Tables reworked using the following tenets:

* OPC should state what is allowed in packages, not implementations
* Supported on comsuption / supported on production should be consolidated

Annex C.
(normative)
ZIP Appnote.txt Clarifications

The ZIP specification includes a number of features that packages may support or must not support. Some ZIP features are clarified in the context of this Open Packaging specification. Package producers and consumers shall adhere to the requirements noted below.

C.1 Archive File Header Consistency

Data describing files stored in the archive is substantially duplicated in the Local File Headers and Data Descriptors, and in the File headers within the Central Directory Record. For a ZIP archive to be a physical layer for a package, the package implementer shall ensure that the ZIP archive holds equal values in the appropriate fields of every File Header within the Central Directory and the corresponding Local File Header and Data Descriptor pair, when the Data Descriptor exists, except as described in Table C–5 for bit 3 of general-purpose bit flags. [M3.14]

C.2 Data Descriptor Signature

Packages may contain a 4-byte signature value 0x08074b50 at the beginning of Data Descriptors, immediately before the crc-32 field. Package implementers should be able to read packages, whether or not a signature exists.

C.3 Table Key

* “Yes” —a package ZIP archive may contain this record or field.
* “No” — a package must not contain this record or field.
* “Optional” — a package may contain this record or field.
* “Partially, details below” — A “Partially, details below” value for a record in a table in Annex C indicates that the record contains subfields with specific behaviours.

Table C–1,“Support for records”, specifies the requirements for packages in regard to particular top-level records or fields described in the ZIP Appnote.txt.

Table C–1. Support for records

|  |  |  |  |
| --- | --- | --- | --- |
| Record name  | Supported |  |  |
| Local File Header | Partially, details below |  |  |
| File data | Yes |  |  |
| Data descriptor  | Yes |  |  |
| Archive decryption header | No |  |  |
| Archive extra data record | No |  |  |
| Central directory structure: File header | Partially, details below |  |  |
| Central directory structure: Digital signature | Yes (ignore the signature data) |  |  |
| Zip64 end of central directory record V1 (from spec version 4.5) | Partially, details below |  |  |
| Zip64 end of central directory record V2 (from spec version 6.2) | No |  |  |
| Zip64 end of central directory locator | Partially, details below |  |  |
| End of central directory record | Partially, details below |  |  |

Table C–2, “Support for record components”, specifies the requirements for packages in regard to individual record components described in the ZIP Appnote.txt.

