[MS-MCI]:
MCI Compression and Decompression

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Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability.
06/27/2008	1.0		Initial Release.
08/06/2008	1.01		Revised and edited technical content.
09/03/2008	1.02		Revised and edited technical content.
12/03/2008	1.03		Revised and edited technical content.
03/04/2009	1.04		Revised and edited technical content.
04/10/2009	2.0		Updated technical content and applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	3.1.0	Minor	Updated the technical content.
02/10/2010	3.1.0	None	Version 3.1.0 release
05/05/2010	4.0.0	Major	Updated and revised the technical content.
08/04/2010	4.1	Minor	Clarified the meaning of the technical content.
11/03/2010	4.1	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	5.0	Major	Significantly changed the technical content.
08/05/2011	5.0	No change	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

MCI compression and decompression and the MSZIP structure enable anyone to encode or decode MSZIP compressed data.

Sections 1.7 and 2 of this specification are normative and contain RFC 2119 language. All other sections and examples in this specification are informative.

1.1   Glossary

The following terms are defined in [MS-OXGLOS]:

   stream

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

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624, as an additional source.

[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.rfc-editor.org/rfc/rfc2119.txt

1.2.2   Informative References

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary".

1.3   Overview

MSZIP compression is a derivative of Phil Katz's DEFLATE Compressed Data Format. For more information about the DEFLATE Compressed Data Format, see [RFC1951]. MSZIP uses only the three basic modes of deflate: no compression, compressed with fixed Huffman codes, and compressed with dynamic Huffman codes.

1.4   Relationship to Protocols and Other Structures

None.

1.5   Applicability Statement

The MSZIP structure is applicable to protocols or structures that are designed to use [RFC1951] to compress or decompress data.

1.6   Versioning and Localization

None.

1.7   Vendor-Extensible Fields

None.

2   Structures

Each MSZIP block MUST consist of a 2-byte MSZIP signature and one or more RFC 1951 blocks. The 2-byte MSZIP signature MUST consist of the bytes 0x43 and 0x4B. The MSZIP signature MUST be the first 2 bytes in the MSZIP block. The MSZIP signature is shown in the following packet diagram.

0	1	2	3	4	5	6	7	8	9	1 0	1	2	3	4	5	6	7	8	9	2 0	1	2	3	4	5	6	7	8	9	3 0	1
Byte 0								Byte 1																							
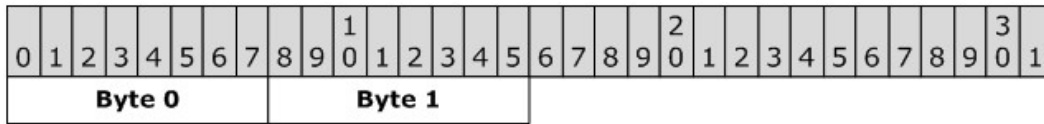
MSZIP signature **Byte 0 (1 byte)**: The first byte of the MSZIP signature MUST be 0x43.

MSZIP signature **Byte 1 (1 byte)**: The second byte of the MSZIP signature MUST be 0x4B.

Each MSZIP block is the result of a single deflate compression operation, as defined in [RFC1951]. The compressor that performs the compression operation MUST generate one or more RFC 1951 blocks, as defined in [RFC1951]. The number, deflation mode, and type of RFC 1951 blocks in each MSZIP block is determined by the compressor, as defined in [RFC1951]. The last RFC 1951 block in each MSZIP block MUST be marked as the "end" of the **stream**, as defined by [RFC1951] section 3.2.3. Decoding trees MUST be discarded after each RFC 1951 block, but the history buffer MUST be maintained. Each MSZIP block MUST represent no more than 32 KB of uncompressed data.

The maximum compressed size of each MSZIP block is 32 KB + 12 bytes. This enables the MSZIP block to contain 32 KB of data split between two noncompressed RFC 1951 blocks, each of which has a value of BTYPE=00.

3   Structure Examples

The MSZIP block structure shown in the following diagram contains a single compressed RFC 1951 block.

<=(32 KB + 12 bytes)	
0x43 | 0x4B	Generated by single "deflate" compression operation
2-Byte MSZIP Signature	RFC 1951 Block

The MSZIP block structure shown in the following diagram contains two RFC 1951 blocks.

<=(32 KB + 12 bytes)		
0x43 | 0x4B	Generated by single "deflate" compression operation	
2-Byte MSZIP Signature	RFC 1951 Block	RFC 1951 Block

4   Security Considerations

4.1   Security Considerations for Implementers

None.

4.2   Index of Security Fields

None.

5   Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Microsoft® Exchange Server 2003

- Microsoft® Exchange Server 2007

- Microsoft® Exchange Server 2010

- Microsoft® Office Outlook® 2003

- Microsoft® Office Outlook® 2007

- Microsoft® Outlook® 2010

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

6 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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