

#### Platform Management Communications Infrastructure (PMCI):

#### **FRU Format and Data Transfer**

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- For additional information, see the DMTF website.
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# The Landscape, Motivations, & Methods

- Explosion of FRU content and standards orgs
  - Multiple standards bodies supporting diverse technologies that require FRU data
  - DMTF desire to maintain a "black box" approach to other bodies' FRU requirements
  - Encourage modern, self-describing data formats for aggregates of FRU data
  - Key requirement: streamlined, common approach to select & read aggregate(s) of FRU data
- IPMI specifications are still used, but no longer maintained
  - Don't break existing IPMI compatibility where needed
  - Provide unified mechanisms to access both IPMI & non-IPMI FRU data
  - Key requirement: support IPMI-compatible layout of FRU data in non-volatile memory, including a multi-record format that allows co-existence of non-IPMI FRU data
- Use of FRU content beyond initial discovery
  - Enable flexible inventory tracking and estimation of remaining service life for manageability
  - Key requirement: support fine-grained read/write access to FRU data

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# **Upcoming PMCI Specifications**

### DSP0220 v1.0 ("FRU data format")

- Defines layout of FRU data at rest (in storage)
- Defines semantics & structure of a simple directory to support multiple aggregate blobs of FRU data (FRU files) into a FRU bundle
- Defines format for storing the FRU data content:
  - Legacy FRU data format for compatibility with IPMI Platform Management FRU Information Storage
  - FRU Files Record data structure format
- DSP0257 v2.0 ("FRU data access via PLDM")
  - Aims to provide a streamlined, intuitive mechanism for read/write access to a single FRU data item per request message
  - Leverages DSP0242 (PLDM for File Transfer) to read FRU files
  - Reference DSP0220 as appropriate



## DSP0220: FRU Files Record





# New FRU Data Layout & Access Format

#### An example FRU File in JSON format.

"ChassisType": "https://redfish.dmtf.org/schemas/v1/Assembly.v1\_5\_0.json", "Model": "NO1", "PartNumber": "1234", "SerialNumber": "SN12345", "Manufacturer": "DMTF", "ManufactureDate": "2017-04-01T14:55:33+03:00", "Vendor": "DMTF", "Name": "New One NO1", "SKU": "XYZ-123", "Version": "A1", "AssetTag": "ABC1234", "Description": "New One Adapter", "EngineeringChangeLevel": "2017-04-01T14:55:33+03:00", "OtherInformation": "", "VendorIANA": "3704", "SMBusAddress": "0x36", "SMBusClock": "100k", "FRUType": "NIC"



## Legacy FRU Data Access Format

#### PLDM FRU Record Data Format

Size	Туре	Field	
2 bytes	uint16	FRU Record Set Identifier	
1 byte	uint8	FRU Record Type	
1 byte	uint8	Number of FRU fields	
1 byte	uint8	Encoding Type for FRU fields 0 = Unspecified 1 = ASCII 2 = UTF8 3 = UTF16 4 = UTF16-LE	
		5 = UTF16-BE 6-255 = reserved	
1 byte	uint8	FRU Field Type #1	
1 byte	uint8	FRU Field Length #1	
Up to 255 bytes (see Table 5)	Determined by FRU Field Type (see Table 5)	FRU Field #1 Value	
1 byte	uint8	FRU Field #2 Type	
1 byte	uint8	FRU Field #2 Length	
Up to 255 bytes (see Table 5)	Determined by FRU Field Type / Length (see Table 5)	FRU Field #2 Value	
1 byte	uint8	FRU Field #n Type	
1 byte	uint8	FRU Field #n Length	
Up to 255 bytes (see Table 5)	Determined by FRU Field Type / Length (see Table 5)	FRU Field #n Value	

#### - General FRU Record Field Types

Field type number	Field type description	Field format	Length
0	Reserved	N/A	N/A
1	Chassis Type	String	1-255 bytes
2	Model	String	1-255 bytes
3	Part Number	String	
4	Serial Number	String	
5	Manufacturer	String	
6	Manufacture Date	Timestamp104	13 bytes
7	Vendor	String	
8	Name	String	
9	SKU	String	
10	Version	String	
11	Asset Tag	String	
12	Description	String	
13	Engineering Change Level	String	
14	Other Information	String	



# DSP0257 v2.0: Proposed Commands

- ReadFRUDataltem
  - Used to query a single FRU data item (e.g. Model, Part Number, Manufacturer)
- WriteFRUDataItem
  - Used to modify a single FRU data item (e.g. Asset Tag)
- FindFRUFiles
  - Used to find FRU files that match a specified GUID or all files present on a FRU device
- GetFRUFileMetadata
  - Used to obtain all metadata associated with a FRU file



# DSP0242 (PLDM for File Transfer) Commands

- DfOpen
  - Used to open a FRU data file
- DfRead
  - Used to read a FRU data file
  - A specific implementation of the MultipartReceive command from DSP0240 (PLDM Base Specification)
- DfClose
  - Used to close a FRU data file



### **Request for Industry Feedback**

### Please provide feedback to your PMCI WG representative or the DMTF Feedback Portal at <u>https://www.dmtf.org/standards/</u> <u>feedback</u>





For more information, visit dmtf.org Learn about the PMCI working group at dmtf.org/standards/pmci

Thank you!