Table C–2. Support for record components

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Record | Field | Supported |  |  |
| Local File Header | Local file header signature | Yes |  |  |
| Version needed to extract  | Partially, see Table C–3 |  |  |
| General purpose bit flag | Partially, see Table C–5 |  |  |
| Compression method  | Partially, see Table C–4 |  |  |
| Last mod file time | Yes |  |  |
| Last mod file date | Yes |  |  |
| Crc-32 | Yes |  |  |
| Compressed size | Yes |  |  |
| Uncompressed size | Yes |  |  |
| File name length | Yes |  |  |
| Extra field length | Yes |  |  |
| File name (variable size) | Yes |  |  |
| Extra field (variable size) | Partially, see Table C–6 |  |  |
| Central directory structure: File header | Central file header signature | Yes |  |  |
| version made by: high byte  | Yes |  |  |
| Version made by: low byte | Yes |  |  |
| Version needed to extract  | Partially, see Table C–3 |  |  |
| General purpose bit flag | Partially, see Table C–5 |  |  |
| Compression method | Partially, see Table C–4 |  |  |
| Last mod file time | Yes |  |  |
| Last mod file date | Yes |  |  |
| Crc-32  | Yes |  |  |
| Compressed size | Yes |  |  |
| Uncompressed size | Yes |  |  |
| File name length | Yes |  |  |
| Extra field length | Yes |  |  |
| File comment length | Yes |  |  |
| Disk number start | Partial — no multi disk archives |  |  |
| Internal file attributes | Yes |  |  |
| External file attributes  | Yes |  |  |
| Relative offset of local header  | Yes |  |  |
| File name (variable size) | Yes |  |  |
| Extra field (variable size) | Partially, see Table C–6 |  |  |
| File comment (variable size) | Yes |  |  |
| Zip64 end of central directory V1 (from spec version 4.5, only used when needed) | Zip64 end of central directory signature | Yes |  |  |
| Size of zip64 end of central directory  | Yes |  |  |
| Version made by: high byte | Yes |  |  |
| Version made by: low byte | Yes |  |  |
| Version needed to extract (see Table C–3 for details) | Yes (4.5) |  |  |
| Number of this disk | Partial — no multi disk archives |  |  |
| Number of the disk with the start of the central directory  | Partial — no multi disk archives |  |  |
| Total number of entries in the central directory on this disk  | Yes |  |  |
| Total number of entries in the central directory | Yes |  |  |
| Size of the central directory | Yes |  |  |
| Offset of start of central directory with respect to the starting disk number | Yes |  |  |
| Zip64 extensible data sector  | Yes |  |  |
| Zip64 end of central directory locator (only used when needed) | Zip64 end of central dir locator signature | Yes |  |  |
| Number of the disk with the start of the zip64 end of central directory | Partial — no multi disk archives |  |  |
| Relative offset of the zip64 end of central directory record | Yes |  |  |
| Total number of disks | Partial — no multi disk archives |  |  |
| End of central directory record | End of central dir signature | Yes |  |  |
| Number of this disk | Partial — no multi disk archives |  |  |
| Number of the disk with the start of the central directory | Partial — no multi disk archive |  |  |
| Total number of entries in the central directory on this disk | Yes |  |  |
| Total number of entries in the central directory | Yes |  |  |
| Size of the central directory | Yes |  |  |
| Offset of start of central directory with respect to the starting disk number | Yes |  |  |
| ZIP file comment length | Yes |  |  |
| ZIP file comment | Yes |  |  |

Table C–3, “Support for Version Needed to Extract field”, specifies the requirements for the Extract field, which is fully described in the ZIP Appnote.txt.

Table C–3. Support for Version Needed to Extract field

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Feature | Supported |  |  |
| 1.0 | Default value | Yes |  |  |
| 1.1  | File is a volume label | Yes (do not interpret as a part) |  |  |
| 2.0 | File is a folder (directory) | Yes (do not interpret as a part) |  |  |
| 2.0 | File is compressed using Deflate compression | Yes |  |  |
| 2.0 | File is encrypted using traditional PKWARE encryption | No |  |  |
| 2.1 | File is compressed using Deflate64(tm) | No |  |  |
| 2.5 | File is compressed using PKWARE DCL Implode  | No |  |  |
| 2.7 | File is a patch data set  | No |  |  |
| 4.5 | File uses ZIP64 format extensions | Yes |  |  |
| 4.6 | File is compressed using BZIP2 compression | No |  |  |
| 5.0 | File is encrypted using DES | No |  |  |
| 5.0 | File is encrypted using 3DES | No |  |  |
| 5.0 | File is encrypted using original RC2 encryption | No |  |  |
| 5.0 | File is encrypted using RC4 encryption | No |  |  |
| 5.1 | File is encrypted using AES encryption | No |  |  |
| 5.1 | File is encrypted using corrected RC2 encryption | No |  |  |
| 5.2 | File is encrypted using corrected RC2-64 encryption | No |  |  |
| 6.1 | File is encrypted using non-OAEP key wrapping | No |  |  |
| 6.2 | Central directory encryption | No |  |  |

Table C–4, “Support for Compression Method field”, specifies the requirements for the Compression Method field, which is fully described in the ZIP Appnote.txt.

