code Enhancement – Specification Proposal

- Assign additional error codes to reserved values in responses
 - PLDM responses within the update process can provide a Result Code
 - A range of codes were reserved in the 1.0.0 specification
 - Define additional error reasons, generic and/or specific, in 1.1.0 using the reserved values