[MS-MCI]: MCI Compression and Decompression

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1 Introduction

This document specifies the format of MSZIP compressed data as used in the MSZIP compression mode of Microsoft's cabinet files. The purpose of this specification is to allow anyone to encode or decode MSZIP compressed data.

This document covers the following APIs:

- MCICreateCompression: Initializes an MCI_CONTEXT structure (described later in this specification).
- MCICompress: Calls a standard implementation of the deflate() function, as specified in [RFC1951].
- MCIDestroyCompression: Frees the MCI_CONTEXT structure.
- MDICreateDecompression: Initializes an MDI_CONTEXT structure, as specified later in this document).
- MDIDecompress: Source code for a sample decompressor is in ftp://ftp.uu.net/pub/archiving/zip/zlib/zlib113.zip.
- MDIDestroyDecompression: Frees the MDI_CONTEXT structure.

1.1 Glossary

The following terms are specific to this document:

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

1.2.1 Normative References

[MS-OXGLOS] Microsoft Corporation, "Office Exchange Protocols Master Glossary", April 2008.

[RFC1951] Deutsch, P., "DEFLATE Compressed Data Format Specification version 1.3", RFC 1951, May 1996, http://www.ietf.org/rfc/rfc1951.txt.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, http://www.ietf.org/rfc/rfc2119.txt.

1.2.2 Informative References

None.

1.3 Structure Overview

MSZIP compression has only minor variations from Phil Katz's DEFLATE method. For more information on the DEFLATE method, see [RFC1951]. Some DEFLATE implementations

MAY contain extensions to the original specifications, but MSZIP uses only the three basic modes of deflate: stored, fixed Huffman tree, and dynamic Huffman tree.

Each MSZIP data block is the result of a complete "deflate" compression operation. Each block is flushed out of the compressor before the next block begins, so the last sub-block in each block will be marked as the "end" of the stream. Any decoding trees are discarded after each block, with only the history buffer surviving from one block to the next. Each data block represents 32k uncompressed, except that the last block in a folder may be smaller. A 2-byte MSZIP signature precedes the compressed encoding in each block, consisting of the bytes 0x43 and 0x4B.

The maximum compressed size of each MSZIP block is 32k + 12 bytes. This allows for the data to be passed as two separate "stored" sub-blocks, which each have a 5-byte overhead, plus the 2-byte signature. The Microsoft MSZIP compressor will emit "stored" sub-blocks with a length of exactly 32k, while some implementations do not exceed 32k -1. MSZIP uses a compression window of size 32KB.

Whenever a cabinet folder boundary is reached, the compression history is discarded, so that decoding any folder does not require any prior data.

1.4 Relationship to Protocols and Other Structures

None.

1.5 Applicability Statement

None.

1.6 Versioning and Localization

None.

1.7 Vendor-Extensible Fields

None.

2 Structures

None.

3 Structure Examples

None.

4 Security Considerations

None.

5 Appendix A: Office/Exchange Behavior

The information in this specification is applicable to the following versions of Office/Exchange:

- Office 2003 with Service Pack 3 applied
- Exchange 2003 with Service Pack 2 applied
- Office 2007 with Service Pack 1 applied
- Exchange 2007 with Service Pack 1 applied

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies Office/Exchange behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies Office/Exchange does not follow the prescription.

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