Table C–4. Support for Compression Method field

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Code | Method | Supported |  |  |
| 0 | The file is stored (no compression) | Yes |  |  |
| 1 | The file is Shrunk | No |  |  |
| 2 | The file is Reduced with compression factor 1 | No |  |  |
| 3 | The file is Reduced with compression factor 2 | No |  |  |
| 4 | The file is Reduced with compression factor 3 | No |  |  |
| 5 | The file is Reduced with compression factor 4 | No |  |  |
| 6 | The file is Imploded | No |  |  |
| 7 | Reserved for Tokenizing compression algorithm | No |  |  |
| 8 | The file is Deflated | Yes |  |  |
| 9 | Enhanced Deflating using Deflate64™ | No |  |  |
| 10 | PKWARE Data Compression Library Imploding | No |  |  |
| 11 | Reserved by PKWARE | No |  |  |

Table C–5, “Support for modes/structures defined by general purpose bit flags”, specifies the requirements when utilizing these general-purpose bit flags within records.

Table C–5. Support for modes/structures defined by general purpose bit flags

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Bit | Feature | Supported |  |  |
| 0 | The file is encrypted. | No |  |  |
| 1, 2 |

|  |  |  |
| --- | --- | --- |
| Bit 2 | Bit 1 |  |
| 0 | 0 | Normal (-en) compression option was used. |
| 0 | 1 | Maximum (-exx/-ex) compression option was used. |
| 1 | 0 | Fast (-ef) compression option was used. |
| 1 | 1 | Super Fast (-es) compression option was used. |

 | Yes |  |  |
| 3 | The fields crc-32, compressed size and uncompressed size are set to zero in the local header. The correct values are put in the data descriptor immediately following the compressed data. | Yes |  |  |
| 4 | Reserved for use with method 8, for enhanced deflating | No |  |  |
| 5 | The file is compressed patched data. (Requires PKZIP version 2.70 or greater.) | No |  |  |
| 6 | You should set the version needed to extract value to at least 50 and you shall set bit 0. If AES encryption is used, the version needed to extract value shall be at least 51. | No |  |  |
| 7 | Currently unused | No |  |  |
| 8 | Currently unused | No |  |  |
| 9 | Currently unused | No |  |  |
| 10 | Currently unused | No |  |  |
| 11 | Currently unused | No |  |  |
| 12 | Unused | No |  |  |
| 13 | Used when encrypting the Central Directory to indicate selected data values in the Local Header are masked to hide their actual values. See the section describing the Strong Encryption Specification for details. | No |  |  |
| 14 | Unused | No |  |  |
| 15 | Unused | No |  |  |

Table C–6, “Support for Extra field (variable size), PKWARE-reserved”, specifies the requirements for the Extra field entries reserved by PKWARE and described in the ZIP Appnote.txt.

Table C–6. Support for Extra field (variable size), PKWARE-reserved

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field ID | Field description | Supported |  |  |
| 0x0001 | ZIP64 extended information extra field | Yes |  |  |
| 0x0007 | AV Info | No |  |  |
| 0x0008 | Reserved for future Unicode file name data (PFS) | No |  |  |
| 0x0009 | OS/2 | No |  |  |
| 0x000a | NTFS  | No |  |  |
| 0x000c  | OpenVMS | No |  |  |
| 0x000d | Unix | No |  |  |
| 0x000e | Reserved for file stream and fork descriptors | No |  |  |
| 0x000f | Patch Descriptor | No |  |  |
| 0x0014 | PKCS#7 Store for X.509 Certificates | No |  |  |
| 0x0015 | X.509 Certificate ID and Signature for individual file | No |  |  |
| 0x0016 | X.509 Certificate ID for Central Directory | No |  |  |
| 0x0017 | Strong Encryption Header | No |  |  |
| 0x0018 | Record Management Controls | No |  |  |
| 0x0019 | PKCS#7 Encryption Recipient Certificate List | No |  |  |
| 0x0065 | IBM S/390 (Z390), AS/400 (I400) attributes — uncompressed | No |  |  |
| 0x0066 | Reserved for IBM S/390 (Z390), AS/400 (I400) attributes — compressed | No |  |  |
| 0x4690 | POSZIP 4690 (reserved) | No |  |  |

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The Extra field entries reserved by third parties and described in the ZIP Appnote.txt are not supported.The package implementer shall ensure that all 64-bit stream record sizes and offsets have the high-order bit = 0. [M3.20]

The package implementer shall ensure that all fields that contain “number of entries” do not exceed 2,147,483,647. [M3.21]